

INDIAN RIVER COUNTY



BOARD OF COUNTY COMMISSIONERS

DEPARTMENT OF UTILITY SERVICES

**Indian River County North County
Water & Sewer System Phase 2**

UCP No. 3556

Indian River County Bid No: 2021019

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES
“North County Water & Sewer System Phase 2”

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ADVERTISEMENT FOR BIDS

INDIAN RIVER COUNTY

The Indian River County Board of County Commissioners is accepting sealed bids for the construction of the **Indian River County North County Water & Sewer System Phase 2**.

Bids will be received by Indian River County until **2:00 PM** on **January 22, 2021**. Each bid shall be submitted in an opaque sealed envelope, clearly marked on the outside with the following information: **North County Water & Sewer System Phase 2; Bid No. 2021019**; and the name and address of the Bidder. If the Bid is sent through the mail or other delivery system, or courier, the sealed envelope, marked as set forth above, shall be enclosed in a separate outer envelope with the notation "BID ENCLOSED" on the outside. Only bids received before the time and date listed will be considered. Bids should be addressed to Purchasing Division, 1800 27th Street, Vero Beach, Florida 32960. All bids will be opened publicly and read aloud at **2:00 PM**. Any bids received after **2:00 PM** will not be accepted or considered.

All material and equipment furnished and all work performed shall be in strict accordance with the plans, specifications, and contract documents pertaining thereto. Detailed specifications are available at: www.demandstar.com or by selecting "Current Solicitations" at <http://www.ircgov.com/Departments/Budget/Purchasing>.

One original and two copies of bids shall be submitted on the Bid Forms provided within the Bidding Documents. Each Bid must be accompanied by Bid Security made payable to Owner in an amount of five percent (5%) of the Bidder's maximum base bid price and in the form of a certified check; cashier's check; or an AIA Document A310 Bid Bond issued by a surety meeting the requirements of Paragraph 5.01B of the General Conditions. In the event the Contract is awarded to the Bidder, Bidder will enter into a Contract with the County and furnish the required 100% Public Construction Bond and all required insurance certificates within the timeframe set by the County. If Bidder fails to do so, the Bid Security shall be retained by the County as liquidated damages and not as a penalty.

A Pre-Bid Conference meeting will be held on December 22, 2020 at 2:30 P.M. in the Conference Room (Room B1-501), 1800 27th Street, Vero Beach, FL. This Pre-Bid Conference meeting is **NON-MANDATORY** but attendance is strongly encouraged. A site visit will be conducted after the Pre-Bid Conference meeting.

This project is being funded by the SJRWMD; FDEP; IRLNEP; and the FL Legislature. As specified in the grant conditions, prior to contract award, the contractor shall document efforts to utilize Section 3 and M/WBE individuals and firms, including identifying what firms were solicited as suppliers and/or subcontractors, as applicable. It is the County's intention to award the bid to the lowest qualified, responsible, and responsive bidder in the best interest of the County.

The County reserves the right: to delay awarding of the Contract for a period of sixty (60) days after the bid opening, to waive technicalities and irregularities in any Bid, or reject any or all bids in whole or in part with or without cause/or to accept the bid that, in its judgment, will serve the best interest of Indian River County, Florida. The County will not reimburse any Bidder for bid preparation costs.

INDIAN RIVER COUNTY
PURCHASING MANAGER

For Publication in the Indian River Press Journal:

Please furnish tear sheet and Affidavit of Publication to:
INDIAN RIVER COUNTY PURCHASING DIVISION
1800 27th Street
Vero Beach, Florida 32960

SECTION 00100

INSTRUCTIONS TO BIDDERS (Based Upon EJCDC No. C-700, 2002 Edition)

1.01 DEFINED TERMS

Terms used in these Instructions to Bidders, that are defined in the Standard General Conditions of the Construction Contract (No. C-700, 2002 edition), as may be amended by the Supplementary Conditions, have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a bid directly to Owner, as distinct from a sub-bidder, who submits a bid to a Bidder. The term "Successful Bidder" means the lowest, qualified, responsible, and responsive Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award. The term "Bid Documents" includes the Advertisement for Bids, Instructions to Bidders, The Bid Form, Sworn Statement Under the Florida Trench Safety Act, Disclosure of Relationships Statement, General Information Required of Bidders, and the proposed Agreement (including all Addenda issued prior to receipt of Bids).

1.02 CONE OF SILENCE

Potential bidders/respondents and their agents must not communicate in any way with the Board of County Commissioners, County Administrator or any County staff other than Purchasing personnel in reference or relation to this solicitation. This restriction is effective from the time of bid advertisement until the Board of County Commissioners meets to authorize award. Such communication may result in disqualification.

1.03 COPIES OF BID DOCUMENTS

- A. Complete sets of the Bidding Documents in the number and for the deposit sum, if any, may be obtained as stated in the Advertisement for Bids.
- B. Complete sets of the Bid Documents must be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bid Documents and specifications.
- C. Owner and Engineer, in making copies of Bid Documents available on the above terms, do so only for the purpose of obtaining Bids on the work and do not confer a license or grant for any other use of the Bid Documents and specifications.
- D. All bids must be signed with the legal Firm name and by an Officer or employee having authority to bind the company or firm by his / her signature. Bids must be submitted on forms provided by Indian River County. The bid forms shall not be recreated. ***Bids not submitted on the attached form(s) shall be rejected.***

1.04 QUALIFICATIONS OF BIDDERS

To demonstrate qualifications to perform the work, each Bidder must be prepared to submit, within five (5) days of Owner's request, written evidence, such as financial data, previous experience, present commitments, and other such data as may be necessary to prove to the satisfaction of the Owner that the Bidder is qualified by experience to do the work and is prepared to complete the work within the stated time period.

Qualified Bidder must be licensed with the State of Florida as either a General Contractor or Underground Contractor. Prior to Owner executing contract, the Bidder must be actively registered with the Building Division.

1.05 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

- A. It is the responsibility of each Bidder, before submitting a bid, to (a) examine the Contract Documents thoroughly, (b) visit the site to become familiar with local conditions that may affect cost progress, performance, or furnishing of the work, (c) consider federal, state, and local laws and regulations that may affect costs, progress, performance, or furnishing of the work, (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) notify Engineer of all conflicts, errors, or discrepancies in the Contract Documents. To obtain access to the North County Water & Sewer System Phase 2 Project: Head north on US Highway #1 to Roseland Road and turn left (west) onto Roseland Road. Part of the project area is north of Roseland Road on both sides of the railroad tracks bounded on the north side by the St. Sebastian River. Another portion of the project is part of Ercildoune Heights on the west side of US Highway #1 north of Roseland Road as shown on the construction drawings.
- B. Any information or data reflected in the Contract Documents with respect to underground facilities at or contiguous to the site is based upon information or data furnished to Owner and Engineer by owners of such underground facilities or others, Owner does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.
- C. Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any examinations, investigations, explorations, tests, and studies, and obtain any additional information and data which pertain to the physical conditions (surface, subsurface and underground facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance, or furnishing of the work and which Bidder deems necessary to determine its Bid for performing and furnishing the work in accordance with the time, price and other terms and conditions of the Contract Documents.
- D. On request in advance, Owner will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes, clean up, and restore the site to its former condition upon completion of such explorations.
- E. The lands upon which the work is to be performed, right-of-way and easements for access thereto and other lands designed for use by the Contractor in performing the work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by and paid for by the Contractor. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by the Owner unless otherwise provided in the Contract Documents.
- F. The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this the Instructions to Bidders, that without exception the Bid is premised upon performing and furnishing the work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the work.

1.06 PRE-BID CONFERENCE

The date, time, and location for a Pre-Bid conference, if any, are specified in the Advertisement for Bids. Representatives of OWNER and ENGINEER will be present to discuss the Project. Bidders are strongly encouraged to attend and participate in the conference and highly recommended to attend subsequent site visit. OWNER 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.

1.07 INTERPRETATIONS AND ADDENDA

- A. **All questions about the meanings or intent of the Contract Documents are to be directed in writing to the Purchasing Division** by email to purchasing@ircgov.com. Interpretation or clarifications considered necessary by Owner in response to such questions will be issued by Addenda. Questions received less than **ten (10) days** prior to the date for the opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will not be binding and will be without legal effect.
- B. Addenda may also be issued to modify the Bid Documents as deemed advisable by Owner or Engineer. Only the interpretation or correction issued by Owner or Engineer by Addendum shall be binding. Prospective Bidders are advised that no other source is authorized to give information concerning the documents or to explain or interpret the documents.
- C. All Bidders will acknowledge in the space provided for in Section 00300 BID FORM, the receipt of all Addenda and will confirm that the Addenda have been considered in the preparations of their bid.

1.08 BID SECURITY AND CONSTRUCTION BOND

- A. Each Bid must be accompanied by Bid Security made payable to Owner in an amount of five percent (5%) of the Bidder's maximum base bid price and in the form of a certified check; cashier's check; or an AIA Document A310 Bid Bond issued by a surety meeting the requirements of Paragraph 5.01B of the General Conditions.
- B. The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Public Construction Bond and all required insurance certificates, whereupon the Bid Security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required Public Construction Bond within fifteen calendar days after the Notice of Award, Owner may annul the Notice of Award, and the Bid Security of that Bidder will be retained by the County.
- C. The Bid Security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by the Owner until the earlier of the seventh (7th) day after the effective date of the Agreement or the sixty-first (61st) day after the Bid opening, whereupon Bid Security furnished by such Bidders will be returned. Bid Security with bids which are not competitive may be returned before the end of the sixty-day (60) period.

1.09 CONTRACT TIME

The number of days within which, or dates by which, the work is to be substantially completed and also complete and ready for final payment (the Contract Time) are set forth in the Agreement (Section 00530).

1.10 LIQUIDATED DAMAGES

Provisions for liquidated damages are set forth in the Agreement (Section 00530).

1.11 SUBSTITUTE OR "OR EQUAL" ITEMS

The Agreement, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or equal" item of material or equipment may be furnished or used by Bidder if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement. The procedure for submission of any such application by Bidder and consideration by Engineer is set forth in Paragraph 6.05 of the General Conditions, may be supplemented in the Supplementary Conditions (Section 00800), and Substitutions and Product Options (Section 01630).

1.12 BID FORM

- A. The Bid Form is included with the Bid Documents.
- B. All blanks on the Bid Form must be completed in ink or by typewriter.
- C. Bids by corporations must be executed in the corporate name by the president or a vice president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature. All names must be typed or printed below the signature.
- D. The Bid shall contain an acknowledgement of receipt of all Addenda (the number of which must be filled in on the Bid Form).
- E. Bids by partnership must be executed in the partnership name and signed by a partner, whose title must appear under the signature, and official address of the partnership must be shown below the signature.
- F. All names must be typed or printed below the signature.
- G. The address and telephone number for communications regarding the Bid must be shown.
- H. Additional forms to be submitted with Bid Form include: Section 00410 – "AIA Document A310 Bid Bond"; Section 00415 – "Schedule of Subcontractors"; Section 00420 – "Disclosure of Relationships"; Section 00425 – "Certification Regarding Prohibition Against Contracting With Scrutinized Companies"; Section 00430 – "Certification Regarding Lobbying"; Section 00454 - "Sworn Statement under the Florida Trench Safety Act"; Section 00456 – "General Information Required of Bidders"; and any issued Addenda forms.

1.13 SUBMISSION OF BIDS

- A. All Bids shall be submitted at the time and place indicated in the Advertisement for Bids and shall be enclosed in an opaque sealed envelope, clearly marked on the outside with the following information: Project Name / Title; Bid Number; and the name and address of the Bidder. If the Bid is sent through the mail or other delivery system, or courier, the sealed envelope, marked as set forth above, shall be enclosed in a separate outer envelope with the notation "BID ENCLOSED" on the outside.
- B. The Bidder shall submit the Bid in triplicate (one original and two copies) on the Bid Forms, or an exact copy of the Bid Forms, furnished herewith. The blank spaces on the Bid Form shall be filled in correctly for each Bid Item for which a Bid is submitted. All Bids shall be accompanied by the Bid Security and other required documents.

1.14 MODIFICATION AND WITHDRAWAL OF BIDS

- A. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.
- B. If, within twenty-four (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 may be disqualified from further bidding on the work.

1.15 OPENING OF BIDS

Bids will be opened and (unless obviously non-responsive) read aloud publicly. An abstract of the amounts of base Bids and major alternates (if any) will be made available to Bidders after the opening of Bids.

1.16 BIDS TO REMAIN SUBJECT OF ACCEPTANCE

All bids will remain subject to acceptance for sixty (60) days after the day of the Bid opening, but the Owner may, in its sole discretion, release any Bid and return the Bid security prior to that date.

1.17 AWARD OF CONTRACT

- A. Owner reserves the right: to delay awarding of the Contract for a period of sixty (60) days after the bid opening, to waive technicalities and irregularities in any Bid, or reject any or all bids in whole or in part with or without cause, or to accept the bid that, in its judgment, will serve the best interest of Indian River County, Florida. The County will not reimburse any Bidder for bid preparation costs. Discrepancies in 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. Owner reserves the right to cancel the award of any Agreement at any time before the execution of such Agreement by all parties without any liability to the Owner. For and in consideration of the Owner considering Bids submitted, the Bidder, by submitting its Bid, expressly waives any claim to damages, of any kind whatsoever, in the event the Owner exercises its right to cancel the award in accordance herewith.

- B. In evaluating Bids, Owner will consider the qualifications of the Bidder, 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.
- C. Owner may consider the qualifications and experience of subcontractors, listed on the Schedule of Subcontractors (Section 00415), together with the qualifications and experience of other subcontractors, suppliers, and other persons and organizations proposed for the work that are required to be identified as provided in in the Supplementary Conditions. Owner may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the work when such data is required to be submitted prior to the Notice to Award.
- D. The County reserves the right to conduct such investigations as it deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed subcontractors, suppliers, and other relevant parties to perform and furnish the work. To demonstrate qualifications to perform the work, each Bidder must be prepared to submit, within 5 days of Owner's request, written evidence, such as financial data, previous experience, present commitments, and other such data as may be necessary to prove to the satisfaction of the Owner that the Bidder is qualified by experience to do the work and is prepared to complete the work within the stated time period. Failure to provide any requested information may result in the determination of the Bidder as non-responsible.
- E. If the Agreement is to be awarded, it will be awarded to the lowest, responsive, responsible Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Owner.
- F. More than one (1) Bid from an individual, firm, partnership, corporation, or association under the same or different names will not be considered. Reasonable grounds for believing that one (1) Bidder is financially interested in more than one (1) bid for the same work will cause the rejection of all bids in which such Bidders are believed to be interested. Any or all bids will be rejected if there is reason to believe that collusion exists among the Bidders, and no participants in such collusion will be considered in future bids for the same work.
- G. Within fifteen (15) calendar days of the date of the Notice of Award of the Contract, the Bidder to whom the Contract is awarded shall execute and deliver two (2) original Contracts to the Owner and all required insurance certificates and public construction bond, before the Contract will be executed by the Owner. Bidder must be actively registered with the Indian River County Building Division before the Owner will execute the agreement.
- H. Failure upon the part of the Bidder to whom the Contract has been awarded to execute and deliver the required Public Construction Bond and insurance in the manner and within the time provided shall be just cause for cancellation of the award. It is understood and agreed by said Bidder, that if the award is cancelled for the above persons, the Bid Security shall become the property of the Owner, not as a penalty, but as liquidated damages.

1.18 PUBLIC CONSTRUCTION BONDS

The successful Bidder as Contractor shall furnish the County immediately upon execution of the Contract a Public Construction Bond in an amount equal to 100-percent of the contract

price. The Surety shall be authorized to issue surety bonds in Florida and be included in the most recent United States Department of Treasury List of Acceptable Sureties. The successful Bidder shall require the attorney-in-fact, who executed the Public Construction Bond, to affix to each a current certified copy of their Power of Attorney, reflecting such person's authority as Power of Attorney in the State of Florida. Further, at the time of execution of the Contract, the successful Bidder shall provide a copy of the Surety's current valid Certificate of Authority issued by the United States Department of the Treasury under 31 United States Code sections 9304-9308.

1.19 PUBLIC DISCLOSURE STATEMENT

Any entity entering into a contract with Indian River County as Owner shall disclose any relationship that may exist between the contracting entity and an Indian River County Commissioner or Indian River County employee. The relationship with either must be disclosed as follows: Father, mother, son, daughter, brother, sister, uncle, aunt, first cousin, nephew, niece, husband, wife, father-in-law, mother-in-law, daughter-in-law, son-in-law, brother-in-law, sister-in-law, stepfather, stepmother, stepson, stepdaughter, stepbrother, half-brother, half-sister, grandparent, or grandchild. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of the entity.

1.20 FLORIDA PRODUCED LUMBER

The selected Bidder as Contractor agrees to comply with the provisions of Section 255.20, Florida Statutes, as such statute may be amended from time to time, wherein Indian River County as Owner must specify lumber, timber and other forest products produced and manufactured in Florida whenever such products are available and their price, fitness and quality are equal.

1.21 TRENCH SAFETY

Florida Statutes Section 553.60 through 553.64, known as the "Trench Safety Act" requires all contractors engaged by Indian River County, Florida to comply with Occupational Safety and Health Administration's excavation safety standard, found in 29 C.F.R. s. 1926.650 Subpart P. All prospective subcontractors are required to sign a Trench Safety Act Compliance Statement and provide compliance cost information where indicated. The costs for complying with the Trench Safety Act must be incorporated into the Bid.

1.22 PUBLIC ENTITY CRIME STATEMENT

Pursuant to Florida Statutes Section 287.133(2)(a), all Bidders are hereby notified that a person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid, proposal, or reply on a contract to provide any goods or services to a public entity (defined as the State of Florida, any of its departments or agencies, or any political subdivision); may not submit a bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals, or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in Florida Statutes Section 287.017 for CATEGORY TWO [currently \$35,000] for a period of 36 months from the date of being placed on the convicted vendor list. A "public entity crime" means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any bid, proposal, reply, or contract for goods or

services, any lease for real property, or any contract for the construction or repair of a public building or public work, involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

1.23 PERMITS, IMPACT, AND INSPECTION FEES

In accordance with Florida Statutes Section 218.80, the "Public Bid Disclosure Act", Indian River County as OWNER is obligated to disclose all license, permit, impact, or inspection fees that are payable to Indian River County in connection with the construction of the Work by the accepted bidder. ALL PERMIT, IMPACT, OR INSPECTION FEES PAYABLE TO INDIAN RIVER COUNTY IN CONNECTION WITH THE WORK ON THIS COUNTY PROJECT WILL BE PAID BY INDIAN RIVER COUNTY, WITH THE EXCEPTION OF RE-INSPECTION FEES AS SET FORTH IN THE CONTRACT. The Bidder shall not include ANY PERMIT, IMPACT, NOR INSPECTION FEES payable to Indian River County in the bid.

The following jurisdictional permitting agencies have (or may have) permitting authority over the project:

- Florida Department of Environmental Protection
- Florida Department of Transportation
- U.S. Army Corps of Engineers
- St. Johns River Water Management District
- City of Sebastian
- Sebastian River Improvements District
- Florida Fish and Wildlife Conservation Commission
- Indian River County Utilities Department
- Indian River County Public Works Department
- Indian River County Department of Health
- Indian River County Environmental Health Department

1.24 NON-DISCRIMINATION

Indian River County will not knowingly do business with vendors or contractors who discriminate on the basis of race, color or national origin, sex, sexual orientation, gender identity, age and/or disability. Through the course of providing services to the County, Contractors shall affirmatively comply with all applicable provisions of Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987 and the Florida Civil Rights Act of 1992, as well as all other applicable regulations, guidelines and standards. Any person who believes their rights have been violated should report such discrimination to the County's Title VI/Nondiscrimination Coordinator through the office of the County Attorney.

- 1.25** OWNER has no local ordinance or preferences, as set forth in FS 255.0991 (2) in place, therefore no preference prohibited by that section will be considered in the acceptance, review or award of this bid.

1.26 AFFIRMATIVE STEPS

CONTRACTOR must take the following affirmative steps to ensure minority business, women's business enterprises and labor surplus area firms are used when possible:

- A. Placing qualified small and minority businesses and women's business enterprises on solicitation lists.

- B. Ensuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources.
- C. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises.
- D. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises.
- E. Using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

1.27 PROTEST PROCEDURE:

Any actual or prospective bidder who is aggrieved in connection with a competitive selection process may protest to the Purchasing Manager. The protest shall be submitted to the Purchasing Manager in writing within seven (7) calendar days after the bidder knows or should have known of the facts giving rise to the protest. If the protest is not resolved by mutual agreement, the Purchasing Manager shall promptly issue a decision in writing, after consulting the Department and the Office of the County Attorney.

1.28 INDEMNIFICATION

The successful Bidder shall indemnify and hold harmless the County, and its commissioners, officers and employees, from liabilities, damages, losses and costs, including, but not limited to, reasonable attorney's fees, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the contractor (or other appropriate party) and persons employed or utilized by the contractor (or other appropriate party) in the performance of the construction contract.

1.29 PUBLIC ACCESS

The Bidder shall allow public access to all documents and materials in accordance with the provisions of Chapter 119, Florida Statutes. If this project is federally-funded, the Department of Homeland Security (DHS) seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials shall not be used by the Bidder without specific FEMA pre-approval.

1.30 RECORDS / AUDIT

The Bidder shall maintain books, records and documents pertinent to performance under this Invitation and any resulting Agreement in accordance with generally accepted accounting principles consistently applied. The County and the Florida Office of the Inspector General shall have inspection and audit rights to such records for audit purposes during the term of the contract and for three (3) years following the termination of obligations hereunder. Records which relate to any litigation, appeals or settlements of claims arising from performance under this work or purchase shall be made available until a final disposition has been made of such litigation, appeals, or claims.

1.31 ACCEPTANCE

Receipt of an item shall not be an indication that the items are acceptable. Final acceptance and authorization of payment shall be given after a thorough inspection indicates that the item is delivered in accordance with the Bid Specifications. Suppliers are advised that in the

event the delivered item does not meet specifications, payment will be withheld until such time the supplier takes necessary corrective action.

1.32 SUSPENSION AND DEBARMENT

Indian River County will not make award to parties listed on the government-wide exclusions in the System for Award Management (SAM). The bidder agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions. By submittal of a bid in response to this solicitation, bidder asserts neither it, nor its principals, is presently debarred, suspended or proposed for debarment, declared ineligible, or voluntarily excluded from participation in this work by any Federal department or agency.

1.33 SCRUTINIZED COMPANIES LISTS

The bidder certifies that it and those related entities of respondent as defined by Florida law are not on the Scrutinized Companies that Boycott Israel List, created pursuant to s.215.4725 of the Florida Statutes, and are not engaged in a boycott of Israel. In addition, if this agreement is for goods or services of one million dollars or more, Contractor certifies that it and those related entities of respondent as defined by Florida law are not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Section 215.473 of the Florida Statutes and are not engaged in business operations in Cuba or Syria. The County may terminate this Contract if Company is found to have submitted a false certification as provided under section 287.135(5), Florida Statutes, been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or been engaged in business operations in Cuba or Syria, as defined by section 287.135, Florida Statutes. County may terminate this Contract if Company, including all wholly owned subsidiaries, majority-owned subsidiaries, and parent companies that exist for the purpose of making profit, is found to have been placed on the Scrutinized Companies that Boycott Israel List or is engaged in a boycott of Israel as set forth in section 215.4725, Florida Statutes.

Accordingly, firms responding to this solicitation shall return with their response an executed copy of the attached "Certification Regarding Prohibition Against Contracting With Scrutinized Companies." Failure to return this executed form with submitted bid/proposal/statement of qualifications will result in the response being deemed non-responsive and eliminated from consideration

1.34 REGULATIONS

It shall be the responsibility of the bidder to assure compliance with any OSHA, EPA and / or other Federal or State of Florida rules, regulations, or other requirements Regulations applicable to the production, sale, and delivery of the goods or the furnishing of any labor or services called for by the resulting Agreement, and any provisions required thereby to be included herein shall be deemed to be incorporated herein by reference. Noncompliance may be considered grounds for termination of contracts.

1.35 APPLICABLE LAW AND VENUE

The resulting Agreement and all rights and duties of the parties hereto shall be governed by the laws of the State of Florida, including but not limited to the provisions of the Florida

Uniform Commercial Code Chapters 671-679 F.S., for any terms and conditions not specifically stated within. Venue for any lawsuit brought by either party against the other party or otherwise arising out of this Contract shall be in Indian River County, Florida, or, in the event of a federal jurisdiction, in the United States District Court for the Southern District of Florida.

1.36 ERRORS

When an error is made in the bid extension of generating total bid prices or in any other process of completing the bid, the original unit prices submitted will govern. Carelessness in quoting prices, or in preparation of the bid otherwise, will not relieve the bidder from performance.

1.37 PUBLIC RECORD LAW

Correspondence, materials, and documents received pursuant to this Invitation for Bid become public records subject to the provisions of Chapter 119, Florida Statutes. Should the Bidder assert any exemptions to the requirements of Chapter 119, Florida Statutes, and related statutes, the burden of establishing such exemption, by the way of injunctive or other relief as provided by law, shall be upon the Bidder.

- 1.38** Bidder must be registered with and use, at their sole expense, the Department of Homeland Security's E-Verify system (www.e-verify.gov) to confirm the employment eligibility of all newly hired employees, as required by Section 448.095, F.S.. Owner, contractor, and subcontractors may not enter into a contract unless each party to the contract registers with and uses the E-Verify system. Contractor is responsible for obtaining proof of E-Verify registration for all subcontractors. This requirement applies to any provider of services or goods. **If bidder is not listed as a participating employer at the time of bid opening, the bid will be declared non-responsive.**

*** END OF SECTION ***

**SECTION 00300
 BID FORM
 Indian River County North County Water & Sewer System Phase 2
 Bid 2021019**

PROJECT DESCRIPTION:

CONTRACTOR shall complete all work as specified or indicated in the Contract Documents. The work is generally described as follows which shall include, but is not necessarily limited to the following:

Indian River County Department of Utility Services (IRCDUS) proposes to construct a new gravity sanitary sewer system and water main system to serve the Roseland and Ercildoune Heights areas generally north of Roseland Road and west of US Highway #1, south off the St. Sebastian River. The project will generally include approximately 14,214 LF of gravity sewer mains; 53 manholes; a lift station; 1,728 LF of 4" force main (includes 3 directional bores); 2,503 LF of 8" water main (includes 2 directional bores), 15,321 LF of 6" water mains (includes 5 directional bores), and 109 LF of 4" water mains; 21 fire hydrants; and related valves, fittings, laterals, services, and restoration.

**THIS BID IS SUBMITTED TO: Indian River County Purchasing Division
 1800 27th Street
 Vero Beach, Florida 32960**

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with Owner in the form included in the Contract Documents to perform and furnish all work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in the Contract Documents and in accordance with the other terms and conditions of the Contract Documents.
2. Bidder accepts all of the terms and conditions of the Advertisement for Bids or Invitation to Bid and Instructions to Bidders. This Bid will remain subject to acceptance for **sixty (60) calendar days** after the day of Bid opening. Bidder will sign and submit the Agreement with the insurance and Public Construction bonds and other documents required by the Owner within fifteen (15) calendar days after the date of Owner's Notice of Award.
3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:
 - (a) Bidder has examined copies of all the Bidding Documents and of the following Addenda (receipt of all which is hereby acknowledged):

Date	Number

- (b) Bidder has familiarized itself with the nature and extent of the Contract Documents, the work, locality, and all local conditions and laws and regulations that in any manner may affect cost, progress, performance or finishing of the work.

- (c) Bidder acknowledges and agrees that it is bidding on construction of a gravity collection system and water main in north Indian River County. Please refer to the construction drawings labeled: Indian River County North County Water & Sewer System Phase 2.
 - (d) Bidders are notified that the estimates of the quantities of the various items of Work and materials as set forth in the Schedule of Bid Items are approximate only and are given solely to be used as a uniform basis for the comparison of Bids. The quantities actually required to complete the Project and Work may be less or more than so estimated, and, if so, no action for damages or for loss of profits shall accrue to the CONTRACTOR by reason thereof.
 - (e) Bidder has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.
 - (f) Bidder has given Engineer written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Bidder.
 - (g) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm, or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.
4. Bidder will complete and include with the bid the Schedule of Bid Items attached to this Bid Form. The quantities shown on the Schedule of Bid Items are approximate quantities to be used for the purpose of comparing bids. The actual quantities may vary.
5. Bidder agrees that the work will be completed in accordance with the following timeframe.
- (a) Within 60 calendar days from effective date of Notice to Proceed, Contractor shall complete the following tasks:
 - 1. Obtain all necessary permits.
 - 2. Receive approved shop drawings for all materials and equipment to be utilized in the job.
 - 3. Perform all photographic recording and documentation of conditions prior to construction.
 - 4. Locate all existing utilities in the area of work.
 - 5. Submit and secure approval of shop drawings
 - 6. Mobilize all labor, equipment, and materials.
 - 7. Deliver and store all equipment and materials to the job site.
 - 8. Notify all utilities and other affected parties prior to initiating construction.
 - (b) From 61 calendar days to 300 calendar days from the effective date of Notice to Proceed, the CONTRACTOR shall complete the following tasks:
 - 1. Install all pipe and appurtenant items.
 - 2. Perform all testing.
 - 3. Restore all disturbed areas to their pre-construction condition.

4. Correct all deficiencies noted by Engineer.

Completion of all tasks outlined above (i.e., Subparagraphs a) and b) constitutes Substantial Completion.

- (c) From 301 calendar days to 360 calendar days from the effective date of Notice to Proceed, the CONTRACTOR shall complete the following tasks:
 1. Clean up project area.
 2. Remove all equipment and material from project site.
 3. Perform contract closeout procedures.

Completion of all tasks outlined above (i.e., Subparagraphs a, b, and c) constitute Final Completion.

6. The following documents are attached to and made a part of this Bid:

- (a) Bid Form (Section 00300);
- (b) AIA Document A310 Bid Bond (Section 00410);
- (c) Schedule of Subcontractors (Section 00431);
- (d) Disclosure of Relationships (Section 00452);
- (e) Sworn Statement Under the Florida Trench Safety Act (Section 00454);
- (f) General Information Required of Bidders (Section 00456);
- (g) Certification Regarding Prohibition Against Contracting With Scrutinized Companies (Section 00458);
- (h) A current certificate of insurance evidencing coverages and limits in the amounts required by the Contract Documents.
- (i) Completed Form W-9

Remainder of this page is intentionally left blank.

SCHEDULE OF BID ITEMS

Project: Indian River County North County Water & Sewer System Phase 2
 Indian River County Bid No. 2021019; UCP #3556

Item No.	Item Description	Quantity	Unit of Measure	Unit Price	Total Price
1	Standard Manholes 0'-6'	33	EA		
2	Standard Manholes 6'-8'	12	EA		
3	Standard Manholes 8'-10'	5	EA		
4	Standard Manholes 10'-12'	2	EA		
5	Standard Manholes 12'-14'	1	EA		
6	Core & Connect to existing Manhole 0'-6'	1	EA		
7	Core & Connect to Existing Manhole 8'-10'	1	EA		
8	Core & Connect to Existing Manhole 10'-12'	1	EA		
9	Reroute Existing Sewer Laterals	1	EA		
10	Lift Station "A"	1	LS		
11	4" Force Main (w/ Fittings & Testing)	1,193	LF		
12	4" Gate Valve w/ Valve Box & Concrete Pad	1	EA		
13	6" Ø HDPE Force Main Directional Bore w/ M.J. Fittings - Roseland Road STA. 3+00	44	LF		
14	4" Ø PVC Force Main Directional Bore w/ M.J. Fittings - 142nd Street STA. 0+77 to STA. 4+12	335	LF		
15	4" Ø PVC Force Main Directional Bore w/ M.J. Fittings - 141st Street STA. 2+80 to STA. 4+36	156	LF		
16	2.5" Force Main Stubout w/ Gate Valve, Box, Pad, & Cap	14	EA		
17	4" x 8" Wye	2	EA		
18	Sanitary Manual Air Release Valve	1	EA		
19	8" PVC Sewer 0'-6'	6,910	LF		
20	8" PVC Sewer 6'-8'	4,423	LF		
21	8" PVC Sewer 8'-10'	1,895	LF		
22	8" PVC Sewer 10'-12'	529	LF		
23	8" PVC Sewer 12'-14'	457	LF		
24	6" Single Lateral w/ Cleanout	166	EA		
25	6" Double Lateral w/ Cleanout	10	EA		
26	Remove & Replace (Open Cut) – Pavement Asphalt 2" Thick	7,462	SY		
27	Remove & Replace (Open Cut) – 6" Base Rock	1,492	SY		
28	Remove & Replace (Open Cut) – 8" Stabilized Subgrade	4,225	SY		
29	Curb Replacement – Type "F" Curb & Gutter	40	LF		
30	Grassing – Sod (Bahia)	1,760	SY		

31	Grassing – Seed & Mulch	267	SY		
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SEWER CONSTRUCTION COST SUBTOTAL:

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32	4" PVC Water Main (w/ Testing & Chlorination)	109	LF		
33	4" Gate Valve w/ Valve Box & Conc. Pad	1	EA		
34	6" PVC Water Main (w/ Testing & Chlorination)	14,509	LF		
35	6" Gate Valve w/ Valve Box & Conc. Pad	27	EA		
36	6" 90° Restrained Bend	14	EA		
37	6" 45° Restrained Bend	12	EA		
38	6" 22.5° Restrained Bend	3	EA		
39	6" 11.25° Restrained Bend	3	EA		
40	6" x 6" x 2" Restrained Tee	1	EA		
41	6" x 6" x 6" Restrained Tee	9	EA		
42	6" x 6" x 8" Restrained Tee	1	EA		
43	6" Restrained Cross	1	EA		
44	8" PVC Water Main (w/ Testing & Chlorination)	2,150	LF		
45	8" Gate Valve w/ Valve Box & Conc. Pad	6	EA		
46	8" 90° Restrained Bend	2	EA		
47	8" 45° Restrained Bend	3	EA		
48	6" x 4" Restrained Reducer	1	EA		
49	8" x 6" Restrained Reducer	3	EA		
50	Connect to Existing Water Main	6	EA		
51	Connect to Existing 6" Gate Valve	4	EA		
52	Connect to Existing 8" Gate Valve	4	EA		
53	6" x 8" Wet Tap w/ Tapping Valve & Sleeve	1	EA		
54	6" x 12" Wet Tap w/ Tapping Valve & Sleeve	4	EA		
55	Temporary Jumper	13	EA		
56	8" HDPE Directional Bore w/ M.J. Fittings - 80 th ST (STA. 3+56)	30	LF		
57	8" HDPE Directional Bore w/ M.J. Fittings - 80 th ST (STA. 12+00)	42	LF		
58	LF 8" HDPE Directional Bore w/ M.J. Fittings - 81 st AVE (STA. 3+70 to STA. 5+10)	140	LF		
59	8" HDPE Directional Bore w/ M.J. Fittings - 140 th ST (STA. -0+15 to STA 0+40)	55	LF		
60	10" HDPE Directional Bore w/ M.J. Fittings - Bay ST (STA. 0+30 to 3+50)	320	LF		
61	10" HDPE Directional Bore w/ M.J. Fittings - Bay ST (STA. 3+57)	33	LF		
62	Fire Hydrant Assembly	21	EA		
63	Bacteriological Sample Points	31	EA		
64	Blind Flange w/ 2" Temporary Blow-off	4	EA		

65	Manual Air Release Valve	4	EA		
66	Single Water Service w/ Meter Box	113	EA		
67	Double Water Service w/ Meter Box	39	EA		
68	Remove & Replace (Open Cut) – Pavement Concrete 6” Thick	259	SY		
69	Remove & Replace (Open Cut) – Sidewalk Concrete 6” Thick	14	SY		
70	Remove & Replace (Open Cut) – Pavement Asphalt 2” Thick	176	SY		
71	Dirt Driveway Apron Replacement – Pavement Asphalt 1” Thick	390	SY		
72	Remove & Replace – (Open Cut) 6” Base Rock	176	SY		
73	Remove & Replace – (Open Cut) 8” Stabilized Subgrade	503	SY		
74	Curb Replacement (Type “F” Curb & Gutter)	72	LF		
75	Grassing - Sod (Bahia)	6,997	SY		
76	Grassing - Seed & Mulch	2,068	SY		

WATER CONSTRUCTION COST SUBTOTAL:

77	Clearing / Grubbing / Tree Removal (Sewer & Water)	1	LS		
78	Erosion & Sediment Control (Sewer & Water)	1	LS		
79	Stake-out / As-built Survey (Sewer & Water)	1	LS		
80	Public Construction Bond	1	LS		

CONSTRUCTION COST – SUBTOTAL “A”:
(ITEMS #1 THROUGH & INCLUDING #80)

81	Mobilization, Demobilization, MOT (See Section 01025)	1	LS		
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CONSTRUCTION COST plus MOBILIZATION – SUBTOTAL “B”:

82	Force Account	1	LS	\$ 440,000.00	\$ 440,000.00
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BASIS OF AWARD – TOTAL LUMP SUM CONTRACT AMOUNT:
(TOTAL AMOUNT OF ITEMS #1 THROUGH & INCLUDING #82)

TOTAL PROJECT BID AMOUNT (IN WORDS) _____

Note: The Basis for Award shall be the lowest correct, responsive, responsible “Total Lump Sum Contract Amount” price bid.

*The unit price bid for furnishing and installation of the sewer and water mains and appurtenances shall include, but is not limited to: utilities exploration/excavation; coordination with any permitting agencies (i.e., NPDES permit); storm water permit; audio-visual documentation; land clearing/tree removal necessary for utility installation; trenching, removing, disposing of and replacing unsuitable (i.e., plastic or organic) material; dewatering; sheeting/shoring of the excavation; installation of pipe;

compaction; filling; chlorinating; bacteriological sampling & testing; pressure testing; flushing; Maintenance of Traffic (MOT); irrigation repair; removal and disposition of surface over trench; RESTORATION OF ALL landscaping damaged or destroyed; removal and resetting or replacing any existing guard rail necessary for utility installation; and Trench Safety Act Compliance. The unit price(s) bid will also include restoration of any existing utilities, drainage facilities, signs, mailboxes, driveways, etc. not listed as bid items that have been disturbed or damaged by the construction. All materials and installation shall be per Indian River County Utility Standards and Specifications dated May, 2019 or latest revision unless otherwise noted in the bid documents. Contractor will be provided with a copy of construction plans in AutoCADD format to use for use in preparing Record Drawings. The unit price(s) bid will include any and all labor & materials not listed as a bid item or stated herein necessary to furnish the County a complete and working sewer and water system as indicated on the Construction Plans and Bid Documents.

The undersigned hereby certifies that they have read and understand the contents of this solicitation and agrees to furnish at the prices shown any or all of the items above, subject to all instructions, conditions, specifications and attachments hereto. Failure to have read all the provisions of this solicitation shall not be cause to: 1) alter any resulting contract; or 2) request additional compensation.

Respectfully Submitted,

Name of Firm

Address

Authorized Signature

City, State, Zip Code

Name & Title

Phone

Date Signed

(Corporate Seal)

E-mail: _____

Business Tax Receipt No. _____

FEIN Number: _____

END OF SECTION

SECTION 00410

AIA DOCUMENT A310 BID BOND

The Contractor shall use the document form entitled "AIA Document A310 Bid Bond" in this Section.

(Remainder of This Page Intentionally Left Blank)

SECTION 00415

SCHEDULE OF SUBCONTRACTORS

PLEASE LIST ALL SUBCONTRACTORS ANTICIPATED TO RECEIVE \$10,000 (TEN THOUSAND DOLLARS) OR MORE OF WORK UNDER THIS PROJECT, INCLUDING NAME; ADDRESS; SPECIALTY; AND LICENSE TYPE AND NUMBER. The following are the subcontractors to be used if the undersigned is awarded the contract for this project.

NAME & ADDRESS	TYPE OF WORK	LICENSE #
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Total dollar amount that will be awarded to Sub-contractors AND INCLUDED IN THE
TOTAL AMOUNT OF THE BID \$_____

NOTE: The above Schedule of Subcontractors must be submitted with the Bid Form and will become a part of the Contract Documents.

END OF SECTION

SECTION 00420

**SWORN STATEMENT UNDER SECTION 105.08, INDIAN RIVER COUNTY CODE, ON
DISCLOSURE OF RELATIONSHIPS**

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement **MUST** be submitted with Bid, Proposal or Contract No. 2021019 UCP #3556 for Indian River County North County Water & Sewer System Phase 2

2. This sworn statement is submitted by: _____

(Name of entity submitting Statement)

whose business address is:

_____ and its Federal Employer Identification Number (FEIN) is _____.

3. My name is _____
(Please print name of individual signing)

and my relationship to the entity named above is _____

4. I understand that an "affiliate" as defined in Section 105.08, Indian River County Code, means:

The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of the entity.

5. I understand that the relationship with a County Commissioner or County employee that must be disclosed as follows:

Father, mother, son, daughter, brother, sister, uncle, aunt, first cousin, nephew, niece, husband, wife, father-in-law, mother-in-law, daughter-in-law, son-in-law, brother-in-law, sister-in-law, stepfather, stepmother, stepson, stepdaughter, stepbrother, stepsister, half brother, half sister, grandparent, or grandchild.

6. Based on information and belief, the statement, which I have marked below, is true in relation to the entity submitting this sworn statement. [Please indicate which statement applies.]

_____ Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, have any relationships as defined in section 105.08, Indian River County Code, with any County Commissioner or County employee.

_____ The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents, who are active in management of the entity have the following relationships with a County Commissioner or County employee:

Name of Affiliate
or entity

Name of County Commissioner
or employee

Relationship

(Signature)

(Date)

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me by means of physical presence or online notarization, this ____ day of _____, 20____, by _____, (name of person making statement).

(Signature of Notary Public – State of Florida)
(Print, Type, or Stamp Commissioned Name of Notary Public)

who is personally known to me or who has produced _____ as identification.

*** END OF SECTION ***

SECTION 00425

**CERTIFICATION REGARDING PROHIBITION AGAINST CONTRACTING WITH
SCRUTINIZED COMPANIES**

(This form MUST be submitted with your bid)

I hereby certify that neither the undersigned entity, nor any of its wholly owned subsidiaries, majority-owned subsidiaries, parent companies, or affiliates of such entities or business associations, that exists for the purpose of making profit have been placed on the Scrutinized Companies that Boycott Israel List created pursuant to s. 215.4725 of the Florida Statutes, or are engaged in a boycott of Israel.

In addition, if this solicitation is for a contract for goods or services of one million dollars or more, I hereby certify that neither the undersigned entity, nor any of its wholly owned subsidiaries, majority-owned subsidiaries, parent companies, or affiliates of such entities or business associations, that exists for the purpose of making profit are on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to s. 215.473 of the Florida Statutes, or are engaged in business operations in Cuba or Syria as defined in said statute.

I understand and agree that the County may immediately terminate any contract resulting from this solicitation upon written notice if the undersigned entity (or any of those related entities of respondent as defined above by Florida law) are found to have submitted a false certification or any of the following occur with respect to the company or a related entity: (i) it has been placed on the Scrutinized Companies that Boycott Israel List, or is engaged in a boycott of Israel, or (ii) for any contract for goods or services of one million dollars or more, it has been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or it is found to have been engaged in business operations in Cuba or Syria.

Name of Respondent: _____

By: _____
(Authorized Signature)

Title: _____

Date: _____

*** END OF SECTION ***

SECTION 00430

CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements
(This form MUST be submitted with each bid or offer exceeding \$100,000)

The undersigned Contractor certifies, to the best of his or her knowledge, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The Contractor, _____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801 et seq., apply to this certification and disclosure, if any.

Signature of Contractor's Authorized Official

Name and Title of Contractor's Authorized Official

Date

*** END OF SECTION ***

SECTION 00454

SWORN STATEMENT UNDER THE FLORIDA TRENCH SAFETY ACT

THIS FORM MUST BE SIGNED BY THE BIDDER WHO WILL BE RESPONSIBLE FOR THE EXCAVATION WORK ("BIDDER"), OR ITS AUTHORIZED REPRESENTATIVE, IN THE PRESENCE OF A NOTARY PUBLIC AUTHORIZED TO ADMINISTER OATHS.

1. This Sworn Statement is submitted with Project No. Bid # 2021019; UCP #3556 for Indian River County North County Water & Sewer System Phase 2
(Name of Project)

2. This Sworn Statement is submitted by _____
(Legal Name of Entity Submitting Sworn Statement)

_____ hereinafter "BIDDER". The BIDDER's address is _____

_____ BIDDER's Federal Employer Identification Number (FEIN) is _____.

3. My name is _____ and my relationship to the BIDDER
(Print Name of Individual Signing)
is _____
(Position or Title)

I certify, through my signature at the end of this Sworn Statement, that I am an authorized representative of the BIDDER.

4. The Trench Safety Standards that will be in effect during the construction of this Project are contained within the Trench Safety Act, Section 553.60 et.seq. Florida Statutes and refer to the applicable Florida Statue(s) and/or OSHA Regulation(s) and include the "effective date" in the citation(s). Reference to and compliance with the applicable Florida Statute(s) and OSHA Regulation(s) is the complete and sole responsibility of the BIDDER. Such reference will not be checked by OWNER or ENGINEER and they shall have no responsibility to review or check the BIDDER's compliance with the Trench Safety Standards.

5. The BIDDER assures the OWNER that it will comply with the applicable Trench Safety Standards.

6. The BIDDER has allocated and included in its bid the total amount of \$_____, based on the linear feet of trench to be excavated over five (5) feet deep, for compliance with the applicable Trench Safety Standards, and intends to comply with said standards by instituting the following specific method(s) of compliance on this Project:

The determination of the appropriate method(s) of compliance is the complete and sole responsibility of the BIDDER. Such methods will not be checked by the OWNER or ENGINEER for accuracy, completeness, or any other purpose. The OWNER and ENGINEER shall have no responsibility to review or check the BIDDER's compliance with the Trench Safety Standards.

7. The BIDDER has allocated and included in its bid the total amount of \$_____, based on the square feet of shoring to be used for compliance with shoring safety requirements and intends to comply with said shoring requirements by instituting the following specific method(s) of compliance on this Project: _____

The determination of the appropriate method(s) of compliance is the complete and sole responsibility of the BIDDER. Such methods will not be checked by the OWNER or ENGINEER for accuracy, completeness or any other purpose. The OWNER and ENGINEER shall have no responsibility to review or check the BIDDER's compliance with the Trench Safety Standards.

8. The BIDDER, in submitting this bid, represents that it has obtained and considered all available geotechnical information, has utilized said geotechnical information and that, based on such information and the BIDDER's own information, the BIDDER has sufficient knowledge of the Project's surface and subsurface site conditions and characteristics to assure BIDDER's compliance with the applicable Trench Safety Standards in designing the trench safety system(s) for the Project.

BIDDER: _____

By: _____

Position or Title: _____

Date: _____

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me by means of physical presence or online notarization, this ____ day of _____, 20____, by _____, (name of person making statement).

(Signature of Notary Public – State of Florida)
(Print, Type, or Stamp Commissioned Name of Notary Public)

who is personally known to me or who has produced _____ as identification.

*** END OF SECTION ***

SECTION 00456

GENERAL INFORMATION REQUIRED OF BIDDERS

The undersigned Bidder Guarantees the truth and accuracy of all statements and answers herein contained. Failure to comply with these requirements may be considered sufficient justification to disqualify a Bidder. Additional sheets shall be attached as required.

Documentation Submitted with Indian River County Bid No. 2021019; UCP # 3556 for the Indian River County North County Water & Sewer System Phase 2

1. How many years has your organization been in business as a General or Utility Contractor?

2. Describe and give the date and owner of the last project that you have completed similar in type, size, and nature as the one proposed:

3. Have you ever failed to complete work awarded to you? If so, where and why?

4. Provide the name, title, and contact information, including email address and phone numbers, of three individuals or corporations for which you have performed similar work that Indian River County may contact for a reference:

5. Name of person who inspected the project site for your firm:

Name: _____ Date of Inspections: _____

Describe any anticipated problems with the site and your proposed solutions:

6. Will you Subcontract any part of this Work? If so, describe which portions:

7. Please list the names and addresses of the subcontractors to be used for the portions of the work listed below. Additional information will be required in accordance with the Instructions to Bidders (Section 00100).

PAVING: _____

SURVEYING: _____

TESTING LAB: _____

8. What equipment do you own that is available for the work?

9. What equipment will you purchase for the work?

10. What equipment will you rent for the work?

11. Florida Contractor's License No: _____

12. The following is given as a summary of the Financial Statement of the undersigned: (List Assets and Liabilities and use insert sheet if necessary.)

13. List the names and titles of **ALL** officers of Contractor's firm:

_____	_____
_____	_____
_____	_____
_____	_____

14. State the true and exact, correct, and complete name under which you do business. BIDDER is:

15. State your total bonding capacity:

16. State your bonding capacity per job.

17. Please provide name, address, telephone number, and contact person of your bonding company.

NOTE: To demonstrate qualifications to perform the work, each Bidder must be prepared to submit, within five (5) days of Owner's request, written evidence, such as financial data, previous experience, present commitments, and other such data as may be necessary to prove to the satisfaction of the Owner that the Bidder is qualified by experience to do the work and is prepared to complete the work within the stated time period.

END OF SECTION

**SECTION 00530 – EJCDC STANDARD FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR ON THE BASIS OF A STIPULATED PRICE**

Indian River County North County Water & Sewer System Phase 2

THIS AGREEMENT (“Agreement” or “Contract”), dated the ____ day of _____ in the year 20__ by and between INDIAN RIVER COUNTY, a Political Subdivision of the State of Florida organized and existing under the Laws of the State of Florida (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 WORK

CONTRACTOR as an independent contractor and not as an employee shall furnish and complete all of the necessary labor, material, and equipment to perform the work as specified or indicated in the Contract Documents and per FDEP, FDOT, County Utilities Department and County Engineering Department standards. The work is generally described as follows:

Indian River County Department of Utility Services (IRCDUS) proposes to construct a new gravity sanitary sewer system and sections of water main to serve the Roseland and Ercildoune Heights areas generally north of Roseland Road and west of US Highway #1, south of the St. Sebastian River. The project will generally include approximately 14,214 LF of gravity sewer mains; 53 manholes; a lift station; 1,728 LF of 4” force main (includes 3 directional bores); 2,503 LF of 8” water main (includes 2 directional bores), 15,321 LF of 6” water mains (includes 5 directional bores), and 109 LF of 4” water mains; 21 fire hydrants; and related valves, fittings, laterals, services, and restoration.

The construction of the utility improvements described above shall also consist of, but not limited to: resetting of signs, mailboxes, and other existing facilities disturbed during construction; utilities exploration; coordination with any permitting agencies; trenching; clearing and tree removal; dewatering; installation of pipe, structures and all appurtenances; soil backfill compaction; testing; exfiltration testing; backfill and subgrade testing; road, landscape and driveway restoration; regrading and grassing (sod); and traffic control. All rights-of-way shall be restored to like or better condition including, but not limited to sidewalks and drainage. No excavation shall be left open when work is not actively being performed. Construction fencing used in the work area shall not block sight distance near intersections or driveways. All construction equipment and materials shall be stored a minimum of fifteen (15) feet from the edge of pavement and shall be protected by Type II barricades with flashing yellow lights.

The Contractor shall submit a Traffic Control Plan to the County Traffic Engineering Division for all streets to be disturbed a minimum of seventy-two (72) hours prior to construction and notify the County Traffic Engineering Division a minimum of twenty-four (24) hours before any lane closures. A temporary access plan shall be provided indicating how local traffic will be maintained if the existing road is removed and reconstructed. Stand mounted Advance Construction signing shall be installed in accordance with FDOT Index 102-602 (Latest Edition). One-lane closures shall be in

accordance with FDOT Index 102-603 (Latest Edition). When any work encroaches the area between the centerline and two (2) feet outside the edge of pavement, traffic shall be restricted to a single lane.

ARTICLE 2 ENGINEER

The North County Water & Sewer System Phase 2 has been designed by Masteller & Moler, Inc., hereinafter called ENGINEER, and who 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 completion of the work in accordance with the Contract Documents.

ARTICLE 3 CONTRACT TIMES

3.1 The CONTRACTOR shall be substantially completed with the following timeframe:

(a) Within 60 calendar days from effective date of Notice to Proceed, Contractor shall complete the following tasks:

1. Obtain all necessary permits.
2. Receive approved shop drawings for all materials and equipment to be utilized on the job.
3. Perform all photographic recording and documentation of conditions prior to construction.
4. Locate all existing utilities in the area of work.
5. Submit and secure approval of shop drawings.
6. Mobilize all labor, equipment, and materials.
7. Deliver and store all equipment and materials to the job site.
8. Notify all utilities and other affected parties prior to initiating construction.

(b) From 61 calendar days to 300 calendar days from the effective date of Notice to Proceed, the CONTRACTOR shall complete the following tasks:

1. Install all pipe and appurtenant items.
2. Perform all testing.
3. Restore all disturbed areas to their pre-construction condition.
4. Correct all deficiencies noted by Engineer.

Completion of all tasks outlined above (i.e., Subparagraphs a) and b) constitutes Substantial Completion.

(c) From 301 calendar days to 360 calendar days from the effective date of Notice to Proceed, the CONTRACTOR shall complete the following tasks:

1. Clean up project area.
2. Remove all equipment and material from project site.
3. Perform contract closeout procedures.

3.2 Completion of all tasks outlined above (i.e., Subparagraphs a, b, and c) constitute Final Completion.

3.3 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the work is not completed within the times specified in Paragraphs 3.1 and 3.2 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal 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 four-hundred fifty dollars (\$450.00) for each day that expires after the time specified in Paragraph 3.1 for Substantial Completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining work within the Contract Times or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER four-hundred fifty dollars (\$450.00) for each day that expires after the time specified in Paragraph 3.1 for Final Completion and readiness for final payment.

3.3.1. The CONTRACTOR and OWNER agree that OWNER is authorized to deduct all or any portion of the above-stated liquidated damages due to the Owner from payments due to the Contractor; or, in the alternative, all or any portion of the above-stated liquidated damages may be collected from the Contractor or its Surety or Sureties. These provisions for liquidated damages shall not prevent the OWNER, in case of the CONTRACTOR's default, from terminating the Contractor's right to proceed as provided in this AGREEMENT.

3.3.2. In addition to the above-stated liquidated damages, the CONTRACTOR shall be responsible for reimbursing OWNER for third party consultants in administering the Project beyond the Substantial Completion date specified in this Agreement, or beyond an approved extension of time granted to CONTRACTOR, whichever date is later.

ARTICLE 4 CONTRACT PRICE

4.1 OWNER shall pay CONTRACTOR for completion of the work in accordance with the Contract Documents in current funds in the amount of \$ _____

ARTICLE 5 PAYMENT PROCEDURES

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 and the Contract Documents.

5.1 Progress Payments. The OWNER shall make progress payments to the CONTRACTOR on the basis of the approved partial payment request as recommended by ENGINEER in accordance with the provisions of the Local Government Prompt Payment Act, Florida Statutes section 218.70 ET. seq. The OWNER shall retain five percent (5%) of the payment amounts due to the CONTRACTOR until final completion and acceptance of all work to be performed by CONTRACTOR under the Contract Documents.

5.2 Pay Requests. Each request for a progress payment shall be submitted on the application for payment form supplied by OWNER and the application for payment shall contain the CONTRACTOR's certification. All progress payments will be on the basis of progress of the work measured by the schedule of values established, or in the case of unit price work based on the number of units completed.

- 5.3 Paragraphs 5.1 and 5.2 do not apply to construction services work purchased by the County as OWNER which are paid for, in whole or in part, with federal funds and are subject to federal grantor laws and regulations or requirements that are contrary to any provision of the Local Government Prompt Payment Act. In such event, payment and retainage provisions shall be governed by the applicable grant requirements and guidelines.
- 5.4 ACCEPTANCE AND FINAL PAYMENT: Upon receipt of written notice that the work is ready for final inspection and acceptance, the ENGINEER will promptly make such inspection and when the ENGINEER finds the work acceptable under the terms of the Contract and the Contract fully performed, the ENGINEER will promptly issue a final completion certificate stating that the work provided for in this Contract has been completed, and acceptance by the OWNER under the terms and the conditions thereof is recommended and the entire balance found to be due the CONTRACTOR, will be paid to the CONTRACTOR by the OWNER following County Commission approval of the final Contract payment.
- 5.5 Acceptance of Final Payment as Release. The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER from all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with the work under this Contract and for every act and neglect of the OWNER and others relating to or arising out of the work. Any payment, however, final or otherwise, shall not release the CONTRACTOR or its sureties from any obligations under the Contract Documents or the Payment and Performance Bonds.

ARTICLE 6 INTEREST

Not Applicable.

ARTICLE 7 CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representations:

- 7.1 CONTRACTOR has familiarized itself with the nature and extent of the Contract Documents, work, site, locality, and all local conditions and laws and regulations that in any manner may affect cost, progress, performance or furnishing of the work.
- 7.2 CONTRACTOR has studied carefully all reports of explorations and tests of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions and as provided in Paragraph 4.02 of the General Conditions, and accepts the determination set forth in Paragraph SC-4.02 of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings upon which CONTRACTOR is entitled to rely.
- 7.3 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies (in addition to or to supplement those referred to in Paragraph 7.2 above) which pertain to the subsurface or physical conditions at or contiguous to the site or otherwise may affect the cost, progress, performance or furnishing of the work as CONTRACTOR considers necessary for the performance of furnishing of the work at the

Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Paragraph 4.02 of the General Conditions; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.

- 7.4 CONTRACTOR has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing underground facilities at or contiguous to the site and assumes responsibility for the accurate location of said underground facilities. No additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said underground facilities are or will be required by CONTRACTOR in order to perform and furnish the work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Paragraph 4.04 of the General Conditions.
- 7.5 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.
- 7.6 CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.
- 7.7 Contractor is registered with and will use the Department of Homeland Security's E-Verify system (www.e-verify.gov) to confirm the employment eligibility of all newly hired employees for the duration of this agreement, as required by Section 448.095, F.S. Contractor is also responsible for obtaining proof of E-Verify registration for all subcontractors.

ARTICLE 8 CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the work consist of the following:

- 8.1 This Agreement (Section 00530).
- 8.2 All required insurance certificates.
- 8.3 Schedule of Subcontractors (Section 00415).
- 8.4 Disclosure of Relationships (Section 00420).
- 8.5 Certification Regarding Prohibition Against Contracting with Scrutinized Companies (Section 00425).
- 8.6 Certification Regarding Lobbying (Section 00430).
- 8.7 Sworn Statement under the Florida Trench Safety Act (Section 00454).
- 8.8 General Information Required for Bidders (Section 00456)
- 8.9 Public Construction Bond (Section 00610).

- 8.10 Notice of Award and Notice to Proceed (examples in Section 00800).
- 8.11 General Conditions (Section 00700).
- 8.12 Supplementary Conditions (Section 00800).
- 8.13 Documents / Specifications bearing the title "North County Water & Sewer System Phase 2".
- 8.14 Drawings, inclusive with each sheet bearing the following general title "North County Water & Sewer System Phase 2".
- 8.15 Addenda numbers _____ to _____, inclusive.
- 8.16 CONTRACTOR'S Bid Form (Section 00300).
- 8.17 Specifications bearing the title "Department of Utility Services, Water & Wastewater, Utility Standards, May 2019" or the latest version thereof.
- 8.18 The following, which may be delivered or issued after the effective date of the Agreement and are not attached hereto: All written amendments and other documents amending, modifying, or supplementing the Contract Documents pursuant to Paragraphs 3.04 of the General Conditions.

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in Paragraphs 3.04 of the General Conditions.

ARTICLE 9 MISCELLANEOUS

- 9.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.
- 9.2 It is agreed that the CONTRACTOR shall not assign, transfer, convey, or otherwise dispose of the contract or its right, title, or interest in or to the same or any part thereof, or allow legal action to be brought in its name for the benefit of others, without previous consent of the OWNER and concurred to by the sureties. Any attempted assignment shall be void and may, at the option of the OWNER be deemed an event of default hereunder. Nothing herein shall be construed as creating any personal liability on the part of any officer or agent of the OWNER who may be a party hereto.
- 9.3 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 of all covenants, agreements and obligations contained in the Contract Documents.
- 9.4 The CONTRACTOR shall be properly licensed to practice its trade or trades which are involved in the completion of this Agreement and the work thereunder.
- 9.5 This Agreement shall be governed by the laws of the State of Florida. Venue for any lawsuit brought by either party against the other party or otherwise arising out of this Agreement shall be in Indian River County, Florida, or, in the event of federal jurisdiction, in the United States District Court for the Southern District of Florida.
- 9.6 The CONTRACTOR shall indemnify and hold harmless the County, and its officers and

employees, from liabilities, damages, losses and costs, including, but not limited to, reasonable attorney's fees, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the CONTRACTOR and persons employed or utilized by the CONTRACTOR in the performance of the construction contract.

- 9.7 Pledge of Credit. The CONTRACTOR shall not pledge the OWNER'S credit or make it a guarantor of payment or surety for any Agreement, debt, obligation, judgment, lien or any form of indebtedness. The CONTRACTOR further warrants and represents that it has no obligation of indebtedness that would impair its ability to fulfill the terms of this Agreement.
- 9.8. Counterparts. This Agreement may be executed in one or more counterparts, but all such counterparts, when duly executed, shall constitute one and the same Agreement.
- 9.9. Public Records. Indian River County is a public agency subject to Chapter 119, Florida Statutes. The Contractor shall comply with Florida's Public Records Law. Specifically, the Contractor shall:
1. Keep and maintain public records required by the County to perform the service.
 2. Upon request from the County's Custodian of Public Records, provide the County with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119 or as otherwise provided by law.
 3. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the County.
 4. Upon completion of the contract, transfer, at no cost, to the County all public records in possession of the Contractor or keep and maintain public records required by the County to perform the service. If the Contractor transfers all public records to the County upon completion of the contract, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the contractor keeps and maintains public records upon completion of the contract, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the County, upon request from the Custodian of Public Records, in a format that is compatible with the information technology systems of the County.

5. IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

(772) 226-1424

publicrecords@ircgov.com

Indian River County Office of the County Attorney

1801 27th Street

Vero Beach, FL 32960

6. Failure of the Contractor to comply with these requirements shall be a material breach of this Agreement.

This Agreement will be effective on _____, 20____ (the date the Contract is approved by the Indian River County Board of County Commissioners, which is the Effective Date of the Agreement).

OWNER:

CONTRACTOR:

INDIAN RIVER COUNTY _____

By: _____
Chairman

By: _____
(Contractor)

By: _____
Jason E. Brown, County Administrator

(CORPORATE SEAL)

Attest _____

APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

By: _____
Dylan Reingold, County Attorney

Address for giving notices:

Jeffrey R. Smith, Clerk of Court and Comptroller

License No. _____
(Where applicable)

Attest: _____
Clerk of Court and Comptroller
(SEAL)

Agent for service of process: _____

Designated Representative:
Name: John M. Boyer, PE
Title: Utilities Engineer
Address: 1801 27th Street
Vero Beach, Florida 32960
Phone: (772) 226-1823
Facsimile: (772) 770-5143
Email: jboyer@ircgov.com

Designated Representative:
Name: _____
Title: _____
Address: _____

Phone: _____
Facsimile: _____
Email: _____

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

END OF SECTION

SECTION 00610

PUBLIC CONSTRUCTION BOND

INSTRUCTION FOR PUBLIC CONSTRUCTION BOND

The front or cover page to the required public construction payment and performance bond shall contain the information required by Fla. Stat. 255.05(1)(a), and be substantially in the format shown on the first page following this instruction.

The Public Construction Bond shall be in the form suggested by Fla. Stat. 255.05(3) as shown on the second page following this instruction.

A Power of Attorney from a surety insurer authorized to do business in Florida, authorizing the signature of the Attorney in Fact who executes the Public Construction Bond shall accompany that Bond.

**Public Work
F.S. Chapter 255.05 (1)(a)
Cover Page**

THIS BOND IS GIVEN TO COMPLY WITH SECTION 255.05 OR SECTION 713.23 FLORIDA STATUTES, AND ANY ACTION INSTITUTED BY A CLAIMANT UNDER THIS BOND FOR PAYMENT MUST BE IN ACCORDANCE WITH THE NOTICE AND TIME LIMITATION PROVISIONS IN SECTION 255.05(2) OR SECTION 713.23 FLORIDA STATUTES.

BOND NO: _____

CONTRACTOR NAME: _____

CONTRACTOR ADDRESS: _____

CONTRACTOR PHONE NO: _____

SURETY COMPANY NAME: _____

**SURETY PRINCIPAL
BUSINESS ADDRESS:** _____

SURETY PHONE NO: _____

OWNER NAME: _____

OWNER ADDRESS: _____

OWNER PHONE NO: _____

OBLIGEE NAME: _____

(If contracting entity is different from
the owner, the contracting public entity)

OBLIGEE ADDRESS: _____

OBLIGEE PHONE NO: _____

BOND AMOUNT: _____

CONTRACT NO: _____

(If applicable)

DESCRIPTION OF WORK: _____

PROJECT LOCATION: _____

LEGAL DESCRIPTION: _____

(If applicable)

FRONT PAGE

All other bond page(s) are deemed subsequent to this page regardless of any page number(s) that may be printed thereon.

PUBLIC CONSTRUCTION BOND

Bond No. _____
(enter bond number)

BY THIS BOND, We _____ as Principal and _____, a corporation, as Surety, are bound to _____, herein called Owner, in the sum of \$_____, for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs the contract dated _____, 20____, between Principal and Owner for construction of **North County Water & Sewer System Phase 2**, the contract being made a part of this bond by reference, at the times and in the manner prescribed in the contract; and
2. Promptly makes payments to all claimants, as defined in Section 255.05(1), Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the work provided for in the contract; and
3. Pays Owner all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that Owner sustains because of a default by Principal under the contract; and
4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract, then this bond is void; otherwise it remains in full force.
5. Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes.
6. Any changes in or under the contract documents and compliance or noncompliance with any formalities connected with the contract or the changes does not affect Surety's obligation under this bond.

DATED ON _____, 20____

(Name of Principal)

By _____
(As Attorney in Fact)

(Name of Surety)

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN COUNCIL OF ENGINEERING COMPANIES

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by



The Associated General Contractors of America



Construction Specifications Institute

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National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314

American Council of Engineering Companies
1015 15th Street, N.W., Washington, DC 20005

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

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GENERAL CONDITIONS

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's 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.A 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. The General Requirements pertain to all sections 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 in connection with the Work.

23. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 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 contents.

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

37. *Resident Project Representative*--The authorized representative of Engineer who may be assigned to the Site or any part thereof.

38. *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.

39. *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.

40. *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.

41. *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.

42. *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.

43. *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.

44. *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.

45. *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.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

47. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

48. *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 any Subcontractor.

49. *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.

50. *Unit Price Work*--Work to be paid for on the basis of unit prices.

51. *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.

52. *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 following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following 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 requirements of and information in the Contract Documents and conformance with the design concept of the completed 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 which 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*

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.

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 may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended 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, or Engineer, or any of, their Related Entities, 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 may discover 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 any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, 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 knew or reasonably should have known 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, code, or instruction (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 or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, 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 Engineer's consultants, including electronic media editions; or

2. reuse any of 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 prohibition 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. Copies of data furnished by Owner or Engineer to Contractor or 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 of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and
2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general 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 Related Entities 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 at or contiguous to the Site 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, Owner and Engineer, and any of their Related Entities 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.

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; 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: Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

B. Limited Reliance by Contractor on Technical Data

Authorized: Contractor may rely upon the general 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 Related Entities 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.

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 to Contractor written notice:

(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, 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 4.06G 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, 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 current 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 must be accompanied by a certified copy of the agent's authority to act.

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 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 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.

5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other 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, include as additional insured (subject to any customary exclu-

sion 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, 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 completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. 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);

6. 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

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. 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, 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 an insured or additional insured;

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 or damage to the Work, temporary buildings, false work, 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 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 additional insured to whom a certificate of insurance has been issued.

B. Owner 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, Subcontractors, and Engineer, and

any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, 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 an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with 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 additional insured 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 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 to be listed as insureds or additional insureds (and the officers, directors, 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 additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, 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 to be listed as insured or additional insured (and the officers, directors, 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, 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, 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 insureds, 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. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

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,

3) it has a proven record of performance and availability of responsive service; and

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 that 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 in 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 or not 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 or not 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;
- 4) and 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 either a Change Order for a substitute or 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

item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the 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 anything in the Contract Documents 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 an additional insured 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, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, 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, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, 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 primary 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, 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. 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. 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 , 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).

D. 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 acceptable 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*: Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

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 determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. shall also have 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.

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 Drawing's 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 Related Entities 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, 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 respective consultants, agents, officers, directors, partners, or employees 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, 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 via 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, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall 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 their work and will only cut or alter their 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 actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's 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 in respect of 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 in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

8.06 *Insurance*

A. Owner's responsibilities, if any, in 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 in 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. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

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 and will not be changed without written consent of Owner and Engineer.

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 believe 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.

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.B.

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 notice 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) is required by the provisions of any bond to be given to a surety, 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 Time 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 include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

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 at the Site. 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, 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, expresses, 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 and 11.01.B.

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

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

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 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.

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 Paragraph 12.01.C.2.a 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 the Related Entities of each of them 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. All 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, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site 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 said 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, it must, if requested by Engineer, be uncovered 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 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 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 on the Site 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, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to 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. that 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 corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined 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.

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 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 will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue

a certificate of Substantial Completion 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.7;

- 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 or Owner's property might in any way be responsible 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 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 their 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.

SECTION 00800

**SUPPLEMENTARY CONDITIONS
BID NO. 2021019
North County Water & Sewer System Phase 2**

**INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES
BOARD OF COUNTY COMMISSIONERS
1801 27th Street, Vero Beach, Florida 32960**



**SUPPLEMENTARY CONDITIONS
TO THE
GENERAL CONDITIONS**

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SUPPLEMENTARY CONDITIONS

PART I - AMENDMENTS TO GENERAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC Document No. C-700, 2002 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.

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

SC 1.01A.43.

Delete paragraph 1.01A.43. of the General Conditions in its entirety and replace with the following:

43. Specifications - Sections included under Division 1 through Division 2 of the Project Manual.

SC 1.01 A.53 Defined Terms

A Whenever 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.

53. Modification - A change, revision or deviation in the Work as originally planned or designed as a result of unknown or unexpected field conditions, laws or rules revisions, or discovery of a more efficient or logical method or completion of the Work after Notice to Proceed.

ARTICLE 2 - PRELIMINARY MATTERS

SC 2.01. Delete paragraphs 2.01A and B of the General Conditions in its entirety.

SC 2.03A. Delete paragraph 2.03A of the General Conditions in its entirety, and replace with the following:

The Contract Times will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 60 days after the Effective Date of the Agreement.

SC 2.05A1. Add the following immediately at the end of subparagraph 2.05A1: using the Critical Path Method (CPM).

SC 2.05A.4 Add new subparagraph 4 after the existing text of 2.05 of the General Conditions:

4. If this Project is an addition to an existing working plant, then the Contractor shall coordinate with the Owner on tie-ins. The Owner shall have final say on plant shut down times and duration to make tie-ins.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC 3.01D. Add new paragraph D immediately after Paragraph 3.01C of the General Conditions:

D. Each and every provision of law and clause required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it were included herein.

SC 3.03A.3 Delete existing 3.03A.3 of the General Conditions in its entirety and replace it with the following:

Contractor shall not be liable to Owner or Engineer for failure to report any such conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or, in the exercise of ordinary care, reasonably should have recognized such conflict, error, ambiguity, or discrepancy and failed to report it in writing to the Owner and the Engineer.

SC 3.03B Delete existing 3.03B of the General Conditions in its entirety and replace it with the following:

B. *Resolving Discrepancies.* Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall be read together as a whole not in isolation so as to give meaning to each provision; however, to the extent there is a conflict or inconsistency between or among provisions, the strictest or most stringent standard shall apply.

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

SC 4.01A Delete existing paragraph 4.01A of the General Conditions in its entirety and replace it with the following:

A. Owner shall furnish the Site.

SC 4.01B. Delete existing paragraph 4.01B of the General Conditions in its entirety.

SC 4.01D. Add the following after paragraph 4.01C of the General Conditions:

D. Contractor shall provide to the Owner written evidence of authorization to use any private land for staging or storage of material and equipment on the private land. Such written evidence of authorization must be provided to the Owner prior to use of the private land.

SC 4.02A. Delete paragraph 4.02 A. of the General Conditions in its entirety and replace it with the following:

A. *Reports and Drawings:* The Contract Documents may identify reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents. Engineer has relied upon the data obtained from subsurface investigations made at the Site in the form of test borings. Such data is in the form of boring logs, which are available upon request. The locations of the test borings are indicated on the Drawings. Such logs and samples are not part of the Contract Documents. Contractor shall have full responsibility for physical conditions, and Underground Facilities owned by Owner or others, shown or indicated in the Contract Documents.

SC 4.02A.2. Add the following new sentences immediately at the end of existing paragraph 4.02A.2. of the General Conditions which is to read as follows:

In the preparation of Drawings and Specifications, the Engineer has relied upon the reports listed in Appendix B and tests of subsurface physical conditions at the Site. Copies of these reports are available upon request. The foregoing information and data shown or indicated in the Contract Documents is based on information and data furnished to owner or the Engineer by others. The Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data, and the contractor shall have full responsibility for requesting, reviewing, and checking all such information and data.

SC 4.02B. Delete paragraph 4.02B in its entirety and replace with the following:

The information and data shown or indicated in the Contract Documents with respect to Underground Facilities owned by others or contiguous to the Site is based on information and data furnished to Owner or the Engineer by the owners of such Underground Facilities or by others. The Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data, and the Contractor shall have full responsibility for reviewing and checking all such information and data.

SC 4.02C, D, and E. Add new paragraphs C, D, and E immediately after Paragraph 4.02B of the General Conditions to read as follows:

C. Field Measurements: Before undertaking each part of the construction, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. Contractor shall promptly report in writing to the Owner any conflict, error or discrepancy which Contractor or any of his Subcontractors or Suppliers may discover and shall obtain a written interpretation or clarification from Owner before proceeding with any aspect of the work affected thereby; provided, however, Contractor shall not be liable to Owner or Engineer for failure to report any such conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or, in the exercise of ordinary care, reasonably should have recognized such conflict, error, ambiguity, or discrepancy and failed to report it in writing to the Owner and the Engineer.

D. Scheduling: Unless it prejudices Work already excavated and uncovered, Contractor shall schedule layout, excavating and uncovering of Work or Underground Facilities a sufficient time in advance to allow the Engineer's review, and the possible amending or supplementing of the Contract Documents via a Work Change Directive or Change Order.

E. UTILITY COORDINATION.

1. Contractor's Responsibility: The contractor shall be responsible for making all necessary arrangements with governmental departments, public utilities, public carriers, service companies and corporations owning or controlling roadways, railways, water, sewer, gas, electrical, cable television, telephone, and telegraph facilities such as pavements, tracks, piping, wires, cables, conduits, poles, guys, etc., including incidental structures connected therewith, that are encountered in the Work in order that such items may be properly shored, supported and protected, or the Contractor shall be solely responsible for coordinating their relocation. The Contractor shall give proper notices, shall comply with requirements of such parties in the performance of the Work, shall permit entrance of such parties on the Work controlled by the Contractor, and shall pay all charges and fees made by such parties for its Work. The Contractor's attention is called to the fact that there may be delays on the Project due to Work to

be done by governmental departments, public utilities, and others in repairing poles, conduits, etc. The Contractor shall cooperate with the above parties, in every way possible, so that the construction can be completed in the least possible time.

2. Connection: At all points where the Work constructed by the Contractor connects to existing utilities and services, the actual Work of making the necessary connection to the existing service or utility shall be arranged for by Contractor at no additional expense to Owner (unless specifically indicated otherwise). Services and utilities included within (but not limited to) this responsibility are roads, ditches, electrical, sewer, mechanical, utilities, water, fencing, etc. Connections shall be made at a time that will result in the least possible interference with existing services.

SC 4.03A Delete 4.03A of the General Conditions in its entirety and replace it with the following:

A. *Notice*. The Contractor shall promptly, and before conditions of an unusual nature or differing materially from those indicated in the Contract are disturbed, and in no event later than ten (10) days after first observance of the conditions, notify the Owner and Engineer in writing of: (1) subsurface or latent physical conditions at the Site differing materially from those indicated in this Contract Documents, or (2) unknown physical conditions at the site of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Contract Documents. The Owner will promptly investigate the conditions, and if it finds that such conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work under the Contract Documents, a Change Order shall be issued accordingly based on the Schedule of Values and executed by the Owner and the Contractor. Contractor's failure to provide notice upon discovery of the differing site condition shall waive any entitlement to such an adjustment in the Contract Price or Contract Time. Further, no Claim of the Contractor under this paragraph 4.03A shall be allowed unless the Contractor has given the notice as required in this paragraph 4.03A.

SC 4.03B. Delete paragraph 4.03B of the General Conditions in its entirety.

SC 4.03C.1. Delete subparagraphs 4.03C1a. and b. of the General Conditions in its entirety.

SC 4.03C3. Delete paragraph 4.03C3. of the General Conditions in its entirety.

SC 4.05B. Add the following new paragraph immediately after paragraph 4.05A. of the General Conditions to read as follows:

B. The Contractor shall furnish all stakes, templates and other materials necessary for establishing and maintaining the lines and grades necessary for control and construction of the Work. Engineer may check the lines, elevations, reference marks, batter boards, etc., set by Contractor, and Contractor shall correct any errors disclosed by such check. Such a check shall not be considered as approval of Contractor's work and shall not relieve Contractor of the responsibility for accurate construction of the entire Work. Contractor shall furnish personnel to assist Engineer in checking lines and grades.

SC 4.06D Delete the last sentence of paragraph 4.06D of the General Conditions in its entirety.

SC 4.06G Delete paragraph 4.06G of the General Conditions in its entirety.

SC 4.07. Add new paragraph 4.07 of the General Conditions to read as follows:

4.07. Archaeological or Historical Resources at Site. If Archaeological or Historical Resources are revealed, uncovered, or discovered at the Site, Contractor shall cease work immediately and promptly, and before such conditions are disturbed, and in no event later than five (5) days after first observance of the conditions, notify the Owner and Engineer in writing of such conditions. Owner shall obtain the services of an Archaeologist registered with the State of Florida Register of Professional Archaeologists. Based on Archaeologist's determination, if Owner finds that such conditions cause an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work under this Contract, a Change Order shall be entered accordingly. Contractor's failure to provide notice upon discovery of the Archaeological or Historical Resources shall waive any entitlement to Contractor for such an adjustment in the Contract Price or Contract Time.

ARTICLE 5 - BONDS AND INSURANCE

SC 5.01A. Delete existing paragraph 5.01A of the General Conditions in its entirety and replace with the following:

5.01A. Contractor shall furnish Performance and Payment Bonds, each in an amount equal to the Contract Price as security for the faithful performance and payment of all Contractor's obligations under the Contract Documents. These Bonds shall remain in effect at least until one (1) year after the date when final payment is made, except as provided otherwise by Laws or Regulations or by the Contract Documents. Pursuant to Florida Statutes section 255.05(1)(c) (2016), any claimant (as such term is defined in Florida Statutes section 713.01) may apply to Indian River County as Owner for copies of the Agreement and the recorded Performance and Payment Bonds and shall thereupon be furnished with certified copies of such documents.

SC 5.02A. Delete the words "Owner or" in line two.

SC 5.03B Delete existing paragraph 5.03B of the General Conditions in its entirety.

SC 5.04B Delete existing paragraph 5.04B of the General Conditions in its entirety and replace with the following:

B. The Contractor shall not commence Work under the Agreement until it has obtained all insurance required under the Contract Documents and the Indian River County Risk Manager has approved such insurance. The Contractor shall procure and maintain, as set forth herein, the minimum insurance coverage as set forth in the Contract Documents. The cost of such insurance shall be included in the Contract Price.

C. The insurance required by paragraph 5.04A 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: To meet statutory limits in compliance with the Workers' Compensation Law of Florida. This policy must include employers' liability with a limit \$500,000 for each accident, \$500,000 disease policy limit and \$100,000 disease each employee. Such policy shall include a waiver of subrogation as against Owner on account of injury sustained by an employee(s) of the Contractor.
2. Commercial General Liability: A per occurrence form policy, including Premise Operations, Independent Contractors, Products and Completed Operations including X,

C, U (Explosion, Collapse, Underground) Broad Form Property Damage, Broad Form Property Damage Endorsement, with a combined single limit of not less than \$1,000,000 general aggregate to include products/completed operations, personal injury/advertising liability, fire damage /legal liability, and medical payments. Limits can be layered with an Excess Liability Policy (Umbrella).

3. Business Auto Liability: Business Auto Liability: Coverage shall include Owned vehicles and Hired/Non-Owned vehicles, for a combined single limit (bodily injury and property damage) of not less than \$1,000,000/combined single limit (Bodily Injury/Property Damage); personal injury protection -- statutory limits; \$300,000 uninsured/underinsured motorist; \$300,000/hired/non-owned auto liability. Limits can be layered with Excess Liability Policy (Umbrella).
4. Contractor's Builders' Risk "All Risk" Insurance: – All risk coverage with limits equal to one hundred percent (100%) of the completed value of the Work. There shall be a waiver of occupancy endorsement to enable the Owner to occupy the facility under construction during such activity. The policy must be endorsed to provide machinery/equipment endorsement during transit and installation, and Owner direct purchase materials, if any. The maximum deductible under this coverage is \$10,000 per claim, except Wind Storm coverage which will have a maximum deductible equal to 2 percent of the completed value of the work.
5. Flood Insurance - Contractor shall maintain coverage when the buildings or structures are located within an identified special flood hazard area. Such flood insurance shall protect the interests of the Contractor and the County and shall be afforded for the lesser of the total insurable value of such buildings or structures, or, the maximum amount of flood insurance coverage available under the National Flood Insurance Program.

D. Insurance Requirements – Ten (10) days prior to the commencement of any Work under the Contract Documents, a certificate of insurance shall be provided to the Indian River County Risk Manager for review and approval. The certificate shall provide that: (a) Indian River County as Owner and Engineer be named as an additional insured on the commercial general liability, auto liability, and Contractor's Builders' Risk "All Risk" insurance policies; (b) the Contractor's insurance coverage shall be primary; and (c) Indian River County as Owner and will be given thirty (30) days' notice prior to cancellation or modification of any required insurance and such notice shall be in writing by registered mail, return receipt requested and addressed to the Indian River County Risk Manager. The Contractor shall be responsible to ensure that all subcontractors comply with all insurance requirements of the Contract Documents.

E. All coverage shall be maintained without interruption from the date of commencement of the Work and 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. In addition, with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, such insurance shall remain in effect for at least two years after final payment. Contractor shall furnish Owner and Engineer with evidence satisfactory to Owner of the continuation of such insurance at final payment and again one (1) year thereafter, so that Owner is assured of such continuing coverage.

F. All insurers must be authorized to do business in Florida and have a Best Key Rating of A-VII.

G. The insurance companies selected shall send written verification to the Indian River County Risk Manager that they will provide thirty (30) days prior written notice to the Indian River County Risk Manager of its intent to cancel or modify any required policies of insurance.

SC 5.05. Delete existing paragraph 5.05 of the General Conditions in its entirety.

SC 5.06. Delete existing paragraph 5.06 of the General Conditions in its entirety.

SC 5.07. Delete existing paragraph 5.07 of the General Conditions in its entirety and replace with the following.

5.07. All insurance policies provided by the Contractor shall contain provisions to the effect that the insurer waives all rights of subrogation against any of the insured, additional insured, (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) Owner and the Engineer.

SC 5.08. Delete existing paragraph 5.08 of the General Conditions in its entirety.

SC 5.09. Delete existing paragraph 5.09 of the General Conditions in its entirety.

SC 5.10. Delete existing paragraph 5.10 of the General Conditions in its entirety.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

SC 6.01B. Delete paragraph 6.01B of the General Conditions in its entirety, and replace with the following:

6.01B. Contractor shall employ a competent superintendent and necessary assistants who shall be assigned to, and in attendance at the Site during performance of the Work. The superintendent shall be reasonably satisfactory to the Owner. So long as the superintendent remains employed by the Contractor or any related entity, the superintendent shall not be replaced without the Owner's prior written consent, except under extraordinary circumstances. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

SC 6.02C and D. Add the following new paragraphs immediately after paragraph 6.02B. of the General Conditions which are to read as follows:

C. Regular working hours are defined as 8 hours per day, Monday through Friday, excluding holidays, between the hours of 7:00 AM and 7:00 PM. Requests to work other than regular working hours shall be submitted to Engineer not less than forty-eight (48) hours prior to any proposed weekend work or scheduled extended work weeks. Occasional unscheduled overtime on weekdays may be permitted provided two (2) hours' notice is given to Engineer.

D. Contractor shall reimburse the Owner for additional engineering and/or inspection costs incurred as a result of overtime work in excess of the regular working hours stipulated in SC 6.02C. At Owner's option, overtime costs may either be deducted from the Contractor's monthly payment request or deducted from the retainage prior to release of final payment. Overtime costs for the Owner's personnel shall be based on the individual's current overtime wage rate. Overtime costs for personnel employed by the Engineer or Owner's independent testing laboratory shall be calculated in accordance with the terms of their respective contracts with the Owner.

SC 6.04A.1 Add the following sentence immediately after the existing text in paragraph 6.04 A.1 of the General Conditions:

Additionally, any and all changes to the Project's critical path must be reflected in each Project schedule.

SC 6.04.A.3 Add the following paragraph immediately after paragraph GC-6.04.A.2 of the General Conditions:

6.04.A.3. Contractor shall give Owner full information in advance as to its plans for performing each part of the Work. If at any time during the progress of Work, Contractor's actual progress is inadequate to meet the requirements of the Contract Documents, Owner may, but is not obligated to, so notify Contractor. In such event, Contractor acknowledges and agrees that Contractor shall implement some or all of the following remedial actions at the sole cost and expense of Contractor: (a) Increase manpower in such quantities and crafts as necessary to eliminate the backlog of Work; (b) Increase the number of working hours per shift, shifts per working day, working days per week, the amount of construction equipment, or any combination of the foregoing to eliminate the backlog of Work; or (c) Reschedule the Work in conformance with the Specifications. Neither such notice by Owner nor Owner's failure to issue such notice shall relieve Contractor of its obligation to achieve the quality of Work and rate of progress required by the Contract Documents. Failure of Contractor to implement some or all of the remedial actions may be grounds for determination by Owner that Contractor is not prosecuting its Work with such diligence as will assure completion within times specified. Upon such determination, Owner may terminate Contractor's right to proceed with the performance of the Contract Documents, or any separable part thereof, in accordance with the applicable provisions of these Contract Documents.

SC 6.06A. Delete Paragraph 6.06A of the General Conditions in its entirety and replace with the following:

A. Contractor shall not employ any Subcontractor, Supplier or other person or organization, (including those who are to furnish the principal items of materials or equipment), whether initially or as a substitute, against whom Owner may have reasonable objection. Acceptance of any Subcontractor, Supplier or other person or organization by Owner shall not constitute a waiver of any right of Owner to reject defective Work. Contractor shall not be required to employ any Subcontractor, Supplier or other person or organization against whom Contractor has reasonable objection.

SC 6.06B. Delete Paragraph 6.06B of the General Conditions in its entirety.

SC 6.08. Delete Paragraph 6.08 of the General Conditions in its entirety and replace with the following:

ALL PERMIT, IMPACT, OR INSPECTION FEES APPLICABLE AT THE TIME OF OPENING OF BIDS THAT ARE PAYABLE TO INDIAN RIVER COUNTY IN CONNECTION WITH THE WORK ON THIS COUNTY PROJECT WILL BE PAID BY INDIAN RIVER COUNTY. Contractor acknowledges that the foregoing items are governed by the provisions of Florida Statutes section 218.80, Public Bid Disclosure Act. Further, Contractor shall pay the applicable business tax and obtain a business tax receipt from the Indian River County Tax Collector. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all applicable construction permits. Owner shall reimburse Contractor for the cost of such permits on the basis of actual cost. Owner shall assist Contractor, when necessary, in obtaining such permits

and licenses. As set forth in the Contract Documents, re-inspection fees are payable solely by Contractor. Owner shall pay all charges of utility owners for connections for providing permanent services to the Work. Owner has applied for and received: **Florida Department of Environmental Protection (FDEP)** Wastewater Construction Permit; and **FDEP** Water Main Construction Permit are included in the Contract Documents. Owner has applied for and not yet received the **Indian River County** Right-of-Way Permit. Any permits issued after issuance of Bidding Documents will be provided as an Addendum. Contractor acknowledges that the foregoing items are governed by the provisions of Florida Statutes section 218.80 (2016), Public Bid Disclosure Act.

SC 6.11 A.3. Delete the words: "arbitration or" in line 9 of paragraph 6.11 A.3 of the General Conditions.

SC 6.20A. Delete paragraph 6.20A of the General Conditions in its entirety and replace with the following:

To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all liability claims, costs, losses, and damages including but not limited to, reasonable attorney's fees, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the Contractor and persons employed or utilized by the Contractor in the performance of the construction contract.

SC 6.21E Delete paragraph 6.21E of the General Conditions in its entirety and replace with the following:

E. Contractor shall not be responsible for the adequacy of the performance criteria or design criteria required by or contained in the Contract Documents.

ARTICLE 7 OTHER WORK AT THE SITE

SC 7.01A. Delete paragraph 7.01A of the General Conditions in its entirety and replace with the following:

7.01A. Related Work at Site. Owner may perform other work related to the Project at the Site with Owner's employees, or pursuant to direct contracts with others. If such other work is not noted in the Contract Documents, then written notice thereof will be given by Owner to Contractor prior to Owner starting any such other work; and Contractor shall perform in accordance with Article 7 of the General Conditions.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

SC 8.02. Delete paragraph 8.02 of the General Conditions in its entirety and replace with the following:

If Owner terminates the employment of Engineer, Owner may appoint another engineer whose status under the Contract Documents shall be that of the former Engineer.

SC 8.04. Delete paragraph 8.04 of the General Conditions in its entirety and replace with the following:

Payments under this contract are governed by the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq.

SC 8.06. Delete paragraph 8.06 of the General Conditions in its entirety.

SC 8.11. Delete paragraph 8.11 of the General Conditions in its entirety.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

SC 9.02. Delete the first sentence of paragraph 9.02A of the General Conditions in its entirety and replace with the following:

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 Engineer the progress that has been made and the quality of the various aspects of Contractor's executed Work.

SC 9.03B. Add the following new paragraph immediately after paragraph 9.03A of the General Conditions which is to read as follows:

B. Engineer will furnish a part-time Resident Project Representative. Contractor is responsible to give forty-eight (48) hours' notice on all required inspections so that the Resident Project Representative may be present.

SC 9.04 A. Delete the third sentence of paragraph 9.04A of the General Conditions in its entirety and replace with the following:

However, if Contractor claims entitlement to additional time or money as a result of the Field Order, such entitlement is conditioned upon obtaining a Change Order authorized and executed by Owner after timely making a Claim as provided in the Contract Documents.

SC 9.08 A. Delete the second sentence of 9.08A of the General Conditions in its entirety and replace with the following:

Except for: (a) Claims for differing subsurface or physical conditions governed by paragraph 4.03; and (b) claims for time extensions governed by paragraph 12.03, 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 15 days after occurrence of the event giving rise to such Claim or within 15 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later; provided, however, the Owner shall make all final determinations of such matters.

SC 9.08 C. Delete paragraph 9.08C of the General Conditions in its entirety.

SC 9.08 D. Delete paragraph 9.08D of the General Conditions in its entirety.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

SC 10.03. Delete subparagraph 10.03 of the General Conditions in its entirety.

SC 10.05.A. Delete paragraph 10.05.A of the General Conditions in its entirety and replace with the following:

A. All Claims shall initially be referred to the Engineer for decision.

SC 10.05.B. Delete paragraph 10.05.B of the General Conditions in its entirety and replace with the following:

Notice: Except for: (a) Claims for differing subsurface or physical conditions governed by paragraph 4.03; and (b) claims for time extensions governed by paragraph 12.03, Claims by either party shall be initiated within fifteen (15) days after occurrence of the event giving rise to such Claim or within fifteen (15) days after the claimant first recognizes the condition giving rise to the Claim, whichever is later, by written notice of the amount or extent of the Claim, dispute, or other matter with supporting data to the Engineer and the other party by written notice stating the general nature of each Claim, dispute, or other matter delivered by the claimant to Engineer and the other party to the Contract. 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 Time shall be prepared in accordance with the provisions of paragraph 12.02.B. No claim by the Contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment under the Contract Documents.

SC 10.05 C, D, and E. Delete paragraphs 10.05C, D, and E of the General Conditions in its entirety.

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

SC 11.02A. Delete paragraph 11.02.A of the General Conditions in its entirety and replace with the following:

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 as may be acceptable to Owner.

SC 11.02 B, C, and D. Delete paragraphs 11.02B, C, and D of the General Conditions in their entirety.

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

SC 12.01A. Delete paragraph 12.01A of the General Conditions in its entirety and replace with the following:

The Contract Price may only be changed by a Change Order or by a Work Change Directive. Any Claim for an adjustment in the Contract Price shall be based on written notice in accordance with the provisions of paragraph 10.05.

SC 12.01B2. Delete paragraph 12.01B2 of the General Conditions in its entirety and replace with the following:

2. Where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum.

SC 12.01B3. Delete paragraph 12.01B3 of the General Conditions in its entirety.

SC12.01C. Delete paragraph 12.01C of the General Conditions in its entirety.

SC 12.03A and B. Delete paragraphs 12.03.A and 12.03B of the General Conditions in their entirety and replace with the following:

A. Where Contractor is delayed or prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if (1) a Claim is made therefore as provided in paragraph 12.02.A and (2) Contractor provides evidence that the delay impacted the critical path of the Project. 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, abnormal weather conditions or acts of God. The Contractor must request the extension of time in writing and must provide the following information within the time periods stated hereafter. Failure to submit such information and in compliance with the time requirements given in Section 00530 of the Contract Documents, shall constitute a waiver by the Contractor and a denial of the claim for extension of time:

1. Nature of the delay or change in the Work;
2. Dates of commencement and cessation of the delay or change in the Work;
3. Activities on the current progress schedule affected by the delay or change in the Work;
4. Identification and demonstration that the delay or change in Work affects the critical path;
5. Identification of the source of delay or change in the Work;
6. Anticipated extent of the delay or change in the Work; and
7. Recommended action to minimize the delay.

B. Contractor hereby affirms that the extension of time granted herein is the Contractor's sole and exclusive remedy. Apart from extension of time, no payment or claim for damages shall be made to the Contractor as compensation for damages for any delays or hindrances from any cause whatsoever in the progress of the Work whether such delay is avoidable or unavoidable.

SC 12.03C. Delete paragraph 12.03.C of the General Conditions in its entirety.

SC 12.03D. Delete paragraph 12.03D of the General Conditions in its entirety and replace with the following:

In no event shall Owner, Engineer, or the Related Entities of either of them be liable to Contractor, any Subcontractor, any Supplier, any other person or organization, or any surety for or employee or agent of any of them, for any claim, cost, loss, or damages of any nature whatsoever arising out of or resulting from delays.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

SC 13.04C. Delete paragraph 13.04.C of the General Conditions in its entirety and replace with the following:

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 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.

SC 13.04D. Delete paragraph 13.04.D of the General Conditions in its entirety and replace with the following:

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.

SC 13.06A. Delete the words: "arbitration or" in line 9 of paragraph 13.06.A of the General Conditions.

SC13.07A. Add the following sentence at the beginning of paragraph 13.07A of the General Conditions:

Owner and Contractor agree that a warranty inspection shall be scheduled no later than eleven (11) months after final payment under the Contract Documents so that Owner and Contractor may inspect and otherwise examine the Work prior to the expiration of the Performance Bond.

SC 13.07E. Delete paragraph 13.07E of the General Conditions in its entirety and replace with the following:

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 any way to limit the Contractor's continued liability for defective Work, including but limited to latent defects.

SC 13.08A. TWO changes:

1. Delete the words: "arbitration or" in line 8 of paragraph 13.08.A of the General Conditions.

2. Delete the phrase "(such costs to be approved by Engineer as to reasonableness)" in lines 10 and 11 of paragraph 13.08.A of the General Conditions.

13.09C. Delete the words: "arbitration or" in line 4 of paragraph 13.09.C of the General Conditions.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

SC 14.02A1. Delete the first sentence of paragraph 14.02.A.1 of the General Conditions in its entirety and replace with the following:

On or before the tenth (10th) day of each month, and not more often than once a month, the Contractor shall submit completed partial progress payment requests to the Engineer, as set forth herein. 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 for Payment and accompanied by such supporting documentation as is required by the Contract Documents. Such supporting documents shall include but not be limited to, the required Contractor's certification; retainage as set forth in the Contract Documents; and a monthly dated CPM schedule for the Project. The Contractor shall make the following certification (Affidavit) on

each Application for Payment: "I hereby certify that the labor and materials listed on this Application for Payment have been used in the construction of this Work and payment received from the last request for payment has been used to make payments to all subcontractors, laborers, material, men and suppliers except as listed below": All payments by Indian River County as Owner shall be made in accordance with the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq.

SC 14.02A4. Add a new paragraph immediately after paragraph 14.02A.3 of the General Conditions, which is to read as follows:

4. Contractor shall furnish satisfactory proof to Owner and Engineer that payment received from Owner for materials and equipment not incorporated into the Work and suitably stored, has in fact been paid to the respective supplier(s) within ten (10) days of Contractor's receipt of payment from Owner. Failure to provide such evidence of payment shall result in the withdrawal of previous approval(s) and removal of the cost of related materials and equipment from the next submitted Application for Payment, and shall be deemed a default under the Contract.

SC 14.02C1. Delete paragraph 14.02.C1 of the General Conditions in its entirety and replace with the following: All payments by Indian River County as Owner shall be made in accordance with the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq.

SC 14.02D1d. Delete paragraph 14.02D1d of the General Conditions in its entirety and replace with the following:

d. Owner has actual knowledge of the occurrence or probable 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.

SC 14.02D2. Delete paragraph 14.02D2 of the General Conditions in its entirety and replace with the following:

If Owner refuses to make payment of the full amount recommended by Engineer, Owner shall provide notice to Contractor in accordance with the provisions of the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq. and pay Contractor any amount remaining after deduction of the amount so withheld in accordance with the provisions of the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq. Owner shall pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, in accordance with the provisions of the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq.

SC 14.02D3. Delete paragraph 14.02D3 of the General Conditions in its entirety

SC 14.03A. Add the following sentences to the end of the existing paragraph 14.03A of the General Conditions as follows:

No materials or supplies for the Work shall be purchased by Contractor or his Subcontractors subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. Contractor warrants that Contractor has good title to all materials and supplies used by Contractor in the Work, free from all liens, claims or encumbrances.

SC 14.04C. Delete paragraph 14.04C of the General Conditions in its entirety and replace with the following:

If Engineer considers the Work substantially complete, Engineer will prepare and deliver to Owner a tentative certificate of Substantial Completion that shall fix the date of Substantial Completion. In accordance with the provisions of Florida Statutes section 218.735(7)(a)(2016), upon receipt of the tentative certificate of Substantial Completion from Engineer, the Owner, the Engineer, and the Contractor shall conduct a walk-through inspection of the Project to document a list of any items required to render the Work on the Project complete, satisfactory, and acceptable under the Contract Documents (herein the "Statutory List"). The Statutory List shall be reduced to writing and circulated among the Owner, the Engineer, and the Contractor by the Owner or the Engineer within thirty (30) calendar days after Substantial Completion. The Owner and Contractor acknowledge and agree that: 1) the failure to include any corrective work, or pending items that are not yet completed, on the Statutory List does not alter the responsibility of the Contractor to complete all of the Work under the Contract Documents; 2) upon completion of all items on the Statutory List, the Contractor may submit a pay request for all remaining retainage except as otherwise set forth in the Contract Documents; and 3) any and all items that require correction under the Contract Documents and that are identified after the preparation of the Statutory List remain the obligation of the Contractor to complete to the Owner's satisfaction under this Agreement. After receipt of the Statutory List by the Contractor, the Contractor acknowledges and agrees that it will diligently proceed to complete all items on the Statutory List and schedule a final walk-through in anticipation of final completion on the Project.

SC 14.04D. Delete paragraph 14.04D of the General Conditions in its entirety and replace with the following:

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, HVAC, utilities, insurance, and warranties and guarantees.

SC14.07A.3. Delete paragraph 14.07A.3 of the General Conditions in its entirety.

SC14.07B.1. Delete paragraph 14.07B.1 of the General Conditions in its entirety and replace with the following:

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, all 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 indicate, within twenty days after receipt of the final Application for Payment, in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. Thereupon Engineer will give written notice to Owner and Contractor that the Work is acceptable. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

SC 14.07.C.1. Delete paragraph GC-14.07.C.1 in its entirety and replace with the following:

Payment shall be made by Owner to Contractor according to the Local Government Prompt Payment Act, Florida Statutes section 218.70. et. seq.

SC 14.08. Delete paragraph 14.08 of the General Conditions in its entirety.

SC 14.09. Delete paragraph 14.09 of the General Conditions in its entirety.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

SC 15.02.A.1. Delete subparagraph 15.02.A1 of the General Conditions in its entirety, and replace with the following:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents;

SC 15.02.A.4. Delete subparagraph 15.02.A 4 of the General Conditions in its entirety, and replace with the following:

4. Contractor's violation of any material provisions of the Contract Documents.

SC 15.02.A.5 and 6: Add the following new subparagraphs at the end of paragraph GC-15.02.A:

5. Failure of Contractor to make proper payments to Subcontractors or others for labor, services, materials or equipment in connection with the Work;

6. If Contractor abandons the Work.

SC 15.02.C. Delete the words: "arbitration or" in line 7 of paragraph 15.02.C of the General Conditions.

SC 15.02.G. Add the following new paragraph immediately following paragraph 15.02.F of the General Conditions:

G. If, after termination of the Contract by the Owner for cause as set forth in paragraph 15.02, it is determined that the Contractor had not failed to fulfill its contractual obligations, the termination under paragraph 15.02 shall be deemed to have been for the convenience of the Owner. In such event, adjustment of the Contract Price shall be made as provided in paragraph 15.03

SC15.03.A.3 and 15.03.A4. Delete subparagraphs 15.03.A3 and 15.03 A 4 of the General Conditions in its entirety.

ARTICLE 16 - DISPUTE RESOLUTION

SC16.01A. Delete paragraph 16.01A of the General Conditions in its entirety and replace with the following:

A. Prior to the filing of any suit or other legal proceedings, the parties shall endeavor to resolve claim disputes or other matters in question by mediation. Mediation shall be initiated by any party by serving a written request for same on the other party. The parties shall, by mutual agreement, select a circuit court mediator as certified by the Supreme Court of Florida within 15 days of the date of the request for mediation. If the parties cannot agree on the selection of a circuit court mediator as certified by the Supreme Court of Florida, then the Owner shall select the mediator, who shall be a circuit court mediator as certified by the Supreme Court of Florida. The mediator's fee shall be paid in equal shares by Owner and Contractor.

SC 16.01C. Delete paragraph 16.01 C of the General Conditions in its entirety and replace with the following:

C. Contractor shall carry on the Work and maintain the Progress Schedule during the dispute resolution proceedings, unless otherwise agreed by Contractor and Owner in writing.

ARTICLE 17 - MISCELLANEOUS

SC 17.01A. Delete paragraph 17.01A of the General Conditions in its entirety and replace with the following:

Notices: Any notice, request, demand, consent, approval, or other communication required or permitted by the Contract Documents shall be given or made in writing and shall be served, as elected by the party giving such notice, by any of the following methods: (a) Hand delivery to the other party; (b) Delivery by commercial overnight courier service; or (c) Mailed by registered or certified mail (postage prepaid), return receipt requested at the addresses of the parties shown in the Contract Documents. Notices shall be effective when received at the address as specified above. The original of the notice must additionally be mailed. Either party may change its address, for the purposes of this paragraph, by written notice to the other party given in accordance with the provisions of this paragraph.

SC 17.02 through and including 17.03. Replace Sections 17.02 and 17.03:

17.02. Utilities. The Contractor shall, at its expense, arrange for, develop and maintain all utilities in Work areas to meet the requirements of the Contract Documents. Such utilities shall be furnished by Contractor at no additional cost to the Owner, and shall include, but not be limited to the following: public telephone service for the Contractor's use; construction power as required at each point of construction; and water as required throughout the construction. Prior to final acceptance of the Work the Contractor shall, at its expense, satisfactorily remove and dispose of all temporary utilities developed to meet the requirements of the Contract Documents.

17.03. Drainage. The Contractor shall so conduct its operations and maintain the Work in such condition that adequate drainage will be in effect at all times. Existing functioning storm sewers, gutters, ditches, and other run-off shall not be obstructed.

SC 17.06. add the following new paragraphs after paragraph 17.06 of the General Conditions

17.07. Fire Hydrants. Fire hydrants on or adjacent to the highway shall be kept accessible to fire apparatus at all times and no material or obstruction shall be placed within fifteen feet (15') of any such hydrant.

17.08. Protection of Structures. Heavy equipment shall not be operated close enough to pipe headwalls or other structures to cause their displacement.

17.09. Fencing. On all Work which includes fencing and where the Engineer determines it to be necessary for maintaining the security of livestock or adjacent property, or for protection of pedestrians who are likely to gain access to the Work from adjacent property, the Contractor shall erect an appropriate temporary security fence as a first order of business. Temporary fencing shall be installed at temporary construction easement areas on all commercial and residential properties appropriate to secure the Work area and protect persons and domestic animals. At all times, the Contractor shall conduct the Work under secure temporary fencing. Permanent fencing shall be addressed as required by the Plans and Specifications.

17.10. Record Drawings. The Contractor shall keep one record copy of Drawings, Specifications, Addenda, Change Orders and other Modifications to the Contract, Engineer's Field Orders or written instructions, Approved Shop Drawings, Working Drawings and Samples, Field Test records, Construction photographs, Field engineering records for compliance with field engineering submittals, Drilling Plan, Emergency Contingency Plan, and Calculations for directional drilling activities at the site in good order and annotated to show all changes made during the construction process. These items are considered Record Drawings and shall be available to the Engineer and shall be delivered to the Engineer for the Owner. Record Drawings shall be submitted with each pay request. Final acceptance of the Work will be withheld until the approvals of such documents are made by the Owner.

17.11. Progress Videotapes. Contractor shall deliver to the Owner both prior to commencing the Work and before receipt of Final Payment, a DVD Type color videotape of the Project showing the Site before and after Work has been completed. Contractor shall audibly identify on the videotape the station numbers as those areas of the Project are taped. The cost of the videotaping is included in the bid submitted by the Contractor.

17.12. Commercial Activities. Contractor shall not establish any commercial activity or issue concessions or permits of any kind to third parties for establishing commercial activities on land owned or controlled by Owner. Contractor shall not allow its employees to engage in any commercial activities on the Project site.

PART II – FORMS TO BE USED DURING PROJECT CONSTRUCTION (Pages 21 through 37)

NOTICE OF AWARD – (Sample)

NOTICE TO PROCEED

FIELD ORDER

WORK CHANGE DIRECTIVE

CHANGE ORDER

APPLICATION FOR PAYMENT

CERTIFICATE OF SUBSTANTIAL COMPLETION

FINAL RELEASE OF LIEN

DUTIES RESPONSIBILITIES AND LIMITATIONS OF AUTHORITY OF
RESIDENT PROJECT REPRESENTATIVE

(SAMPLE)
NOTICE OF AWARD

BOARD OF COUNTY COMMISSIONERS



November 13, 2018

via Email

Company

Attn:

Address

Address

Email address

NOTICE OF AWARD

Reference: *Indian River County Bid No. 2021019*
Bid Title North County Water & Sewer System Phase 2 UCP #3556

Dear Mr./Ms. :

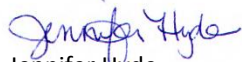
It is my pleasure to inform you that on [DATE] the Board of County Commissioners awarded the above-referenced project to your company. The following documents are required before the applicable County department can issue a "Notice to Proceed" letter.

1. Public Construction Bond (unrecorded) in the amount of **100%** of the award amount (**\$.....**).
2. Two Signed Copies of Enclosed Agreement.
3. Certificate of Insurance indicating coverage required by Article 5 of the General Conditions (section 00700 of the bid documents) and Supplemental Conditions (Section 00800 of the bid documents). Certificate(s) **must name Indian River County as additional insured** and must provide for a 30 day Notice of Cancellation.
4. W-9.

The Public Construction Bond must be executed in accordance with section 255.05(1)(a), Florida Statutes. Please submit the Bond, W-9, the Certificate(s) of Insurance and two fully-executed copies of the enclosed agreement to this office at the address provided below no later than [Due **DATE (15 days from award)**]. Failure to comply with the established deadline for submittal of required documents may be grounds for cancellation of award.

Thank you for your prompt attention and if you have any questions, please do not hesitate to contact our office.

Sincerely,



Jennifer Hyde
Purchasing Manager

Cc: Project Manager

Office of Management and Budget • Purchasing Division
1800 27th Street, Vero Beach, Florida 32960 • (772) 226-1416 • Fax: (772) 770-5140
E-mail: purchasing@ircgov.com

NOTICE TO PROCEED

_____, 20__

CONTRACT FOR: IRC North County Water & Sewer System Phase 2 UCP #3556

CONTRACTOR: _____

Gentlemen:

You are hereby notified to commence work on the subject contract on or before _____, 20__ and are to fully complete the work within _____ calendar days. In accordance with the contract documents, the Substantial Completion date is _____, 20__ (_____ days), with the Final Completion date being _____, 20__ (_____ days). Extension in time will be by written change order only.

The contract provides for assessment of liquidated damages for each consecutive calendar day that the work remains incomplete after the above established substantial completion date the sum of \$_____.00 and for each consecutive calendar day that the work remains incomplete after the above established final completion date the sum of \$_____.

Indian River County, Florida
(OWNER)

By: _____
(Authorized Signature)

(Printed Name & Title of Above Signer)

NOTE: Attach this notice to your contract making it a part thereof.

FIELD ORDER

PROJECT: IRC North County Water & Sewer System Phase 2 FIELD ORDER NO.: _____
DATE: _____
ENGINEER: Masteller & Moler, Inc. #1422-2
OWNER: Indian River County DUS OWNER'S PROJECT NO.: UCP # 3556
TO: _____ CONTRACT DATE: _____

This Field Order is issued to interpret/clarify the Contract Documents, order minor changes in the work and/or memorialize trade-off agreements. Both parties hereby agree that the work described by this Field Order is to be accomplished without change in Contract Sum, Contract Time, and/or claims for other costs.

DESCRIPTION: (Here insert a written description of the interpretation, change or agreement.)

FIELD ENGINEER: _____ CONTRACTOR: _____
BY: _____ BY: _____
DATES: _____ DATE: _____

WORK CHANGE DIRECTIVE

No. _____

PROJECT: **North County Water & Sewer System Phase 2**

DATE OF ISSUANCE: _____

OWNER: Indian River County Utilities 1801 27th Street, Vero Beach, FL 32960

CONTRACTOR: _____

OWNER's Project No.: UCP #3556.

ENGINEER: Masteller & Moler, Inc.

EFFECTIVE DATE: _____

ENGINEER's Project No.: 1422-2

You are directed to proceed with the following change(s):

Description: _____

Purpose of Work Directive Change: _____

Attachment(s) (list documents supporting change):

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in Contract Price:

Method of determining change in Contract Time:

Time and Materials

Contractor's records

Unit Prices

Engineer's records

Cost plus fixed fee

Other _____

Estimated increase (decrease) in Contract Price

Estimated increase (decrease) in Contract Time

\$ _____

_____ days. If the change involves an

If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

increase, the estimated time is not to be exceeded without further authorization.

Once the Work covered by the directive is completed or final cost and time determined, Contractor should submit documentation for inclusion in a change Order.

THIS IS A DIRECTIVE TO PROCEED WITH A CHANGE THAT MAY AFFECT THE CONTRACT PRICE OR THE CONTRACT TIME. A CHANGE ORDER, IF ANY, SHOULD BE CONSIDERED PROMPTLY.

RECOMMENDED:

APPROVED:

By: _____
Engineer

By: _____
Owner

Date: _____

Date: _____

ACCEPTED:

By: _____
Contractor

Date: _____

CHANGE ORDER

No. _____

PROJECT IRC North County Water & Sewer System Phase 2

DATE OF ISSUANCE _____ EFFECTIVE DATE _____

OWNER Indian River County Department of Utilities Services

OWNER's Contract No. UCP # 3556 M&M Project No. 1422-2

CONTRACTOR _____ ENGINEER Masteller & Moler, Inc.

You are directed to make the following changes in the Contract Documents:

Description: _____

Reason for change order: _____

Attachments: (List documents supporting change)

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIME
Original Contract Price \$ _____	Original Contract Times FINAL Completion: _____ Ready for final payment: _____ Days or dates
Net changes from previous Change Orders No. ___ to No. _____ \$ _____	Net change from previous Change Orders No. ___ to No. _____ days
Contract Price prior to this Change Order \$ _____	Contract Time prior to this Change Order FINAL Completion: _____ Ready for final payment: _____ Days or dates
Net Increase (decrease) in this Change Order \$ _____	Net Increase in this Change Order _____ days
Contract Price with all approved Change Orders \$ _____	Contract Time with all approved Change Orders FINAL Completion: _____ Ready for final payment: _____ Days or dates

RECOMMENDED:

APPROVED:

ACCEPTED:

By: _____
Engineer (Authorized Signature)

By: _____
Owner (Authorized Signature)

By: _____
Contractor (Authorized Signature)

Date: _____

Date: _____

Date: _____

EJCDC No. C-700 (2002 Edition)

Prepared by the Engineers Joint Contract Documents Committee and endorsed by The Associated General Contractors of America.

APPLICATION FOR PAYMENT NO. _____

To: Indian River County Department of Utilities Services (OWNER)

From: _____ (CONTRACTOR)

Contract: _____

Project: North County Water & Sewer System Phase 2

OWNER's Contract No. UCP # 3556 ENGINEER's Project No. 1422-2

For Work accomplished through the date of: _____.

1.	Original Contract Price:	\$ _____
2.	Net change by Change Orders and Written Amendments (+ or -):	\$ _____
3.	Current Contract Price (1 plus 2):	\$ _____
4.	Total completed to date	\$ _____
5.	Retainage (per Agreement):	
	_____ % of completed Work: \$ _____	
	_____ % of retainage: _____	
	Total Retainage:	\$ _____
6.	Total completed to date less retainage (4 minus 5):	\$ _____
7.	Less previous Application for Payments:	\$ _____
8.	DUE THIS APPLICATION (6 MINUS 7):	\$ _____

Accompanying Documentation:

CONTRACTOR'S Certification:

The undersigned CONTRACTOR certifies that (1) title to all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all Liens, security interests and encumbrances; (2) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective; and (3) the labor and materials listed on this Application for Payment have been used in the construction of this Work and payment received from the last progress payment has been used to make payments to all subcontractors, laborers, material, men and suppliers except as listed below: _____

Dated _____

CONTRACTOR

By: _____

State of _____

County of _____

Subscribed and sworn to before me this ____
day of _____, 20__

Notary Public

My Commission expires: _____

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Dated _____

ENGINEER

By: _____

EJCDC No. C-700-E (2002 Edition)

Prepared by the Engineers Joint Contract Documents Committee and endorsed by The Associated General Contractors of America and the Construction Specification Institute.

CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT North County Water & Sewer System Phase 2

DATE OF ISSUANCE _____

OWNER Indian River County Board of County Commissioners

OWNER's Contract No. UCP # 3556 **M&M Project No.** 1422-2

CONTRACTOR _____ **ENGINEER** Masteller & Moler, Inc.

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

To: Indian River County Department of Utilities Services
OWNER

And To _____
CONTRACTOR

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the contract Documents on

DATE OF SUBSTANTIAL COMPLETION

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the contract Documents. The items in the tentative list shall be completed or corrected by CONTRACTOR within _____ Days of the above date of Substantial Completion.

EJCDC No. C-700 (2002 Edition)
Prepared by the Engineers Joint Contract Documents Committee and endorsed by The Associated General Contractors of America.

From the date of Substantial Completion, the responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees shall be as follows:

RESPONSIBILITIES:

OWNER: _____

CONTRACTOR: _____

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

[For items to be attached see definition of Substantial Completion as supplemented and other specifically noted conditions precedent to achieving Substantial Completion as required by Contract Documents.]

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

Executed by ENGINEER on _____

MASTELLER & MOLER, INC. – Earl H. Masteller, PE, BCEE
ENGINEER

By: _____
(Authorized Signature)

CONTRACTOR accepts this Certificate of Substantial Completion on _____, 20__

CONTRACTOR
By: _____
(Authorized Signature)

OWNER accepts this Certificate of Substantial Completion on _____, 20__

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES
OWNER

By: _____
(Authorized Signature)

FINAL RELEASE OF LIEN

KNOW ALL MEN BY THESE PRESENTS, that

(Company Name)

The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER from all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with the work under this Contract and for every act and neglect of the OWNER and others relating to or arising out of the work.

For all in consideration of

_____ dollars (\$_____)
(Total Amount of Contract)

paid to _____ by receipt of which is hereby acknowledged,
(Contractor)

do _____ hereby release and quit claim to the OWNER, its successors
(I/We)

or assigns, all liens, lien rights, claims or demands of any kind whatsoever

which _____ now have or might have against the property, building, and/ or
(I/We)

for any incidental expense for the construction of
UCP # 3556

(Project Number)

IRC North County Water & Sewer System Phase 2

(Project Name)

thereon or in otherwise improving said property situated as above described.

IN WITNESS WHEREOF I have hereunto set my hand and seal this ____ day of _____,
20__.

_____ (SEAL)

By _____

WITNESS:

Title _____

DUTIES, RESPONSIBILITIES AND LIMITATIONS OF AUTHORITY
OF RESIDENT PROJECT REPRESENTATIVE

A. GENERAL

Resident Project Representative is ENGINEER'S Agent, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding his actions. Resident Project Representative's dealings in matters pertaining to the on-site Work shall in general be only with ENGINEER and CONTRACTOR, and dealings with Subcontractors shall only be through or with the full knowledge of CONTRACTOR. Written communication with OWNER will be only through or as directed by ENGINEER.

B. DUTIES AND RESPONSIBILITIES

Resident Project Representative will:

1. Schedules: Review the progress schedule, schedule of Shop Drawing submissions and schedule of values prepared by CONTRACTOR and consult with ENGINEER concerning their acceptability.
2. Conferences: Attend preconstruction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with ENGINEER and notify those expected to attend in advance. Attend meetings, and maintain and circulate copies of minutes thereof.
3. Liaison:
4. Serve as ENGINEER'S liaison with CONTRACTOR, working principally through CONTRACTOR'S superintendent and assist him in understanding the intent of the Contract Documents. Assist ENGINEER in serving as OWNER'S liaison with CONTRACTOR when CONTRACTOR'S operations affect OWNER'S on-site operations.
5. As requested by ENGINEER, assist in obtaining from OWNER additional details or information, when required at the job site for proper execution of the Work.
6. Shop Drawings and Samples:
 - a. Receive and record date of receipt of Shop Drawings and samples, receive samples which are furnished at the site by CONTRACTOR, and notify ENGINEER of their availability for examination.
 - b. Advise ENGINEER and CONTRACTOR or his superintendent immediately of the commencement of any Work requiring a Shop Drawing or sample submission if the submission has not been approved by the ENGINEER.
7. Review of Work, Rejection of Defective Work, Inspections and Tests:
 - a. Conduct on-site observations of the Work in progress to assist ENGINEER in determining if the Work is proceeding in accordance with the Contract Documents and that completed Work will conform to the Contract Documents.
 - b. Report to ENGINEER whenever he believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or does not meet the requirements of any inspections, tests or approval required to be made or has been damaged prior to final payment; and advise ENGINEER when he believes Work should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

- c. Verify that tests, equipment and systems startups and operating and maintenance instructions are conducted as required by the Contract Documents and in presence of the required personnel, and that CONTRACTOR maintains adequate records thereof; observe, record and report to ENGINEER appropriate details relative to the test procedures and startups.
 - d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the outcome of these inspections and report to ENGINEER.
- 8. Interpretation of Contract Documents: Transmit to CONTRACTOR engineer's clarifications and interpretations of the Contract Documents.
- 9. Modifications: Consider and evaluate CONTRACTOR'S suggestions for modifications in Drawings or Specifications and report them with recommendations to ENGINEER.
- 10. Records:
 - a. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples submissions, reproductions of original Contract Documents including all Addenda, change orders, field orders, additional Drawings issued subsequent to the execution of the Contract, ENGINEER'S clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.
 - b. Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions, list of visiting officials and representatives of manufacturers, fabricators, suppliers and distributors, daily activities, decisions, observations in general and specific observations in more detail as the case of observing test procedures. Send copies to ENGINEER.
 - c. Record names, addresses and telephone numbers of all contractors, Subcontractors and major suppliers of materials and equipment.
- 11. Reports:
 - a. Furnish ENGINEER periodic reports as required of progress of the Work and CONTRACTOR'S compliance with the approved progress schedule and schedule of Shop Drawing submissions.
 - b. Consult with ENGINEER in advance of scheduled major tests, inspections or start of important phases of the Work.
 - c. Report immediately to ENGINEER upon the occurrence of any accident.
- 12. Payment Requisitions: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward them with recommendations to ENGINEER, noting particularly their relation to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.
- 13. Certificates, Maintenance and Operation Manuals: During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed; and deliver this material to ENGINEER for his review and forwarding to OWNER prior to final acceptance of the Work.
- 14. Completion:
 - a. Before ENGINEER issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring completion or correction.

- b. Conduct final inspection in the company of ENGINEER, OWNER and CONTRACTOR and prepare a final list of items to be completed or corrected.
- c. Verify that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.

C. LIMITATIONS OF AUTHORITY

Except upon written instructions of ENGINEER, Resident Project Representative:

- 1. Shall not authorize any deviation from the Contract Documents or approve any substitute materials or equipment.
- 2. Shall not exceed limitations on ENGINEER'S authority as set forth in the Contract Documents.
- 3. Shall not undertake any of the responsibilities of CONTRACTOR, Subcontractors or CONTRACTOR'S superintendent, or expedite the Work.
- 4. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the Contract Documents.
- 5. Shall not advise on or issue directions as to safety precautions and programs in connection with the Work.
- 6. Shall not authorize OWNER to occupy the Project in whole or in part.
- 7. Shall not participate in specialized field or laboratory tests.

END OF SECTION

SECTION 00850

DRAWINGS INDEX

Indian River County
North County Water & Sewer System Phase 2

1. TITLE SHEET
2. CONSTRUCTION NOTES
3. KEY MAP
- 4.-5. 82ND COURT PLAN AND PROFILE
6. 128TH COURT & 129TH STREET PLAN AND PROFILE
7. 129TH COURT & 130TH STREET PLAN AND PROFILE
- 8.-9. 83RD AVENUE PLAN AND PROFILE
10. 133RD PLACE PLAN AND PROFILE
11. 82ND COURT & 133RD COURT PLAN AND PROFILE
- 12.-13. 83RD AVENUE PLAN AND PROFILE
14. 134TH STREET PLAN AND PROFILE
15. 135TH STREET PLAN AND PROFILE
16. 133RD PLACE PLAN AND PROFILE
17. 83RD AVENUE PLAN AND PROFILE
18. 135TH LANE PLAN AND PROFILE
19. 144TH STREET & 78TH AVENUE PLAN
- 19A. – 20. 80TH STREET PLAN AND PROFILE
21. 143RD STREET PLAN AND PROFILE
22. 142ND STREET PLAN AND PROFILE
23. 81ST AVENUE PLAN AND PROFILE
24. 141ST STREET PLAN AND PROFILE
25. 140TH STREET PLAN AND PROFILE
26. 110TH STREET PLAN AND PROFILE
27. 142ND WAY & 143RD STREET PLAN
28. BAY STREET PLAN AND PROFILE
29. RUFFNER LANE PLAN AND PROFILE
- 30.-30A.,31. SANITARY SEWER DETAILS
- 32.-33. POTABLE WATER & CONSTRUCTION DETAILS
- 34.-35. POTABLE WATER DETAILS
36. SWPPP TEMPLATE FOR MINIMUM BMP'S
37. MAINTENANCE OF TRAFFIC DETAILS

END OF SECTION

DIVISION 1

GENERAL REQUIREMENTS

SECTION 01000

SUMMARY OF WORK

PART 1 - GENERAL

1.01 LOCATION OF WORK

North County Water & Sewer System Phase 2 Project: The work is generally located within rights-of-way north of Roseland Road between 128th Court and 130th Street and 133rd Place and 135th Street; within rights-of-way west of US Highway #1 between 140th Street and 144th Street and east of US Highway #1 along portions of Bay Street Ruffner Lane in Northern Indian River County and the City of Sebastian.

1.02 DESCRIPTION OF WORK

Contractor as an independent contractor and not as an employee shall furnish and complete all of the necessary labor, material and equipment to perform the work as specified or indicated in the Contract Documents and per FDEP, the Indian River County Department of Utility Services and County Engineering Department standards. The work is generally described as follows:

Indian River County Department of Utility Services (IRCDUS) proposes to construct a new gravity sanitary sewer system and sections of water main to serve residential areas as defined in Section 1.01 above. The project will generally include approximately 14,214 LF of gravity sewer mains; 53 manholes; a lift station; 1,728 LF of 4" force main (includes 3 directional bores); 2,503 LF of 8" water main (includes 2 directional bores), 15,321 LF of 6" water mains (includes 5 directional bores), and 109 LF of 4" water mains; 21 fire hydrants; and related valves, fittings, laterals, services, and restoration.

The construction of the utility improvements described above shall also consist of, but not limited to: resetting of signs, mailboxes, and other existing facilities disturbed during construction; utilities exploration; coordination with any permitting agencies; trenching; clearing and tree removal; dewatering; installation of pipe, structures and all appurtenances; soil backfill compaction; testing; exfiltration testing; backfill and subgrade testing); road, landscape and driveway restoration; regrading and grassing (sod); and traffic control. All right-of-way shall be restored to like or better condition including sidewalks and drainage. No excavation shall be left open when work is not actively being performed. Construction fencing used in the work area shall not block sight distance near intersections or driveways. All construction equipment and materials shall be stored a minimum of 15 feet from the edge of pavement and shall be protected by Type II barricades with flashing yellow lights.

The Contractor shall submit a Traffic Control Plan to the local office of FDOT for U.S. Highway #1, County Traffic Engineering Division for Bay Street, and to the City of Sebastian Traffic Engineering Division for City Streets a minimum of 72 hours prior to construction and notify the respective agencies a minimum of 24 hours before any lane closures. A temporary access plan shall be provided indicating how local traffic will be maintained if the existing road is removed and reconstructed. Stand mounted Advance Construction signing shall be installed in accordance with FDOT Index 602. One lane closures shall be in accordance with FDOT Index 603. When any work encroaches the area between the centerline and two (2) feet outside the edge of pavement, traffic shall be restricted to a single lane.

PART 2 – PRODUCTS **NOT USED**

PART 3 – EXECUTION **NOT USED**

END OF SECTION

SECTION 01024

FORCE ACCOUNT

1.01 GENERAL

CONTRACTOR shall furnish all labor, materials, equipment, and incidentals necessary to perform additional work not covered on the Contract Drawings. The Force Account is intended as a contingency for unforeseen work.

1.02 PAYMENT

Lump sum amount for Force Account work is included in the bid schedule. The value of Force Account work will be determined in accordance with Article 12 of the General Conditions.

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT FOR ALL UTILITY DEPARTMENT PROJECTS

PART 1 – GENERAL

1.01 GENERAL

Measurement and payment will be based upon work completed and accepted in accordance with the Contract Documents. No separate payment will be made for excavation, trenching, backfilling, compacting, leakage tests, surveying, construction staking or other incidental items of work not shown in the Contract Documents.

1.02 EQUIPMENT AND MATERIALS IN STORAGE

Partial payment for materials and equipment in proper storage at the site of the work or other approved storage site will be made for those items for which the Contractor has submitted paid invoices to the Engineer. The partial payment for stored materials will be 50% of the value of materials and equipment, based on receipted bills, furnished but not incorporated in the work, as determined by Engineer.

1.03 MEASUREMENT

- A. Manholes: The quantity to be paid for shall be the number of each (EA) structure of each designated type completed and accepted, and the number of each (EA) of the structures adjusted, and shall include: clear and grubbing, excavation, dewatering, backfilling, compaction, disposal of surplus material, testing; furnishing and placing of frames and covers; interior coating/lining (bituminous or fiberglass per plan); concrete bench; fittings and other material required for interior or exterior drops; bricking, mudding and grouting; concrete slab tops when necessary; and all incidentals to furnish and install the structures. A separate quantity and pay item will not be included for adjusting existing manhole tops, etc., necessary for minor grade changes (+ 3 inches). This work shall be included in the contract unit price(s) for roadway, sidewalk, pavement and parking area construction. The depth of the manhole to be used for various pay ranges shall be determined by taking the difference between the rim elevation and the invert of deepest sewer.
- B. Connect to Existing: Measurement of "Connect to Existing" shall include the installation / connection of the new or replacement utility main to the existing utility main, manhole or structure (as depicted on the plans), and shall include the cost of the "Tapping Sleeve and Valve" or "Core Saw and Connect" when depicted or called for in the plans, and for all additional work and materials required for the connection including excavation and location of existing utilities, removal of fittings, restraint of existing pipe and fittings, grouting and repairs, all necessary adaptors, gaskets or fittings, connection to the existing utility, disinfection and flushing of the utility, testing (pressure, bac-t, soil compaction, or exfiltration, as applicable) means to provide a temporary bypass when noted on plans (pumps, hoses, etc.), installation of temporary jumper and all other necessary work required to make a connection.

When a separate bid item (or items) "Connect to Existing" is listed in the bid form, then the above-described work shall be computed as a lump sum cost for the installation / connection of the new or replacement utility main to the existing utility main, at each location depicted in the plans and listed in the bid form.

When a separate bid item "Connect to Existing" is not listed in the bid form, then the above described work shall be included in the unit price bid for that portion of the utility main construction within the project that is benefitting from the connection (the adjacent connected main).

- C. Lift Station: Construction of a new lift station and valve box as shown and described on the Construction Plans with all associated appurtenances and improvements (including installation of pipe, corporation stops, meter box, connections and associated appurtenances, backfilling, testing, and disinfection of water service) for a complete lift station ready for operation will be lump sum.
- D. Pipe: Pipe will be measured along the centerline of the pipe installed. No deduction will be made for the length of valves and fittings installed in the line. Where the measurement terminates at a valve, bend, tee, or other fitting, the centerline of the valve or fitting shall be the point of termination. All required pipe lining, coating, encasement material, restraining devices, and thrust blocks shall be included in the cost of the pipe. The Indian River County inspector shall determine pipe lengths installed.
- E. Fittings: Measurement of cast iron and ductile iron fittings shall be on the basis of weight unless otherwise specified. The weights used to determine the quantity installed shall be the weights of the appropriate fittings as listed in the supplier's invoice or catalog. When mechanical joint fittings are required, the weight of the gland bolts and gaskets shall not be added to the listed weight of the fittings. Where flanged fittings are furnished, the weight of the bolts and gaskets shall not be included. The Indian River County inspector shall determine weight of fittings installed.
- F. Gate Valves and Tapping Valves: Measurement shall be on the basis of furnishing and installing each type and size of valve (and tapping sleeve, if applicable) required, including the valve box, cover, and other associated items.
- G. HDPE Horizontal Directional Bore: Measurement of HDPE horizontal directional bore pipe shall be computed using linear feet, as measured above ground prior to pulling, and deducting the length of pipe cut off after the pull and shall include all material, equipment, supplies, fuel, labor, sheeting and bracing, receiving and boring pits (if required), excavation, dewatering, backfilling, compaction, mechanical fittings, all adaptors, fusion welding of pipe and adaptors, restoration, furnishing and installation of the HDPE pipe. Payment shall be based on a linear foot price for the bore length as specified above. The Indian River County inspector shall determine directional bore lengths.
- H. Gravity Sewer: Measurement of gravity sewer shall be for lineal foot for construction in accordance with the plans and specifications, or as directed by the Engineer. The work shall include, but shall not be limited to, cutting of existing pavement where required, excavation, installation of pipe, backfilling, compaction, and all restoration in kind. The replacement of pavement and roadway restoration shall comply with standards and specifications of the Indian River County Department of Public Works. The services shall be of a type and size specified, and shall be constructed in accordance with these Plans and Specification, or as directed by the Engineer. The depth of gravity sewer for various pay ranges shall be determined by taking the difference between the natural ground or manhole rim elevation, as applicable, and the invert elevation.
- I. Testing (TV of Mains): Measurement of TV testing all gravity sewer shall be for lineal foot in accordance with the plans and specifications.

- J. Sewer Laterals: The quantity to be paid for shall be the number of each (EA) sanitary sewer lateral of each designated size (in inches) and type (single or double) furnished and installed, and shall include all piping, fittings, connections, and other appurtenances to collect and carry wastewater from existing, proposed or future utility customers from a clean-out at the edge of the public easement or right of way to the public sanitary sewer collection main within the street right-of-way or easement. The work shall include, but not be limited to, cutting of existing pavement where required, jack and bore or directional bore under pavement where required, excavation, dewatering, backfilling, testing; installation of marking balls and other required marking and identification materials, all necessary sleeves, fittings and appurtenances to install connections to new or existing mains; and all restoration in kind.
- K. Water Mains: Water mains will be measured along the centerline of the pipe installed. No deduction will be made for the length of valves and fittings installed in the line. Where the measurement terminates at a valve, bend, tee, or other fitting, the centerline of the valve or fitting shall be the point of termination. All required pipe lining, coating, encasement material, restraining devices, and thrust blocks shall be included in the cost of the pipe. The Indian River County inspector shall determine pipe lengths installed.
- L. Fire Hydrant Assembly: Measurement of fire hydrant assembly shall be for the actual number constructed in accordance with the Plans and Specifications, or as directed by the Engineer, at the unit price bid for the item "Fire Hydrant Assembly," scheduled in the Form of Proposal. The unit price for "Fire Hydrant Assembly" shall include cutting bituminous paving, removal of paving courses and curb if required, excavation, furnishing and installation of ten (10) feet of 6" D.I.P. or PVC water main, dry-barrel traffic hydrant, concrete foundations for hydrant, fitting, one (1) 6" diameter gate valve, concrete thrust block (reaction backing) or restraining fittings for fire hydrant, backfill, blue reflective markers, all equipment, labor and all else necessary therefore and incidental thereto.
- M. Concrete Sidewalk and Driveway Replacement: Measurement of concrete for sidewalk and driveway replacement shall be computed using square feet, of sidewalk and/or driveway removed and replaced as a result of Contractor's operations. Minimum widths of replacement shall be as described in specifications or as shown on the plans. No separate payment will be made for saw-cutting, excavation, formwork, reinforcing, or other work or materials required in connection with concrete construction.
- N. Asphaltic Pavement Replacement: Measurement of asphalt pavement replacement shall be computed using the tons of asphalt removed and replaced as a result of Contractor's operations. Minimum width of replacement shall be as described in the specifications or as shown on the plans. Unit price shall include saw-cutting, base and sub-grade materials, compaction, etc.
- O. Turf Material - Sod: Measurement of grassing (Bahia and St. Augustine) shall be computed using the square yard of grassed area disturbed and restored as a result of Contractor's operations. The entire area of the disturbed area shall be grassed. Payment shall include all necessary grading, soil preparation, sodding, fertilizer, mulch, and irrigation.
- P. Unimproved Driveway Replacement: Shall include (dirt, marl, shell, or gravel) driveway replacement/reconstruction removed and replaced as a result of the construction operations. Work shall include subgrade and surface (shell, marl, gravel) materials, compaction, density testing, etc. Unimproved driveway replacement shall be included in the unit cost bid for the utility main.

- Q. Construction Stake-Out: Measurement of construction stake-out shall be computed as a lump sum item, for all required construction stake-out, including: layout and survey of the proposed construction, setting of stakes as required, necessary computations to establish the exact position of the work, establish reference to baselines, and provide and maintain off-set stakes outside the limits of construction and marked to show offset distance.
- R. Record Drawings/As-built Survey: Measurement of record drawings/as-built survey shall be computed as a lump sum item, for the preparation of "As-built Drawings", including field survey, drawing preparation in "ACAD", with ties to state plan coordinates, all in accordance with IRCUDS water and wastewater utility standards. The as-built drawings shall be provided certified by a licensed and registered land surveyor.
- S. Mobilization, Demobilization and Traffic Maintenance and Control (MOT): Measurement shall be based on the subtotal of bid items cost as shown in 00300 Bid Form, and determined using the table below. The cost of videotaping the pre-construction site condition shall be included in the lump-sum cost of mobilization.

<u>ORIGINAL CONTRACT AMOUNT (\$)</u>		<u>MAXIMUM AMOUNT</u>
<u>FROM MORE THAN</u>	<u>TO AND INCLUDING</u>	<u>FOR MOB, DEMO, MOT</u>
0	100,000	3,000
100,000	500,000	15,000
500,000	1,000,000	30,000
1,000,000	2,000,000	60,000
2,000,000	3,000,000	90,000
3,000,000	4,000,000	120,000
4,000,000	5,000,000	125,000
5,000,000	6,000,000	150,000
6,000,000	7,000,000	175,000
7,000,000	10,000,000	200,000

Should the lump sum bid price for the item Mobilization, Demobilization & MOT exceed the maximum amount allowed for this item as specified above, the bid price will be reduced to the maximum permissible amount and the reduced price will be used in correctly determining the total price for comparison of bids received.

1.04 PAYMENT

Payment will be made at the respective contract unit and/or lump sum price for each item shown in the Agreement, installed and accepted, which price and payment shall constitute full compensation for performing all work in connection therewith and incidental thereto.

1.05 RESTORATION OF DAMAGED SURFACES, STRUCTURES AND PROPERTY

Where pavement, trees, shrubbery, fences, or other property or surface structures not designated as pay items have been damaged, removed, or disturbed by the Contractor, whether deliberately or through failure to carry out the requirements of the Contract Documents, state laws, municipal ordinances, or the specific direction of the Engineer, or through failure to employ usual and reasonable safeguards, such property and surface structures shall be replaced or repaired at the expense of the Contractor to a condition equal to that before work began within a time frame approved by the Engineer.

END OF SECTION

SECTION 01035

CHANGE ORDER PROCEDURES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDE

- A. Promptly implement Change Order Procedures
 - 1. Provide full written data required to evaluate changes.
 - 2. Maintain detailed records of work done on a time-and-material/force account basis.
 - 3. Provide full documentation to Engineer on request.
- B. Designate in writing the member of Contractor's organization:
 - 1. Who is authorized to accept changes in the Work,
 - 2. Who is responsible for informing others in the Contractor's employ of the authorization of changes in the Work.
- C. Owner will designate in writing the person who is authorized to execute Change Orders.

1.02 RELATED REQUIREMENTS

- A. The amount of established unit prices.
- B. Conditions of the Contract:
 - 1. Methods of determining cost or credit to Owner resulting from changes in Work made on a time-and-materials basis.
 - 2. Contractor's claims for additional costs.
- C. Schedule of Values is included in Section 00300.
- D. Applications for Payment are included in Section 01052.
- E. Construction Schedules is included in Section 01311.

1.03 DEFINITIONS

Change Order: See General Conditions

1.04 PRELIMINARY PROCEDURES

- A. Owner or Engineer may initiate changes by submitting a proposal Request to Contractor. Request will include the following:
 - 1. Detailed description of the Change, Products, and location of the change in the Project.

2. Supplementary or revised Drawings and Specifications.
 3. The projected time span for making the change and a specific statement as to whether overtime work is, or is not, authorized.
 4. A specific period of time during which the requested price will be considered valid.
 5. Such request is for information only, and is not an instruction to execute the changes, nor to stop work in progress.
- B. Contractor may initiate changes by submitting a written notice to Engineer, containing:
1. Description of the proposed changes
 2. Statement of the reason for making the changes.
 3. Statement of the effect on the Contract Sum and the Contract Time.
 4. Statement of the effect on the work of separate contractors.
 5. Documentation supporting any changes in Contract Sum or Contract Time, as appropriate.

1.05 CONSTRUCTION CHANGE AUTHORIZATION

- A. In lieu of Proposal Request, Engineer may issue a "Work Directive Change" for Contractor to proceed with a change for subsequent inclusion in a Change Order.
- B. Authorization will describe changes in the work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.
- C. Owner and Engineer will sign and date the Work Directive Change as authorization for the Contractor to proceed with the Changes.

1.06 DOCUMENTATION OF PROPOSALS AND CLAIMS

- A. Support each quotation for a lump sum proposal, and for each unit price which has not previously been established, with sufficient substantiating data to allow Engineer to evaluate the quotation.
- B. On request, provide additional data to support time and cost computation including the following:
 1. Labor required.
 2. Equipment required.
 3. Products required:
 - a. Recommended source of purchase and unit cost.
 - b. Quantities required.
 4. Taxes, insurance bonds.
 5. Credit for work deleted from Contract, similarly documented.
 6. Overhead and profit.
 7. Justification for any change in Contract Time.

- C. Support each claim for additional costs, and for work done on a time-and-material / force account basis, with documentation as required for a lump sum proposal, plus the following additional information:
 - 1. Name of the Owner's authorization agent who ordered the work, and date of the order.
 - 2. Dates and time work performed, and by whom.
 - 3. Time record, summary of hours worked, and hourly rates paid.
 - 4. Receipts and invoices for:
 - a. Equipment used, listing dates and times of use.
 - b. Products used, listing quantities.
 - c. Subcontracts.
- D. Document requests for substitutions for Products as specified in Section 01630.

1.07 PREPARATION OF CHANGE ORDERS

- A. Contractor will prepare each Change Order.
- B. Form: Change Order format provided in the Contract Documents.
- C. Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of change.
- D. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.

1.08 LUMP SUM / FIXED PRICE CHANGE ORDER

- A. Content of Change Orders will be based on either:
 - 1. Engineer's Proposal Request and Contractor's responsible Proposal as mutually agreed upon between OWNER and Contractor.
 - 2. Contractor's Proposal for a change, as recommended by Engineer.
- B. Owner and Engineer will sign and date the Change Order as authorization for the contractor to proceed with the changes.
- C. Contractor shall sign and date the Change Order to indicate agreement with the terms therein.

1.09 UNIT PRICE CHANGE ORDER (If Applicable)

- A. Content of Change Orders will be based on, either:
 - 1. Engineer definition of the scope of the required changes.
 - 2. Contractor's Proposal for a change, as recommended by Engineer.
 - 3. Survey of completed work
- B. The amount of the unit prices shall be:

1. Those stated in the Agreement.
 2. Those mutually agreed upon between Owner and Contractor.
- C. When quantities of each of the items affected by the Change Order can be determined prior to start of the work:
1. Owner and Engineer will sign and date the Change Order as authorization for Contractor to proceed with the changes.
 2. Contractor shall sign and date the Change Order to indicate agreement with the terms therein.
- D. When quantities of the items cannot be determined prior to start of the work:
1. Engineer or Owner will issue a Change Order directing Contractor to proceed with the change on the basis of unit prices, and will cite the applicable unit prices.
 2. At completion of the change, Engineer will determine the cost of such work based on the unit prices and quantities used.
 - a. Contractor shall submit documentation to establish the number of units of each item and any claims for a change in Contract Time.
 3. Engineer will sign and date a second Change Order to establish the change in Contract Sum and in Contract Time.
 4. Owner and Contractor will sign and date the second Change Order to indicate their agreement with the terms therein.

1.10 TIME AND MATERIAL / FORCE ACCOUNT CHANGE ORDER / CONSTRUCTION AUTHORIZATION

- A. Engineer and Owner will issue a Work Change Directive directing Contractor to Proceed with the changes on a time-and-material / force account basis.
- B. At completion of the change, Contractor shall submit itemized accounting and supporting data as provided in the Article "Documentation of Proposals and Claims" of this section.
- C. Engineer will determine the allowable cost of such work, as provided in General Conditions and Supplementary Condition.
- D. Engineer will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
- E. Owner and Contractor will sign and date the Change Order to indicate their agreement therein.

1.11 CORRELATION WITH CONTRACTOR'S SUBMITTALS

- A. Contractor shall periodically revise Schedule of Values and Request for Payment forms to record each change as a separate item of Work, and to record the adjusted Contract Sum.

- B. Contractor shall periodically revise the Construction Schedule to reflect each change in Contract Time.
 - 1. Revise sub-schedules to show changes for other items of work affected by the changes.
- C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01050
FIELD ENGINEERING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide and pay for field engineering services required for project.
 - 1. Survey work required in execution of project.
 - 2. Civil, structural or other professional Engineering services specified, or required to execute Contractor's construction methods.

- B. The Contractor shall retain the services of a registered land surveyor licensed in the State of Florida:
 - 1. Identify existing control points and property line corner stakes indicated on the Drawings, as required.
 - 2. Maintain an accurate location of all buried piping.

1.02 RELATED WORK

- A. Standard General Conditions of the Construction Contract are included in Sections 00700 and 00800.

- B. Summary of Work is included in Section 01010.

- C. Applications for Payment are included in Section 01052.

- D. Contract Closeout is included in Section 01700.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, name and address of registered land surveyor or Professional Engineer.

- B. On request of the Engineer, submit documentation to verify accuracy of field engineering work.

- C. Submit certificate signed by registered Engineer or land surveyor certifying that elevations and locations of improvements are in conformance, or non-conformance, with Contract Documents.

- D. At the end of the project, and prior to final payment, submit certified drawings with the Surveyors title block (signed and sealed by the registered land surveyor) of the items listed below. Vertical Control shall conform to the NAVD 1988 datum.

These drawings shall be included with, and made a part of, the project record documents.

- 1. Certified site survey at 1-inch = 40-foot scale or larger but not greater than 1-inch = 20-foot scale, on reproducible mylar(s) 24-inch by 36-inch, indicating the

building corners, sidewalks, paved areas and location of all above ground structures within the plant or project site.

2. Certified drawing showing the location, lines and grades of all lines 4-inch in diameter and larger buried and exterior to buildings and other buried facilities (e.g. valves, tanks, vaults, etc.) installed as a result of the work. This shall be at the same scale as the Engineer's piping drawing and submitted on reproducible mylar.
 3. Certified survey at the same scale as the Engineer's line drawings (e.g. transfer piping, force main, water transmission, etc.) indicating lines, grades, elevations and stationing at 20-foot increments. Provide elevations of structure bottom, pipe invert(s) and rim elevations on all manholes.
- E. Topographical surveys shall meet the following criteria:
1. 1-inch = 100-foot scale reproducible plot, 2-foot contours.
 2. Produced on national map accuracy standards for 1-inch = 100-foot scale maps with 2 foot contour intervals
 3. Contractor shall submit computer generated drawing files in AutoCAD 2005 or later format on CD-R/RW disks. All entries shall be placed on layers named to describe the entity being mapped. All elevation information in the AutoCAD file shall be in an appropriate three dimensional format. A digital terrain model (DTM) AutoCAD file containing adequate three dimensional points and break lines to accurately model the surface shall be submitted. The DTM file shall be compatible for use with SoftDesk S.7 software.
- F. Survey shall include all the requirements as outlined in Paragraph 1.06 below.

1.04 QUALIFICATIONS OF SURVEYOR OR ENGINEER

- A. Registered professional Engineer or land surveyor of the discipline required for the specific service on the project, currently licensed in the State of Florida.

1.05 SURVEY REFERENCE POINTS

- A. Existing basic horizontal and vertical control points for the project are those designated on Drawings.
- B. Locate and protect control points prior to starting site work and preserve all permanent reference points during construction.
1. Make no changes or relocations without prior written notice to the Engineer.
 2. Report to the Engineer when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
 3. Require surveyor to correctly replace project control points which may be lost or destroyed.
 - a. Establish replacements based on original survey control.

1.06 PROJECT SURVEY REQUIREMENTS

- A. Establish a minimum of two (2) permanent bench marks on site, referenced to data established by survey control points.

1. Record locations, with horizontal and vertical data, on Project Record Documents.
- B. Establish lines and levels, locate and lay out, by instrumentation and similar appropriate means:
 1. Site improvements
 - a. Stakes for grading, fill and topsoil placement.
 - b. Utility slopes and invert elevations.
 2. Batter boards for structures.
 3. Building foundation, column locations and floor levels.
 4. Controlling lines and levels required for mechanical and electrical trades.
- C. From time to time, verify layouts by same methods.
- D. Establish all lines and grades prior to construction of line work for all force mains, raw water mains and transmission mains at 100-foot increments and at defined breaks in grade.

1.07 RECORDS

- A. Maintain a complete, accurate log of all control and survey work as it progresses.
- B. Update the project record drawings on a monthly basis based on the work performed during the month ending at the pay request as a condition for approval of monthly progress payment requests.
- C. Maintain an accurate record of piping changes, revisions, and modifications.

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01052

APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit Applications for Payment to Engineer in accordance with the schedule established by Conditions of the contract and Agreement between Owner and Contractor.
- B. The accepted Schedule of Values, Section 00300, shall be used as the basis for the CONTRACTOR's Application for Payment.

1.02 RELATED REQUIREMENTS

- A. In other parts of the Construction Documents:
 - 1. Agreement between Owner and Contractor
 - 2. General Conditions of the Contract
 - 3. Article 14 – Payments to Contractor and Completion
- B. Specified in Other Sections:
 - 1. Summary of Work is included in Section 01010.
 - 2. Contract Closeout is included in Section 01700.

1.03 FORMAT AND DATA REQUIRED

- A. Submit itemized applications typed in a format approved by Engineer. All applications for payment must be numbered, dated, signed by the Contractor, and notarized.
- B. Provide itemized data on payment application (format, schedules, line items and values accepted by Engineer).

1.04 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. Application Form:
 - 1. Fill in required information, including that for Change Orders executed prior to the date of submittal of application
 - 2. Fill in summary of dollar values
 - 3. Execute certification with the signature of a responsible officer of the contract firm
 - 4. Have resident project representative review and sign application prior to submission to Engineer

1.05 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the Owner or the Engineer requires substantiating data, Contractor shall submit suitable information, with a cover letter identifying:
 - 1. Project
 - 2. Application number and date
 - 3. Detailed list of enclosures
 - 4. For stored products:
 - a. Item number and identification
 - b. Description of specific material

- B. Submit one (1) copy of data and cover letter for each copy of application.

1.06 PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. Application for payment is required for progress payments.

- B. Only one (1) application will be acceptable in any one (1) month.

1.07 SUBMITTAL PROCEDURE

- A. Submit Applications for Payment to Engineer at the time stipulated in the Agreement.

- B. Number: One (1) original copy of each progress Application.

- C. When Engineer finds the Application properly completed and correct, he will transmit the applications for payment to the Owner.

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01060

REGULATORY REQUIREMENTS AND NOTIFICATION

PART 1 - GENERAL

1.01 GENERAL

1. Contractor shall comply with and furnish all items necessary to satisfy any general and specific conditions that are part of the Owner and Contractor obtained permits and licenses.
2. Obtain and pay for all permits and licenses as provided for in the General Conditions, except as otherwise provided herein.
3. Schedule all inspections and obtain all written approvals of the agencies required by the permits, easements, and licenses.
4. A copy of the permits and easements obtained by the Owner will be furnished to the Contractor.
5. The Contractor shall keep a copy of all permits and easements complete with conditions, attachments, exhibits, and modifications at the work site. And provide copies of the permits to the appropriate subcontractors. The contractor is responsible for ensuring that the permit conditions are explained to the appropriate construction personnel.

1.02 PERMITS/EASEMENTS BY OWNER

The following is a list of permits that have been submitted by and/or received by the Owner and a copy is provided in APPENDIX A in these Specifications:

1. Florida Department of Environmental Protection (FDEP) Wastewater Construction Permit
2. FDEP Water Main Construction Permit
3. Indian River County Utility Construction Permit (submitted)
4. Indian River County Right-of-Way Permit (submitted)

1.03 PERMITS BY CONTRACTOR

- A. If required, the Contractor shall prepare, submit, and pay for the Notice of Intent (NOI) to use the Generic Permit for Stormwater Discharge from Construction Activity, which will include Stormwater Pollution Prevention Plan (SWPPP) as required by F.A.C. 62-621.300(4) and the Environmental Protection Agency (EPA) as part of the National Pollutant Discharge Elimination System (NPDES) prior to beginning work. The Contractor will be responsible for the \$250 application fee and the costs associated with preparation of the NOI and SWPPP. The Contractor shall conform to the conditions of this permit as part of this Contract.
- B. Other Permits Required: The Contractor is responsible for obtaining any temporary discharge permits that may be required by local drainage districts as well as any right-of-way permits necessary to complete the Work.

1.04 NOTIFICATION

- A. Indian River County: The Contractor is required to notify the Indian River County Utilities Department 48 hours prior to initiating construction (Arjuna Weragoda, P.E., 772-226-1821). The Contractor is required to notify the Indian River County Road and Bridge Department 72 hours prior to blocking any County roads or detouring any traffic (Will Scott, 772-770-5085).
- B. Florida Department of Transportation: The Contractor is required to notify the FDOT a minimum of forty-eight (48) hours prior to start of work in their right-of-way (Peter Gonzalez [JCS] 772-539-2069).
- C. Utility Companies: Contractor shall notify the utility companies in the area 48 hours prior to initiating construction and contact SunShine State One Call by dialing 811.
- D. The Contractor shall give the Engineer not less than seven (7) calendar days' notice to schedule a preconstruction meeting.
- E. When the Contractor's excavating operations encounter prehistoric remains or artifacts of historical or archeological significance, the operations shall be temporarily discontinued in that area and the Engineer shall be notified. The Engineer will consult archaeological authorities and determine the disposition of the remains or artifacts. The Contractor agrees that he will make no claim for additional payment or for extension of time because of any delays in or alteration of his procedure due to removal of any such remains or artifacts.

PART 2 – PRODUCTS

Not applicable

PART 3 – EXECUTION

Not applicable

END OF SECTION

SECTION 01090

REFERENCE STANDARDS

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

Abbreviations and acronyms used in Contract Documents to identify reference standards.

1.02 QUALITY ASSURANCE

- A. Application: When a standard is specified by reference, comply with requirements and recommendations stated in that standard, except when requirements are modified by the Contract Documents or applicable codes establish stricter standards.
- B. Publication Date: The publication in effect on the date of issue of Contract Documents, except when a specific publication date is specified.

1.03 ABBREVIATIONS, NAMES, AND ADDRESSES OR ORGANIZATIONS

- A. Obtain copies of reference standards direct from publication source, when needed for proper performance of work, or when required for submittal by Contract Documents.
- B. The following, as appropriate to project, is a list of referenced standards and their mailing addresses for requesting copies of standards:

AA	Aluminum Association 818 Connecticut Avenue, NW Washington, D.C. 20006
AABC	Associated Air Balance Council 1000 Vermont Avenue, NW Washington, D.C. 20005
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, NW Washington, D.C. 20001
ACI	American Concrete Institute Box 19150 Redford Station Detroit, MI 48219
ADC	Air Diffusion council 435 North Michigan Avenue Chicago, IL 60611
AI	Asphalt Institute Asphalt Institute Building College Park, MD 20740

AISC	American Institute of Steel Construction 1221 Avenue of the Americas New York, NY 10020
AISI	American Iron and Steel Institute 1000 16 th Street, NW Washington, D.C., 20036
AMCA	Air Movement and Control Association 30 West University Drive Arlington Heights, IL 60004
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
ARI	Air Conditioning and Refrigeration Institute 1815 North Fort Myer Drive Arlington, VA 22209
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers 345 East 47 th Street New York, NY 10017
ASME	American Society of Mechanical Engineers 345 East 47 th Street New York, NY 10017
ASPA	American Sod Producers' Association Association Building Ninth and Minnesota Hastings, NE 68901
ASSE	American Society of Sanitary Engineers 960 Illuminating Building Cleveland, OH 44113
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103
AWI	Architectural Woodwork Institute 2310 South Walter Reed Drive Arlington, VA 22206
AWPA	American Wood-Preservers Association 7735 Old Georgetown Road Bethesda, MD 20014
AWS	American Welding Society 2501 NW 7 th Street Miami, FL 33125

AWWA	American Water Works Association 6666 W. Quincy Avenue Denver, CO 80235
CDA	Copper Development Association 57 th Floor, Chrysler Building 405 Lexington Avenue New York, NY 10017
CLFMI	Chain Link Fence Manufacturers Institute 1101 Connecticut Avenue Washington, D.C. 20036
CRSI	Concrete Reinforcing Steel Institute 180 North LaSalle Street, Suite 2110 Chicago, IL 60601
FDOT	Florida Department of Transportation Haydon Burns Building 605 Suwannee Street Tallahassee, FL 32301
FM	Factory Mutual System 1151 Boston-Providence Turnpike Norwood, MA 02062
FS	Federal Specifications General Services Administration Specifications and Information Distribution Section (WFSIS) Washington Navy Yard, Bldg. 197 Washington, D.C. 20407
GA	Gypsum Association 1603 Orrington Avenue Evanston, IL 60201
MFMA	Maple Flooring Manufacturers Association 2400 East Devon, Suite 205 Des Plaines, IL 60018
MIL	Military Specification Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
MLSFA	Metal Lath / Steel Framing Association 221 North LaSalle Street Chicago, IL 60601
NAAMM	National Association of Architectural Metal Manufacturers 221 North LaSalle Street Chicago, IL 60601

NEBB	National Environmental Balancing Bureau 8224 Old Courthouse Road Vienna, VA 22180
NEMA	National Electrical Manufacturers Association 2101 L Street, NW Washington, D.C. 20037
NFPA	National Fire Protection Association 470 Atlantic Avenue Boston, MA 02210
NFPA	National Forest Products Association 1619 Massachusetts Avenue, NW Washington, D.C. 20036
NOFMA	National Oak Flooring Manufacturers Association 804 Sterick Building Memphis, TN 38103
NSF	National Sanitation Foundation NSF Building 3475 Plymouth Road Ann Arbor, MI 48106
NSWMA	National Solid Waste Management Association 1120 Connecticut Avenue, NW Washington, D.C. 20036
NTMA	National Terrazzo and Mosaic Association 3166 Des Plaines Avenue Des Plaines, IL 60018
PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 20076
PCI	Prestressed Concrete Institute 20 North Wacker Drive Chicago, IL 60606
PS	Product Standard U.S. Department of Commerce Washington, D.C. 20203
RCSHSB	Red Cedar Shingle and Handsplit Shake Bureau 515 116th Avenue Bellevue, WA 98004
SDI	Steel Deck Institute Box 3812 St. Louis, MO 63122

SDI	Steel Door Institute 712 Lakewood Center North Cleveland, OH 44107
SIGMA	Sealed Insulating Glass Manufacturers Association 111 East Wacker Drive Chicago, IL 60601
SJI	Steel Joint Institute 1703 Parham Road, Suite 204 Richmond, VA 23229
SMACNA	Sheet Metal and Air Conditioning Contractor's National Association 8224 Old Courthouse Road Vienna, VA 22180
TCA	Technical Aid Series Construction Specifications Institute 1150 Seventeenth Street, NW Washington, D.C. 20036
TCA	Tile Council of America, Inc. Box 326 Princeton, NJ 08540
UL	Underwriters Laboratories, Inc. 333 Pfingston Road Northbrook, IL 60062

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01110

ENVIRONMENTAL PROTECTION PROCEDURES

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials and equipment and perform all work required for the prevention of environmental pollution in conformance with applicable laws and regulations, during and as the result of construction operations under this Contract. For the purpose of this Section, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic and/or recreational purposes.
- B. The control of environmental pollution requires consideration of air, water and land, and involves management of noise and solid waste, as well as other pollutants.
- C. Schedule and conduct all work in a manner that will minimize the erosion of soils in the area of the work. Provide erosion control measures such as diversion channels, sedimentation or filtration systems, berms, staked hay bales, seeding, mulching or other special surface treatments as are required to prevent silting and muddying of streams, rivers, impoundments, lakes, etc. All erosion control measures shall be in place in an area prior to any construction activity in that area.
- D. This Section is intended to ensure that construction is achieved with a minimum of disturbance to the existing ecological balance between a water resource and its surroundings. These are general guidelines. It is the Contractor's responsibility to determine the specific construction techniques to meet these guidelines.
- E. All phases of sedimentation and erosion control shall comply with and be subject to the approval of the Florida Department of Environmental Protection. Contractor shall prepare sedimentation and erosion control drawings meeting the requirements for approval by that agency. Upon approval, furnish two copies of the approved Drawing to the Engineer.

1.02 APPLICABLE REGULATIONS

Comply with all applicable Federal, State, and local laws and regulations concerning environmental pollution control and abatement.

1.03 NOTIFICATIONS

The Engineer will notify the Contractor in writing of any non-compliance with the foregoing provisions or of any environmentally objectionable acts and corrective action to be taken. State or local agencies responsible for verification of certain aspects of the environmental protection requirements shall notify the Contractor in writing, through the Engineer, of any non-compliance with State or Local requirements. After receipt of such notice from the Engineer or from the regulatory agency through the Engineer, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails or refuses to comply promptly, the Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or

damages by the Contractor unless it is later determined that the Contractor was in compliance.

1.04 IMPLEMENTATION

- A. Prior to commencement of the work, meet with the Engineer to develop mutual understandings relative to compliance with these provisions and administration of the environmental pollution control program.
- B. Remove temporary environmental control features, when approved by the Engineer and incorporate permanent control features into the project at the earliest practicable time.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

3.01 EROSION CONTROL

Provide positive means of erosion control such as shallow ditches around construction to carry off surface water. Erosion control measures, such as siltation basins, hay check dams, mulching, jute netting and other equivalent techniques, shall be used as appropriate. Offsite surface water shall be diverted around the site, to a downstream channel ahead of siltation barriers. Flow of surface water into excavated areas shall be prevented. Ditches around construction area shall also be used to carry away water resulting from dewatering of excavated areas. At the completion of the work, ditches shall be backfilled and the ground surface restored to original condition.

3.02 PROTECTION OF STREAMS AND SURFACE WATERS

- A. Take all precautions to prevent, or reduce to a minimum, any damage to any stream or surface water from pollution by debris, sediment or other material, or from the manipulation of equipment and/or materials in or near such streams. Water that has been used for washing or processing, that contains oils or sediments that will reduce the quality of the water in the stream, shall not be directly returned to the stream. Divert such waters through a settling basin or filter before being directed into streams or surface waters.
- B. Do not discharge water from dewatering operations directly into any live or intermittent stream, channel, wetlands, surface water or any storm sewer. Water from dewatering operations shall be treated by filtration, settling basins, or other approved method to reduce the amount of sediment contained in the water to allowable levels.
- C. Take all preventative measures to avoid spillage of petroleum products and other pollutants. In the event of any spillage, prompt remedial action shall be taken in accordance with a contingency action plan approved by the Florida Department of Environmental Protection. Submit two copies of approved contingency plans to the Engineer.
- D. Water being flushed from structures or pipelines after disinfection, with a Cl₂ residue of 2 mg/l or greater shall be treated with a dechlorination solution, in a method approved by the Engineer, prior to discharge.

3.03 PROTECTION OF LAND RESOURCES

- A. Restore land resources within the project boundaries and outside the limits of permanent work to a condition, after completion of construction that will appear to be natural and not detract from the appearance of the project.
- B. Outside of areas requiring earthwork for the construction of the new facilities, do not deface, injure, or destroy trees or shrubs, nor remove or cut them without prior approval. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorage unless specifically authorized by the Engineer. Where such special emergency use is permitted, first wrap the trunk with a sufficient thickness of burlap or rags over which softwood cleats shall be tied before any rope, cable, or wire is placed. The Contractor shall in any event be responsible for any damage resulting from such use.
- C. Before beginning operations near them, protect trees that may possibly be defaced, bruised, injured, or otherwise damaged by the construction equipment, dumping or other operations, by placing boards, planks, or poles around them. Monuments and markers shall be protected similarly.
- D. Any trees or other landscape features scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to their original condition. The Engineer will decide the method of restoration to be used and whether damaged trees shall be treated and healed or removed and disposed of.
 - 1. All scars made on trees by equipment, construction operations, or by the removal of limbs larger than 1-inch in diameter shall be coated as soon as possible with an approved tree wound dressing. All trimming or pruning shall be performed in an approved manner by experienced workmen with saws or pruning shears. Tree trimming with axes will not be permitted.
 - 2. Climbing ropes shall be used where necessary for safety. Trees that are to remain, both within or outside established clearing limits, that are subsequently damaged by the Contractor and are beyond saving in the opinion of the Engineer, shall be immediately removed and replaced.
- E. The Contractor's storage and other construction buildings required temporarily for the performance of the work, shall be located at previously cleared portions of the job site or areas which are proposed to be cleared and shall not be within wetlands, stormwater detention areas or floodplains. The preservation of the landscape shall be an imperative consideration in the selection of all sites and in the construction of buildings. Drawings showing storage facilities shall be submitted by the Contractor for approval of the Engineer.
- F. If the Contractor proposes to construct temporary roads or embankments and excavations for plant and/or work areas, he shall submit the following for approval at least ten days prior to scheduled start of such temporary work.
 - 1. A layout of all temporary roads, excavations, embankments and drainage to be constructed within the work area.
 - 2. Details of temporary road construction.
 - 3. Drawings and cross sections of proposed embankments and their foundations, including a description of proposed materials.
 - 4. A landscaping drawing showing the proposed restoration of the area. Indicate the proposed removal of any trees and shrubs outside the limits of existing clearing area. Indicate locations of guard posts or barriers required to control

vehicular traffic and protect trees and shrubs to be maintained undamaged. The Drawing shall provide for the obliteration of construction scars as such and shall provide for a natural appearing final condition of the area. Modification of the Contractor's approved drawings shall be made only with the written approval of the Engineer. No unauthorized road construction, excavation or embankment construction including disposal areas will be permitted.

- G. Remove all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess of waste materials, or any other vestiges of construction as directed by the Engineer. It is anticipated that excavation, filling and plowing of roadways will be required to restore the area to near natural conditions which will permit the growth of vegetation thereon. The disturbed areas shall be prepared and sodded in a manner satisfactory to the IRCDUS and/or Public Works and as described in Section 02640.
- H. All debris and excess material will be disposed of outside wetland or floodplain areas in an environmentally sound manner.

3.04 PROTECTION OF AIR QUALITY

- A. Burning - The use of burning at the project site for the disposal of refuse and debris will not be permitted.
- B. Dust Control - Maintain all excavations, embankment, stockpiles, access roads, plant sites, waste areas, borrow areas and all other work areas within or without the project boundaries free from dust which could cause the standards for air pollution to be exceeded and which would cause a hazard or nuisance to others.
- C. An approved method of stabilization consisting of sprinkling or other similar methods will be permitted to control dust. The use of petroleum products is prohibited. The use of chlorides may be permitted with approval from the Engineer.
- D. Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the Contractor shall have sufficient competent equipment on the job to accomplish this. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs, as determined by the Engineer.

3.05 NOISE CONTROL

Make every effort to minimize noises caused by the construction operations. Equipment shall be equipped with silencers or mufflers designed to operate with the least possible noise in compliance with Federal and State regulations.

3.06 MAINTENANCE OF POLLUTION CONTROL FACILITIES DURING CONSTRUCTION

Maintain all facilities constructed for pollution control as long as the operations creating the particular pollutant are being carried out or until the material concerned has become stabilized to the extent that pollution is no longer being created.

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Engineer shall schedule and administer preconstruction, periodic progress meetings, and specially called meetings throughout progress of the work.
 - 1. Prepare agenda for meetings.
 - 2. Make physical arrangements for meetings.
 - 3. Preside at meetings.
 - 4. Record the minutes; include significant proceedings and decisions.
 - 5. Reproduce and distribute copies of minutes within fifteen (15) working days after each meeting.
 - a. To participants in the meeting.
 - b. To parties affected by decisions made at the meeting.
- B. Representatives of Contractors, Subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.
- C. Attend meetings to ascertain that work is expedited consistent with Contract Documents and construction schedules.

1.02 RELATED REQUIREMENTS

- A. Instructions to Bidders are included in Section 00100.
- B. Construction Schedules are included in Section 01311.
- C. Shop Drawings, Working Drawings and Samples are included in Section 01300.
- D. Contract Closeout is included in Section 01700.

1.03 PRE-CONSTRUCTION MEETING

- A. Schedule a preconstruction meeting no later than fifteen (15) days after date of Notice to Proceed.
- B. Location: A central site, convenient for all parties, designated by the Owner.
- C. Attendance
 - 1. Owner's Representative.
 - 2. Engineer and his/her professional consultants.
 - 3. Resident Project Representative.
 - 4. Contractor's Superintendent.
 - 5. Major Subcontractors.
 - 6. Major suppliers.
 - 7. Utilities
 - 8. Others as appropriate.

D. Suggested Agenda

1. Distribution and discussion of:
 - a. List of major Subcontractors and suppliers.
 - b. Projected Construction Schedules.
2. Critical work sequencing.
3. Major equipment deliveries and priorities.
4. Project Coordination.
 - a. Designation of responsible personnel.
5. Procedures and processing of:
 - a. Field decisions.
 - b. Proposal requests.
 - c. Submittals.
 - d. Change Orders.
 - e. Applications for Payment.
6. Adequacy of distribution of Contract Documents.
7. Procedures for maintaining Record Documents.
8. Use of premises:
 - a. Office, work and storage areas.
 - b. Owner's requirements.
9. Construction facilities, controls and construction aids.
10. Temporary utilities.
11. Housekeeping procedures.

1.04 PROGRESS MEETINGS

- A. Schedule regular periodic meetings. The progress meetings will be held every 30 days with the first meeting 30 days after the pre-construction meeting or 30 days after the date of Notice to Proceed.
- B. Hold called meetings as required by progress of the work.
- C. Location of the meetings: Project field office of Contractor or Engineer.
- D. Attendance
 1. Engineer and his/her professional consultants as needed.
 2. Subcontractors as appropriate to the agenda.
 3. Suppliers as appropriate to the agenda.
 4. Others as appropriate.
- E. Suggested Agenda
 1. Review, approval of minutes of previous meeting.
 2. Review of work progress since previous meeting.
 3. Field observations, problems and conflicts.
 4. Problems which impede Construction Schedule.
 5. Review of off-site fabrication, delivery schedules.

6. Corrective measures and procedures to regain projected schedule.
 7. Revisions to Construction Schedule.
 8. Progress, schedule, during succeeding work period.
 9. Coordination of schedules.
 10. Review submittal schedules; expedite as required.
 11. Maintenance of quality standards.
 12. Pending changes and substitutions.
 13. Review proposed changes for:
 - a. Effect on Construction Schedule and on completion date.
 - b. Effect on other contracts of the project.
 14. Other business.
 15. Construction schedule.
 16. Critical/long lead items.
- F. Attend progress meetings and is to study previous meeting minutes and current agenda items, in order to be prepared to discuss pertinent topics such as deliveries of materials and equipment, progress of the work, etc.
- G. Provide a current submittal log at each progress meeting in accordance with Section 01300.

1.05 SPECIAL SHOP DRAWING REVIEW MEETING

- A. Within twenty-one (21) calendar days following the Notice to Proceed (NTP) the Contractor shall schedule a special shop drawing review meeting to facilitate the review of the systems.
- B. The purpose of this meeting is to expedite the review process so that the Contractor may place orders with his Supplier's as soon as possible.
- C. At this meeting, the Contractor shall provide the shop drawings for the items and equipment required. The number of shop drawings required shall be as specified in Section 01340.
- D. The Contractor shall schedule a special shop drawing review meeting every twenty-one (21) calendar days following the initial meeting until the items and equipment have been approved to a degree acceptable to the Engineer, as applicable.

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. This Section specifies the general methods and requirements of submissions applicable to Shop Drawings, Product Data, Samples, Audio-Visual Documentation, and Construction or Submittal Schedules. Additional general submission requirements are contained in Article 6.17 of the General Conditions. Detailed submittal requirements are specified in the technical Sections.
- B. All submittals shall be clearly identified by reference to Section Number, Paragraph, Drawing Number or Detail as applicable. Submittals shall be clear and legible and of sufficient size for presentation of data.
- C. The Contractor is to maintain an accurate updated submittal log and will bring this log to each scheduled progress meeting with the Owner and the Engineer. This log should include the following items:
 - 1. Submittal-Description and File number assigned.
 - 2. Date to Engineer.
 - 3. Date returned to Contractor from Engineer.
 - 4. Status of submittal (approved/resubmit/rejected).
 - 5. Date of resubmittal and return (as applicable).
 - 6. Date material released for fabrication.
 - 7. Projected date of fabrication.
 - 8. Projected date of delivery to site.
 - 9. Status of O&M submittal.

1.02 SHOP DRAWINGS, PRODUCT DATA, SAMPLES

- A. Shop Drawings
 - 1. Shop drawings as specified in individual Sections include, custom-prepared data such as fabrication and erection/installation (working) drawings, scheduled information, setting diagrams, actual shop work manufacturing instructions, custom templates, special wiring diagrams, coordination drawings, individual system or equipment inspection and test reports including performance curves and certifications, as applicable to the work.
 - 2. All shop drawings submitted by subcontractors shall be sent directly to the Contractor for checking. The Contractor shall be responsible for their submission at the proper time so as to prevent delays in delivery of materials.
 - 3. Check all subcontractors' shop drawings regarding measurements, size of members, materials and details to make sure that they conform to the intent of the Drawings and related Sections. Return shop drawings found to be inaccurate or otherwise in error to the subcontractors for correction before submission thereof.

4. All details on shop drawings shall show clearly the relation of the various parts to the main members and lines of the structure and where correct fabrication of the work depends upon field measurements, such measurements shall be made and noted on the drawings before being submitted.

B. Product Data

1. Product data as specified in individual Sections include, standard prepared data for manufactured products (sometimes referred to as catalog data), such as the manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommended spare-parts listing and printed product warranties, as applicable to the work.

C. Samples

1. Samples specified in individual Sections include, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols and units of work to be used by the Engineer or Owner for independent inspection and testing, as applicable to the work.
2. The Contractor shall prepare a transmittal letter in triplicate for each shipment of samples. Contractor shall enclose a copy of this letter with the shipment and send a copy of this letter to the Engineer. Approval of a sample shall be only for the characteristics or use named in such approval and shall not be construed to change or modify any Contract Requirements.

1.03 CONTRACTOR'S RESPONSIBILITIES

- A. Review shop drawings, product data and samples, including those by subcontractors, prior to submission to determine and verify the following:
 1. Field measurements
 2. Field construction criteria
 3. Catalog numbers and similar data
 4. Conformance with related Sections
- B. Each shop drawing, sample and product data submitted by the Contractor shall have affixed to it the following Certification Statement including the Contractor's Company name and signed by the Contractor: "Certification Statement: by this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements." Shop drawings and product data sheets 11-inch by 17-inch and smaller shall be bound together in an orderly fashion and bear the above Certification Statement on the cover sheet. The cover sheet shall fully describe the packaged data and include a listing of all items within the package. Provide to the Resident Project Representative a copy of each transmittal sheet for shop drawings, product data and samples at the time of submittal to the Engineer.

- C. Notify the Engineer in writing, at the time of submittal, of any deviations in the submittals from the requirements of the Contract Documents.
- D. The review and approval of shop drawings, samples or product data by the Engineer shall not relieve the Contractor from the responsibility for the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the Contractor and the Engineer will have no responsibility therefor.
- E. No portion of the work requiring a shop drawing, sample, or product data shall be started nor shall any materials be fabricated or installed prior to the approval or qualified approval of such item. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved shop drawings and data shall be at the Contractor's risk. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.
- F. Project work, materials, fabrication, and installation shall conform with approved shop drawings, applicable samples, and product data.

1.04 SUBMISSION REQUIREMENTS

- A. Make submittals promptly in accordance with approved schedule and in such sequence as to cause no delay in the Work or in the work of any other contractor.
- B. Each submittal, appropriately coded, will be returned within 30 calendar days following receipt of submittal by the Engineer.
- C. Number of submittals required:
 - 1. Shop Drawings: One (1) PDF for two (2) hard copies.
 - 2. Product Data: Three (3) copies.
 - 3. Samples: Submit the number stated in the respective Sections.
- D. Submittals shall contain:
 - 1. The date of submission and the dates of any previous submissions.
 - 2. The Project title and number.
 - 3. Contractor identification.
 - 4. The names of:
 - a. Contractor
 - b. Supplier
 - c. Manufacturer
 - 5. Identification of the product, with the section number, page and paragraph(s).
 - 6. Field dimensions, clearly identified as such.
 - 7. Relation to adjacent or critical features of the work or materials.
 - 8. Applicable standards, such as ASTM or Federal Standards numbers.
 - 9. Identification of deviations from Contract Documents.
 - 10. Identification of revisions on resubmittals.
 - 11. A blank space suitably sized for Contractor and Engineer stamps.
 - 12. Where calculations are required to be submitted by the Contractor, the calculations shall have been checked by a qualified individual other than the

preparer. The submitted calculations shall clearly show the names of the preparer and of the checker.

1.05 REVIEW OF SHOP DRAWINGS, PRODUCT DATA, WORKING DRAWINGS AND SAMPLES

- A. The review of shop drawings, data and samples will be for general conformance with the design concept and Contract Documents. They shall not be construed:
 - 1. as permitting any departure from the Contract requirements;
 - 2. as relieving the Contractor of responsibility for any errors, including details, dimensions, and materials;
 - 3. as approving departures from details furnished by the Engineer, except as otherwise provided herein.
- B. The Contractor remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.
- C. If the shop drawings, data or samples as submitted describe variations and show a departure from the Contract requirements which Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or Contract Time, the Engineer may return the reviewed drawings without noting an exception.
- D. Submittals will be returned to the Contractor under one of the following codes.
 - Code 1 -"APPROVED" is assigned when there are no notations or comments on the submittal. When returned under this code the Contractor may release the equipment and/or material for manufacture.
 - Code 2 -"APPROVED AS NOTED". This code is assigned when a confirmation of the notations and comments IS NOT required by the Contractor. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product.
 - Code 3 -"APPROVED AS NOTED/CONFIRM". This combination of codes is assigned when a confirmation of the notations and comments IS required by the Contractor. The Contractor may, at his own risk, release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product. This confirmation shall specifically address each omission and nonconforming item that was noted. Confirmation is to be received by the Engineer within fifteen (15) calendar days of the date of the Engineer's transmittal requiring the confirmation.
 - Code 4 -"APPROVED AS NOTED/RESUBMIT". This combination of codes is assigned when notations and comments are extensive enough to require a resubmittal of the package. This resubmittal is to address all comments, omissions and non-conforming items that were noted. Resubmittal is to be received by the Engineer within fifteen (15) calendar days of the date of the Engineer's transmittal requiring the resubmittal.
 - Code 5 -"NOT APPROVED" is assigned when the submittal does not meet the intent of the Contract Documents. The Contractor must resubmit the entire package revised to bring the submittal into conformance. It may be necessary to resubmit using a different manufacturer/vendor to meet the Contract Documents.

Code 6 -"COMMENTS ATTACHED" is assigned where there are comments attached to the returned submittal which provide additional data to aid the Contractor.

Codes 1 through 5 designate the status of the reviewed submittal with Code 6 showing there has been an attachment of additional data.

- E. Resubmittals will be handled in the same manner as first submittals. On resubmittals the Contractor shall identify all revisions made to the submittals, either in writing on the letter of transmittal or on the shop drawings by use of revision triangles or other similar methods. The resubmittal shall clearly respond to each comment made by the Engineer on the previous submission. Additionally, the Contractor shall direct specific attention to any revisions made other than the corrections requested by the Engineer on previous submissions.
- F. Partial submittals may not be reviewed. The Engineer will be the only judge as to the completeness of a submittal. Submittals not complete will be returned to the Contractor and will be considered "Not Approved" until resubmitted. The Engineer may at his option provide a list or mark the submittal directing the Contractor to the areas that are incomplete.
- G. Repetitive Review
 - 1. Shop Drawings and other submittals will be reviewed no more than twice at the Owner's expense. All subsequent reviews will be performed at times convenient to the Engineer and at the Contractor's expense based on the Engineer's then prevailing rates. The Contractor shall reimburse the Owner for all such fees invoiced to the Owner by the Engineer. Submittals are required until approved.
 - 2. Any need for more than one (1) resubmission, or any other delay in obtaining Engineer's review of submittal will not entitle Contractor to extension of the contract time.
- H. If the Contractor considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, the Contractor shall give written notice thereof to the Engineer at least seven (7) working days prior to release for manufacture.
- I. When the shop drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.

1.06 DISTRIBUTION

Distribute reproductions of approved shop drawings and copies of approved product data and samples, where required, to the job site file and elsewhere as directed by the Engineer. Number of copies shall be as directed by the Engineer but shall not exceed six (6).

1.07 GENERAL PROCEDURES FOR SUBMITTALS

Coordination of Submittal Times: Prepare and transmit each submittal sufficiently in advance of performing the related work or other applicable activities, or within the time specified in the individual work of other related Sections, so that the installation will not be delayed by processing times including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals sufficiently in advance of the Work.

P.E. CERTIFICATION FORM

The undersigned hereby certifies that he/she is a professional engineer registered in the State of Florida and that he/she has been employed by

_____ to design
(Name of Contractor)

(Insert P.E. Responsibilities)

in accordance with Section _____ for the

Indian River County North County Water & Sewer System Phase 2
(Name of Project)

The undersigned further certifies that he/she has performed the design of the _____, that said design is in conformance
(Name of Project Element)

with all applicable local, state and federal codes, rules, and regulations, and that his/her signature and P.E. stamp have been affixed to all calculations and drawings used in, and resulting from, the design.

The undersigned hereby agrees to make all original design drawings and calculations available to the

_____ Indian River County Department of Utility Services
(Insert Name of Owner)

or the Owner's authorized representative within seven days following written request therefor by the Owner.

P.E. Name

Contractor's Name

Signature

Signature

Address

Title

Address

END OF SECTION

SECTION 01311

CONSTRUCTION SCHEDULES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Promptly after award of the Contract, Contractor shall prepare and submit to the Engineer estimated construction progress for the Work, with sub-schedules of related activities which are essential to its progress.
- B. Coordinate the work and scheduling with and around other Contractors and individual trades performing work on the Project.
- C. Submit revised progress schedules with each application for payment.
- D. Progress Schedule shall become part of Contract Documents after approval by Engineer.

1.02 RELATED REQUIREMENTS

- A. In other parts of the Contract Documents:
 - 1. General Conditions:
 - a. Articles 2 and 6 – Schedules, Reports, and Records
 - b. Sections 6.01 and 6.02 – Supervision by Contractor
 - c. Article 15 – Supervision of Work, Termination, and Delay
- B. Specified in other sections:
 - 1. Summary of Work is included in Section 01010.
 - 2. Submittals included in Section 01300.

1.03 FORM OF SCHEDULES

- A. Prepare schedules in the form of a horizontal bar chart as follows:
 - 1. Provide separate horizontal bar for each trade or operation
 - 2. Horizontal time scale: Identify the first work day of each week.
 - 3. Scale and spacing: To allow space for notations and future revisions.
 - 4. Maximum sheet size: 11 inch by 17 inch
- B. Format of listings: The chronological order of the start of each item of work.
- C. Identification of listings: By major specification section numbers.

1.04 CONTENT OF SCHEDULES

- A. Construction Progress Schedule shall:
 - 1. Show the complete sequence of construction by activity.
 - 2. Show the dates for the beginning and completion of each major element of construction; specifically list (at a minimum):
 - a. Subcontractor work

- b. Utility Construction
- c. Restoration
- 3. Show projected percentage of completion for each item, as of the first day of each month.
- 4. Show projected dollar cash flow requirements for each month of construction.

1.05 PROGRESS REVISIONS

- A. Indicate progress of each activity to date of submission
- B. Show changes occurring since previous submission of Schedule:
 - 1. Major changes in scope.
 - 2. Activities modified since previous submission.
 - 3. Revised projections of progress and completion.
 - 4. Other identifiable changes.
- C. Provide a narrative report as needed to define:
 - 1. Problem areas, anticipated delays, and the impact on the schedule.
 - 2. Corrective action recommended, and its effect.
 - 3. The effect of changes on schedules of other prime Contractors.

1.06 SUBMISSIONS

- A. Submit initial schedules within ten (10) days after award of Contract; Engineer will review schedules for information only.
- B. Submit revised progress schedules with each application for payment or monthly, whichever is the shortest period.
- C. Submit the number of opaque reproductions which the Contractor requires, plus two (2) additional copies [one (1) for Owner and one (1) for Engineer].

1.07 DISTRIBUTION

- A. Distribute copies of approved schedules to:
 - 1. Engineer
 - 2. Job site file
 - 3. Subcontractors
 - 4. Other concerned parties
 - 5. Owner (two copies)
- B. Instruct recipients to report promptly to the Contractor, in writing, any problems anticipated by the projections shown in the schedule.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

3.01 RESPONSIBILITY FOR SCHEDULE COMPLIANCE

- A. The Contractor agrees that whenever it becomes apparent from the current monthly schedule that delays to the critical path have resulted, and hence, that the contract completion date will not be met or when so directed by the Engineer, he will take some or all of the following actions at no additional cost to the Owner, submitting to the Engineer for approval, a written statement of the steps he intends to take to remove or arrest the delay to the critical path in the approved schedule.
1. Increased construction manpower in such quantities and crafts as will substantially eliminate, in the judgment of the Engineer, the backlog of Work.
 2. Increase the number of working hours per shift, shifts per working days per week, the amount of construction equipment, or any combination of the foregoing, sufficiently to substantially eliminate, in the judgment of the Engineer, the backlog of work.
 3. Reschedule activities to achieve maximum practical concurrency of accomplishment of activities, and comply with the revised schedule.
 4. Costs incurred by the Owner arising from such lengthening of hours, including furnishing of Inspectors, shall be the Contractor's responsibility and shall be deducted from monies due him. Failure of the Contractor to comply with the requirements of the Engineer may be grounds for determination by the Owner that the Contractor is not proceeding at such rates as will insure completion within the specified time and may result in the termination of the right of the Contractor to continue the Work.

3.02 ADJUSTMENT OF CONTRACT SCHEDULE AND COMPLETION TIME

- A. If the Contractor desires to make changes in his method of operating which affect the approved schedule, he shall notify the Owner/Engineer in writing stating what changes are proposed and the reason for the change. If the Owner/Engineer approves these changes, the Contractor shall revise and submit for approval, without additional cost to the Owner, all of the affected portion of the schedule. The schedule shall be adjusted by the Contractor only after prior approval of his proposed changes by the Owner/Engineer.
- B. Adjustments may consist of changing portions of the activity sequence and/or activity durations, division of approved activities, or other adjustments as may be approved by the Engineer. The addition of extraneous, non-working activities and/or activities which add unapproved restraints to the schedule shall not be approved.
- C. If the completion of any activity, whether or not critical, falls more than 100 percent behind its approved duration, the Contractor shall submit for approval a schedule adjustment showing each such activity divided into two activities reflecting completed versus uncompleted work.
- D. Shop drawings which are not approved on the first submittal or within the scheduled time shall be immediately rescheduled, as well as pipelines and tanks which do not pass leak tests.
- E. The contract completion time will be adjusted only for causes specified in this contract. In the event the Contractor requests an extension of any contract completion date, he

shall furnish such justification and supporting evidence as the Owner/Engineer may deem necessary for determination as to whether the Contractor is entitled to an extension of time under the provisions of the contract. Owner/Engineer will, after receipt of such justification and supporting evidence make findings of fact and will advise the Contractor in writing thereof. If the Owner/Engineer finds that the Contractor is entitled to any extension of any contract completion date under the provisions of this contract, the Owner/Engineer's determination as to the total number of days of extension shall be based upon the currently approved schedule and on all data relevant to the extension. Such data shall be included in the next monthly updating of the schedule. The Contractor acknowledges and agrees that actual delays in activities which, according to the schedule, do not affect any contract completion date shown by the critical path in the schedule do not have any effect on the contract completion date or dates, and therefore, will not be the basis for a change therein.

- F. From time to time it may be necessary for the contract schedule and/or completion time to be adjusted by the Owner/Engineer to reflect the effects of job conditions, weather, technical difficulties, strikes, unavoidable delays on the part of the Owner or his representatives, and other unforeseeable conditions which may indicate schedule adjustments and/or completion time extension. Under such conditions, the Contractor shall reschedule the work and/or contract completion time to reflect the changed conditions and the Contractor shall revise his schedule accordingly. No additional compensation shall be made to the Contractor for such schedule changes except for unavoidable overall contract time extensions beyond the actual completion of all unaffected work in the contract, in which case the Contractor shall take all possible action to minimize any time extension and any additional cost to the Owner. It is specifically pointed out that the use of available float time in the schedule may be used by the Owner as defined by the Owner/Engineer, as well as by the Contractor. Float time is defined as the amount of time between the early start date, and the late start date, or the early finish date and the late finish date, of any of the activities in the schedule.
- G. The Owner controls the float time in the approved schedule and, therefore, without obligation to extend either the overall completion date or any intermediate completion dates set out in the schedule, the Owner may initiate changes to the contract work that absorb float time only. Owner-initiated changes that affect the critical path on the approved schedule shall be the sole grounds for extending (or contracting) said completion dates. Contractor-initiated changes that encroach on the float time identified in the approved schedule may be accomplished with the Owner's concurrence. Such changes, however, shall give way to Owner-initiated changes competing for the same float time.

3.03 COORDINATING SCHEDULES WITH OTHER CONTRACT SCHEDULES

Where work is to be performed under this contract concurrently with and/or contingent upon work performed on the same facilities or area under other contracts, the Contractor's schedule shall be coordinated with the schedules of the other contracts. The Contractor shall obtain the schedules of the other appropriate contracts from the Engineer and/or Owner for the preparation and updating of his schedule and shall make the required changes in his schedule when indicated by changes in corresponding schedules.

END OF SECTION

SECTION 01340

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

Submit Shop Drawings, Product Data, Samples and Certificates required by the Contract Documents.

Review and approval by Contractor of submitted material.

1.02 RELATED REQUIREMENTS

A. In other parts of the Contract Documents:

1. Definitions and Additional Responsibilities of Parties:
 - a. General Conditions of the Contract
 - (1) Sections 6.23 – 6.28: Shop Drawings

B. Specified in other sections:

1. Section 01311: Construction Schedules.
2. Section 01720: Record Documents

C. Designate in the construction schedule, or in separate coordinated schedule, the dates for the submission and the dates that reviewed Shop Drawings, Product Data and Samples will be needed.

1.03 SHOP DRAWINGS

A. Drawings shall be presented in a clear and thorough manner.

1. Details shall be identified by reference to sheet and detail of schedule shown on Contract Drawings.

B. Minimum sheet size: Manufacturer's standard; adequate to clearly illustrate.

1.04 PRODUCT DATA

A. Preparation:

1. Clearly mark each copy to identify applicable products, models, options, and other data.
2. Show performance characteristics and capacities.
3. Show dimensions and clearances required.
4. Show wiring or piping diagrams and controls.

B. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the work.
2. Supplement standard information to provide information specifically applicable to the work.

3. Include manufacturer's installation instructions when required by the Specifications Section.

1.05 SAMPLES

- A. Office Samples: Limit to items requiring color, pattern and similar selections and shall be sufficient size and quantity to clearly illustrate:
 1. Full range of color, texture and pattern
 2. Submit samples for selection of finishes within sixty (60) days after date of Agreement, or when directed by Engineer.
- B. Field Samples and Mock-ups:
 1. Functional characteristics of the product, with integrally-related parts and attachment devices.
 2. Contractor shall erect, at the Project Site, at a location acceptable to the Engineer.
 3. Size of Area: that specified in the respective specification section.
 4. Fabricate each sample and mockup complete and finished.
 5. Include identification on each sample, giving full information.
 6. Remove samples at conclusion of Work, or when acceptable to the Engineer.

1.06 MANUFACTURER'S CERTIFICATES

Submit Certificates, in duplicate, in accordance with requirements of each specification section.

1.07 CONTRACTOR RESPONSIBILITIES

- A. Review Shop Drawings, Product Data and samples prior to submission.
- B. Determine and verify:
 1. Field measurements
 2. Field construction criteria
 3. Catalog numbers and similar data
 4. Conformance with specifications
- C. Coordinate each submittal with requirements of the work and of the Contract Documents.
- D. Notify the Engineer in writing at the time of submission of ANY AND ALL DEVIATIONS in the submittals from requirements of the Contract Documents. All of the Contractor's comments and notations shall be in red ink.
- E. Begin no fabrication of work which requires submittals until return of submittals with Engineer's approval.

1.08 SUBMISSION REQUIREMENTS

- A. Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in the work of any other Contractor.
- B. Number of submittals required:

1. Shop Drawings: Submit the number of opaque reproductions which the contractor requires, plus two (2) copies which will be retained by the Engineer.
 2. Product Data: Submit the number of copies which the Contractor requires, plus two (2) which will be retained by the Engineer.
 3. Samples: Submit the number stated in each specification section.
- C. Submittals shall contain:
1. The date of submission and the dates of any previous submissions.
 2. The project title and number
 3. Contract identification
 4. The name of:
 - a. Contractor
 - b. Supplier
 - c. Manufacturer
 5. Identification of the project, with specification section number.
 6. Field dimensions, clearly identified as such.
 7. Relation to adjacent or critical features of the Work or materials.
 8. Applicable standards, such as ASTM or Federal Specification numbers.
 9. Identification of deviations from Contract Documents
 10. Identification of revisions on resubmittals.
 11. A 3" x 3" blank space for Contractor and Engineer stamps.
 12. Contractor's stamp or review and approval, initialed or signed, certifying to review of initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the work and of Contract Documents.

1.09 RESUBMISSION REQUIREMENTS

- A. Make any corrections or changes in the submittals required by the Engineer and resubmit until approved.
- B. Shop Drawings and Product Data:
1. Revise initial drawings or data, and resubmit as specified for initial submittal.
 2. Indicate any changes which have been made other than those requested by the Engineer.
- C. Samples: Submit new samples as required for initial submittal.

1.10 DISTRIBUTION

- A. Distribute reproductions of Shop Drawings and copies of Product Data which carry the Engineer's stamp or review to:
1. Job site file.
 2. Record Documents file.
 3. Other affected contractors
 4. Subcontractors
 5. Supplier or fabricator
- B. Distribute samples which carry the Engineer's stamp of approval as directed by the Engineer.

1.11 ENGINEER'S DUTIES

- A. Review submittals with reasonable promptness and in accordance with schedule.
- B. Affix stamp and initials / signature, and indicate requirements for resubmittal, or review without comments of submittal. All of Engineer's comments shall be made in green ink.
- C. Return submittals to Contractor for distribution, or for resubmission.

PART 2 – PRODUCTS

Not Applicable

PART 3 – EXECUTION

Not Applicable

*** END OF SECTION ***

SECTION 01381

AUDIO-VISUAL DOCUMENTATION

PART 1 - GENERAL

1.01 SCOPE OF WORK

Prior to commencing of the Work, the Contractor shall have a continuous color audio-video recording taken along the entire length of the project to serve as a record of preconstruction conditions.

1.02 RELATED WORK

- A. Summary of Work is included in Section 01010.
- B. Contract Closeout is included in Section 01700.

1.03 APPROVAL

No construction shall begin prior to review and acceptance of the recording covering the construction area by the Owner/Engineer. The Owner/Engineer shall have the authority to reject all or any portion of a recording not conforming to specifications and order that it be redone at no additional charge. The Contractor shall reschedule unacceptable coverage within five (5) days after being notified. The Owner/Engineer shall designate those areas, if any, to be omitted from or added to the audio-video coverage. Recordings shall not be made more than thirty (30) days prior to beginning of construction of any area. All recordings and written records shall become the property of the Owner. The recordings shall be delivered to the Owner as soon as possible after recording.

1.04 QUALITY ASSURANCE

The Contractor shall engage the services of a professional videographer. The color audio-video recordings shall be prepared by a responsible commercial firm known to be skilled and regularly engaged in the business of preconstruction color audio-video recording documentation.

PART 2 - PRODUCTS

2.01 GENERAL

All equipment, accessories, materials, and labor to perform this service shall be furnished by the Contractor.

2.02 AUDIO-VIDEO RECORDING

- A. Each audio-video recording shall be saved on appropriate DVD media viewable on standard DVD players or computer.
- B. Each DVD shall contain the following information and arrangement at the beginning as a title screen:
 - Indian River county, Florida
 - PROJECT NAME
 - PROJECT NUMBER
 - CONTRACTOR: (Name of Contractor)

DATE: (When video was taken)
VIDEO BY: (Firm Name of Videographer)
LOCATION: (Description of Location(s) and View(s))

- C. Each DVD recording section shall begin with an audio description of the County's name, Contract name and number, Contractor's name, date and location information such as street name, direction of travel, viewing side, etc.
- D. Information appearing on the video recording must be continuous and run simultaneously by computer generated transparent digital information. No editing or overlaying of information at a later date will be acceptable.
- E. Digital information to appear in the upper left corner shall be as follows:
 - 1. Name of Contractor
 - 2. Day, date and time
 - 3. Name of Project & Project Number
- F. Time must be accurate and continuously displayed on the video record
- G. Written documentation must coincide with the information on the DVD so as to make easy retrieval of locations at a later date.
- H. The video system shall have the capability to transfer individual frames of video electronically into hard copy prints or photographic negatives.
- I. Audio shall be recorded at the same time as the video recording and shall have the same information as on the viewing screen. Special commentary shall be given for unusual conditions of buildings, sidewalks and curbing, foundations, trees and shrubbery, structures, equipment, pavement, etc.
- J. All DVDs and boxes shall bear labels with the following information:
 - 1. DVD Number
 - 2. County's Name
 - 3. Date of Recording
 - 4. Project Name and Number
 - 5. Location and Standing Limit of Video

PART 3 - EXECUTION

3.01 VIDEO VIEWS REQUIRED

- A. Complete coverage shall include all surface features within 100-feet of the Work area to be used by the Contractor and shall be supported by appropriate audio description made simultaneously with video coverage. Such coverage shall include, but not be limited to, all existing driveways, sidewalks, curbs, ditches, roadways, landscaping, trees, culverts, headwalls, and retaining walls, equipment, structures, pavements, manholes, vaults, handrails, etc. located within the work zone.
- B. The video recorder shall take special efforts to point out and provide audio commentary on cracking, breakage, damage, and other defects in existing features.
- C. All video recording shall be done during times of good visibility. No video recording shall be done during periods of visible precipitation, or when more than 10% of the ground area is covered with standing water, unless otherwise authorized by County.

- D. The rate of speed in the general direction of travel of the vehicle used during taping shall not exceed 44 feet per minute. Panning, zoom-in, and zoom-out rates shall be sufficiently controlled to maintain a clear view of the object.
- E. When conventional wheeled vehicles are used, the distance from the camera lens to the ground shall not be more than ten (10) feet. The camera shall be firmly mounted such that transport of the camera during the recording process will not cause an unsteady picture. In some instances, audio-video tape coverage may be required in areas not accessible by conventional wheeled vehicles. Such coverage shall be obtained by walking or special conveyance approved by the Engineer.

END OF SECTION

SECTION 01410

TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Contractor will employ and pay for the services of an independent testing laboratory to perform certain specified testing. All testing described in the contract Documents shall be paid for by the Contractor. This requirement takes precedence over any other specification that may indicate that the testing fees (including collection, shipping and laboratory fees) be paid for by the Owner or any other party other than the Contractor.
 - 1. Contractor shall cooperate with the laboratory to facilitate the execution of its required services.
 - 2. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the work of the Contract.

- B. Selection of testing laboratory shall be approved by Engineer and Owner.

1.02 RELATED REQUIREMENTS

- A. General Conditions of the contract: Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities.

- B. Respective sections of specifications: Certification of Products.

- C. Each specification section listed: Laboratory tests required and standards for testing.

- D. Testing Laboratory inspection, sampling and testing is required for but not limited to the following:
 - 1. Densities and Proctors (for soil compaction)
 - 2. Bacteriological Clearance
 - 3. Concrete Strength
 - 4. Any water quality monitoring as required by the project permits
 - 5. Other operations specified in these specifications or as required by the Engineer or Owner

1.03 QUALIFICATION OF LABORATORY

- A. Meet "Recommended Requirements for Independent Laboratory Qualification," published by American Council of Independent Laboratories.

- B. Meet basic requirements of ASTM E329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction."

- C. Authorized to operate in the State in which the Project is located.

- D. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during the most recent tour of inspection, with memorandum of remedies of any deficiencies reported by the inspection.

- E. Testing Equipment:
 - 1. Calibrated at reasonable intervals by devices of accuracy traceable to either:
 - a. National Bureau of Standards
 - b. Accepted values of national physical constants.

1.04 LABORATORY DUTIES

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

1.05 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory is not authorized to:
 - 1. Release, revoke, alter, or enlarge on requirements of Contract Documents
 - 2. Approve or accept any portion of the work
 - 3. Perform any duties of the Contractor

1.06 CONTRACTOR'S RESPONSIBILITIES

- A. Employ and pay for the services of an independent testing laboratory.
- B. Cooperate with laboratory personnel, and provide access to work and to manufacturer's facilities.

- C. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.
- D. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other material mixes which require control by the testing laboratory.
- E. Materials and equipment used in the performance of work under this Contract are subject to inspection and testing at the point of manufacture or fabrication. Standard specifications for quality and workmanship are indicated in the Contract Documents. The Engineer may require the Contractor to provide statements or certificates from the manufacturers and fabricators that the materials and equipment provided by them are manufactured or fabricated in full accordance with the standard specifications for quality and workmanship indicated in the Contract Documents. All costs of this testing and providing statements and certificates shall be a subsidiary obligation of the Contractor, and no extra charge to the Owner shall be allowed on account of such testing and certification.
- F. Furnish incidental labor and facilities:
 - 1. To provide access to work to be tested
 - 2. To obtain and handle samples at the project site or at the source of the product to be tested
 - 3. To facilitate inspections and tests
 - 4. For storage and curing of test samples
- G. Notify laboratory, in advance of operations to allow for laboratory assignments of personnel and scheduling of tests.
- H. If the tests and any subsequent retests indicate the materials and equipment fail to meet the requirements of the Contract Documents, the Contractor shall pay for the laboratory costs directly to the testing firm, and these costs will not be reimbursable to the Contractor.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01445

PIPELINE TESTING AND CLEANING

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and test and clean all new pipelines installed under this Contract as specified herein, including chlorination of all potable water lines.

1.02 RELATED WORK

- A. Polyvinyl Chloride (PVC) Pipe & Fittings is included in Sections 02622, 02626 and 02628.
- C. Ductile Iron (DIP) Pipe & Fittings is included in Sections 02621, 02625, and 02627.
- D. High Density Polyethylene (HDPE) Pipe and Fittings is included in Section 02629.

PART 2 – PRODUCTS (*not used*)

PART 3 - EXECUTION

3.01 GENERAL

- A. Furnish all necessary equipment and labor for cleaning, testing and chlorinating the pipelines. The procedures and methods shall be approved by the Engineer.
- B. Make any taps and furnish all necessary caps, plugs, etc, as required in conjunction with testing pipelines. Furnish a test pump, gauges and any other equipment required in conjunction with carrying out the hydrostatic tests.

3.02 CLEANING PIPELINES

- A. As pipe laying progresses and at the conclusion of the work thoroughly clean all new pipelines by flushing with water or other means to remove all dirt, stones, pieces of wood or other material which may have entered during the construction period. If, after this cleaning, obstructions remain, they shall be removed.

3.03 TESTING PRESSURE PIPELINES

- A. Testing and Inspection of Water Mains is included in Section 02634.
- B. Testing and Inspection of Wastewater Force Mains is included in Section 02634.
- C. Testing and Inspection of Wastewater Gravity Sewers is included in Section 02634.

3.04 CHLORINATION OF PIPELINES

- A. Before being placed in service, all new potable water pipelines (including plant water) shall be chlorinated using the continuous feed method specified in AWWA C651. The procedure shall be approved by the Engineer in advance.
- B. The location of the chlorination and sampling points will be determined by the Engineer in the field. Taps for chlorination and sampling shall be installed. Uncover and backfill the taps as required.
- C. The general procedure for chlorination shall be first to flush all dirty or discolored water from the lines and then introduce chlorine in approved dosages through a tap at one end, while water is being withdrawn at the other end of the line. The chlorine solution shall remain in the pipeline for 24 hours.
- D. Following the chlorination period, all treated water shall be flushed from the lines at their extremities and replaced with potable water. All treated water flushed from the lines shall be disposed of by discharging to the nearest sanitary sewer or by other approved means. No discharge to any storm sewer or natural water course will be allowed. Bacteriological sampling and analysis of the replacement water may then be made by the Engineer in full accordance with AWWA C651. Rechlorinate, if necessary and the line shall not be placed in service until the requirements of the State Public Health Department are met.
- E. Special disinfecting procedures shall be used in connections to existing pipelines and where the method outlined above is not practical.

END OF SECTION

SECTION 01610

MATERIAL AND EQUIPMENT

PART 1 – GENERAL

1.01 SCOPE OF WORK

Material and equipment incorporated into the work:

- A. Conform to applicable specifications and standards.
- B. Comply with size, make, type and quality specified, or as specifically approved in writing by the Engineer.
- C. Manufactured and Fabricated Products
 - 1. Design, fabricate and assemble in accord with the best Engineering and shop practices.
 - 2. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
 - 3. Two or more items of the same kind shall be identical, by the same manufacturer.
 - 4. Products shall be suitable for service conditions.
 - 5. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
- D. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

1.02 RELATED WORK

- A. Conditions of the Contract
- B. Summary of Work is included in Section 01010.
- D. Submittals are included in Section 01300.
- E. Substitutions and Product Options are included in Section 01630.
- F. Cleaning is included in Section 01710.
- G. Operating and Maintenance Data is included in Section 01730.
- H. Warranties and Bonds are included in Section 01740.

1.03 APPROVAL OF MATERIALS

- A. Only new materials and equipment shall be incorporated in the work. All materials and equipment furnished shall be subject to the inspection and approval of the Engineer. No material shall be delivered to the work without prior approval of the Engineer.

- B. Within thirty (30) days after the effective date of the Agreement, submit to the Engineer, data relating to materials and equipment proposes to be furnished for the work. Such data shall be in sufficient detail to enable the Engineer to identify the particular product and to form an opinion as to its conformity to the specifications. The data shall comply with Section 01300.
- C. Facilities and labor for handling and inspection of all materials and equipment shall be furnished by the Contractor. If the Engineer requires, either prior to beginning or during the progress of the work, submit samples of materials for such special tests as may be necessary to demonstrate that they conform to the specifications. Such samples shall be furnished, stored, packed, and shipped as directed at the Contractor's expense. Except as otherwise noted, the Owner will make arrangements for and pay for the tests.
- D. Submit data and samples sufficiently early to permit consideration and approval before materials are necessary for incorporation in the work. Any delay of approval resulting from the failure to submit samples or data promptly shall not be used as a basis of claim against the Owner or the Engineer.
- E. In order to demonstrate the proficiency of workmen or to facilitate the choice among several textures, types, finishes and surfaces, provide such samples of workmanship or finish as may be required.
- F. The materials and equipment used on the work shall correspond to the approved samples or other data.

1.04 MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION

- A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including one (1) PDF and one (1) hard copy to the Engineer.
 - 1. Maintain one (1) set of complete instructions at the job site during installation and until completion.
- B. Handle, install, connect, clean, condition and adjust products in strict accord with such instructions and in conformity with specified requirements.
 - 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with Engineer for further instructions.
 - 2. Do not proceed with work without clear instructions.
- C. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.05 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of products in accord with construction schedules, coordinate to avoid conflict with work and conditions at the site.
 - 1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.

2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that products are properly protected and undamaged.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

1.06 STORAGE AND PROTECTION

- A. Furnish a covered, weather-protected storage structure providing a clean, dry, non-corrosive environment for all mechanical equipment, valves, architectural items, electrical and instrumentation equipment and special equipment to be incorporated into this project. Storage of equipment shall be in strict accordance with the "instructions for storage" of each equipment supplier and manufacturer including connection of heaters, placing of storage lubricants in equipment, etc. Furnish a copy of the manufacturer's instructions for storage to the Engineer prior to storage of all equipment and materials. Corroded, damaged or deteriorated equipment and parts shall be replaced before acceptance of the project. Equipment and materials not properly stored will not be included in a payment estimate.
- B. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible.
1. Store products subject to damage by the elements in weathertight enclosures.
 2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
 3. Store fabricated products above the ground, on blocking or skids, prevent soiling or staining. Cover products which are subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.
 4. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
- C. All materials and equipment to be incorporated in the work shall be handled and stored before, during and after shipment in a manner to prevent warping, twisting, bending, breaking, chipping, rusting and any injury, theft or damage of any kind whatsoever to the material or equipment.
- D. Cement, sand, and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. All structural and miscellaneous steel and reinforcing steel shall be stored off the ground or otherwise to prevent accumulations of dirt or grease and in a position to prevent accumulations of standing water and to minimize rusting. Beams shall be stored with the webs vertical. Precast concrete beams shall be handled and stored in a manner to prevent accumulations of dirt, standing water, staining, chipping, or cracking. Brick, block, and similar masonry products shall be handled and stored in a manner to reduce breakage, chipping, cracking, and spalling to a minimum.
- E. All materials which, in the opinion of the Engineer, have become so damaged as to be unfit for the use intended or specified shall be promptly removed from the site of the work and the Contractor shall receive no compensation for the damaged material or its removal.

- F. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions and free from damage or deterioration.
- G. Protection after Installation
 - 1. Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove covering when no longer needed.
- H. The Contractor shall be responsible for all material, equipment, and supplies sold and delivered to the Owner under this Contract until final inspection of the work and acceptance thereof by the Owner. In the event any such material, equipment and supplies are lost, stolen, damaged, or destroyed prior to final inspection and acceptance, the Contractor shall replace same without additional cost to the Owner.
- I. Failure to take proper action on storage and handling of equipment supplied under this Contract within seven days after written notice to do so has been given, the Owner retains the right to correct all deficiencies noted in previously transmitted written notice and deduct the cost associated with these corrections from the Contract. These costs may be comprised of expenditures for labor, equipment usage, administrative, clerical, Engineering and any other costs associated with making the necessary corrections.

1.07 SPECIAL TOOLS

- A. Manufacturers of equipment and machinery shall furnish any special tools (including grease guns or other lubricating devices) required for normal adjustment, operations and maintenance, together with instructions for their use. Preserve and deliver to the Owner these tools and instructions in good order no later than ten (10) days prior to plant start-up.

1.08 STORAGE AND HANDLING OF EQUIPMENT ON SITE

- A. Because of the long period allowed for construction, special attention shall be given to the storage and handling of equipment on site. As a minimum, the procedure outlined below shall be followed.
 - 1. Equipment shall not be shipped until approved by the Engineer. The intent of this requirement is to reduce on-site storage time prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than one (1) month prior to installation without written authorization from the Engineer. Operation and maintenance data as described in Section 01730 shall be submitted to the Engineer for review prior to shipment of equipment.
 - 2. All equipment having moving parts such as gears, electric motors, etc, and/or instruments shall be stored in a temperature and humidity controlled building approved by the Engineer, until such time as the equipment is to be installed.
 - 3. All equipment shall be stored fully lubricated with oil, grease, etc, unless otherwise instructed by the manufacturer.
 - 4. A copy of the manufacturer's storage instructions shall be given to the Engineer and shall be carefully studied by the Contractor and reviewed with the Engineer by him. These instructions shall be carefully followed and a written record of this kept by the Contractor.

5. Moving parts shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding". Upon installation of the equipment, start the equipment, at least half load, once weekly for an adequate period of time to ensure that the equipment does not deteriorate from lack of use.
6. Lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. Mechanical equipment to be used in the work, if stored for longer than ninety days, shall have the bearings cleaned, flushed and lubricated prior to testing and startup, at no additional cost to the Owner.
7. Prior to acceptance of the equipment, have the manufacturer inspect the equipment and certify that its condition has not been detrimentally affected by the long storage period. Such certifications by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested and accepted in a minimum time period. As such, the manufacturer will guarantee the equipment equally in both instances. If such a certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at the Contractor's expense.

1.09 WARRANTY

For all major pieces of equipment, submit a warranty from the equipment manufacturer as specified in Section 01740.

1.10 SPARE PARTS

Collect and store all spare parts as required by the manufacturer in accordance with Paragraph 1.08 above. In addition, furnish to the Engineer an inventory listing all spare parts, the equipment they are associated with, the name and address of the supplier and the delivered cost of each item. Copies of actual invoices for each item shall be furnished with the inventory to substantiate the delivered cost. Deliver the spare parts to the Owner not later than ten (10) days prior to plant start-up.

1.11 GREASE, OIL AND FUEL

- A. All grease, oil and fuel required for testing of equipment shall be furnished with the respective equipment. The Owner shall be furnished with a year's supply of required lubricants including grease and oil of the type recommended by the manufacturer with each item of equipment supplied.
- B. The Contractor shall be responsible for changing the oil in all drives and intermediate drives of each mechanical equipment after initial break-in of the equipment, which in no event shall be any longer than three weeks of operation.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

*** END OF SECTION ***

SECTION 01630

SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish and install products specified, under options and conditions for substitutions and “Or Equal” stated in this Section.
- B. Whenever a product, material or item of equipment is specified or described by using the name of a proprietary product or the name of a particular manufacturer or vendor, followed by the phrase "or equal," the specific item mentioned shall be the basis upon which bids are to be prepared, and shall be understood as establishing the type, function, dimension, appearance and quality desired. Other manufacturer's or vendor's products not named will be considered as substitutions, provided the required information is submitted in the manner set forth in this section, will result in significant cost savings to Owner, and provided the substitution will not require substantial revision to the Contract Documents.

1.02 RELATED WORK

- A. Instructions to Bidders are included in Section 00100.
- B. Bid Form is included in Section 00300.
- C. Approval of substitutions and “Or Equal” procedures are included in Sections 00100, 00700, and 00800.

1.03 SUBMITTAL OF LIST OF PROPOSED SUBSTITUTIONS OR “OR EQUAL”

The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or equal" items. The procedure for submission of any such application by Contractor and consideration by Engineer is set forth in Paragraph 6.05 of the General Conditions (Section 00700) and may be supplemented in the General Requirements (Section 00800).

1.04 CONTRACTOR'S OPTIONS

- A. For Products specified only by reference standard, select product meeting that standard, by any manufacturer.
- B. For Products specified by naming several products or manufacturers, select any one of products and manufacturers named which complies with Specifications.
- C. For products specified by naming one or more products or manufacturers and stating "or equal," submit a request as for substitutions, for any product or manufacturer which is not specifically named.
- D. For products specified by naming only one product and manufacturer, there is no option and no substitution will be allowed.

1.05 SUBSTITUTIONS

- A. In order for substitutions to be considered, the selected Contractor shall submit, within thirty (30) days of issuance of Notice of Award, complete data as set forth herein to

permit complete analysis of all proposed substitutions noted on his substitutions list. No substitution shall be considered unless the Contractor provides the required data in accordance with the requirements of Section 00700 and this section within the thirty (30) day period.

- B. Submit separate request for each substitution. Support each request with:
1. Complete data substantiating compliance of proposed substitution with requirements stated in Contract Documents:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature; identify:
 - 1) Product description.
 - 2) Reference standards.
 - 3) Performance and test data.
 - 4) Operation and maintenance data.
 - c. Samples, as applicable.
 - d. Name and address of similar projects on which product has been used, and date of each installation.
 2. Itemized comparison of the proposed substitution with product specified; List significant variations. Substitution shall not change design intent and shall perform equal to that specified.
 3. Data relating to impact on construction schedule occasioned by the proposed substitution.
 4. Any effect of substitution on separate contracts.
 5. List of changes required in other work or products.
 6. Accurate cost data comparing proposed substitution with product specified including the amount of net reduction of Contract Sum.
 7. Designation of required license fees or royalties.
 8. Designation of availability of maintenance services, sources of replacement materials.
- C. Substitutions will not be considered for acceptance when:
1. They are indicated or implied on shop drawings or product data submittals without a formal request from Contractor.
 2. They are requested directly by a Subcontractor or supplier.
 3. Acceptance will require substantial revision of Contract Documents.
- D. Requests for substitutions submitted more than thirty (30) days after Notice of Award will not be considered unless evidence is submitted to the Engineer that all of the following circumstances exist:
1. The specified product is unavailable for reasons beyond the control of the Contractor. Such reasons shall consist of strikes, bankruptcy, discontinuance of manufacturer, or acts of God.
 2. The Contractor placed, or attempted to place, orders for the specified products within ten (10) days after Notice of Award.

3. Request for substitution is made in writing to the Engineer within ten (10) days of the date on which the Contractor ascertains that he cannot obtain the item specified.
 4. Complete data as set forth herein to permit complete analysis of the proposed substitution is submitted with the request.
- E. The Engineer's decision regarding evaluation of substitutions shall be considered final and binding. Requests for time extensions and additional costs based on submission of, acceptance of, or rejection of substitutions will not be allowed. All approved substitutions will be incorporated into the Agreement by Change Order.

1.06 CONTRACTOR'S REPRESENTATION

- A. In making formal request for substitution, Contractor represents that:
1. Contractor has investigated proposed product and has determined that it is equal to or superior in all respects to that specified.
 2. Contractor will provide same warranties or bonds for substitution as for product specified.
 3. Contractor will coordinate installation of accepted substitution into the Work, and will make such changes as may be required for the Work to be complete in all respects.
 4. Contractor waives claims for additional costs caused by substitution which may subsequently become apparent.
 5. Cost data is complete and includes related costs under his/her Contract, but not:
 - a. Costs under separate contracts.
 - b. Engineer's costs for redesign or revision of Contract Documents.

1.07 ENGINEER EVALUATIONS

Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Section 00700 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 either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

1.08 SPECIAL GUARANTEE

Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

1.09 ENGINEER'S COST REIMBURSEMENT

Engineer shall record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Section 00700 – Paragraphs 6.05.A.2, 6.05.B and 6.05E. The County shall pay the Engineer directly for the costs incurred for review of substitute equipment. The Contractor shall reimburse the County for Engineer's costs whether or not the substitute is approved.

END OF SECTION

SECTION 01665

EQUIPMENT TESTING AND STARTUP

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. Provide a competent field services technician of the manufacturers of all equipment furnished to supervise installation, adjustment, initial operation and testing, performance testing, final acceptance testing, and startup of the equipment.
- B. Perform specified equipment field performance tests, final acceptance tests and startup services.

1.02 RELATED WORK

- A. Operation and Maintenance Data is included in Section 01730.
- B. Performance and acceptance testing and startup requirements are included in Sections 01445, 02634, and 02635.

1.03 SUBMITTALS

- A. Submit name, address and resume of proposed field services technicians at least thirty (30) days in advance of the need for such services.
- B. Submit to the Engineer, in accordance with Section 01300, detailed testing procedures for shop tests, field performance tests and final acceptance tests as specified in the various equipment sections. Submittals shall include at least the following:
 - 1. Test procedures shall be submitted at least thirty (30) days in advance of the proposed test dates and shall include at least the following information:
 - a. Name of equipment to be tested, including reference to specifications section number and title.
 - b. Testing schedule of proposed dates and times for testing.
 - c. Summary of power and water needs and identification of who will provide them.
 - d. Outline specific assignment of the responsibilities of the Contractor and manufacturers' factory representatives or field service personnel.
 - e. Detailed description of step-by-step testing requirements, with reference to appropriate standardized testing procedures and laboratory analyses by established technical organizations (e.g., ASTM, WPCF Standard Methods, etc).
 - f. Samples of forms to be used to collect and record test data and to present tabulated test results.
 - 2. Copies of test reports upon completion of specified shop, performance and acceptance tests. Test reports shall incorporate the information provided in the test procedures submittals, modified to reflect actual conduct of the tests and the following additional information:
 - a. Copy of all test data sheets and results of lab analyses.
 - b. Summary comparison of specified test and performance requirements versus actual test results.

- c. Should actual test results fail to meet specified test and performance requirements, describe action to be taken prior to re-testing equipment.
3. Copies of the manufacturer's field service technician's report summarizing the results of his/her initial inspection, operation, adjustment and pre-tests. The report shall include detailed descriptions and tabulations of the points inspected, tests and adjustments made, quantitative results obtained, suggestions for precautions to be taken to ensure proper maintenance, and the equipment supplier's Certificate of Installation in the format specified herein.

1.04 REFERENCE STANDARDS

- A. American Water Works Association (AWWA) – If applicable.
 1. AWWA C653 - Disinfection for Water Treatment Plants.
- B. American Society for Testing and Materials (ASTM)
- C. Water Pollution Control Federation (WPCF)
- D. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. Field service technicians shall be competent and experienced in the proper installation, adjustment, operation, testing and startup of the equipment and systems being installed.
- B. Manufacturers' sales and marketing personnel will not be accepted as field service technicians.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

3.01 PRELIMINARY REQUIREMENTS

- A. After installation of the equipment has been completed and the equipment is presumably ready for operation, before it is operated by others, the manufacturer's field service technician shall inspect, operate, test and adjust the equipment. The inspection shall include at least the following points where applicable:
 1. Soundness (without crack or otherwise damaged parts).
 2. Completeness in all details, as specified and required.
 3. Correctness of setting, alignment and relative arrangement of various parts.
 4. Adequacy and correctness of packing, sealing and lubricants.

- B. The operation, testing and adjustment shall be as required to prove that the equipment has been left in proper condition for satisfactory operation under the conditions specified.
- C. Upon completion of this work, the manufacturer's field service technician shall submit a signed report of the results of his/her inspection, operation, adjustments and tests.

3.02 STARTUP AND ACCEPTANCE

A. General Requirements

- 1. Successfully execute the step-by-step procedure of startup and performance demonstration specified herein.
- 2. The startup and performance demonstration shall be successfully executed prior to Substantial Completion and acceptance by the Owner.
- 3. All performance tests and inspections shall be scheduled at least five (5) working days in advance or as otherwise specified with the Owner and the Engineer. All performance tests and inspections shall be conducted during the workweek of Monday through Friday, unless otherwise specified.

B. Preparation for Startup

- 1. All mechanical and electrical equipment shall be checked to ensure that they are in good working order and properly connected. Preliminary equipment operation shall be conducted. All systems shall be cleaned and purged as required. All sumps, tanks, basins, chambers, pump wells and pipelines which are hydraulically checked shall be drained and returned to their original condition once the testing is complete.
- 2. All instruments and controls shall be calibrated through their full range. All other adjustments required for proper operation of all instrumentation and control equipment shall be made.
- 3. Perform all other tasks needed for preparing and conditioning the facilities for proper operation.
- 4. No testing or equipment operation shall take place until it has been verified by the Engineer that all specified safety equipment has been installed and is in good working order.
- 5. No testing or equipment operation shall take place until it has been verified by the Engineer that all lubricants, tools, maintenance equipment, spare parts and approved equipment operation and maintenance manuals have been furnished as specified.

C. Facilities Startup

- 1. Startup period shall not begin until all new facilities and equipment have been tested as specified and is ready for operation. The Owner shall receive spare parts, safety equipment, tools and maintenance equipment, lubricants, approved operation and maintenance data and the specified operation and maintenance instruction prior to the startup. All valve tagging shall also be complete prior to this startup.

2. Demonstrate a seven (7) consecutive day period of 24-hour per day successful operation of the facility as a prerequisite of Substantial Completion and Acceptance.
3. In the event of failure to demonstrate satisfactory performance of the facility on the first or any subsequent attempt, all necessary alterations, adjustments, repairs and replacements shall be made. When the facility is again ready for operation, it shall be brought on line and a new test shall be started. This procedure shall be repeated as often as necessary until the facility has operated continuously to the satisfaction of the Owner and Engineer, for the specified duration.
4. The Owner will furnish all operating personnel (other than vendor's or subcontractor's service personnel) needed to operate equipment during the final test period; however, said personnel will perform their duties under Contractor's direct supervision. Until performance tests are completed and units and systems are accepted by the Owner as substantially complete, the Contractor shall be fully responsible for the operation and maintenance of all new facilities.
5. The Owner will provide all necessary chemicals and electricity. However, the Contractor shall provide all necessary personnel of the various construction trades, i.e., electricians, plumbers, etc, and field service personnel of the major system suppliers on an 8 hour per day basis at the facilities.
6. Do not, at any time, during startup allow the facility to be operated in a manner which subjects equipment to conditions that are more severe than the maximum allowable operating conditions for which the equipment was designed.

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INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

NORTH COUNTY WATER & SEWER SYSTEM PHASE 2

EQUIPMENT SUPPLIER'S CERTIFICATE OF INSTALLATION

Owner INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

Project NORTH COUNTY WATER & SEWER SYSTEM PHASE 2

Contract No. _____

EQUIPMENT SPECIFICATION SECTION _____

EQUIPMENT DESCRIPTION _____

I _____, Authorized representative of
(Print Name)

(Print Manufacturer's Name)

hereby CERTIFY that _____
(Print equipment name and model with serial no.)

_____ installed for the subject project has (have) been installed in a satisfactory manner, has (have) been tested and adjusted, and is (are) ready for final acceptance testing and operation on:

Date: _____

Time: _____

CERTIFIED BY: _____
(Signature of Manufacturer's Representative)

Date: _____

*** END OF SECTION ***

SECTION 01700

CONTRACT CLOSEOUT

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
1. Closeout procedures.
 2. Final cleaning.
 3. Adjusting.
 4. Project Record documents.
 5. Spare parts and maintenance materials.

1.02 RELATED WORK

- A. Warranties and Bonds are included in Section 01740.

1.03 SUBSTANTIAL COMPLETION

- A. Substantial completion shall be defined as installation of all pipe and appurtenant items, completion of all testing and start up, FDEP clearance issued and all systems either placed into service or able to be placed into service, restoration of all disturbed areas to their pre-construction condition, and correction of all deficiencies noted by Engineer.
- B. When Contractor considers the Work is substantially complete, Contractor shall submit to Engineer:
1. A written notice that the Work or designated portion thereof, is substantially complete.
- C. Within a reasonable time after receipt of such notice, Engineer will perform a field investigation to determine the status of completion.
- D. Should Engineer determine that the Work is not substantially complete:
1. Engineer will promptly notify the Contractor in writing, giving the reasons therefore.
 2. Contractor shall remedy the deficiencies in the Work, and send a second written notice of substantial completion to the Engineer.
 3. Engineer will reinvestigate the Work.
- E. When the Engineer finds that the Work is substantially complete, he will:
1. Prepare and deliver to Owner a tentative Certificate of Substantial Completion, with a tentative list of items to be completed or corrected before final payment.
 2. After consideration of any objections made by the Owner and when Engineer considers the Work substantially complete, he will execute and deliver to the Owner and the Contractor a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected.

1.04 FINAL SITE REVIEWS

- A. When Contractor considers Work is complete, he shall submit written certification that:
 - 1. Contract Documents have been reviewed.
 - 2. Work has been investigated for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents.
 - 4. Equipment and systems have been tested in the presence of the Owner's representative and are operational.
 - 5. Work is completed and ready for Final Investigation.
- B. Engineer will perform a field investigation to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should Engineer consider that the Work is incomplete or defective:
 - 1. Engineer will promptly notify the Contract in writing, listing the incomplete or defective work.
 - 2. Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to Engineer that the Work is complete.
 - 3. Engineer will reinvestigate the Work.

When the Engineer finds that the Work is acceptable under the Contract Documents, he shall request the Contractor to make closeout submittals.

1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER

- A. Project Record Drawings to the requirements specified.
- B. Operating and Maintenance Manuals to the requirements specified.
- C. Contractor's affidavit of payment of debts and claims.
 - 1. Contractor's release or waiver of liens.
- D. Separate releases or waivers of liens for subcontractors, suppliers and others with lien rights against property of Owner, together with list of those parties.

1.06 RECORD DOCUMENTS

- A. Maintain on site, one (1) set of the following documents; actual revisions to the work shall be recorded in these documents:
 - 1. Contract Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other Modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.

- D. 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 utilized.
 - 3. Changes made by Addenda and Modifications.

- E. Contract Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish floor elevation datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract Drawings.

- F. Submit documents to Engineer with Application for Final Payment.

1.07 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, work has been inspected and that work is complete in accordance with Contract Documents and ready for Engineer's inspection.

- B. Provide submittals to Engineer that are required by governing or other authorities.

1.08 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the Condition of the Contract.

- B. Submit Application for Final Payment identifying total adjusted Contract Sum, previous payments and sum remaining due.

1.09 FINAL CERTIFICATE FOR PAYMENT

- A. Engineer will issue final certificate in accordance with provisions of the Contract Documents.

END OF SECTION

SECTION 01710

CLEANING

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

Execute cleaning, during progress of the work, and at completion of the work, as required by General conditions.

1.02 DISPOSAL REQUIREMENTS

Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Use only those cleaning materials which will not create hazards to health or property and which will not damage finishes and surfaces.
- B. Use only those cleaning materials and methods recommended by manufacturer of the surface material to be cleaned.
- C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 – EXECUTION

3.01 DURING CONSTRUCTION

- A. Execute periodic cleaning to keep the work, the site, and adjacent properties free from accumulation of waste materials, rubbish, and windblown debris resulting from construction operations.
- B. Dispose of waste materials, cartons, crating, debris, and rubbish at designated waste receptacles.
- C. For exterior utility work (such as underground pipelines, roadways, service areas, etc.), these shall be cleaned daily. Not less frequently than once weekly. Roadways shall be mechanically broomed.

3.02 DUST CONTROL

- A. General Contractor shall broom-clean interior spaces prior to the start of completing painting and continue cleaning on an as-needed basis until painting is finished.
- B. Schedule operations so that dust and other contaminants resulting from the cleaning process will not fall on wet or newly-coated surfaces.

3.03 FINAL CLEANING

- A. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials.
- B. Contractor shall broom-clean paved surface; rake-clean other surfaces of the grounds.
- C. Prior to final completion, Contractor shall conduct an inspection of all work areas to verify that the entire work area is clean.

*** END OF SECTION ***

SECTION 01720

PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Maintain at the site for the Owner one (1) record copy of:
 - 1. Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders and other Modifications to the Contract
 - 5. Engineer's Field Orders or written instructions
 - 6. Approved Shop Drawings, Working Drawings and Samples
 - 7. Field Test records
 - 8. Construction photographs
 - 9. Field engineering records for compliance with field engineering submittals
 - 10. Drilling Plan, Emergency Contingency Plan, and Calculations for directional drilling activities

1.02 RELATED REQUIREMENTS

- A. Section 01050: Field Engineering
- B. Section 01052: Application for Payment
- C. Section 01300: Submittals
- D. Section 01381: Audio-Visual Documentation

1.03 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
 - 1. Provide files and racks for storage of documents.
 - 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with Specifications.
- C. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all times for inspection by the Engineer.
- E. As a prerequisite for monthly progress payments, the Contractor is to exhibit the currently updated "record documents" for review by the Engineer and Owner.

1.04 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in the color code designated by the Engineer.

1.05 RECORDING

- A. Label each document "PROJECT RECORD" in neat large printed letters.

- B. Record information concurrently with construction progress.
 - 1. Do not conceal any work until required information is recorded.
- C. Drawings: legibly mark to record actual construction.
 - 1. Depths of various elements of foundation in relation to NAVD 1988.
 - 2. All underground piping with elevations and dimensions, changes to piping location, horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements, and actual installed pipe material, class, etc.
 - 3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
 - 4. Field changes of dimension and detail.
 - 5. Changes made by Field Order or by Change Order.
 - 6. Details not on original contract drawings.
 - 7. Equipment and piping relocations.
- D. Specifications and Addenda; legibly mark each Section to record.
 - 1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 - 2. Changes made by Field Order or by Change Order.
- E. Shop drawings (after final review and approval).
- F. Certified site survey, below ground piping survey, and line elevations and stationing at 100 foot increments by a licensed land surveyor registered in the state of Florida.

1.06 SUBMITTAL

- A. At contract close-out, deliver record documents listed in paragraph 1.01A to the Engineer for the Owner. The required field engineering submittals certified by a registered land surveyor.

1.07 AS-BUILT SURVEYS

- A. As-Built Surveys shall be provided as required by the Construction Documents and Indian River County Utility Standards.

PART 2 - PRODUCTS (*not used*)

PART 3 - EXECUTION (*not used*)

END OF SECTION

SECTION 01721

AS-BUILT SURVEY

PART 1 – GENERAL

1.01 REQUIREMENTS

An “As-Built” survey prepared, signed, and sealed by a Land Surveyor licensed in the State of Florida shall be provided by the Contractor to the Engineer upon 80% completion for review. Final “As-Built” survey shall be provided by the Contractor prior to project close-out conforming to all IRCDUS Utility Standards, latest edition. The As-Built shall illustrate the horizontal and vertical location of all pipe, fittings, valves, and service connections installed and site improvements/modifications (i.e. paving, grading, storm structures, etc.) as part of this project. The As-Built shall illustrate the location of any pipe abandoned “in place.”

The As-Built shall contain at least two (2) points identified with reference to State Plan Coordinates. All pipe, fittings, valves, and service connections installed and site improvements/modifications (i.e. paving, grading, storm structures, etc.) shall be labeled with horizontal reference to the Construction Baseline (station and offset), and vertical reference to the North American Vertical Datum (NAVD 1988).

1.02 RELATED REQUIREMENTS

- A. Section 01050: Field Engineering
- B. Section 01300: Submittals
- C. Section 01381: Audio-Visual Documentation
- D. Section 01052: Application for Payment

1.03 SUBMITTAL

- A. At contract close-out, deliver record documents listed in paragraph 1.01 to the Engineer for the Owner. The As-Built Survey shall be submitted in the following formats:
 - 1. Four (4) Signed, Sealed hard copies,
 - 2. One (1) copy – Mylar,
 - 3. Two (2) Compact Disks (CD) – AutoCAD format.

The required field engineering submittals certified by a registered land surveyor are listed in Section 01050.

- B. Accompany submittal with transmittal letter in duplicate, containing:
 - 1. Date
 - 2. Project title and number
 - 3. Contractor’s name and address
 - 4. Title and number of each record document
 - 5. Signature of Contractor or his authorized representative

PART 2 – PRODUCTS (not used)

PART 3 – EXECUTION (not used)

END OF SECTION

SECTION 01730

OPERATION AND MAINTENANCE DATA

PART 1 – GENERAL

1.01 SCOPE OF WORK

This Section includes procedural requirements for compiling and submitting operation and maintenance data required to complete the project.

1.02 RELATED WORK

- A. Submittals are included in Section 01300.
- B. Contract closeout is covered in Section 01700.
- C. Warranties and Bonds are covered in Section 01740.

1.03 SERVICES OF MANUFACTURERS' REPRESENTATIVE

- A. Equipment furnished under Section 02635 SUBMERSIBLE WASTEWATER PUMPING STATION shall include the cost of a competent representative of the manufacturers of all equipment to supervise the installation, adjustment and testing of the equipment and to instruct the Owner's operating personnel on operation and maintenance. This supervision may be divided into two (2) or more time periods as required by the installation program or as directed by the Engineer.
- B. See the detailed specifications for additional requirements for furnishing the services of manufacturer's representatives.
- C. A certificate in the form attached to this Section, from the manufacturer and signed by Owner's representative stating that the installation of the equipment is satisfactory, that the unit has been satisfactorily tested, is ready for operation and that the operating personnel have been suitably instructed in the operation, lubrication and care of the unit shall be submitted for each piece of equipment indicated above.
- D. For equipment furnished under other Divisions, furnish the services of accredited representatives of the manufacturer only when some evident malfunction or overheating makes such services necessary in the opinion of the Engineer.

1.04 OPERATING MANUALS

- A. Two (2) complete hard sets and one (1) PDF on CD/DVD/USB-Flash-Drive of operation and maintenance instructions covering all equipment furnished under the Contract Documents shall be delivered directly to the Office of the Consulting Engineers, Masteller & Moler, Inc., 1655 27th Street, Suite 2, Vero Beach, Florida 32960. The two (2) hard sets must be originals of operation and maintenance instructions required, including original manuals covering components manufactured by others.
 - 1. The manual for each piece of equipment shall be a separate document with the following specific requirements:

- a. Contents:
 - 1) Table of contents and index
 - 2) Brief description of each system and components
 - 3) Starting and stopping procedures
 - 4) Special operating instructions
 - 5) Routine maintenance procedures
 - 6) Manufacturer's printed operating and maintenance instructions, parts list, illustrations and diagrams
 - 7) One copy of each wiring diagram
 - 8) One copy of each approved shop drawing and each Contractor's coordination and layout drawing
 - 9) List of spare parts, manufacturer's price, and recommended quantity
 - 10) Name, address and telephone numbers of local service representatives.
- b. Material
 - 1) Loose leaf on 20 lb minimum, white, punched paper
 - 2) Holes reinforced with plastic cloth or metal
 - 3) Page size, 8½-inch by 11-inch
 - 4) Diagrams, illustrations, and attached foldouts as required, of original quality, reproduced by dry copy method
 - i. Provide reinforced punched binder tab, bind in with text
 - ii. Reduce larger drawings and fold to size of text pages but not larger than 14 inches x 17 inches or provide suitable packet with drawing identification.
 - 5) Provide fly-leaf for each separate product, or each piece of operating equipment.
 - i. Provide typed description of product, and major components of equipment
 - ii. Provide indexed tabs
 - 6) Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:
 - i. Title of project
 - ii. Identity of separate structure or location as applicable
 - iii. Identity of general subject matter covered in the manual.
 - 7) Binders:
 - i. Commercial quality three-post binders with durable and cleanable plastic covers.
 - ii. Maximum post width of 2 inches
 - iii. When multiple binders are used, correlate the data into related consistent groupings.
- c. Submittals to the Engineer
 - 1) Two (2) preliminary copies of manuals shall be submitted to the Office of the Consulting Engineer, Masteller & Moler, Inc., 1655 27th Street, Suite 2, Vero Beach, Florida 32960, no later than fifteen (15) days following approval of the shop drawings for each piece of equipment. Provide two (2) final copies of complete manuals prior to testing.

1.05 CONTENTS, EACH VOLUME

- A. Table of Contents: Provide title of project, names, addresses and telephone numbers of Engineer, sub-consultants and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.
- B. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers; including local source of supplies and replacement parts.
- C. Product Data: Mark each sheet to clearly identify specific products and component parts and data applicable to installation. Delete inapplicable information.
- D. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- E. Type Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified.
- F. Warranties and Bonds are as specified in Section 01740.

1.06 MANUAL FOR MATERIALS AND FINISHES

- A. Building Products, Applied Materials and Finishes: Include product data, with catalog number, size, composition and color and texture designations. Provide information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods and recommended schedule for cleaning and maintenance.
- C. Moisture Protection and Weather Exposed Products: Include product data listing, applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance and repair.
- D. Additional Requirements: As specified in individual product specifications.
- E. Provide a listing in Table of Contents for design data, if provided by Contractor, with tabbed fly sheet and space for insertion of data.

1.07 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. For each Item of Equipment and Each System provide the following:
 - 1. Overview of System and description of unit or system and component parts. Identify function, normal operating characteristics and limiting conditions. Include performance curves, with Engineering data and tests and complete nomenclature and commercial number of replaceable parts.
 - 2. Panelboard Circuit Directories including electrical service characteristics, controls and communications and color coded wiring diagrams as installed.

3. Operating Procedures: Include start-up, break-in and routine normal operating instructions and sequences; regulation, control, stopping, shut-down and emergency instructions; and summer, winter and any special operating instructions.
 4. Maintenance Requirements
 - a. Routine procedures and guide for trouble-shooting; disassembly, repair and reassemble instructions; and alignment, adjusting, balancing and checking instructions.
 - b. Servicing and lubrication schedule and list of lubricants required.
 - c. Manufacturer's printed operation and maintenance instructions. The two (2) hard copy sets of operation and maintenance instructions required must be the originals.
 - d. Sequence of operation by controls manufacturer.
 - e. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
 5. Control diagrams by controls manufacturer as installed.
 6. Contractor's coordination drawings, with color coded piping diagrams as installed.
 7. Charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
 8. List of original manufacturer's spare parts, current prices and recommended quantities to be maintained in storage.
 9. Test and balancing reports as specified.
 10. Additional Requirements: As specified in individual product specification.
- B. Provide a listing in Table of Contents for design data, if provided by Contractor, with tabbed fly sheet and space for insertion of data.

1.08 QUICK REFERENCE SHEETS FOR EQUIPMENT

- A. For each item of equipment furnished under Contract Documents provide the following:
1. A minimum of one 8 ½ x 11 inch laminated quick reference sheet. Sheets shall be three-hole punched and may be double-sided.
 2. Each quick reference sheet shall include the following minimum information:
 - a. Safety Precautions
 - 1) Brief description of each piece of equipment and components
 - 2) Starting and stopping procedures
 - 3) Special operating instruction
 - 4) Routine maintenance procedures
 - 5) Calibration procedures
 - 6) Pump curves
 - 7) Trouble shooting procedures
 - 8) Name, address, and telephone numbers of local service representative
 3. Provide two (2) copies of quick reference sheets for review by the Engineer.

4. After quick reference sheets have been approved by the Engineer, provide three copies of laminated quick reference sheets to Engineer in one (1) commercial called three-ring binder with durable and cleanable plastic cover.

1.09 INSTRUCTION OF OWNER PERSONNEL

- A. Before final inspection, instruct Owner's designated personnel in operation, adjustment and maintenance of products, equipment and systems, at agreed upon times. Where specified in technical specification for specific equipment or systems, the Contractor shall have instructions visually recorded while they are being given to Owner's personnel. Recordings shall be performed by a person or organization experienced in the production of tapes and shall include the entire instruction session(s) and all questions and answers. Recordings shall become the property of the Owner.
- B. Use operation and maintenance manuals as basis for instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- C. Prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

Remainder of this page intentionally left blank.

**EQUIPMENT MANUFACTURER'S CERTIFICATE OF INSTALLATION
TESTING AND INSTRUCTION**

OWNER: Indian River County

Project: NORTH COUNTY WATER & SEWER SYSTEM PHASE 2

Contract No. _____

M&M No. 1422

EQUIPMENT SPECIFICATION SECTION _____

EQUIPMENT DESCRIPTION _____

I _____, Authorized representative of
(Print Name)

(Print Manufacturer's Name)

hereby CERTIFY that _____
(Print equipment name and model with serial No.)

installed for the subject project [has] [have] been installed in a satisfactory manner, [has] [have] been satisfactorily tested, [is] [are] ready for operation, and that OWNER assigned operating personnel have been suitably instructed in the operation, lubrication, and care of the unit[s] on Date: _____ Time: _____.

CERTIFIED BY: _____ DATE: _____
(Signature of Manufacturer's Representative)

OWNER'S ACKNOWLEDGMENT OF MANUFACTURER'S INSTRUCTION

[I] [We] the undersigned, authorized representatives of the _____ and/or Plant Operating Personnel have received classroom and hands on instruction on the operation, lubrication, and maintenance of the subject equipment and [am] [are] prepared to assume normal operational responsibility for the equipment:

DATE: _____

DATE: _____

DATE: _____

END OF SECTION

SECTION 01740

WARRANTIES AND BONDS

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Compile specified warranties and bonds.
- B. Compile specified service and maintenance contracts.
- C. Co-execute submittal when so specified.
- D. Review submittals to verify compliance with Contract Documents
- E. Submit to Engineer for review and transmittal to Owner

1.02 RELATED REQUIREMENTS

- A. In other parts of the Contract Documents:
 - 1. Instructional to Bidders: Bid or Proposal Bonds
 - 2. General Conditions of Contract:
 - a. Public Construction Bond
 - b. General Warranty of Construction.
- B. Specified in other sections:
 - 1. Section 01700: Contract Closeout
 - 2. Each respective section of Specifications shall have Warranties and Bonds required for specific products.
 - 3. Provisions of Warranties and Bonds, Duration: The respective section of specification which specifies the product.

1.03 SUBMITTAL REQUIREMENTS

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

6. Provide information for Owner's personnel:
 - a. Proper procedure in case of failure
 - b. Instances which might affect the validity of warranty bonds.
7. Contractor, name of responsible principal, address and telephone number.

1.04 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format:
 1. Size 8-1/2" x 11" punched sheets for 3-ring binder.
 - a. Fold larger sheets to fit into binders
 2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS." List:
 - a. Title of project
 - b. Name of Contractor
- C. Binders: Commercial quality, three-ring, with durable and cleanable plastic cover.

1.05 TIME OF SUBMITTALS

Where required, the Contractor shall supply evidence, satisfactory to the Engineer, that the Contractor can obtain manufacturers' certifications as to the Contractor's installation of equipment.

1.06 DEFINITIONS

- A. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION (not used)

END OF SECTION

DIVISION 2
TECHNICAL PROVISIONS

SECTION 02000

WATER, REUSE, AND WASTEWATER UTILITY STANDARDS

GENERAL

Requirements Included

Obtain a copy of utility standards and keep at job site, bearing the title “Department of Utility Services, Water, Wastewater & Reclaimed Water Utility Construction Standards, May, 2019” or latest version – herein after called “Reference Specifications”

The Approved Manufacturer’s Product List may be found in the Reference Specifications, which may be purchased at the Indian River County Utilities Department at 1801 27th Street, Vero Beach, Florida 32960 or may downloaded as a .PDF from their website <http://www.ircutilities.com/Standards.htm> in III. SPECIFICATIONS; SECTION 18. Approved Manufacturer’s Projects List.

Installation of all water and wastewater utility facilities/infrastructure shall be in accordance with the reference standards, drawings and other specifications in “Division 2 – Technical Specifications.”

Related Requirements

In other parts of the contract documents; contractor is required to obtain a copy of the reference specifications, and during construction, comply with the reference specifications.

Section 00020	Advertisement for Bids
Section 00100	Instruction to Bidders
Section 00300	Bid Form

Specified in other sections:

Section 00530 EJCDC – Agreement between owner and contractor; Article 8. Contract documents; Paragraph 8.6

Section 00800 – Supplementary conditions; Paragraph SC – 3.03.B.2 Coordination of Plans, Specifications, and Special Provisions.

PRODUCTS

Materials

All materials, equipment (products) used in the installation of the work shall be in accordance with the reference specifications, and in accordance with specifications found in other parts of the contract documents, including:

Drawings bearing the title “**North County Water & Sewer System Phase 2**”.

All sections of these Specifications

EXECUTION

Installation

All installation methods & handling of material (the execution of the work) shall be in accordance with the reference specifications, and in accordance with specifications found in the other parts of the contract documents, including:

Documents:

- A. Drawings
- B. All sections of Division 2 – Technical Specifications

Protection of Existing Mains and Conduits

It is acknowledged that there are areas where proposed mains and conduits will be constructed in close proximity to existing mains that must remain in service. Attention is directed to the fact that the proposed mains may be not only in close proximity horizontally, but the new mains may also at some locations need to be constructed at a greater depth than the existing mains. It shall be the Contractor's responsibility to take measures to provide support and/or restraints to maintain existing mains as necessary during the construction process utilizing sheet piling, restrained joints and/or other methods. Any necessary sheet pilings, restraints and/or other methods used to protect any existing mains and conduits and/or other utilities shall be included in the unit price of the proposed mains.

END OF SECTION

SECTION 02010

MOBILIZATION

GENERAL

The work specified in this item shall conform to Section 101 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (Latest Edition), except as modified herein.

Description

Mobilization shall consist of handling the Contract, and may include such portions of the following as are required at the beginning of the Project.

Scope of Work

Setting up the Contractor's general plant, offices, shops, storage areas, sanitary and other facilities as required by the specifications, by Local or State Law, or by regulation; providing access to the project site; obtaining necessary permits and licenses and payment of fees; protecting existing utilities; lighting work areas; photographs of existing conditions; providing working drawings; sampling and testing of materials and providing required insurance and bonds.

Materials

Such materials as are required that are not to be part of the completed contract shall be determined by the Contractor.

Methods of Construction

All work done in providing the facilities and services under this item shall be performed in accordance with the construction plans, specifications, and in a safe and workmanlike manner.

Measurement of payment shall be on a lump sum basis, and shall be limited to the amounts listed in Section 01025.

END OF SECTION

SECTION 02020

MAINTENANCE OF TRAFFIC

GENERAL

The work specified in this item shall conform to Section 102 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (Latest Edition), except as modified herein.

General Provisions-Description

The work specified in this Section consists of maintaining traffic within the limits of the project for the duration of the construction period, including any temporary suspensions of the work. It shall include the construction and maintenance of any necessary detour facilities; the providing of necessary facilities for access to residences, businesses, etc., along the project; the furnishing, installing and maintaining of traffic control and safety devices during construction, the control of dust through the use of calcium chloride if necessary, and any other special requirements for safe and expeditious movement of traffic as may be called for on the plans. The term, Maintenance of Traffic, as used herein, shall include all of such facilities, devices and operations as are required for the safety and convenience of the public as well as for minimizing public nuisance.

Beginning Date of Contractor's Responsibility

The Contractor shall present his Maintenance of Traffic Plan at the pre-construction conference. The Maintenance of Traffic Plan shall indicate the type and location of all signs, lights, barricades, striping and barriers to be used for the safe passage of pedestrians and vehicular traffic through the project and for the protection of the workmen. The plan will indicate conditions and setups for each phase of the Contractor's activities.

When the project plans include or specify a specific Maintenance of Traffic Plan, alternate proposals will be considered when they are found to be equal to or better than the plan specified.

In no case may the Contractor begin work until the Maintenance of Traffic Plan has been approved in writing by the Engineer. Modifications to the Maintenance of Traffic Plan that become necessary shall also be approved in writing. Except in an emergency, no changes to the approved plan will be allowed until approval to change such plan has been received.

The cost of all work included in the Maintenance of Traffic Plan shall be included in the pay item for Maintenance of Traffic.

The Contractor shall be responsible for performing daily inspections, including weekends and holidays, with some inspections at nighttime, of the installations on the project and replace all equipment and devices not conforming with the approved standards during that inspection. The project personnel will be advised of the schedule of these inspections and be given the opportunity to join in the inspection as is deemed necessary.

Traffic Control - Standards

The FDOT Design Standards For Design, Construction, Maintenance and Utility Operations On The State Highway System, Edition as dated on the plans set forth the basic principles and prescribes minimum standards to be followed in the design, application, installation, maintenance and removal of all traffic control devices and all warning devices and barriers which are necessary to protect the public and workmen from hazards within the project limits. The standards established in the aforementioned manual constitute the minimum requirements for normal

conditions, and additional traffic control devices warning devices, barriers or other safety devices will be required where unusual, complex or particularly hazardous conditions exist.

The above referenced standards were developed using F.H.W.A., U.S.D.O.T. Manual on Uniform Traffic Control Devices (MUTCD).

Traffic Control Devices, Warning Devices and Barriers - Installation:

The responsibility for installation and maintenance of adequate traffic control devices, warning devices and barriers, for the protection of the travel in public and workmen, as well as to safeguard the work area in general shall rest with the Contractor. Consideration shall be given to recommendations of the Engineer. The required traffic control devices, warning devices and barriers shall be erected by the Contractor prior to creation of any hazardous condition and in conjunction with any necessary re-routing of traffic. The Contractor shall immediately remove, turn or cover any devices or barriers which do not apply to existing conditions. All traffic control devices shall conform to MUTCD standards and shall be clean and relatively undamaged. Damaged devices diminishing legibility and recognition, during either night or day conditions, are not acceptable for use.

No Waiver of Liability

The Contractor shall conduct his operations in such a manner that no undue hazard will result due to the requirements of this article, and the procedures and policies described therein shall in no way act as a waiver of any of the terms of the liability of the Contractor or his surety.

Item of Payment

Payment for the work specified in this item shall be made under: Bid Item No. 81 – Mobilization, Demobilization, MOT - Lump Sum

END OF SECTION

SECTION 02030

PREVENTION, CONTROL, AND ABATEMENT OF EROSION AND WATER POLLUTION

GENERAL

The work specified in this item shall conform to Section 104 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (Latest Edition), except as modified herein.

Scope

This Section covers erosion control and the treatment of dewatering water and stormwater runoff from the construction site and work area. The pollution control measures shall prevent turbid or otherwise polluted waters from being discharged from the construction site or work area, to undeveloped portions of the site or off-site.

The OWNER considers pollution from dewatering water and stormwater runoff from a construction site or work area to be a very serious offense. The CONTRACTOR is solely responsible for preventing pollution caused by dewatering water and stormwater runoff from the construction site or work area.

The pollution control measures specified herein represent minimum standards to be adhered to by the CONTRACTOR throughout the Project's construction. The OWNER reserves the right to require the CONTRACTOR to employ additional pollution control measures, when in the sole opinion of the OWNER, they are warranted. If site specific conditions require additional erosion and stormwater pollution control measures during any phase of construction or operation to prevent erosion or to control sediment or other pollution, beyond those specified in the Drawings or herein, implement additional best management practices as necessary, in accordance with "Best Management Practices for Erosion and Sedimentation Control" of the Florida Stormwater Erosion and Sedimentation Control Inspectors Manual, and other references as may be required by regulatory permits.

(http://publicfiles.dep.state.fl.us/DEAR/DEARweb/Stormwater_training/Manual/FSESCI%20TIER%20I%20Manual%20100318.pdf)

The OWNER may terminate this Contract if the CONTRACTOR fails to comply with this Section. Alternatively, the OWNER may halt the CONTRACTOR's operations until the CONTRACTOR is in full compliance with this Section. If the OWNER halts the CONTRACTOR's work as a result of its failure to comply with this Section, the Construction Contract time clock will continue to run.

In addition to these Specifications, comply with Chapter 3 – "Temporary BMPs for Erosion and Sedimentation Control", Chapter 4 - "BMPs – Vegetation for Erosion Control" and Chapter 5 – "BMPs for Dewatering" of the Florida Stormwater Erosion and Sedimentation Control Inspectors Manual. In the event of a conflict between the referenced Chapters and these Specifications, the more stringent requirement shall prevail.

Some Permits to Be Obtained By the Contractor

The OWNER has obtained certain permits for this project and they are listed in paragraph SC-6.08 of the Supplementary Conditions. Per paragraph SC-6.08.A.2 of the Supplementary Conditions, the CONTRACTOR shall apply for, obtain, and pay for all other required permits, licenses, sampling, and tests. Permits the CONTRACTOR may need to secure may include but not be limited to:

1. Long-term and/or short-term dewatering permit as required by the St. Johns River Water Management District (SJRWMD). Generally, only the short-term permit is required. Contact SJRWMD at (386) 329-4570 or email compliancesupport@sjrwmd.com to determine which permit is required and the associated statutory requirements;
2. SJRWMD RDS-50 Permit (required);
3. The State of Florida Generic Permit for Stormwater Discharge From Large and Small Construction Activities (required). Contact the Florida Department of Environmental Protection (FDEP) at (866) 336-6312 (toll free) or NPDES-stormwater@dep.state.fl.us or <https://floridadep.gov/water/stormwater/content/construction-activity-cgp>
4. FDEP's Uncontaminated Groundwater Release Permit (required if dewatering occurs). This permit requires water quality testing by a State certified laboratory.

Provide copies of all permits to the OWNER and ENGINEER, post copies of all permits at the project site, and comply with all conditions contained in all permits at no extra cost to the OWNER. If there is a conflict between any permit requirement and these Specifications, the more stringent specification or requirement shall govern.

In addition to paying for all permit fees, CONTRACTOR shall also pay for all water quality sampling and laboratory tests required by any permit.

General

Do not begin any other construction work until the pollution control and treatment system has been constructed in accordance with approved plans and permits and approved for use by the OWNER and applicable permitting authorities.

From time to time, the OWNER or ENGINEER will inspect the pollution control and treatment system and may take effluent samples for analysis by a testing laboratory selected and paid for by the OWNER. If at any time, the OWNER or ENGINEER determines that the pollution control and treatment system is not in compliance with the approved system, the OWNER or ENGINEER will shut the portion of the project down that is not in compliance, and it shall remain shut-down until the pollution control and treatment system is properly constructed or repaired, and complies with the approved pollution control and treatment system plans and specifications.

Schedule construction to minimize erosion and stormwater runoff from the construction site. Implement erosion control measures on disturbed areas as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than seven (7) days after the construction activity in that portion of the site has temporarily or permanently ceased. In addition to other temporary erosion control measures that may be implemented, application of polyacrylamide is required on all such disturbed areas within seven (7) days after the construction activity in that portion of the site has temporarily or permanently ceased, unless final landscaping has been installed. Polyacrylamide application shall be as specified herein.

Inspect each pollution control system at least once per day and after each rainfall event. Clean and maintain each pollution control system as required by its manufacturer or the OWNER, until the system is no longer needed. If a water quality violation occurs, immediately cease all work contributing to the water quality violation and correct the problem.

Discharge shall not violate State or local water quality standards in the receiving waters, nor cause injury to the public health or to public or private property, nor to the Work completed or in

progress. The receiving point for water from construction operations shall be approved by the applicable owner, regulatory agency, and the ENGINEER.

Promptly repair all damage at no cost to the OWNER.

Submittals

Shop Drawings: Submit shop drawings of the proposed pollution control and treatment systems in accordance with Section 1340.

Stormwater Pollution Prevention Plan.

State Certified Erosion Control Specialty Subcontractor Is Required For Installation, And Maintenance

State Certified Erosion Control Specialty Subcontractor is Required for Installation and Maintenance: Installation and maintenance of all erosion and stormwater pollution control devices, shall be by a State Certified erosion control subcontractor who specializes in the installation and maintenance of such devices. After installation, this specialty subcontractor shall maintain the erosion and stormwater pollution control devices until in the ENGINEER's sole opinion, the devices are no longer necessary (such time not to extend past the date the OWNER formally accepts the project as complete). Before beginning construction, submit to Indian River County for review and approval, a Stormwater Pollution Prevention Plan (SWPPP), prepared by the certified erosion control subcontractor. Construction shall not begin until the SWPPP has been approved by Indian River County. Submit the approved SWPPP to the ENGINEER before beginning construction. Include in the SWPPP, the "Contractor's Affidavit Regarding Erosion Control and Treatment of Dewatering Water and Stormwater From the Construction Site" (located at the end of this Section).

"Pollution" And Certain Uncontestable Pollution Events Defined

With respect to this Section and as may be further defined in the following paragraphs, "pollution" is the presence in off-site waters of any substances, contaminants, or manmade or human-induced impairment of off-site waters or alteration of the chemical, physical, biological, or radiological integrity of off-site water in quantities or at levels which are or may be potentially harmful or injurious to human health or welfare, animal or plant life, or property. Pollutants to be removed include but are not limited to, sediment and suspended solids, solid and sanitary wastes, phosphorus, nitrogen, pesticides, oil and grease, concrete truck washout, stucco mixer washout, curb machine washout, washout from other construction equipment, construction chemicals, and construction debris.

When the Discharge is Directly Into an Existing Water Body, Pollution Occurs When . . . An existing water body (including ditches and canals) is defined to be polluted by the CONTRACTOR's operations when at any time, the turbidity of the water immediately downstream of the CONTRACTOR's discharge point(s) is at least 29 nephelometric turbidity units (NTUs) higher than the turbidity of the background water upstream of the discharge point(s). [See Fla. Administrative Code 62-302.530] Exception: When the discharge is directly into or through an outfall discharging into "Outstanding Florida Waters," designated by Florida Statute 403.061(27), the turbidity of the discharged water cannot exceed the turbidity of the immediate receiving water. The ENGINEER or OWNER shall determine the locations where the turbidity is measured.

When the Discharge is not Directly Into an Existing Water Body, Pollution Occurs When . . . In some instances, dewatering water or stormwater runoff from the construction site or work area may reach a water body indirectly, such as after traveling through pipes or by overland flow.

Before construction commences, the Contractor will measure background levels of total suspended solids (TSS) and turbidity, in the immediate vicinity of the discharge water's ultimate discharge point into the receiving water body. If the discharge water's TSS and turbidity measurements exceed these pre-construction background values by 20 percent for TSS and 29 NTUs for turbidity, then the discharge from the CONTRACTOR's operations is defined to be polluted.

Pollution Always Occurs When . . . The discharge from a construction site or work area is defined to be polluted whenever the pH of the discharge is less than 6.5 or greater than 8.5, or whenever any of the following is present in the discharge water:

- (1) Hazardous waste or hazardous materials in any quantity,
- (2) Any petroleum product or by-product in any quantity,
- (3) Any chemical in any quantity, or
- (4) Concentrated pollutants.

Above paragraphs do not in any way, limit the types of conditions in which pollution may be determined to occur.

Penalties For Noncompliance With This Section

In addition to the OWNER's specific remedies, if erosion or pollution is caused by dewatering water or stormwater runoff from the construction site, the OWNER will immediately report the violations to the Indian River County Code Enforcement Board, SJRWMD, FDEP, Indian River Farms Water Control District (or other F. S. Chapter 298 Drainage District, as appropriate), and other pertinent regulatory or enforcement agencies.

PART 2 - MATERIALS AND INSTALLATION

General

Polyacrylamide: As required above, place polyacrylamide (PAM) on bare ground to reduce the potential for erosion. PAM may also be used in water bodies to remove turbidity. Use the anionic form of polyacrylamide that does not stick to fish gills. For PAM information and its proper application, contact Applied Polymer Systems, Inc., Toll Free (866) 200-9868 or (678) 494-5998, www.siltstop.com.

Staked Silt Fences:

1. General: Use silt fences to control runoff from the construction site where the soil has been disturbed.
2. Installation: Install per the manufacture's recommendations and as specified herein. In general, install the silt fence in a manner that allows it to stop the water long enough for the sediment to settle while the water passes through the silt fence fabric. All supporting posts shall be on the down-slope side of the fencing. Place the bottom of the fabric 6-inches minimum, under compacted soil to prevent the flow of sediment underneath the fence. Place silt fences away from the toe of slopes. Otherwise, install in accordance with FDOT Index No. 102.
3. Product: All material shall be new and unused. Use FDOT Types II through IV silt fences where large sediment loads are anticipated, where slopes are 1:2 (vertical: horizontal) or steeper, or as directed by the ENGINEER; otherwise use FDOT Type III silt fence.

- (a) For FDOT Type III Silt Fence - ACF Environmental, Catalog No. 360800000, Florida DOT Silt Fence. U.S. Sieve = 30, tensile strength = 120 pounds. The heavy-duty filter fabric shall be pre-attached to 48-inch long stakes on 6-foot centers. (1-800-448-3636).
- (b) For FDOT Type IV Silt Fence, modify the above Catalog No. 360800000 to comply with FDOT Index No. 102.
- (c) Or equivalent.

Turbidity Barriers:

1. **General:** Use turbidity barriers to control sediment contamination of rivers, lakes, ponds, canals, etc.
2. **Installation:** Install per the manufacturer's recommendations and per FDOT Index No. 103 unless directed otherwise by the ENGINEER.
3. **Product:** All material shall be new and unused. The turbidity barrier shall be a pervious barrier and the fabric color shall be yellow.
 - a. Parker Systems, Inc. (1-866-472-7537 <https://www.parkersystemsinc.com/>), model Type II or Type I
 - b. Or equivalent.

Sedimentation Control From Dewatering or Pumping Operations Using Filter Bags:

1. Remove silt, sediment, and other particles from dewatering or pumping applications using a filter bag. The bag shall be manufactured using a polypropylene non-woven geotextile and sewn by a double-needle machine, using a high strength nylon thread. The bag shall have a fill spout large enough to accommodate a 4-inch pump discharge hose. Straps shall be attached to the bag to secure the hose and prevent pumped water from escaping without being filtered.
2. Installation: Install in accordance with the manufacturer's specifications. Use as many filter bags as required, at no additional cost to the OWNER. Legally dispose of the bags offsite, at no cost to the OWNER. If the bags are placed on aggregate to facilitate filtration efficiency, do not use limerock aggregate.
3. Product: The filter bag shall be supplied with lifting straps.
 - a. "DIRTBAG 53 or 55 as applicable," supplied by ACF Environmental, Inc. (1-800-448-3636 <https://acfenvironmental.com/contact/>).
 - b. "DANDY DEWATERING BAG" supplied by Dandy Products, Inc. (1-800-591-2284 <https://www.dandyproducts.com/ContactUs.aspx>).
 - c. Or equivalent.

Curb Inlet Protection:

1. Filter stormwater before it enters curb inlets.
2. Installation: Install in accordance with the manufacturer's specifications. Use as many of the specified filtration devices as required, at no additional cost to the OWNER.
3. Product: All materials shall be new and unused. The length of the curb inlet filtration device shall be at least 2-feet longer than the curb inlet opening.

- a. "GUTTERBUDDY," supplied by ACF Environmental, Inc. (1-800-448-3636 <https://acfenvironmental.com/contact/>).
- b. Or equivalent.

Catch Basin Protection:

1. Filter stormwater before it enters catch basins (drop inlets). The filter "sack" shall be manufactured from woven polypropylene geotextile and sewn by a doubleneedle machine, using a high strength nylon thread. The sack shall be manufactured to fit the opening of the catch basin or drop inlet and it shall have the following features: two dump straps attached at the bottom to facilitate emptying; lifting loops as an integral part of the system to be used to lift the sack from the basin; and a colored restraint chord approximately halfway up the sack to keep the sides away from the catch basin walls. The colored restraint chord shall also serve as a visual means of indicating when the sack should be emptied.
2. Installation: Install in each catch basin in accordance with the manufacturer's specifications. Use as many of the specified filtration devices as required, at no additional cost to the OWNER.
3. Product: All materials shall be new and unused.
 - a. "SILTSACK" (regular flow), supplied by ACF Environmental, Inc. (1-800-448-3636 <https://acfenvironmental.com/contact/>).
 - b. "FloGuard+PLUS," supplied by Kristar Enterprises, Inc. (1-800-579-8819).
 - c. Or equivalent.

Construction Site Egress Driveways: Minimize the transport of sediment and soil from the construction site or work area by vehicle wheels. Construct a crushed rock driving surface at the vehicle exit point(s). Provide an area large enough to remove the sediment and soil from vehicle wheels before the vehicle leaves the construction site or work area. Provide wash-down stations as required to wash vehicle tires and retain all washwater on-site. Do not use limerock.

Rock and Stone for Erosion Control and Pollution Control and Treatment:

1. Crushed Limerock: Crushed limerock shall not be used under any circumstance.
2. Acceptable Material: FDOT #4 non-calcareous aggregate (usually granite), washed and meeting the requirements of FDOT Standard Specifications for Road and Bridge Construction, Section 901.

Hay Bales: Hay bales shall not be used.

PART 3 - EXECUTION

Design, construct, and maintain the pollution control and treatment system to minimize erosion and capture and remove pollutants from the construction site and from all other areas disturbed by construction activities.

Apply polyacrylamide only as directed by the polyacrylamide manufacturer/supplier.

Item of Payment

Payment for the work specified in this item shall be made under: Bid Item No. 78 – Erosion & Sediment Control - Lump Sum

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CONTRACTOR'S AFFIDAVIT REGARDING POLLUTION

This sworn statement is submitted to Indian River County Project No. _____ for **North County Water & Sewer System Phase 2 project**

STATE OF _____
COUNTY OF _____

Personally before me the undersigned authority, appeared _____, who upon oath duly administered, stated as follows:

1. This sworn statement is submitted by the CONTRACTOR

_____ whose business address is _____

_____ and (if applicable) its Federal Identification No.(FEIN) is _____.

2. My name is _____ and my relationship to the entity named above is _____.
(If signing as Owner's Agent, attach Letter of Authorization to Sign from Owner)

3. I understands and agrees that in addition to complying with the terms and conditions of the Stormwater Management System Permit issued by Indian River County, Permittee is responsible for complying with the terms and conditions of the following as applicable to the site:

- (a) The State of Florida Generic Permit for Stormwater Discharge From Large and Small Construction Activities (for projects one acre or larger),
- (b) Stormwater Pollution Prevention Plan (regardless of project size),
- (c) St. Johns River Water Management District permit(s) (regardless of project size),
- (d) Florida Department of Environmental Protection permit(s) (regardless of project size),
- (e) All other permits required for this project not specifically listed herein, and
- (f) All Codes and Ordinances of Indian River County.

4. I understand and agree that "pollution" as defined by Florida Statutes Chapter 403.031(7) includes: ". . . the presence in the outdoor atmosphere or waters of the state of any substances, contaminants, noise, or manmade or human-induced impairment of air or waters or alteration of the chemical, physical, biological, or radiological integrity of air or water in quantities or at levels which are or may be potentially harmful or injurious to human health or welfare, animal or plant life, or property or which unreasonably interfere with the enjoyment of life or property, including outdoor recreation unless authorized by applicable law."

5. I understand and agree that in addition to the definition set forth in Item 4 above, "pollution" is also defined by Florida Administrative Code 62-302.530 and as may be further defined in the Indian River County permit(s).

6. I understand that Indian River County requires the design, installation, and maintenance of proper erosion control measures at all times during construction until complete stabilization is

achieved at the project site. Permittee understands that this requirement is for this project regardless of the project size.

7. I understand that there are civil and criminal penalties for pollution listed in Florida Statutes Ch. 403.141 and Ch. 403.161 and that there are other penalties listed in Indian River County's permits, including but not limited to, Indian River County issuing a Cease and Desist Order for the project. Permittee understands that it may be liable for these and other penalties if offsite pollution occurs as a result of activities associated with the Project.
8. Transfer of Ownership or County Issued Permits:
 - (a) Transfer of Interest in Real Property: Within twenty-one (21) days of any transfer of ownership or control of the real property at which the permitted activity, facility, or system is located or authorized, the Permittee shall notify in writing, both the Indian River County Engineering Division and the Indian River County Stormwater Division of the transfer. Permittee shall provide the name, mailing address, and telephone number of the transferee and a copy of the instrument effectuating the transfer. Said notification is in addition to notifying the County Attorney's Office as required by County Code.
 - (b) Transfer of a County Permit. To transfer a County issued permit, Permittee must provide (1) the information required in Item 8(a); (2) a written statement from the proposed transferee that it will be bound by all terms and conditions of the permit; and (3) a new "Permittee's Affidavit" form properly executed by the transferee. Upon proper receipt of these items the County shall transfer the permit to the transferee.
 - (c) Permittee is encouraged to request a permit transfer prior to the sale or legal transfer of the real property at which a permitted facility, system, or activity is located or authorized. However, the transfer shall not be effective prior to the sale or legal transfer.
 - (d) An "Illicit Discharge Sign" must be present at the site at the time of transfer. Replacement or additional signs may be obtained from the Indian River County Public Works Department at a cost of \$30.00 per sign.
9. Offsite Discharges: Permittee understands and agrees that Indian River County has specific requirements for discharging water offsite. Permittee agrees to the following Offsite Discharge Requirements:
 - (a) Offsite discharge is limited to stormwater runoff, surface water, groundwater, or any mixture thereof meeting Project discharge water quality requirements.
 - (b) All offsite discharge requirements pertain to all discharges, whether pumped or gravity flow.
 - (c) Prior to discharging offsite, Permittee shall coordinate the discharge with the County's Senior Stormwater Enforcement Officer and with the Florida Statutes Chapter 298 Drainage District (if any) having jurisdiction over the receiving water body. The date and approximate time of beginning offsite discharge shall be determined and the proposed offsite discharge ending date shall be determined when coordinating with these parties.
 - (d) Discharges shall begin and end within the aforementioned dates and times. Discharges occurring before or after the aforementioned times are a violation of the County's offsite discharge requirements and Permittee will be subject to all pertinent penalties for an illicit discharge.
 - (e) Commencement of offsite discharge may only be on a non-County holiday, Monday through Thursday, during the following hours - 9:00 AM to 3:30 PM. If offsite discharge is commenced at any other time, it will be deemed an illicit discharge and Permittee will be subject to all pertinent penalties for an illicit discharge.
 - (f) Unless specifically approved in writing by County staff, no discharge shall occur during weekends or County holidays, except under emergency conditions (e.g. significant tropical weather events).

- (g) The discharge shall not contain pollutants or create pollution (e.g. stirring up mud and creating turbidity in the receiving water body). Pollution is further defined in Items 4 and 5 above, and as may be defined by the Project's various permits.
- (h) Permittee shall take and analyze samples of background receiving water and discharge water. Minimum sample frequency is: (1) For singular day discharge, take samples at the beginning, estimated midpoint, and end of the discharge event; (2) For multiple-day discharges, take samples at the beginning, midpoint, and end of each day. As a minimum, all samples shall be analyzed onsite by the Permittee for turbidity and pH. Other analysis shall be as required by Project permits. All test results shall be legibly recorded in a notebook that shall be available at any reasonable time for County staff to review.
- (i) If any sample fails to meet the Project's discharge criteria, then all offsite discharge shall immediately be ceased and Permittee shall immediately notify the County's Senior Stormwater Enforcement Officer. No further offsite discharge is permitted until Permittee properly addresses the discharge issue and a written approval to recommence discharge is issued by County staff.
- (j) County staff shall have the right to test offsite discharge water at any time. If staff discovers discharge water does not meet the Project's offsite discharge water quality criteria, all discharge shall immediately stop and no further offsite discharge is permitted until Permittee properly addresses the discharge issue and a written approval to recommence discharge is issued by County staff

Contractor understands and agrees that violation of any aforementioned Offsite Discharge Requirement will result in immediate revocation of Permittee's right to discharge offsite and the discharge will be classified as an "Illicit discharge," and prosecuted as such under Indian River County Ordinance No. 2018-015, Resolution 2018-057, and all other supporting Indian River County resolutions; together with all other penalties and actions against Permittee that the County deems appropriate.

Under penalty of perjury, Permittee declares that it has read the foregoing affidavit and Permittee declares the facts stated in it are true, and that Permittee fully understands and agrees to all stipulations and requirements set forth in the affidavit.

FURTHER AFFIANT SAYETH NAUGHT

Contractor: _____

Authorized Signature: _____
(If signing as Owner's Agent, attach Letter of Authorization to Sign from Owner)

Printed Name: _____

Date: _____

Work Telephone: _____

Mobile Telephone: _____

Email Address: _____

The foregoing instrument was subscribed and sworn to before me this ___ day of _____, 20 by _____, who is personally known to me or has produced _____ as identification and who did take oath.

Notary Public State of Florida at Large

My Commission expires: _____

END OF SECTION

SECTION 02040

RECORD DRAWINGS / AS-BUILT DRAWINGS

GENERAL

The work specified in this item shall conform to Section 108 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (Latest Edition), except as modified herein.

Maintain, prepare and provide the ENGINEER with record documents as specified below, except where otherwise specified or modified within the scope of work provided in the specific project contract documents. The Contractor and/or Developer shall be responsible for, and required to provide, Record Drawings as outlined in this section.

Maintenance of Record Documents:

1. Maintain in CONTRACTOR's field office in clean, dry, legible condition complete sets of the following project documents: Drawings, Specifications, Addenda, approved Shop Drawings, samples, photographs, Change Orders, other modifications of Contract Documents, test records, survey data, Field Orders, and all other documents pertinent to CONTRACTOR'S Work.
2. Provide files and racks for proper storage and easy access.
3. Make documents available at all times for inspection by ENGINEER and OWNER.
4. Do not use record documents for any other purpose and do not remove them from the field office.
5. Label each document "RECORD DRAWING" in 2-inch high printed letters.
6. Keep record documents current at all times.
7. No work shall be permanently concealed until the required record data has been obtained.

Record / As-Built Drawings

During the construction operation, the CONTRACTOR shall maintain records of all deviations from the approved Project Plans and Specifications and shall prepare therefrom "RECORD" drawings showing correctly and accurately all changes and deviations from the work made during construction to reflect the work as it was actually constructed.

The Record/As-Built survey shall be performed and subsequent plans prepared by a Professional Surveyor and Mapper, registered in the state of Florida and certified to the standards set forth in Chapter 472, Florida Statutes and Chapter 5J-17.050 Florida Administrative Code (Florida Minimum Technical Standards).

Field measurements of vertical or horizontal dimensions of constructed improvements shall be obtained so that the constructed facility can be delineated in such a way that the location of the construction may be compared with the construction plans. Clearly shown by symbols, notations, or delineations, those constructed improvements located by the survey.

All vertical information (elevations) provided on the Record Drawings shall be referenced to the North American Vertical Datum of 1988 (NAVD 88) unless otherwise specified by the Project Engineer.

The horizontal information provided on the Record Drawings shall be referenced to the State of Florida, State Plane Coordinate System, Florida East Zone as established by Global Positioning System (GPS) which meets or exceeds Third Order Class I Accuracy Standards according to current publication of the Federal Geodetic Control Committee (FGCC) procedures.

All Record/As-Built drawings shall be prepared in digital format (ACAD Ver.2015) and shall utilize the digital design drawings as prepared by the Project Engineer as a base for the Record/As-Built drawings. It is the responsibility of the Surveyor to request these files from the Contractor or Project Owner in order to produce the Record/As-Built drawing set.

ALL improvements proposed to be constructed as shown on the approved construction plans shall be field measured upon completion and shown on the Record/As-Built survey. Any improvements that appear in both plan and profile views shall show the Record/As- Built information in both views.

The following items are required to be shown on all Indian River County project Record/As- Built drawings submitted to the County:

A. DRAINAGE:

1. Right-of-way Swale/Drainage – All culvert inverts, elevations and station offsets; inlet grate and bottom elevations; swale beginning and end bottom elevations; and highs and lows along top of bank. Size of swale.
2. Pipe Culvert/PVC Sleeves – All inverts, pipe size, stations and offsets.
3. Outfalls – All pipe inverts, pipe size, elevations and station offsets, weir box elevations, weir elevation, bleeder elevation and sizes.
4. Roadway/Off Site Drainage – All inverts, elevations and station offsets; manhole top elevation; grate top elevations.
5. Retention Ponds – Provide perimeter elevations, grade breaks, depths and calculated pond areas at control elevation and grade breaks above and below water surface. Show as-built of typical cross section as shown on design plan.

B. ROADWAY:

1. Stations and offsets related to controlling baseline and elevations of all structures, side street and major driveway radius returns (edge of pavement), bends and/or change in direction of roadway alignment, minimum of 1000' intervals along roadway alignment.
2. Elevations along Profile Grade Line (PGL), of all edge of pavements on each side of Profile Grade Line (PGL), at medians at the high/low and PVI points along Profile Grade Line (PGL).
3. All final Elevations to be plotted on PGL AND Plan & Profile sheets as applicable.
4. Elevations of edge of pavement and flow line at curb inlets and on the adjacent edge of pavement at curb inlets.

C. WATER MAINS AND FORCE MAINS:

1. Show size and type of material used to construct mains.

2. Show horizontal location and elevation of all tees, crosses, bends, terminal ends, valves, fire hydrants, air release valves, and sampling points, etc., by distances from known reference points.
3. Show location, size and type of material of all sleeves and casing pipes.
4. Elevation and horizontal location of all storm sewers, gravity sewers including laterals, force mains, water mains, etc. which are crossed; including clearance dimension at all conflicts or crossings.
5. Top of pipe elevation and horizontal location of all water and force main stub-outs.
6. Horizontal location of all services at the property lines.
7. Horizontal and vertical location of pipe including size of all mains and ground elevation shall be obtained at one-hundred (100) foot intervals. Contractor shall place temporary PVC stand pipes (tell-tales) at each of the one-hundred (100) foot intervals and at all fittings and conflicts/crossings to facilitate the record drawing survey. The tell-tale pipes shall be constructed of 2-inch PVC pipe, shall be placed on the top of the pipes to be surveyed, and shall be removed by the Contractor after completion of the field survey by the "As-Built" Professional Surveyor.
8. Location of fire lines.
9. Dedicated easement locations, identified by O.R. Book and Page Number.

D. GRAVITY SEWER:

1. Manholes: Elevation of top rim, bottom elevation and invert of each influent and effluent line.
2. Show distance between manholes center-to-center and horizontal location by baseline station and offset.
3. Show material size and type used to construct sewer mains.
4. Show length (center of manhole to end of stub) distances from known reference points or baseline offsets, and elevation of stub-outs.
5. Show which services have twenty (20) foot length of DIP at water main crossings.
6. Show station and offset location of sanitary services at property line. Particular care in dimensioning needed in special situations, i.e., cul-de-sacs and locations where services are not perpendicular to wye.
7. Show invert elevation of sanitary service at property line.
8. Any and all necessary dedicated easement locations, identified by O.R. Book and Page Number.

E. PUMP / LIFT STATION:

Record Drawings shall show elevations for the top and bottom and diameter of wet well along with invert of effluent line. Record Drawings should also indicate the make, model number, horsepower, impeller and condition point of pumps selected and installed, shape of wet well, location of control panel, location of pump out connection, float level settings, any deviation from the plans, and serial number(s) of the pump(s).

Survey Control

Install/re-establish: It shall be the contractor's responsibility to hire a Professional Surveyor and Mapper as defined per Chapter 472, Florida Statutes, to replace any horizontal and vertical control shown on the engineering plans that was destroyed during construction.

New roadway alignment control points (survey baseline or controlling line and all points as indicated on the plans or control sheet) upon final roadway completion. Include all intersections and side streets. State plane coordinates and elevations for all control points.

If shown on plans or not: Any Public Land Corner or Governmental Survey Control point(s), vertical control (bench marks), property corners destroyed and/or disturbed during the scope of the project shall be properly re-established as per standards as set forth within Florida Statutes, Administrative code and Minimum Technical Standards for that type of survey. All said surveying mentioned above shall be performed under the direct supervision of a registered Professional Surveyor and Mapper in the state of Florida and certified accordingly. Said Governmental agency(s) shall be notified in writing of disturbance and re-establishments.

Record/As-Builts Drawings Format - Submittal

ENGINEER will supply the CONTRACTOR with the electronic file of the approved construction plans for the input of the As-Built (record) information.

CONTRACTOR shall deliver seven (7) certified sets of Record/As-Builts with Electronic Drawing files prepared in AutoCAD 2015 AND PDF format or in current version as agreed by the ENGINEER.

CONTRACTOR's surveyor shall review, sign and seal As-Builts or Record drawing(s). Said drawing(s) shall clearly state type of survey, positional tolerances, adhere and be certified to by a registered Professional Surveyor and Mapper in the state of Florida, any standards set forth by Florida Statutes, Administrative code and Minimum Technical Standards for As-Built/Record surveys.

All Record/As-Built drawings are subject to review and approval by County Surveyor.

Accuracy

The CONTRACTOR will be held responsible for the accuracy and completeness of Record Drawings and Electronic As-Builts and shall bear any costs incurred in finding utilities as a result of incorrect data furnished by the CONTRACTOR.

Completion of Work

Upon Substantial Completion of the Work, deliver Record Drawings/As-Built Drawings to ENGINEER. Final payment will not be made until satisfactory record documents are received and approved by ENGINEER.

Item of Payment

Payment for the work specified in this item shall be made under: Bid Item No. 79 – Stake-out / As-Built Survey - Lump Sum.

[Remainder of this page is intentionally left blank.]

BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS

Record As-Built Survey Checklist

Lic. Name _____ Date: _____

Project Name: **North County Water & Sewer System Phase 2**

Project No.: **UCP No. 3556**

Chapter 61G17-6 Minimum Technical Standards F.A.C.

61G17-6.003 General Survey, Map, and Report Content Requirements

(1) **REGULATORY OBJECTIVE:** The public must be able to rely on the accuracy of measurements and maps produced by a surveyor and mapper. In meeting this objective, surveyors and mappers must achieve the following minimum standards of accuracy, completeness, and quality:

- (a) Accuracy of survey measurements based on the type of survey and expected use.
- (b) Measurements made in accordance with the United States standard, feet or meters.
- (c) Records of measurements maintained for each survey (check field notes.)
- (d) Measurement and computation records dated.
- (e) Measurement and computation records substantiate the survey map.
- (f) Measurement and computation records support accuracy statement (closure calculations or redundant measurements, if applicable.)

(2) Other More Stringent Requirements:

- (a) Met more stringent requirements set by federal, state, or local governmental agencies.

(3) Other Standards and/or Requirements that Apply to All Surveys, Maps, and/or Survey Products:

- (a) **REGULATORY OBJECTIVE:** In order to avoid misuse of a survey and map, the surveyor and mapper must adequately communicate the survey results to the public through a map, report, or report with an attached map.

- (b) Survey map or report identified the responsible surveyor and mapper and contain standard content. In meeting this objective, surveyors and mappers must meet the following minimum standards of accuracy, completeness, and quality:

- (c) Type survey stated on map and report:

- | | |
|----------------------------|------------------------------------|
| As-Built Survey | Mean High Water Line Survey |
| Boundary Survey | Quantity Survey |
| Condominium Survey | Record Survey |
| Construction Layout Survey | Specific or Special Purpose Survey |
| Control Survey | Topographic Survey |
| Hydrographic Survey | |

- (d) Name, certificate of authorization number, and street and mailing address of the business entity on the map and report.

- (e) Name and license number of the surveyor and mapper in responsible charge.
- (f) Name, license number, and street and mailing address of a surveyor and mapper practicing independent of any business entity on the map and report.
- (g) Survey date (date of data acquisition.)
- (h) Revision date for any graphic revisions (when survey date does not change.)
- (i) Map and report statement "Survey map and report or the copies thereof are not valid without the signature and the original raised seal of a Florida licensed surveyor and Mapper."
- (j) Insurance statement in $\frac{1}{4}$ " high letters "The survey depicted here is not covered by professional liability insurance" if there is no professional liability insurance.
- (k) Additions or deletions to survey maps or reports by other than the signing party or parties is prohibited without written consent of the signing party or parties.
- (l) All computed data or plotted features shown on survey maps supported by accurate survey measurements unless clearly stated otherwise.
- (m) Bearings, distances, coordinates, and elevations shown on a survey map shall be substantiated by survey measurements unless clearly stated otherwise.
- (n) Bearing reference (well established and monumented line)
- (o) A designated "north arrow"
- (p) Stated scale or graphic scale
- (q) Abbreviations in legend or notes.
- (r) Special conditions and any necessary deviation from the standards noted upon the map or report.
- (s) Responsibility for all mapped features stated on the map or report
- (t) Map or report clearly states the individual primarily responsible for the map or report when mapped features have been integrated with others.
- (u) Map Accuracy.
 - (1) Vertical Feature Accuracy:
 - (a) Vertical Control: Field-measured control for elevation information shown upon survey maps or reports shall be based on a level loop or closure to a second benchmark.
 - (b) Closure in feet must be accurate to a standard of plus or minus .05 ft. times the square root of the distance in miles.
 - (c) All surveys and maps or reports with elevation data shall indicate the datum and a description of the benchmark(s) upon which the survey is based.
 - (d) Minor elevation data may be obtained on an assumed datum provided the base elevation of the datum is obviously different than the established datum.
 - (2) Horizontal Feature Accuracy:
 - (a) Horizontal Control: All surveys and maps or reports expressing or displaying features in a publicly published coordinate system shall indicate the coordinate datum and a description of the control points upon which the survey is based.
 - (b) Minor coordinate data may be obtained and used on an assumed datum provided the numerical basis of the datum is obviously different than a publicly published datum.

- (c) The accuracy of control survey data shall be verified by redundant measurements or traverse closures. All control measurements shall achieve the following closures:

Commercial/High Risk Linear: 1 foot in 10,000 feet;

Suburban: Linear: 1 foot in 7,500 feet;

Rural: Linear: 1 foot in 5,000 feet;

- (d) When statistical procedures are used to calculate survey accuracies, the maximum acceptable positional tolerance, based on the 95% confidence level, should meet the same equivalent relative distance standards as set forth in 61G17-6.003(3)(p)(2.) (c) F.A.C.
- (e) Intended Display Scale: All maps or reports of surveys produced and delivered with digital coordinate files must contain a statement to the effect of: "This map is intended to be displayed at a scale of 1/___ or smaller".

61G17-6.004 Specific Survey, Map, and Report Requirements

(1) As-Built/Record Survey:

- (a) Obtained field measurements of vertical or horizontal dimensions of constructed improvements so that the constructed facility can be delineated in such a way that the location of the construction may be compared with the construction plans.
- (b) Clearly shows by symbols, notations, or delineations, those constructed improvements located by the survey.
- (c) All maps prepared shall meet applicable minimum technical standards.
- (d) Vertical and horizontal accuracy of the measurements made shall be such that it may be determined whether the improvements were constructed consistent with planned locations.

END OF SECTION

SECTION 02050

CLEARING & GRUBBING

GENERAL

The work specified in this item shall conform to Section 110 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (Latest Edition), except as modified herein.

Prior to any clearing and grubbing, the contractor will stake the right-of-way. Unimproved areas shall be cleared of trees, logs, stumps, brush, vegetation, rubbish and other perishable or objectionable matter within limits shown on the plans excepting for certain trees and shrubs shown on the plans or as directed by the Engineer which are to remain undisturbed and protected. Stumps and roots between slope stakes in cuts and in embankments 3 feet or less in depth shall be removed to a depth of 18 inches below subgrade. No stumps, roots, or perishable matter of any description shall remain under concrete slabs or footing, including pavement and sidewalks.

No trees shall be removed or relocated until the Engineer or his representative has marked all trees to be saved, after a review of the project site with the Contractor's representative.

Where the final pavement or structural work will be close to existing trees, the Contractor shall exercise care in the vicinity of the trees. Further, the Contractor shall saw cut along the edge of the outside limits of the stabilization, structure subgrade or sidewalk to a minimum depth of 4 feet below the finish grade and paint with a commercial grade pruning paint the ends of all sawn roots. If directed by the Engineer or where shown on the drawings, work shall be done by hand in order to protect the trees.

The Contractor shall exercise care when working in the vicinity of all trees to remain so as to not damage or remove major root structures. The Contractor shall not pull hair or major root structures. All severed roots shall be sawn clean and paint with pruning paint. Stumps, roots, etc., shall be completely removed and disposed of by the Contractor. Undesirable, dead, and/or damaged trees (as so designated by the Engineer) shall be removed.

All trees to be removed shall be disposed off site; burning will be strictly prohibited.

All trees or shrubs which are to remain shall be preserved and protected by the Contractor. Where the removal of valuable trees or shrubs specifically for transplanting is required, this work shall be done in cooperation with the Owner and at no additional expense to the Owner.

All items to be removed shall be excavated to their full depth. All culverts removed from residential driveway entrances within the right-of-way shall become the property of the respective homeowner. Those homeowners not desiring the culverts may donate them to the County free of charge. (See Paragraph C, Special Provisions) The Contractor shall transport the culverts to the County's storage yard. All metal castings for catch basins, manholes, or other structures shall be carefully removed and stored in the County's Storage Yard if they are deemed salvageable by the Engineer. The excavated materials shall be removed from the job site and disposed in a location designated or approved by the Owner. Any culverts, structures or any material excavated or removed from the project site under clearing and grubbing deemed unsalvageable by the Engineer shall be disposed of in a legal manner by the Contractor. Where required, suitable material as approved by the Engineer shall then be backfilled and compacted to restore the original contour of the ground. The fill material shall be backfilled and compacted in accordance with Section 120 of these specifications.

No additional payment will be made, nor will additional work, or change orders be authorized for work needed to remove, relocate, protect, or otherwise account for in the construction of the work depicted in the plans, for any feature, or item that would be apparent from a careful inspection of the site and review of the plans, even though such feature or item is not specifically called out in the plans. It is therefore essential the contractor make such inspection and review.

The unit price bid for this item shall include the cost of all labor, tools, and equipment necessary to excavate, remove, and dispose of those items as directed by the Engineer and where designated on the Drawings. The cost of restoration and backfill and compaction for the specific area of removal shall also be included under this item.

Item of Payment

Payment for the work specified in this item shall be made under: Bid Item No. 77 – Clearing / Grubbing / Tree Removal - Lump Sum

END OF SECTION

SECTION 02075

EXCAVATION FOR STRUCTURES & PIPE

GENERAL

The work specified in this item shall conform to Section 125 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (Latest Edition), except as modified herein.

Item of Payment

The unit price bid for furnishing and installation of the sewer and water mains and appurtenances shall include Excavation for Structures and Pipe.

END OF SECTION

SECTION 02115

TREE PROTECTION AND TRIMMING

GENERAL

Description of Work

Only those trees which are in the direct path of construction are to be removed. Contractor shall make every possible effort to save any tree of four-inch diameter or larger, including minor adjustment to the pipe routing. Changes pipe routing must be approved by the Engineer. Any tree which is not designated for removal but which will significantly interfere with construction shall be trimmed by a qualified tree surgeon. Contractor shall minimize tree removal and tree trimming operations to as great an extent as possible.

Quality Assurance

Engage a qualified tree surgeon to perform the following work:

1. Carefully remove branches from trees as required for new construction; all wounded trees shall be immediately treated.
2. Recommend procedures to compensate for loss of roots and perform initial pruning of branches and stimulation of root growth where removed to accommodate new construction.
3. Perform tree repair work for damages incurred by new construction.

Job Conditions

Provide temporary fencing, barricades, or guards to protect trees and other plants which are to remain from damage.

PRODUCTS

Materials

Tree Pruning Compound: Waterproof, antiseptic, elastic, and free of kerosene, coal tar, Creosote, and other substances harmful to plants. Pruned or damaged trees shall be treated with the following:

1. Pine trees (all species): A mixture of twelve percent (12%) Benzene Hexachloride (BHC) emulsifiable concentrate shall be mixed at the rate of one (1) pint BHC per gallon of #2 fuel oil. Spray damaged area liberally. Spray the rest of the tree from ground level to a height of six feet (6'). Spraying of damaged trees shall be completed within five (5) days after injury occurs.
2. Hardwood (all species except pine): An application of asphalt-type tree pruning paint shall be applied to the damaged area. The paint shall be applied in sufficient quantity so as to form an airtight seal. Spraying or painting of the damaged trees shall be performed within twenty-four (24) hours after the injury occurs. In case of damage to "specimen" hardwoods, the inspecting Engineer may require the Contractor to retain a skilled and licensed tree surgeon to properly treat the damaged tree. No compensation shall be made to the Contractor for treating damaged trees.

EXECUTION

General

Protect tree root system from damage due to noxious materials in solution caused by run-off or spoilage during mixing and placement of construction materials, or drainage from stored materials. Protect root systems from flooding, erosion, or excessive wetting resulting from dewatering operations.

Repair And Replacement Of Trees

- A. Repair trees damaged by construction operations, in a manner acceptable to the Engineer. Make repairs promptly after damage occurs to prevent progressive deterioration of damaged trees.
- B. Remove and replace dead and damaged trees which are determined by the tree surgeon to be incapable of restoration to normal growth pattern.
- C. If trees over six inches in caliper measurement (taken 12 inches above grade) are required to be replaced, provide new trees of six inches caliper size, and of the species selected by the Engineer.

Disposal

Removal from Owner's property: Remove excess excavation, displaced trees, and trimmings, and dispose of off the Owner's property in a manner approved by local agencies.

Item of Payment

Payment for the work specified in this item shall be included in the price of the pipe.

END OF SECTION

SECTION 02310

STABILIZATION

GENERAL

The work specified in this item shall conform to Section 160 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (Latest Edition), except as modified herein.

Section 160 is modified by the addition of the following:

"The stabilization thickness indicated on plans shall be considered a minimum thickness. Thickness will vary to conform to the lines, and grades shown in the plans." Minimum L.B.R. = 40 - No under-tolerance.

Item of Payment

Payment for the work specified in this item shall be made under the following:

- Bid Item No. 28 – Remove & Replace (Open Cut) – 8” Stabilized Subgrade
– Per Square Yard.
- Bid Item No. 73 – Remove & Replace (Open Cut) – 8” Stabilized Subgrade
– Per Square Yard.

END OF SECTION

SECTION 02320

TRENCHLESS INSTALLATION OF PRESSURE MAINS BY DIRECTIONAL BORING

GENERAL

Section Description

Portions of the pressure mains shall be installed by the directional boring method within the limits indicated on the contract plans and as specified herein. Generally, as a minimum, the pressure main is to be located within the road right-of-way and shall be installed by directional boring.

This section includes materials, performance and installation standards, and Contractor responsibilities associated with the furnishing of all labor, materials, equipment and incidentals required to install, complete, required trenchless installation of pressure mains, as shown on the Drawings and as specified herein.

Experience

The Contractor must demonstrate expertise in trenchless methods by providing a list of ten (10) utility references for which similar work has been performed in the last two years. The references should include a name and telephone number where contact can be made to verify the contractor's capability. The Contractor must provide documentation showing successful completion of the projects used for reference. Conventional trenching experience will not be considered applicable.

All supervisory personnel must be adequately trained and shall have at least four (4) years' experience in directional boring. The Contractor shall submit the names and resumes of all supervisory field personnel prior to construction.

Because of time constraints, the Contractor may wish to provide multiple experienced directional boring crews.

The directional boring equipment shall be capable of installing the minimum pipe diameter noted on the plans.

Submittals

Submit technical data for equipment including clay slurry material, method of installation with working drawings, and proposed sequence of construction for approval by the Engineer.

Prior to approval for directional boring, the Contractor must submit the names of supervisory field personnel and historical information of directional boring experience. In addition, the Contractor must submit for approval nameplate, data for the drilling equipment, mobile spoils removal unit, and MSDS (Material Safety Data Sheets) information for the drilling slurry compounds.

The Contractor is required to bring to the attention of the Engineer any known design discrepancies with actual tunneling methods that the Contractor will be performing. This shall be stated in writing to the Engineer no later than the pre-construction meeting.

Provide shop drawing submittal and sample of pipe, fused joint, and trace wire.

EXECUTION

Installation

Installation shall be in a trenchless manner producing continuous bores.

The tunneling system shall be remotely steerable and permit electronic monitoring of tunnel depth and location. Accurate placement of pipe within a \pm 2-inch window is required both horizontally and vertically. Turning capability of a 90-degree radius in 40 feet is required. Continuous monitoring of the boring head is required, including across open water if necessary.

The directional boring Contractor shall submit certification, by a Professional Engineer or Professional Land Surveyor licensed in the State of Florida, that the directional boring has been performed in accordance to the construction drawings, and shall provide signed and sealed record drawings. Record Drawings (As-built) shall be provided both in electronic format and hard paper copy.

Tunneling shall be performed by a fluid-cutting process (high pressure-low volume) utilizing liquid clay, i.e. bentonite. The clay lining will maintain tunnel stability and provide lubrication in order to reduce frictional drag while the pipe is being installed. In addition, the clay fluid must be totally inert and contain no environmental risk. The Contractor must also have a mobile vacuum spoils recovery vehicle on-site to remove the drilling spoils from the access pits. The spoils must then be transported from the job site and be properly disposed of off the site. Under no circumstances shall the drilling spoil be permitted to be disposed of into sanitary, storm, or other public or private drainage systems. Spoils may be transported to the County's Solid Waste Facility and the cost of disposal shall be borne by the County.

Liquid clay type colloidal drilling fluid shall consist of at least 10 percent of high-grade carefully processed bentonite to consolidate cuttings of the soil, to seal the walls of the hole, and to furnish lubrication for subsequent removal of cuttings. The slurry, which is heavier than the surrounding material, is high in colloids of the bentonite type and it will deposit a thin filter cake of low permeability material on the walls of the bore. This will allow only a small amount of the fluid to pass into the surrounding soil and will also stabilize the bore. The colloidal content of the fluid imparts excellent lubricating qualities to the slurry, which is a distinct aid to the removal of the soil cuttings.

Pneumatic or water-jetting methods will be considered unacceptable due to the possibility of surface subsidence.

After an initial bore has been completed, a reamer will be installed at the termination pit and the pipe shall be pulled back to the starting pit. The reamer shall be capable of discharging liquid clay to facilitate the installation of the pipe into a stabilized and lubricated tunnel.

A minimum of one (1) insulated #6 trace wires shall be installed along with the HDPE. The trace wire shall be tested for continuity upon completed installation.

Upon completion of boring and pipe installation, the Contractor shall remove all spoils from the starting and termination pits. All pits shall be restored to their original condition.

Restoration Of Paved, Improved And Unimproved Areas

The shoulders, ditches, banks and slopes of roads and railroads crossed and paralleled shall be restored to their former condition and properly sodded so that they shall not wash out before becoming consolidated. Restoration shall be as required by the jurisdictional authority and as specified within the Contract Document. Road and railroad crossings and parallel installations are to be continuously maintained until the completion of the work. No direct compensation shall be paid for Contractor's repair or maintenance of crossings and parallel installations.

Item of Payment

Payment for the work specified in this item shall be made under:

- Bid Item No. 13 – 6" Ø HDPE Force Main Directional Bore w/ M.J. Fittings - Roseland Road STA. 3+00 – Per Linear Foot
- Bid Item No. 14 – 4" Ø PVC Force Main Directional Bore w/ M.J. Fittings - 142nd Street STA. 0+77 to STA. 4+12 – Per Linear Foot
- Bid Item No. 15 – 4" Ø PVC Force Main Directional Bore w/ M.J. Fittings - 141st Street STA. 2+80 to STA. 4+36 – Per Linear Foot
- Bid Item No. 56 – 8" HDPE Directional Bore w/ M.J. Fittings - 80th ST (STA. 3+56) – Per Linear Foot
- Bid Item No. 57 – 8" HDPE Directional Bore w/ M.J. Fittings - 80th ST (STA. 12+00) – Per Linear Foot
- Bid Item No. 58 – 8" HDPE Directional Bore w/ M.J. Fittings - 81st AVE (STA. 3+70 to STA. 5+10) – Per Linear Foot
- Bid Item No. 59 – 8" HDPE Directional Bore w/ M.J. Fittings - 140th ST (STA. -0+15 to STA. 0+40) – Per Linear Foot
- Bid Item No. 60 – 10" HDPE Directional Bore w/ M.J. Fittings - Bay ST (STA. 0+30 to 3+50) – Per Linear Foot
- Bid Item No. 61 – 10" HDPE Directional Bore w/ M.J. Fittings - Bay ST (STA. 3+57) – Per Linear Foot

*** END OF SECTION ***

SECTION 02401

DEWATERING

GENERAL

Description Of Work

The work to be performed under this section shall include furnishing all equipment and labor necessary to remove storm or subsurface waters from excavation areas in accordance with the requirements set forth and as shown on the drawings.

Applicable Codes, Standards, And Specifications

The dewatering of any excavation areas and the disposal of the water shall be in strict accordance with the latest revision of all local and state government rules and regulations. The Contractor shall obtain any required dewatering permit from the appropriate agencies prior to commencing dewatering operations.

EXECUTION

Dewatering

The Contractor shall provide adequate equipment for the removal of storm or subsurface waters which may accumulate in the excavation. If subsurface water is encountered, the Contractor shall utilize suitable equipment to adequately dewater the excavation so that it will be dry for work and pipe laying. A wellpoint system or other Engineer-approved dewatering method shall be utilized if necessary to maintain the excavation in a dry condition for preparation of the trench bottom and for pipe laying. Wellpoint holes shall be plugged with concrete grout. Dewatering by trench pumping will not be permitted if migration of fine grained natural material from bottom, side walls, or bedding material will occur. In the event that satisfactory dewatering cannot be accomplished due to subsurface conditions or where dewatering could damage existing structures, the Contractor shall obtain the Engineer's approval of wet trench construction procedure before commencing construction. Dewatering shall cease in a manner to allow the subsurface water to slowly return to normal levels.

Disposal

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

Item of Payment

Payment for the work specified in this item shall be included in the price of the pipe.

*** END OF SECTION ***

SECTION 02576

PAVEMENT, SIDEWALK, AND DRIVEWAY REPLACEMENT

GENERAL

References

Section numbers and Article numbers specified are those contained in the latest edition of the "Florida Department of Transportation Standard Specifications for Road and Bridge Construction."

All pavement, sidewalks and/or driveway restoration shall be completed in conformance with FDOT Standards. Where pavement, sidewalk and/or driveways are disturbed during the execution of this contract work, the thickness of the restored work shall be either equal to existing (i.e. in kind) or the minimum thickness required by the FDOT, whichever is greatest.

Portions of the project work are in the limits of the rights-of-way owned by Indian River County (IRC), and FDOT. Work in the right-of-way shall conform to the applicable Standards.

Indian River County Code Chapter 312, Section 08 C. Utility Construction in Right-of-Way shall control where applicable. It is intended that the other specifications contained herein are to be applied as more specific. In the event of a conflict between a provision of Code Section 312.08 C and any other provision of these specifications the more restrictive provision shall apply.

312.08 C. Utility construction within the right-of-way. Right-of-Way Construction Permit(s) has been/ will be secured for this project and all requirements of the permit(s) must be followed. However, the Contractor can anticipate that the permit(s) will include the following:

- A. One (1) lane of traffic in each direction should be maintained, using proper traffic control procedures as outlined in the reference material cited in section 312.08.1 (b) and (c).8u
- B. Pavement cut and restoration, where approved, shall be as follows:
 - 1) Pipe bedding, backfill and compaction shall conform to standards specified in section 312.08.1 (a) and (c). Open cut restoration shall meet specifications detailed in drawing No. 6 section 312.19. Density testing shall be performed by an approved independent testing laboratory and reports submitted to the Public Works Director prior to permanent patch. A temporary asphalt patch shall be applied within twenty-four (24) hours after backfill and compaction. The finish surface of the temporary asphalt patch shall be within one-quarter (1/4) inch of the elevation of the existing roadway surface.
 - 2) Seventy-two (72) hours prior to the time of pavement cut, the Public Works Director shall be notified of the date and time of the cut. An emergency phone number of the Contractor shall be provided.
 - 3) Work site traffic control shall be provided in conformance with "Florida Department of Transportation Roadway and Traffic Design Standards."
 - 4) Asphalt restoration will be required within fifteen (15) days after temporary patch is installed. The final finish shall be smooth and uniform within a one-quarter (1/4) inch tolerance of the required surface.
 - 5) Shoulder, right-of-way sodding, and other restoration shall be performed as required by the Public Works Director in accordance with Florida Department of Transportation Standards.
 - 6) Traffic control devices (e.g. signs, street name signs, traffic signals and pavement markings) shall be restored to their original condition or better.

- 7) Prior to final release of the performance bond, which shall occur no sooner than ninety (90) days after final pavement restoration, the Engineer-of-record or utility company shall request a final inspection, shall certify that the utility has been installed in accordance with standards specified in the publications listed in section 312.08, shall submit two (2) copies of as-built drawings, and shall submit release of lien by Contractors.
- 8) All utility structures will be required to have an identification tag designating proper ownership.

Restoration

All surfaces, as described, shall be completed as soon as is reasonable. In no case shall the pavement or driveway replacement operation be unfinished for more than ten (10) days after backfilling unless otherwise directed by the Engineer. Replace all damaged or cut pavement due to Contractor's operations; restore all pavement outside of trench area that is damaged by the Contract at no expense to Owner.

Guarantee

All restored areas within the public right-of-way shall be guaranteed for one year. In the event of settlement of paved areas more than one-quarter inch below the undisturbed adjacent permanent pavement, the Contractor shall make the necessary repairs to restore the pavement level within ten calendar days after notification by the Owner. The cost of such repairs shall be paid by the Contractor.

Restoration Details

See Construction Plans Sheet 33 for construction details and notes.

PRODUCTS

Baserock

Limerock, shellrock, and local rock shall conform to FDOT specifications, Section 911.

Asphaltic Concrete

Prime and Tack Coats: Prime and tack coats shall be applied to the prepared baserock. Prime coat shall be cutback asphalt, Grade RC-70, MC-30, or MC-70, complying with FDOT Specifications, Sections 300-1 through 300-7, applied at the average rate of 0.15 gallons per square yard.

Tack coat shall be emulsified asphalt, Grade RS-2, complying with FDOT Specifications, Sections 300-1 through 300-7 respectively, applied at the average rate of 0.10 gallons per square yard. The bituminous quantities are considered as average and are subject to some variation at the discretion of the Engineer and at no additional cost.

Plant Mix Wearing Surface: A plant mix wearing surface course shall be constructed on the prepared limerock base. Materials and construction shall conform with the requirements of FDOT Standard Specifications for Type S-1 Asphaltic Concrete, Section 331, and Articles 331-1 through 331-4. The finished pavement replacement shall be smooth and even with, or slightly above, the existing abutting pavement, but shall not have any appreciable bump due to this slight elevation.

Rock, Gravel, or Marl Replacement: Roads, streets, or driveways constructed of rock, gravel, or marl shall be restored to a condition equal to or better than prior to construction using the same material unless directed otherwise.

Temporary Cold Patch: Temporary cold patch for temporary surface as required by Code Section 312.08 (c) (d) 1, shall be a commercially available mix approved by the Engineer.

Concrete Mix, Design, And Testing

Comply with requirements of applicable FDOT Section 345 for concrete mix design, sampling and testing, and quality control, and as herein specified.

Design the mix to produce standard weight concrete consisting of Portland cement, aggregate, air-entraining admixture and water to produce the following properties.

1. Compressive Strength - Class I, 3,000 psi.
2. Air Content: 3% to 6%

Concrete placement slump shall not exceed plus or minus one inch from approved design slump.

EXECUTION

Pavement Replacement

Replace pavement in accordance with the details shown on drawings. The baserock shall be placed and compacted in accordance with FDOT Specifications, Section 200.

Application of the tack coat shall follow the application of the prime coat immediately prior to the placing of the wearing surface course.

Edge Trim

Trim edges of the existing pavement with a concrete saw or other approved method to provide a clean, straight edge.

Pavement Markings

Repaint, stripe, or otherwise mark pavement to match pre-existing conditions, using FDOT-approved materials and procedures.

Temporary Pavement

Temporary pavement shall be installed as follows:

Residential Streets: In residential streets, the Contractor shall, after completion and acceptance of the backfill, construct a base course in accordance with the typical section meeting the requirements of the FDOT Specifications, Section 200, Articles 200-1 through 200-10. The top of the base course shall be constructed flush with the adjacent asphalt surface. Upon completion of the base construction, it shall be primed and sanded in accordance with FDOT Specifications, Section 300. Prime shall be applied at the rate of 0.50 gallon per square yard, or as directed by the Engineer.

Arterial Streets: In arterial streets, the Contractor shall, after completion and acceptance of the backfill, construct a base course in accordance with the typical section. Upon completion of the

base course, the Contractor shall construct an asphaltic concrete surface course, Type II, in accordance with FDOT Specifications, Section 337. The top of the surface course shall be constructed flush with the adjacent asphalt surface. Thickness of the replaced course shall match the thickness of the existing surface course.

Emergency Repairs And Procedures

The Contractor shall provide the name and telephone number of at least two (2) persons designated by the Contractor to receive notification of the need for emergency repairs. These persons shall be available for emergency notification on a 24 hour basis. The County will provide the name, or names, of its designee who will be charged with giving notice to the Contractor when the need for emergency repairs, or other actions, is necessary on work that has been performed by the Contractor. When so notified by the person so designated by the County that emergency repairs, or other actions, are necessary the Contractor will be given a reasonable time to respond to the situation. At the time of notification the Contractor will give the time that he will be able to take action to rectify the emergency conditions. If this time is not satisfactory to the County, the County reserves the right to have the Road & Bridge Division make necessary repairs, or take other emergency actions as required to restore the pavement, or take other actions necessary. The County will invoice the Contractor for the actual time and materials used in executing the emergency repairs or actions. This amount will be based upon hourly rates and actual materials cost to the County. The labor rates will be supplied to the Contractor prior to beginning work under this Contract. If the Contractor does not pay the invoice as presented by the County, the County reserves the right to withhold that amount from the Contractor on the Final Pay for this Contract.

Sidewalk, Concrete Driveway, Curb, And Combined Gutter Removal And Replacement

Surface Preparation:

1. Remove loose material from the compacted sub-base surface immediately before placing concrete.
2. Proof-roll prepared sub-base surface to check for unstable areas and the need for additional compaction. Do not begin paving work until such conditions have been corrected and are ready to receive paving. Comply with requirements of FDOT Section 230, Paragraph 230-6.

Do not place concrete until sub-base and forms have been checked for line and grade. Moisten if required to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are completed to required finish elevation and alignment. All concrete driveways shall be FDOT Class 1 and a minimum of 6 inches thick with wire or fiber mesh reinforcement. All sidewalks shall be a minimum of 4 inches thick, shall be saw-cut every 5 feet, and shall have an expansion joint every 30 feet.

1. Place concrete using methods which prevent segregation of the mix. Consolidate concrete along the face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent dislocation of reinforcing, dowels, and joint devices. Do not use vibrators to push or move concrete in forms or chute.
2. Deposit and spread concrete in a continuous operation between transverse joints, as far as possible. If interrupted for more than one-half hour, place a construction joint.
3. Curbs and Gutters: Automatic machine may be used for curb and gutter placement at Contractor's option. If machine placement is to be used, submit revised mix design and laboratory test results which meet or exceed the minimum herein specified. Machine

placement must produce curbs and gutters to the required cross-section, lines, grades, finish, and jointing as specified for formed concrete. If results are not acceptable, remove and replace with formed concrete as specified.

4. Joints: Construct expansion, weakened-plane (contraction), and construction joints true-to-line with face perpendicular to surface of the concrete, unless otherwise indicated. Construct transverse joints at right angles to the centerline, unless otherwise indicated. When joining existing structures, place transverse joints to align with previously-placed joints, unless otherwise indicated.
 - a. Weakened-Plane Joints: Provide weakened-plane (contraction) joints sectioning concrete into areas where required. Construct weakened-plane joints for a depth equal to at least one-quarter concrete thickness, by sawing within 24 hours of placement or formed during finishing operations. Place joints at intervals not to exceed 10 feet, if not otherwise indicated.
 - b. Construction Joints: Place construction joints at the end of all pours and at locations where placement operations are stopped for a period of more than one-half hour, except where such pours terminate at expansion joints. Construction joints shall be as shown or, if not shown, use standard metal keyway-section form of appropriate height.
 - c. Expansion Joints:
 - (1) Provide premolded joint filler for expansion joints abutting concrete curbs, catch basin, manholes, inlets, structures, walks, and other fixed objects, unless otherwise indicated.
 - (2) Locate expansion joints at 30 feet o.c. for concrete walks, unless otherwise indicated.
 - (3) Extend joint fillers full width and depth of joint, and not less than one-half inch below finished surface where joint sealer is indicated. If no joint sealer, place top of joint filler flush with finished concrete surface.
 - (4) Furnish joint fillers in one-piece lengths for the full width being placed, wherever possible. Where more than one length is required, lace or clip joint filler sections together. Pieces shorter than four inches shall not be used unless specifically shown as such.
 - (5) Protect the top edge of the joint filler during concrete placement with a metal cap or other temporary material. Remove protection after concrete has been placed on both sides of joint.
 - (6) Fillers and Sealants: Comply with the requirements of these specifications for preparation of joints, materials installations and performance, and as herein specified.
5. Detectable Warning on Walking Surfaces: The work specified in this item shall conform to Section 527 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (2017).

Concrete Finishing

1. After striking-off and consolidating concrete, smooth the surface by screening and floating. Use hand methods only where mechanical floating is not possible. Adjust the floating to compact the surface and produce a uniform texture.
2. After floating, test surface for trueness with a 20 ft. straight edge. Variations exceeding one-third inch for any two (2) points within 10 feet shall not be acceptable. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.

3. Work edges of slabs, gutters, back top edge of curb, and formed joints with an edging tool, and round 10-1/2" radius, unless otherwise indicated. Eliminate any tool marks on concrete surface.
4. After completion of floating and when excess moisture or surface sheen has disappeared, broom finish sidewalks by drawing a fine-hair broom across concrete surface, perpendicular to a line of pedestrian traffic.
5. Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and point-up any minor honeycombed areas.

Curing:

Protect and cure finished concrete paving and walks, as required. Use moist-curing methods for initial curing whenever possible of approved concrete curing compounds.

Repairs And Protection:

1. Repair or replace broken or defective concrete, as directed by Engineer.
2. Drill test cores where directed by Engineer, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with Portland cement concrete bonded to pavement with epoxy resin grout.
3. Protect concrete from damage until acceptance of work. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
4. Sweep concrete pavement and wash free of stains and discoloration, dirt, and other foreign material just prior to final inspection.

Item of Payment

Payment for the work specified in this item shall be made under:

- Bid Item No. 26 – Remove & Replace (Open Cut) – Pavement Asphalt 2" Thick
– Per Square Yard.
- Bid Item No. 27 – Remove & Replace (Open Cut) – 6" Base Rock – Per Square Yard.
- Bid Item No. 29 – Curb Replacement – Type "F" Curb & Gutter – Per Linear Foot.
- Bid Item No. 68 – Remove & Replace (Open Cut) – Pavement Concrete 6" Thick
– Per Square Yard
- Bid Item No. 69 – Remove & Replace (Open Cut) – Sidewalk Concrete 6" Thick
– Per Square Yard
- Bid Item No. 70 – Remove & Replace (Open Cut) – Pavement Asphalt 2" Thick
– Per Square Yard
- Bid Item No. 71 - Dirt Driveway Apron Replacement – Pavement Asphalt 1" Thick
– Per Square Yard
- Bid Item No. 72 – Remove & Replace – (Open Cut) 6" Base Rock – Per Square Yard
- Bid Item No. 74 – Curb Replacement (Type "F" Curb & Gutter) – Per Square Yard

*** END OF SECTION ***

SECTION 02578

NON-PAVED STREET AND DRIVEWAY RESTORATION

GENERAL

Description of Work

This item of work shall include all furnishing of materials, equipment, testing, labor, and all else necessary to restore all non-paved streets and driveways, including sub-base course materials, for all dirt, marl, or shell streets and driveways. All non-paved streets and driveways shall be reconstructed to a minimum thickness of six (6") inches or in-kind, whichever is greater.

Materials and Methods of Construction

Materials and Methods of Construction shall conform to the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Latest Edition, and Indian River County Standards as applicable.

END OF SECTION

SECTION 02588

STORMWATER COMPONENT REPLACEMENT

GENERAL

Description of Work

In the event the Contractor removes and replaces any stormwater pipelines, mitered end sections, flumes, inlets, headwalls, manholes or other components, the Contractor shall use new components of the same size which comply with the related Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Latest Edition and subject to the approval of the Engineer.

END OF SECTION

SECTION 02610

RESTRAINED JOINTS, EARTHWORK AND BACKFILL

RESTRAINED JOINTS

Restrained joints shall be used on lines per the Table of the IRC DUS Standards Drawing M-3. Section of piping having restrained joints or those requiring restrained joints shall be constructed using pipe and fittings with restrained "Locked-type" joints and the joints shall be capable of holding against withdrawal for line pressures up to 150 pounds per square inch (psi). The pipe fittings shall be as shown for restrained push-on joints or restrained mechanical joints on Page 416 in Section VI, in the Hand book of Cast Iron Pipe, 4th Edition. In all cases, restrained joints must be used per formula below, with thrust blocks, per contract drawings.

Restrained pipe joints that achieve restraint by incorporating cutout sections installed in the bell of the pipe shall have a minimum wall thickness at the point of cutout that corresponds with the minimum specified wall thickness for the rest of the pipe.

The minimum number of restrained joints required for resisting forces at fittings and changes in direction of pipe shall be determined from the length of restrained pipe on each side of fittings and changes in direction necessary to develop adequate resisting friction with the soil. Drawing and formula below are provided for the Contractor as a guideline.

Where:

$$L = \frac{1.5PA(1-\cos X)}{Fw}$$

L = Length of pipe on each side of fittings or change in direction

P = 150 psi, unless otherwise noted

A = Cross-sectional area in square inches based on outside diameter (O.D.) of pipe

X = Angle of bend or change in direction in degrees

f = Coefficient of friction = 0.4 (maximum)

W = W (earth) + W (pipe) + W (water in pipe) W (earth)
= (density of soil*) (depth of cover in feet) (O.D. in feet)

* Maximum 12-lbs/cubic ft above maximum water table elevation and 60-lbs/cubic ft below maximum water table elevation.

Bolts and nuts for restrained joints shall be 304 stainless steel.

The Contractor shall also provide restrained joints in accordance with the above criteria wherever below ground fittings are on lines 12-inches in diameter or less.

EARTHWORK AND BACKFILL

Excavation for all utilities and/or house connections shall be adequately guarded with barricades and lights, so as to protect the public from hazard. Streets, sidewalks, driveways, curbs, parkways and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the IRC DUS and/or Public Works.

Foundation material used for pipe bedding, from a minimum 6-inch distance below the pipe invert to the bottom 12-inches above the top of the pipe, shall be bank run sand and gravel.

All gravity sewer installation procedures must be in accordance with pipe manufacturer's recommendations. All mains shall be installed to have a minimum depth of 36-inches. Installation of gravity sewers shall be controlled by use of a laser to maintain proper grade. A maximum tolerance of W' dip will be accepted in gravity sewer construction.

1. Trench - Trench width shall be kept to a minimum necessary for installation of the pipe and shall comply with current OSHA requirements. The trench bottom shall be graded uniformly to match the slope of the pipe.
2. Backfill - Only good quality backfill, free of stones, hardpan materials, roots, rocks, broken cement or other debris that might be damaging to the pipe shall be used. Backfill shall be placed in the trench in uniform lifts of 12-inches.
3. Compaction - All fill must be compacted by hand tamping from under the pipe up to the center line. Backfill shall be compacted in lifts up to the surface to achieve a minimum compaction of 98% of maximum density in roadways and shoulders. Easements shall be 95% density, in accordance with AASHTO Specifications T-180 and ASTM 0-2167.
4. Dewatering - Construction shall be accomplished in a dry trench. Well pointing may be required as necessary. All water entering excavations or other parts of the work shall be contained, collected and pumped to suitable places for disposal, as permitted by local and state regulation.
5. Sheet piling - Sheet piling and shoring shall be installed as may be necessary for the protection of the work, preservation of adjacent property and structures and the safety of employees. Sheet piling and bracing shall be uniform to OSHA requirements.

Installation of force mains (sewer or reused water) shall be in accordance with latest AWWA Standard Specifications C- 600 and the installation specifications for water lines in the Water Distribution Section, irrespective of the type of pipe selected. A 2-inch wide magnetic 1.0. tape and tracer wire shall be placed continuously in the trench over all pipes per Detail M-14, 12-inches below grade.

1. Trench - Trench width shall be kept to a minimum necessary for pipe installation and shall comply with current OSHA requirements. The trench bottom shall be graded and alignment shall be parallel with roadway, where possible.
2. Backfill - Only good quality backfill, free of stones, roots, rocks, broken cement or other material that might be damaging to the pipe shall be used. Backfill must be put in the trench in lifts.
3. Compaction - All pipe must be compacted by hand tamping to the centerline, under the pipe. Backfill shall be compacted in lifts up to the surface to achieve a minimum compaction of 98% of maximum density in roadways, shoulders, and easements in accordance with AASHTO Specifications T-180 and ASTM 0-2167.
4. Dewatering - Construction shall be accomplished in a dry trench. Well pointing may be required, as necessary. All water entering excavations or other parts of the work shall be contained, collected and pumped to suitable places for disposal as permitted by the Local, State or Water Management District.
5. Sheet piling - Sheet piling and shoring shall be installed as may be necessary for the protection of the work, preservation of adjacent property and structures and the safety of employees. Sheet piling and bracing shall be uniform to OSHA requirements.

Specifications C-600 Series, irrespective of the type of pipe selected. All installation procedures must also be in conformance with pipe manufacturer's recommendations. Minimum depth of cover shall be 36-inches. A 2-inch wide magnetic 1.0. tape shall be placed continuously in the trench over all pipes, 12-inches below grade. Trace wire shall be wrapped on all pipes, per Detail M-14, valves, fittings, and all appurtenances. Allowable deflection of the pipe joints and curvature of PVC pipe shall not exceed the manufacturer's specifications.

1. Trench - Trench width shall be kept to a minimum necessary for pipe installation and shall comply with current OSHA requirements. The trench bottom shall be graded and alignment shall be parallel with roadway, where possible.
2. Backfill - Only good quality backfill, free of stones, roots, rocks, broken cement or other material that might be damaging to the pipe shall be used. Backfill must be put in the trench in lifts.
3. Compaction - All pipe must be compacted by hand tamping to the centerline, under the pipe. Backfill shall be compacted in lifts up to the surface to achieve a minimum compaction of 98% of maximum density in roadways, shoulders, and easements in accordance with AASHTO Specifications T-180 and ASTM 0-2167.
4. Dewatering - Construction shall be accomplished in a dry trench. Well pointing may be required, as necessary. All water entering excavations or other parts of the work shall be contained, collected and pumped to suitable places for disposal as permitted by the Local, State or Water Management District.
5. Sheeting - Sheeting and shoring shall be installed as may be necessary or the protection of the work, preservation of adjacent property and structures and the safety of employees. Sheeting and bracing shall be uniform to OSHA requirements.

*** END OF SECTION ***

SECTION 02621
WATER MAINS
DUCTILE IRON PIPE (DIP) AND FITTINGS

Scope

This section covers cast ductile iron pipe and cast ductile iron fittings for water mains.

General

Ductile iron pipe (D.I.P.) shall be allowed for use as water pipe where compatible with the specific conditions of the project. The use of material other than ductile iron may be required by Indian River County Department of Utility Services (IRCDUS) during construction permit review or by IRCDUS field personnel during construction if it is determined that ductile iron pipe is unsuitable for the particular application.

All ductile iron pipe shall be manufactured in accordance with AWWA Specification C150 (A21.50-96), or latest revision and shall be pressure Class 300 or 350 minimum as depicted on Table 1.1 on page 02621-2. All ductile iron pipe crossing under roadways and other trafficked areas shall be pressure class 350 minimum.

Unless specifically indicated otherwise, restrained joint underground piping shall be manufactured restrained bell and spigot and above ground piping shall be flanged.

Cutting of ductile iron pipe shall be by sawing only.

Pipe

Ductile iron pipe shall be bell and spigot cast in accordance with AWWA Specification C150 (ANSI A21.50-96), or latest revision. Cast ductile iron shall have a minimum tensile strength of 60,000 psi, with a minimum yield strength of 42,000 psi. Pipe wall thickness shall be computed in accordance with AWWA Specification C150 (ANSI A21.51-96), or latest revision, using the physical characteristics cited above, with a minimum working pressure of 200 psi and a Laying Condition "Type 2." Unless otherwise indicated or specified herein, the pipe shall have the minimum wall thickness according to class designation for diameters shown. All pipe shall be given a minimum factory hydrostatic test of 500 pounds per square inch.

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TABLE 1.1
PRESSURE CLASS

SIZE (INCHES)	OUTSIDE DIAMETER (INCHES)	300 PSI THICKNESS (INCHES)	350 PSI THICKNESS (INCHES)
3	3.96	---	0.25
4	4.80	---	0.25
6	6.90	---	0.25
8	9.05	---	0.25
10	11.10	---	0.26
12	13.20	---	0.28
14	15.30	0.30	0.31
16	17.40	0.32	0.34
18	19.50	0.34	0.36
20	21.60	0.36	0.38
24	25.80	0.40	0.43
30	32.00	0.45	0.49
36	38.30	0.51	0.56
42	44.50	0.52	0.63
48	50.80	0.64	0.70
54	57.76	0.72	0.79
60	61.61	0.76	0.83
64	65.67	0.80	0.87

Fittings

All underground fittings shall be either push on, restrained, or mechanical joint. Mechanical joints shall conform to AWWA Specification C110 (ANSI 21.10-98) or C153 (ANSI 21.53-00), or latest revisions. All aboveground fittings shall be flanged joint.

The pressure rating shall be 350 psi.

Joint restraint, when required, shall be in accordance with IRCBUS Approved Manufacturer's Product List or equal.

All fittings shall be lined with the same material as specified for the pipe as per below.

Lining And Coating

Unless otherwise indicated, all ductile iron pipe shall be factory lined and coated.

Lining: All pipe shall be cement mortar lined and seal coated in accordance with AWWA Standard C104 (ANSI A21.4-95), or latest revision unless double lined is required by IRCBUS.

Coating: Unless specified otherwise, all pipe shall be bituminous coated outside to a dry film thickness of at least 1 mil.

Repair: Anywhere that the coating is removed purposely or accidentally, the area shall be cleaned of any rust, grease, and dirt and re-coated to a minimum dry film as specified for the individual piece.

Encasement: If and where directed by IRCDUS's Engineer, a polyethylene encasement shall be provided around pipe, fittings, and valves. The material, installation, and workmanship shall conform to applicable sections of AWWA C105 (ANSI A21.5-99), or latest revision. Installation methods A or B shall be employed using flat tube polyethylene. The Contractor shall make provisions to keep the polyethylene from direct exposure to sunlight prior to installation. Backfilling following installation shall be completed without delay to avoid exposure to sunlight.

All exposed (Le. aerial crossings) Ductile Iron pipe water mains shall be primed and painted blue as per IRCDUS Approved Manufacturer's Product List or equal.

Bell And Spigot Connections

Joints in bell and spigot pipe shall be push-on, mechanical, or restrained joints in accordance with AWWA Standard C111 (ANSI 21.11-00), or latest revision. Pipe restraints shall also be in accordance with IRCDUS Standards or as directed by IRCDUS's Engineer.

Flanged Connections

All flanged pipe barrels shall comply with the physical and chemical requirements as set forth in the Handbook of Ductile Iron Pipe of the Cast Iron Pipe Research Association, latest revisions. Flanges shall be in accordance with ANSI Specification B16.1 for Class 125 flanges. Bolts shall comply with ANSI Specification B18.2.

Flanged pipe shall be faced and drilled to the American Standard Drilling, unless special drilling is called for or required. Where tap or stud bolts are required, flanges shall be tapped. Flanges shall be accurately faced and drilled smooth and true, at right angles to the pipe axis and shall be covered with zinc dust and tallow or a rust preventive compound immediately after facing and drilling.

Flanged pipe with screwed-on flanges shall be furnished with long hubs, and the flanges shall be screwed on the threaded end of the pipe in the shop, and the face of the flange and end of pipe refaced together. There shall be no leakage through the pipe threads and the flanges shall be designed to prevent corrosion of the threads from outside.

Flanged joints shall be made with bolts or stud bolts and nuts. Bolts, stud bolts, and nuts shall conform to American Standard heavy dimensions, semi-finished with square or hexagonal heads and cold punched hexagonal nuts, meeting the requirements of ASTM Designation A-304SS. Bolt sizes shall be American Standard for the flanges specified, and bolts and nuts shall have good, true threads.

Gaskets shall be in accordance with AWWA Standard C115 (ANSI A21.15-99), latest revision.

Submittals

Before starting fabrication of the ductile iron pipe and fittings, the Contractor shall submit complete detailed working drawings to the Engineer of record and IRCDUS for approval by. Such drawings shall show the pipe, fittings, valves, expansion joints, hangers and supports, and other appurtenances to be installed. Where special fittings are required, they shall be shown in large detail with all necessary dimensions. The Engineer of record shall review all drawings and notify IRCDUS of the drawing approval or not approved. IRCDUS will also review and coordinate approvals and disapprovals with the Engineer of record and contractor. The drawings submitted

shall show flanged jointed sections placed so as to be removable without disturbance to the main pipe sections.

Marking

Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See trace wire detail M-13 of IRCDUS's latest Utility Construction Standards for specifications regarding installation.

Trace wire is required over and around all pipes unless otherwise approved by IRCDUS.

Location tape is required over all pipes. Tape is to be installed 12" below proposed grade and additional tape shall be adhered directly on top of pipe if required by IRCDUS engineering.

Installation

Handling and Protection of Pipe: Unless otherwise noted on the drawings or in other sections of this specification, the pipe shall be handled and installed in strict accordance with the manufacturer's instructions and with the applicable provisions of AWWA C600-99, or latest revision. If a conflict exists between the manufacturer's instructions and the AWWA Standards, the manufacturer's instructions shall govern. The Contractor shall use every precaution during construction to protect the pipe against the entry of non-potable water, dirt, wood, small animals, and any other foreign material that would hinder the operation of the pipeline. Where the groundwater elevation is above the bottom of the trench, the Contractor shall provide suitable dewatering equipment. All piping shall be placed in a dry trench, unless otherwise approved by IRCDUS.

Depth of Cover and Pipe Elevation: Unless otherwise shown on the drawings, or otherwise approved by IRCDUS, all pipe shall have a minimum cover of 36 inches. Contractor shall determine top of pipe elevation and top of ground elevation for every two joints of pipe installed using a level. Pipe must have the minimum cover described above and must be within +/- 0.2 feet of the top of pipe elevation indicated on the drawings. Installed pipe, which does not meet these requirements, shall be reinstalled until it does meet these requirements. Contractor shall record top of pipe and top of ground elevations and the locations of where these elevations were determined and submit this information to IRCDUS. IRCDUS reserves the right to have Contractor excavate and check top of pipe and top of ground elevations to see if they conform to the aforementioned requirements, at no cost to the IRCDUS.

*** END OF SECTION ***

SECTION 02622
WATER MAINS
POLYVINYL CHLORIDE PIPE AND FITTINGS

Scope

This section covers polyvinyl chloride pipe and fittings for water mains.

General

PVC pipe shall be allowed for use as potable water pipe where compatible with the specific conditions of the project. IRCDUS may require the use of material other than PVC during construction permit review or by IRCDUS field personnel during construction, if it is determined that PVC pipe is unsuitable for the particular application.

The pipe shall be identified by its nominal pipe size, plastic pipe material code, SDR class, pressure rating, ASTM Designation, manufacturers' name, production code, and the National Sanitation Foundation seal for potable water (NSF-pw).

PVC Pipe 3 inches in Diameter and Smaller

PVC pipe 3 inches and smaller in diameter intended for conveying potable water shall conform to ASTM D2241, latest revision.

Pipe shall be Iron Pipe Size (IPS), and SDR 21 with a pressure rating of 200 psi.

Joint design tested to the requirements of ASTM D3139.

Gaskets shall conform to ASTM F477 and D1869.

No solvent weld joints are permitted.

The pipe shall be "blue" in color.

PVC pipe shall be in accordance with IRCDUS Approved Manufacturers' Products List or equal.

PVC Pipe 4 Inches in Diameter and Larger

PVC pipe intended for conveying or transmitting potable water shall conform to AWWA Standard Specifications C900-16 (or latest revision) and ASTM D1784 Cell Class 12454.

Pipe shall be Ductile Iron Pipe Size (DIPS), and SDR 18 with a pressure rating of 235 psi.

Joint design tested to the requirements of ASTM D3139. Gaskets shall conform to ASTM F477.

Gasket material shall conform to ASTM F477.

The pipe shall be "blue" in color.

The pipe shall be identified by its nominal pipe size, plastic pipe material code, DR class, pressure rating, ASTM Designation, manufacturers' name, code, and the National Sanitation Foundation seal for potable water (NSF-pw).

PVC pipe shall be in accordance with IRCDUS Approved Manufacturers' Products List or equal.

Joints

Joints for PVC pipe shall be bell and spigot push-on rubber gasket type only unless otherwise approved by IRCDUS. No solvent weld or threaded joints will be permitted.

Restraining joints, when required, shall be in accordance with IRCDUS Approved Manufacturers' Products List or equal.

Fittings

All fittings shall be ductile iron mechanical joint and shall conform to AWWA Standard Specifications C110/A21.10-98 or C153/A 21.53-00, or latest revisions. Fittings shall be cement mortar lined and seal-coated in accordance with AWWA Standard Specifications C104/A21.4-95, or latest revision.

The pressure rating shall be 350 psi (3' – 24' diameter), and 250 psi (30' – 48" diameter).

Joint restraint, when required, shall be in accordance with IRCDUS Approved Manufacturer's Products List or equal.

Submittals

Before starting installation of the PVC pipe and fittings, the Contractor shall submit one set of complete working drawings (shop drawings) to the Engineer of Record and IRCDUS for approval. Such drawings shall show the pipe, fittings, valves, hydrants, blow-offs, services, and other appurtenances to be installed. Where special fittings are required, they shall be shown in large detail with all the necessary dimensions. The Engineer of Record shall review the drawings and notify IRCDUS of the drawings approved and not approved. IRCDUS shall also review the drawings and coordinate approvals and disapprovals with the Engineer of Record and Contractor.

Marking

Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See trace wire Detail M- 13 for specifications regarding installation.

Trace wire is required over all pipes.

Location tape is required over all pipes. Tape is to be installed 12" below proposed grade and additional tape shall be adhered directly on top of the pipe if required by IRCDUS engineering.

Installation

Handling and Protection of Pipe: Unless otherwise noted on the drawings or in other sections of these standards, the pipe shall be handled and installed in strict accordance with the manufacturers' instructions and with the applicable provisions of AWWA Standard Specifications C605-94, or latest revision. If a conflict exists between the manufacturers' instructions and the AWWA Standard Specifications, the manufacturers' instructions shall govern. The Contractor shall use every precaution during construction to protect the pipe against the entry of non-potable water, dirt, wood, small animals, and any other foreign material that would hinder the operation of

the pipeline. Where the groundwater elevation is above the bottom of the trench, the Contractor shall provide suitable dewatering equipment. All piping shall be placed in a dry trench, unless approved by IRCDUS.

Depth of Cover and Pipe Elevation: Unless otherwise shown on the drawings, or otherwise authorized by IRCDUS, all pipe shall have a minimum depth of cover of 36 inches. Contractor shall determine top of pipe elevation and top of finished grade elevation for every two joints of pipe installed using a level. Pipe must have the minimum cover described above and must be within +/- 0.2 feet of the top of pipe elevation indicated on the drawings. Installed pipe, which does not meet these requirements, shall be reinstalled until it does meet these requirements. Contractor shall record top of pipe and top of ground elevations and the locations of where these elevations were determined and submit this information to Engineer or his representative. IRCDUS reserves the right to have Contractor excavate and check top of pipe and top of ground elevations to see if they conform to the aforementioned requirements.

*** END OF SECTION ***

SECTION 02623

WATER SERVICES CROSSLINKED POLYETHYLENE TUBING (PEXa)

Scope

This section covers Water Services – Crosslinked Polyethylene (PEXa) Tubing and Water Mains – High Density Polyethylene Pipe (HDPE).

General

Crosslinked polyethylene (PEXa) tubing shall be allowed for use as potable water pipe where compatible with the specific conditions of the project. IRCDUS may require the use of material other than PEXa during construction permit review or by IRCDUS field personnel during construction if it is determined that PEXa pipe is unsuitable for the particular application.

Polyethylene (PEXa) Tubing 3 inches Diameter and Smaller

This specification requires PEXa to be designated as PEXa, high pressure peroxide method.

PEXa tubing shall comply with applicable requirements for extrusion compound PEXa plastic material as stated in AWWA Standard Specifications C904, or latest revision, and shall comply with the following:

Tubing shall have a working pressure of 200 psi at 73.4° F.

Tubing surfaces shall be glass smooth, and shall be free from bumps and irregularities. Materials must be completely homogeneous and uniform in appearance.

Tubing dimensions and tolerances shall correspond with values listed in ASTM D-2239, with a standard outside dimension ratio (SDR) of 9.

Tubing shall carry the following markings every (3) feet: Manufacturers' name or trademark, nominal size, PEXa 3306 (material designation) SDR (standard dimension ratio), POTABLE TUBING, ASTM F876/F877/F2080, CSA B137.5, NSF-pw, UP Code 200psi/73.4°F 100psi/180°F, manufacturing date and footage mark.

Joints

Joints for PEXa tubing shall be of the compression type or compression-sleeve type, utilizing a totally confined grip seal and coupling nut, unless otherwise approved by IRCDUS. Stainless steel tube stiffener inserts shall also be used for PEXa tubing services

installation

Backfill shall be free of rocks and debris.

Bending radius shall be large enough so that tubing is not crimped or damaged and so that the flow of water is not restricted. Manufacturers' minimum radius recommendations are to be utilized during installation of PEXa tubing.

PEXa tubing shall have ability for kink repair using a heat gun.

Marking

Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See Trace Wire Details M-14 for specifications regarding installation.

Trace wire is required over or around all pipes.

Location tape is required over all pipes. Tape is to be installed 12” below proposed grade and additional tape adhered directly on top of the pipe if required by IRCDUS engineering.

Pressure PEXa Pipe

PEXa pipe shall be allowed for use as all pressure utility pipes where compatible with the specific conditions of the project. The use of material other than PEXa pipe may be required by IRCDUS during construction permit review or by IRCDUS field personnel, if it is determined that PEXa is unsuitable for the particular application.

Documentation from the resin’s manufacturer showing results of the following tests for resin Identification:

1. Melt Flow Index ASTM D 1238
2. Density ASTM F876

All PEXa pipe and fittings shall be from a single manufacturer on the Approved Manufacturers’ Product List. The pipe shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications. See Approved Manufacturers’ Product List.

Finished Product Evaluation

Production staff for the items listed below shall check each length of pipe produced. The results of all measurements shall be recorded on production sheets that become part of the manufacturers’ permanent records.

Pipe in process shall be checked visually, inside and out for cosmetic defects (grooves, pits, hallows, etc.)

Pipe outside diameter shall be measured using a suitable periphery tape to ensure conformance with ASTM F714 or ASTM D-3035 whichever is applicable.

Pipe wall thickness shall be measured at 12 equally spaced locations around the circumference at both ends of the pipe to ensure conformance with ASTM F714 or ASTM D-3035, whichever is applicable.

Pipe length shall be measured

Pipe marking shall be examined and checked for accuracy.

Pipe ends shall be checked to ensure they are cut square and clean.

Subject inside surface to a “reverse bend test” to ensure the pipe is free of oxidation (brittleness)

Marking

Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See trace wire Detail M- 13 for specifications regarding installation.

Trace wire is required over all pipes.

Location tape is required over all pipes. Tape is to be installed 12" below proposed grade and additional tape shall be adhered directly on top of the pipe if required by IRCDUS engineering.

Stress Regression Testing

The PEXa pipe manufacturer shall provide certification that stress regression testing has been performed on the specific PEXa resin being utilized in the manufacturing of this product. This stress regression testing shall have been done in accordance with ASTM D2837 and the manufacturer shall provide a product supplying a minimum Hydrostatic Design Basis (HDB) of 1,600 psi as determined in accordance with ASTM D2837.

Developer is responsible for compatibility between pipe materials, fittings and appurtenances.

The pipe manufacturer shall provide a warranty against manufacturing defects of material and workmanship for a period of ten (10) years after the final acceptance of the project by the IRCDUS. The manufacturer shall replace at no expense to IRCDUS any defective pipe material including labor within the warranty period.

High Density Polyethylene Pipe (HDPE) 4 inches in Diameter and Larger

HDPE pipe intended for conveying or transmitting potable water shall conform to AWWA Standard Specifications C906-15 (or latest revision).

Pipe shall be Ductile Iron Pipe Size (DIPS) and SDR 11 with a pressure rating of 200 psi.

HDPE pipe shall be made from a PE 4710 resin compound conforming to ASTM D3350 with the cell classification 44574/4C/E.

Dimensions and workmanship shall be as specified by ASTM F714. HDPE fittings and transitions shall meet ASTM D3261. HDPE pipe shall have a minimum density of 0.955 grams per cubic centimeter. All HDPE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi.

If rework compounds are required, only those generated in the manufacturers' own plant from resin compounds of the same class and type from the same raw material supplier shall be used.

The pipe manufacturer must certify compliance, with the above requirements.

HDPE flange adapters at pipe material transitions shall be backed up by stainless steel flanges conforming to ANSI B16.1 and shaped as necessary to suit the outside dimensions of the pipe. The flange adapter assemblies shall be connected with corrosion resisting bolts and nuts of Type 316 Stainless Steel as specified in ASTM A726 and ASTM A307. All bolts shall be tightened to the manufacturers' specified torques. Bolts shall be tightened alternatively and evenly.

HDPE pipe shall be striped blue for potable water, green for wastewater, and purple for reclaimed/reuse water.

HDPE pipe shall be in accordance with IRCDUS Approved Manufacturers' Products List or equal.

Fittings

All molded fittings and fabricated fittings shall be fully pressure rated to match the pipe SDR pressure rating to which they are made. All fittings shall be molded or fabricated by the manufacturer. No fabricated fittings shall be used unless approved by IRCDUS.

The manufacturer of the HDPE pipe shall supply or specify all HDPE fittings and accessories as well as any adapters and/or specials required to perform the work as shown on the drawings and specified herein.

All transitions from HDPE pipe to PVC or ductile iron shall be made per the HDPE, PVC, or ductile iron pipe manufacturers' recommendations and specifications whichever is more stringent. A molded flange connector adapter within a carbon steel back-up ring assembly shall be used for pipe type transitions. Ductile iron back-up rings shall mate with cast iron flanges per ANSI B16.1. A 316 stainless steel back-up ring shall mate with a 316 stainless flange per ANSI B16.1.

The pipe manufacturer must certify compliance with the above requirements.

Joints

The HDPE pipe shall be joined with butt, heat fusion joints. All joints shall be made in strict compliance with the manufacturers' recommendations.

Lengths of pipe shall be assembled into suitable installation lengths by the butt-fusion process. All pipes so joined shall be made from the same class and type of raw material made by the same raw material supplier. Pipe shall be furnished in standard lay lengths not to exceed 50 feet.

All above ground HDPE pipe shall have flange adapters. Below ground shall be MJ adapters. Stainless Steel inserts allowed on water main only 4" to 6". FM 4" and larger MJ adapter only with no insert. Pipe material transitions shall be backed up by stainless steel flanges conforming to ANSI B16.1 and shaped as necessary to suit the outside dimensions of the pipe. The flange adapter assemblies shall be connected with corrosion resisting bolts and nuts of Type 316 Stainless Steel as specified in ASTM A726 and ASTM A307. All bolts shall be tightened to the manufacturers' specified torques. Bolts shall be tightened alternatively and evenly.

Pipe identification

The following shall be continuously indent printed on the pipe or spaced at intervals not exceeding 5-ft.

1. Name and/or trademark of the pipe manufacturer.
2. Nominal pipe size and OD base.
3. Material Code
4. Dimension ratio.
5. Pressure Class
6. Current AWWA C906 (if Applicable)
7. Manufacturing standard reference, e.g., ASTM F714 or D-3035, as required.
8. A production code from which the date and place of manufacture can be determined.

Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of all pipe and fittings. See Trace Wire Details Drawing M-13 for specifications regarding installation.

Installation by Open Cut Method

HDPE Pipe shall be installed in accordance with the instruction of the manufacturer, as shown on the Drawings and as specified herein. A factory qualified joining technician as designated by the pipe manufacturer shall do all heat fusion joints.

Care shall be taken in loading, transporting and unloading to prevent injury to the pipe. Pipe or fittings shall not be dropped. All pipe or fittings shall be examined before installation, and no piece shall be installed which is found to be defective. Any damage to the pipe shall be repaired as directed by the Engineer of Record and IRCUDS. If any defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner by the Contractor, at his own expense.

Under no circumstances shall the pipe or accessories be dropped into the trench.

Care shall be taken during transportation of the pipe such that it will not be cut, kinked, or otherwise damaged.

Ropes, fabric, or rubber protected slings and straps shall be used when handling pipes. Chains, cables, or hooks inserted into the pipe ends shall not be used. Two slings spread apart shall be used for lifting each length of pipe.

Pipes shall be stored on level ground, preferably turf or sand, free of sharp objects, which could damage the pipe. Stacking of the PE pipe shall be limited to a height that will not cause excessive deformation of the bottom layers of pipes under anticipated temperature conditions. Where necessary due to ground conditions, the pipe shall be stored on wooden sleepers, spaced suitably and of such width as not to allow deformation of the pipe at the point of contact with the sleeper or between supports.

Care shall be exercised when lowering pipe into the trench to prevent damage or twisting of the pipe.

Pipe shall be laid to lines and grade shown on the Drawings with bedding and backfill as shown on the Drawings.

When installation of pipe is not in progress, including lunchtime, the open ends of the pipe shall be closed by fabricated plugs, or by other approved means.

Pipe shall be stored on clean level ground to prevent undue scratching or gouging. The handling of the pipe shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects. The maximum allowable depth of cuts, scratches or gouges on the exterior of the pipe is 5 percent of wall thickness. Sections of pipe with cuts, scratches or gouges exceeding five percent of the pipe wall thickness shall be removed completely and the ends of the pipeline rejoined. The interior pipe surface shall be free of cuts, gouges or scratches.

HDPE pipe shall be joined by the method of thermal butt fusion, as outlined in ASTM D2657. All joints shall be made in strict compliance with the manufacturers' recommendations.

Mechanical connections of the HDPE pipe to auxiliary equipment such as valves, pumps and tanks shall be through flanged connections which shall consist of the following:

1. An HDPE flange shall be thermally butt-fused to the stub end of the pipe. A stainless steel or ductile iron back-up ring shall be used on both sides of the connection prior to thermally butt-fusing the PE flange.
2. A 316 stainless steel back-up ring shall mate with a 316 stainless steel flange.

3. Ductile iron back-up rings shall mate with cast iron flanges.

Flange connections shall be provided with a full-face neoprene gasket.

All HDPE pipe must be at the temperature of the surrounding soil at the time of backfilling and compaction.

No single piece of pipe shall be laid unless it is straight. The centerline of the pipe shall not deviate from a straight line drawn between the centers of the openings at the ends of the pipe by more than 1/16-in per foot of length. If a piece of pipe fails to meet this requirement check for straightness, it shall be rejected and removed from the site. Laying instructions of the manufacturer shall be explicitly followed.

If a defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner. All pipe and fittings shall be thoroughly cleaned before installation, shall be kept clean until they are used in the work and when laid, shall conform to the lines and grades required.

As soon as the excavation is complete to normal grade of the bottom of the trench, bedding shall be placed, compacted and graded to provide firm, uniform and continuous support for the pipe. Bell holes shall be excavated so that only the barrel of the pipe bears upon the bedding. The pipe shall be laid accurately to the lines and grades indicated on the Construction Plans. Blocking under the pipe will not be permitted. Bedding shall be placed evenly on each side of the pipe to mid-diameter and hand tools shall be used to force the bedding under the haunches of the pipe and into the bell holes to give firm continuous support for the pipe. Bedding shall then be placed to 12-in above the top of the pipe. The initial 3 feet of backfill above the bedding shall be placed in 1 foot layers and carefully compacted. Generally the compaction shall be done evenly on each side of the pipe and compaction equipment shall not be operated directly over the pipe until sufficient backfill has been placed to ensure that such compaction equipment will not have a damaging effect on the pipe. The pipe manufacturers' representative prior to use shall approve equipment used in compacting the initial 3 feet of backfill. Pipe shall be installed per IRCDUS Drawing M-1 or M-2, Trench Details.

Good alignment shall be preserved during installation. The deflection at joints shall not exceed that recommended by manufacturer. Fittings, in addition to those shown on the Drawings, shall be provided, if required, in crossing of utilities that may be encountered upon opening the trench.

Each length of the pipe shall have the assembly mark aligned with the pipe previously laid and held securely until enough backfill has cramped.

Before any joint is made, the pipe shall be checked to assure that a close joint with the next adjoining pipe has been maintained and that the inverts are matched and conform to the required grade. The pipe shall not be driven down to grade by striking it.

Precautions shall be taken to prevent flotation of the pipe in the trench.

When moveable trench bracing such as trench boxes, moveable sheeting, shoring or plates are used to support the sides of the trench, care shall be used in placing and moving the boxes or supporting bracing to prevent movement of the pipe, or disturbance of the pipe bedding and the backfill. Trench boxes, moveable sheeting, shoring or plates shall not be allowed to extend below the top of the pipe. As trench boxes, moveable sheeting, shoring or plates are moved, pipe bedding shall be placed to fill any voids created and the backfill shall again be compacted to provide uniform side support for the pipe.

Sheeting and shoring will be required as determined in the field in accordance with OSHA regulations.

Restrained joints shall be installed where shown on the Construction Plans, as required by IRCDUS Standards, or otherwise as directed by IRCDUS.

Marking

Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See Trace Wire Details, M-13 for specifications regarding installation.

Trace wire is required over or around all pipes.

Location tape is required over all pipes. Tape is to be installed 12" below proposed grade and additional tape shall be adhered directly on top of the pipe if required by IRCDUS.

Trenchless Installation of High Density Polyethylene (HDPE) Pressure Mains by Directional Bore

Description

Portions of the pressure mains shall be installed by the directional bore method within the limits indicated of the contract plans and as specified here in. Generally, as a minimum, the pressure main is to be located within the road right-of-way and shall be installed by directional boring.

This section includes material, performance and installation standards, and the contractor's responsibilities associated with the furnishing of labor, material, equipment, and identical required to install, complete, required trenchless installation of pressure mains, as shown on the Drawings and as specified herein.

Experience

The Contractor must demonstrate expertise in trenchless method by providing a list of ten utility references for which similar work has been performed in the last two years. The references should include a name and phone number where the contact can be made to verify the Contractor's capability. The Contractor must provide documentation showing successful completion of the projects used for reference. Conventional trenching experience will not be considered applicable.

Supervisory personnel must be adequately trained and shall have at least four years of experience in directional boring. The Contractor shall submit the names and resumes of all supervisory field personnel prior to construction.

Directional boring equipment shall be capable of installing the minimum pipe diameter noted on the drawings.

Submittals

Submit technical data for equipment including clay slurry material, method of installation with working drawings, and proposed sequence of construction for approval by the IRCDUS.

Prior to approval for directional boring, the Contractor must submit the names of supervisory personnel, and history information of the directional boring experience. In addition, the Contractor must submit for approval the nameplate, data for the drilling equipment, mobile spoils removal units and Material Safety Data Sheets (MSDS) for the drilling slurry compounds.

The Contractor is required to bring to the attention of the engineer any known design discrepancies with actual tunneling methods that the contractor will be performing. This shall be stated in writing to the Engineer at the pre-construction meeting.

Installation

Installation shall be in a trenchless manner producing continuous bores.

The tunneling system shall be remotely steerable and permit electronic monitoring of tunnel depth and location. Accurate placement of pipe within a +/-2-inch window is required both horizontally and vertically. Turning capability of 90-degrees radius in 40 feet is required. Continuous monitoring of the boring head is required, including across open water if necessary.

The directional boring Contractor shall submit certification, by a Professional Engineer licensed in the State of Florida, that the directional boring has been performed in accordance to the construction drawings, and shall submit signed and sealed drawings. AS-Built Record Drawings shall be provided both in electronic format and hard paper copy.

Tunneling shall be performed by a fluid-cutting process (high pressure-low volume) utilizing liquid clay i.e. bentonite. The clay lining will maintain tunnel stability and provide lubrication in order to reduce frictional drag while the pipe is being installed. In addition, the clay fluid must be totally inert and contain no environmental risk. The Contractor must also have a mobile vacuum spoils recovery vehicle on site to remove the drilling spoils from the access pits. The spoils must then be transported from the job site and be properly disposed off the site. The drilling spoils shall not, under any circumstances, be disposed into a sanitary sewer, storm, or other public or private drainage system. Spoils may be transported to the County's Solid Waste Facility and the cost of disposal shall be at the Contractor's expense.

Liquid clay type colloidal drilling fluid shall consist of at least 10 percent of high-grade carefully processed bentonite to consolidate cuttings of the soil, to seal the walls of the hole, and to furnish lubrication for subsequent removal of cuttings. The slurry that is heavier than the surrounding material, is high in colloids of the bentonite type and it will deposit a thin filter cake of low permeability material on the walls of the bore. This will allow only a small amount of the fluid to pass into the surrounding soils and will stabilize the bore. The colloidal content of the fluid imparts excellent lubricating qualities to the slurry that is a distinct aid to the removal of the soil cuttings.

Pneumatic or water-jetting methods will be considered unacceptable due to the possibility of surface subsidence.

After an initial bore has been completed, a reamer will be installed at the termination pit and the pipe shall be pulled back to the starting pit. The reamer shall be capable of discharging liquid clay to facilitate the installation of the pipe into a stabilized and lubricated tunnel.

A minimum of two insulated #6 stranded conductor copper tracer wire shall be wrapped or affixed to the top of the pipe and fittings along with the HDPE pipe. The tracer wire shall be tested for continuity or traceability upon completed installation. Should both tracer wires fail to test for continuity then the test shall be considered a failure and the wires shall be replaced.

Upon completion of boring and pipe installation, the Contractor shall remove all spoils from the starting and termination pits. All pits shall be restored to their original condition.

Restoration shall be as required by IRCUDS. The shoulders, ditches, banks, and slopes of roads and railroads crossed and paralleled shall not wash out before becoming accepted.

*** END OF SECTION ***

SECTION 02624

GRAVITY SEWER SYSTEMS

GENERAL

Scope

These Specifications shall govern the design, materials and installation requirements of the County for gravity sanitary sewer systems constructed in its service area when using Poly (Vinyl Chloride)(PVC) pipe and fittings, Vitrified Clay (V.C.) pipe and fittings or Ductile Iron pipe and fittings. "PVC" shall mean Poly (Vinyl Chloride) as it relates to pipe and fittings.

This Specification does not purport to cover all material or installation procedures which may be required, whether by the nature of the proposed work, or by the County, or by other regulatory agencies.

It is intent of the County to obtain a complete and working installation under this project, and any items of labor, equipment or materials which may reasonably be assumed as necessary to accomplish this end shall be supplied whether or not they are specifically shown on the Plans or stated herein.

Quality Assurance

All material and installation shall be in accordance with the County's Design and Construction Standard Specifications and Details.

The material and installation for this project shall be in full compliance with all applicable standards listed in Section 02000, "Reference Specifications".

Project Approval

The approval of the County shall be secured prior to any construction related activity.

Permits, Inspections & Fees

The Contractor shall obtain and pay for all permits, official inspections and all other fees as required for project construction. ALL PERMIT, IMPACT, OR INSPECTION FEES PAYABLE TO INDIAN RIVER COUNTY IN CONNECTION WITH THE WORK ON THIS COUNTY PROJECT WILL BE PAID BY INDIAN RIVER COUNTY, WITH THE EXCEPTION OF RE-INSPECTION FEES AS SET FORTH IN THE CONTRACT.

Inspection by County personnel is required in addition to, not in lieu of, municipal and Engineering Consultant inspections.

No installation will be accepted until it has passed all inspections, including pavement installation or replacement.

Preconstruction Conference

Prior to commencement of the work, the Contractor shall attend a "Preconstruction Conference.

Submittals

The Contractor shall furnish and submit "As-Builts", Project Record Documents, and operating and maintenance instructions and all other submittals to the Consulting Engineer and the County.

Where the Specifications require test certification or certification that certain products or material furnished are as specified, the Contractor shall deliver such certification to the Consulting Engineer. No material or equipment shall be approved for use in the work until individual certification has been received.

Safety Requirements

The Contractor shall be in compliance with all applicable provisions of the Occupational Safety and Health Act of 1970, in general, and any subsequent amendments and revisions thereto and specifically to the provisions concerning confined space entry.

The Contractor's personnel will be in the vicinity of raw sewage. For his own protection, as well as for his employees, he shall check with Indian River County Health Department, and based upon their recommendation, shall have his personnel properly immunized against disease.

Under this project, personnel may be required to enter the existing manholes/sewers to perform certain items of work. Before entering, the Contractor shall be in compliance with all related rules and/or ordinances (which mandates, in part, that above-ground safety personnel shall be on duty at all times when someone enters or works in a manhole/sewer and the air within a manhole / sewer shall be tested with a combination oxygen deficiency meter-explosion meter to determine oxygen content and explosion potential). A test for the presence of hydrogen sulfide shall also be performed. The work area must be ventilated mechanically by the use of an air blower, before entry and during occupancy, to insure that an adequate quantity of oxygen is supplied to the work area.

The Contractor shall conduct his operations in such a manner, utilizing warning devices such as traffic cones, barricades and warning lights, and personnel such as flagmen and uniformed police officers, that the public is given adequate warning of hazards of the work site as may be deemed necessary by the authority having jurisdiction and/or the County. Construction shall comply with the approved maintenance of traffic plan and FDOT permit requirements.

In the instance of men working within the manholes, the Contractor shall provide safety provisions to cover any possible consequences of structural failure and/or flooding. Such provisions might take the form of, but not be limited to, ladders in position to permit rapid egress; safety harnesses; stand-by pumping equipment; extra air supplies; and such other measures as the situation and good construction practices might indicate.

Certain products specified in these Specifications contain warnings by the manufacturers that under certain conditions, if instructions for use of the product are not followed, a hazardous condition may exist. It is the Contractor's responsibility to instruct his workmen in the safe use of the product, or any product substitution.

PRODUCTS

General

All material for use in the Project shall be new and of recent domestic manufacture and shall be the products of reliable manufacturers or suppliers who, unless otherwise specified, have been regularly engaged in the manufacture of such materials and equipment for at least five (5) years.

All fittings and components shall, wherever possible, be standard stock articles of well-known manufacturers.

Where the Specifications designate the products of a particular manufacturer, the product specified has been found suitable for the intended use, but, unless otherwise provided, articles or products of similar characteristics may be offered for the approval of the County, upon approval by the Engineer of Record.

Copies of complete descriptive data shall be furnished regarding all material, consisting of dimension drawings, catalog references and other information necessary to clearly identify each article.

When substitutions are permitted, the Contractor shall make all necessary changes in adjacent or connected structures and equipment, at his expense

Unless otherwise specified, all steel bolts, nuts, washers and all other miscellaneous ferrous metal items (except cast iron) furnished by the Contractor shall be hot-dip galvanized in accordance with ASTM A386, "Zinc Coating (Hot-Dip) on Assembled Steel Products" and ASTM A385, Providing High-Quality Zinc Coatings (Hot-Dip)". Where the word "galvanized" or its abbreviation is used on the Plans or in the Specifications, it shall mean hot-dip galvanized. Fabricated items shall be hot-dip galvanized after fabrication. Internal threads shall be tapped or re-tapped after galvanizing.

EXECUTION

Pipe Installation, General

Proper and suitable tools and appliances for the safe convenient handling and laying of pipe shall be used and, in general, conform with manufacturer's recommendations. At the time of laying, the pipe shall be examined carefully for defects, and should any pipe be discovered to be defective after being laid, it shall be removed and replaced with sound pipe by the Contractor at his expense.

Pipe and fittings shall, at all times, be handled with great care to avoid damage. In loading and unloading, they shall be lifted with cranes or hoists or slid or rolled on skidways in such manner as to avoid shock. Under no circumstances shall this material be dropped or allowed to roll or slide against obstructions. Pipe and other material shall be distributed along the right-of-way in advance of installation only to the extent approved by the County. Such materials shall be so placed as to keep obstruction to traffic minimum.

Upon satisfactory completion of the pipe bedding, a continuous trough for the pipe barrel and recesses for the pipe bells, or couplings, shall be excavated by hand digging. When the pipe is laid in the prepared trench, true to line and grade, the pipe barrel shall receive continuous, uniform support with no pressure being exerted on the pipe joints from the trench bottom.

Pipe shall be installed in accordance with the manufacturer's recommendation. Before being lowered into the trench, the pipes and accessories shall be carefully examined and the interior of the pipes shall be thoroughly cleaned of all foreign matter and other deleterious materials by methods acceptable to the County. During suspension of work, for any reason, at any time, a suitable stopper shall be placed in the end of the pipe last laid to prevent mud, dirt, groundwater or other foreign material from entering the pipe. Any pipe which is disturbed or found defective shall be immediately removed and replaced with sound pipe.

Gaskets shall be thoroughly checked for breaks, cuts or other damage, and shall be free of oil, grease, dirt or other foreign matter. Pipe joints shall be assembled with care. Lubricant, if required shall be as recommended by the manufacturer of the pipe, and shall have no deteriorating effects

on the gasket and pipe materials. If assembly is under water, lubricant recommended by the manufacturer for underwater use is required.

Good alignment of the pipe is required for assembly. Align the spigot to the bell of the previously laid pipe and insert the spigot into the bell until it uniformly contacts the gasket. Apply steady pressure until the spigot easily slips through the gasket. Do not push or swing the spigot into the bell. Smaller diameter pipe and fitting may be assembled manually. Mechanical means such as bars and blocks, ratchets or jacks shall be used for joining larger pipe and fittings. Power equipment such as a backhoe bucket, shall not be used to assemble pipe and fittings, since excessive force may damage the gasket or bell.

Cutting the pipe in the field shall be done by the Contractor in a neat and workmanlike manner using manual or power saws. The pipe shall be marked around its entire circumference before cutting to assure a square cut. After cutting, the end shall be beveled with a beveling tool, rasp, or other approved equipment, to the proper taper. Mark the proper insertion depth on the cut and beveled end before installing the cut pipe into the pipeline. Pipe laying shall proceed up-grade from the lowest point of the proposed system, with spigot ends pointing in the direction of flow.

All pipe shall be laid straight, true to the lines and grades shown on the Plans, or matching existing grade, in each section between manholes. The pipe shall be laid so that the identification markings are located on the top of the installed pipelines.

Each individual length of pipe shall be solidly and evenly bedded and haunched throughout its length on a prepared bed on the floor of the trench and not supported in position on blocks or wedges. Pipe shall only be laid when the two preceding lengths have been thoroughly embedded in place to prevent any movement or disturbance of the finished joint. Any pipe which is disturbed or found to be defective after laying shall be taken up and re-laid or replaced.

Any work within the pipe and fittings shall be performed with care to prevent damage to the interior wall of the pipe. Damaged interior walls shall be repaired or the pipe section or fitting replaced as required by the County. No cables, lifting arms, hooks or other devices shall be inserted into the pipe or fitting. All lifting, pulling or pushing mechanisms shall be applied to the exterior of the pipe or fitting.

After pipe has been laid, reviewed and found satisfactory, sufficient backfill shall be placed along the pipe barrel to hold the pipe securely in place during the conduction of the required tests.

*** END OF SECTION ***

SECTION 02625

GRAVITY SANITARY SEWERS DUCTILE IRON PIPE (DIP)

Scope

This section covers ductile iron pipe and fittings for gravity sanitary sewers.

General

DIP shall be allowed for use as gravity sewer pipe where compatible with the specific conditions of the project. IRCDUS may require the use of material other than ductile iron during construction permit review or by IRCDUS field personnel during construction, if it is determined that DIP is unsuitable for the particular application.

All DIP shall be manufactured in accordance with AWWA Standard Specifications C150/A21.50-96 and C151/A21.51-96, or latest revisions, and shall be pressure Class 300 or 350 minimum, as depicted on Table 5.1 on Page 02625-2. All DIP crossings under roadways and other traffic areas shall be pressure Class 350 minimum.

Unless specifically indicated otherwise, restrained push-on joint underground piping shall be manufactured restrained bell and spigot and above ground piping shall be flanged.

Cutting of DIP shall be by sawing only.

Pipe

DIP shall be bell and spigot cast in accordance with the latest AWWA Standard Specifications C150/A21.50-96 and C151/A21.51-96. Cast ductile iron shall have a minimum tensile strength of 60,000 psi with a minimum yield strength of 42,000 psi. Pipe wall thicknesses shall be computed in accordance with AWWA Standard Specifications C150/A21.50-96, latest revision, using the physical characteristics cited above with a minimum working pressure of 200 psi and a Laying Condition "Type 2". Unless otherwise indicated or specified herein, the pipe shall have the minimum wall thickness according to class designation for diameters shown. All pipes shall be given a minimum factory hydrostatic test of 500 psi.

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**TABLE 5.1
PRESSURE CLASS 300 AND 350**

SIZE (INCHES)	OUTSIDE DIAMETER (INCHES)	300 PSI THICKNESS (INCHES)	350 PSI THICKNESS (INCHES)
3	3.96	---	0.25
4	4.80	---	0.25
6	6.90	---	0.25
8	9.05	---	0.25
10	11.10	---	0.26
12	13.20	---	0.28
14	15.30	0.30	0.31
16	17.40	0.32	0.34
18	19.50	0.34	0.36
20	21.60	0.36	0.38
24	25.80	0.40	0.43
30	32.00	0.45	0.49
36	38.30	0.51	0.56
42	44.50	0.52	0.63
48	50.80	0.64	0.70
54	57.76	0.72	0.79
60	61.61	0.76	0.83
64	65.67	0.80	0.87

Fittings

All underground fittings shall be either push-on, restrained, or mechanical joint. Mechanical joints shall conform to AWWA Standard Specifications C110/A21.10-98 or C153/A21.53-00, or latest revisions. All aboveground fittings shall be flanged joint.

The pressure rating shall be 350 psi (Class 350 Pipe).

All fittings shall be lined with the same materials as specified for the pipe, as per paragraph below "Lining & Coating".

Joint restraints, when required, shall be in accordance with IRCDUS Approved Manufacturers' Products List or an approved equal.

Lining and Coating

Unless otherwise indicated, all DIP shall be factory lined and coated.

For 4" and larger, the interior protective coating shall be an amine cured novalac epoxy (Protecto 401 or similar). The epoxy material shall be applied in 1 coat with a minimum dry film thickness of 40.0 mils and shall be per the Approved Manufacturers' Products List.

Unless otherwise specified, the exterior of the pipe shall have a bituminous coating to a minimum dry film thickness of 1.0 mil.

Lining Inspection:

1. All DIP and fitting linings shall be checked for thickness using a magnetic film thickness gauge. The thickness testing shall be done using the method outlined SSPC-PA-2 film thickness rating.
2. The interior lining of all pipe and fittings shall be tested for pinholes with a nondestructive 2,500-volt test.
3. Each pipe joint and fitting shall be marked with the date of application of the lining system and with its numerical sequence of application on that date.

The pipe or fitting manufacturer must supply a certificate attesting to the fact that the applicator met the requirements of this specification, and that the material used was as specified, and that the material was applied as required by the specification.

Anywhere that the coating is removed purposely or accidentally, the area shall be cleaned of any rust, grease, and dirt and re-coated to a minimum dry film as specified for the individual piece.

If and when directed by the Engineer of Record and IRCDUS, a polyethylene encasement shall be provided around pipe, fittings, and valves. The material, installation, and workmanship shall conform to applicable sections of AWWA Standard Specifications C105/A21.5-99, or latest revision. Installation methods A or B shall be employed using flat tube polyethylene. The Contractor shall make provisions to keep the polyethylene from direct exposure to sunlight prior to installation. Backfilling following installation shall be completed without delay to avoid exposure to sunlight.

All exposed sewer DIP shall be coated (painted) green per Approved Manufacturers' Product List.

Bell and Spigot Connections

Unless specifically indicated otherwise, restrained push-on joint underground piping shall be manufactured restrained bell and spigot and above ground piping shall be flanged in accordance with AWWA Standard Specifications C111/A21.11-00, or latest revision. Pipe restraints shall also be in accordance with IRCDUS Standards or as directed by Engineer or IRCDUS.

Submittals

Before starting fabrication of the DIP and fittings, the Contractor shall submit one set of complete detailed working drawings (shop drawings) to the Engineer of Record and IRCDUS for approval. Such drawings shall show the pipe, fittings, valves, expansion joints, hangers, supports, and other appurtenances to be installed. Where special fittings are required, they shall be shown in large detail with all the necessary dimensions. The Engineer of Record shall review the drawings and notify IRCDUS of the drawings approved and not approved. IRCDUS shall also review the drawings and coordinate approvals and disapprovals with the Engineer of Record and Contractor. The drawings submitted shall show flanged jointed sections placed so as to be removable without disturbance to the main pipe sections.

Marking

Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See Trace Wire Details Drawing M-13 for specifications regarding installation.

Trace Wire is required over or around all pipes.

Location tape is required over all pipes. Tape is to be installed 12" below proposed finished grade and additional tape shall be adhered directly on top of the pipe if required by IRCDUS.

Installation

Handling and Protection of Pipe: Unless otherwise noted on the drawings or in other sections of these standards, the pipe shall be handled and installed in strict accordance with the manufacturers' instructions. The Contractor shall use every precaution during construction to protect the pipe against the entry of non-potable water, dirt, wood, small animals, and any other foreign material that would hinder the operation of the pipeline. Where the groundwater elevation is above the bottom of the trench, the Contractor shall provide suitable dewatering. All piping shall be placed in a dry trench, unless IRCDUS approves wet trench installation.

Depth of Cover and Pipe Elevation: Unless otherwise shown on the drawings, or otherwise authorized by IRCDUS, all pipe shall have a minimum cover of 36 inches. Contractor shall determine top of pipe elevation and top of ground elevation for every two joints of pipe installed using a level. Pipe must have the minimum cover described above and must be within +/-0.2 feet of the top of pipe elevation indicated on the drawings. Installed pipe, which does not meet these requirements, shall be reinstalled until it does meet these requirements. Contractor shall record top of pipe and top of ground elevations and the locations of where these elevations were determined and submit this information to IRCDUS. IRCDUS reserves the right to have Contractor excavate and check top of pipe and top of ground elevations to see if they conform to the aforementioned requirements, at no cost to IRCDUS.

*** END OF SECTION ***

SECTION 02626

GRAVITY SANITARY SEWERS POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

Scope

This section covers polyvinyl chloride pipe and fittings for gravity sanitary sewers.

General

PVC pipe shall be allowed for use as gravity sewer pipe where compatible with the specific conditions of the project. IRCDUS may require the use of material other than PVC during construction permit review or by IRCDUS field personnel during construction, if it is determined that PVC pipe is unsuitable for the particular application.

PVC gravity sewer pipe can be used up to a depth of sixteen feet as specified herein. All pipe used for depths greater than 16 feet, shall be approved by IRCDUS.

Pipe and Fittings

Gravity sewer mains and laterals shall be extra strength PVC pipe and shall conform to the latest ASTM Designation D3034-SDR26. Fittings installed in PVC pipe shall conform to the same specifications as the pipe in which they are installed.

In addition to the requirements of ASTM specifications, the pipe shall not be out-of-round or crooked in alignment as determined by the Engineer of Record and/or IRCDUS. Any length of pipe 6 inches or greater in diameter whose inside diameters measured at right angles to each other vary more than ¼ inch may be rejected.

PVC pipe shall be a maximum of 20 feet in length and shall be in accordance with IRCDUS Approved Manufacturers' Products List.

Material shall meet or exceed the requirements of ASTM Designation 1784, Type 1, Grade 1 (12454-B). All P.V.C. materials shall be stored in accordance with the manufacturers' specifications (not in direct sunlight). PVC pipe and fittings, which show signs of ultraviolet degradation, are considered substandard and unfit for use, and will be rejected by the IRCDUS's Engineer.

All wyes, fittings, laterals, and manhole couplings shall be manufactured by same manufacturing company as the pipe or approved equal, see Approved Manufacturers' Product List. Adapters shall be compatible to the approved pipe and appurtenances. All joints shall be rubber gasketed.

The pipe shall be "green" in color.

Pipe Joint Seals

Joint seals in PVC pipe and fittings shall comply with ASTM Designation D3212.

The joint shall remain sealed by its own compression. Adhesives shall not be necessary to weld or fuse the gaskets together. No solvent weld joints are permitted.

The compressive stress which is developed in the gasket material shall be as high as is permitted by the strength of the bell in ring tension, with due regard to factor of safety, and this stress shall be at its maximum value when the joint is completely assembled.

Retrofitting Sewer Laterals

Gravity sewer systems shall be designed such that laterals are provided to serve all units and lots. In cases where sewer laterals must be added to a gravity sewer main, connections shall be made by installing a sewer service wye branch and a sleeve-type adapter, whichever is specified by IRCDUS for the particular application.

Submittals

Before starting fabrication of the PVC pipe and fittings, the Contractor shall submit one set of complete working drawings (shop drawings) to the Engineer of Record and IRCDUS for approval. Such drawings shall show the pipe, fittings, manholes, and any other appurtenances to be installed. Where special fittings are required, they shall be shown in large detail with all the necessary dimensions. The Engineer of Record shall review the drawings and notify IRCDUS of the drawings approved and not approved. IRCDUS shall also review the drawings and coordinate approvals and disapprovals with the Engineer of Record and Contractor.

Marking

Location tape is required over all pipes. Tape is to be installed 12" below proposed finished grade and additional tape shall be adhered directly on top of the pipe if required by IRCDUS engineering.

Storage

PVC pipes are not to be stored where exposed to direct sunlight because of possible ultraviolet light degradation. Pipes stored on the jobsite are to be covered. PVC pipes that exhibit discoloration or fading from their original color will be rejected by IRCDUS field representatives.

Installation

Handling and Protection of Pipe: Unless otherwise noted on the drawings or in other sections of this specification, the pipe shall be handled and installed in strict accordance with the manufacturers' instructions. The Contractor shall use every precaution during construction to protect the pipe against the entry of non-potable water, dirt, wood, small animals, and any other foreign material that would hinder the operation of the pipeline. Where the groundwater elevation is above the bottom of the trench, the Contractor shall provide suitable dewatering equipment at no additional cost to the Owner. All piping shall be placed in a dry trench, unless otherwise approved by IRCDUS.

Depth of Cover and Pipe Elevation: Unless otherwise shown on the drawings, or otherwise authorized by IRCDUS, all pipe shall have a minimum cover of 36 inches. Contractor shall determine top of pipe elevation and top of ground elevation for every two joints of pipe installed using a level. Pipe must have the minimum cover described above and must be within +/-0.2 feet of the top of pipe elevation indicated on the drawings. Installed pipe, which does not meet these requirements, shall be reinstalled until it meets these requirements. Contractor shall record top of pipe and top of ground elevations and the locations of where these elevations were determined and submit this information to IRCDUS. IRCDUS reserves the right to have Contractor excavate

and check top of pipe and top of ground elevations to see if they conform to the aforementioned requirements, at no additional cost to IRCDUS.

*** END OF SECTION ***

SECTION 02627

WASTEWATER FORCE MAINS DUCTILE IRON PIPE (DIP) AND FITTINGS

Scope

This section covers ductile iron pipe and fittings for wastewater force mains.

General

DIP shall be allowed for use as wastewater force main pipe where compatible with the specific conditions of the project. The use of material other than ductile iron may be required by IRCDUS during construction permit review or by IRCDUS field personnel during construction, if it is determined that DIP is unsuitable for the particular application.

All DIP shall be manufactured in accordance with AWWA Standard Specifications C150/A21.50-96 and C151/A51-96, or latest revisions, and shall be pressure Class 300 or 350 minimum as depicted on Table 7.1 on page 02627-2. All DIP crossings under roadways and other traffic areas shall be pressure Class 350 minimum.

Unless specifically indicated otherwise, restrained push-on underground piping shall be manufactured bell and spigot and above ground piping shall be flanged.

Cutting of DIP shall be by sawing.

All exposed DIP shall be painted "green" per Approved Manufacturers' Products List.

Pipe

DIP shall be bell and spigot cast in accordance with AWWA Standard Specifications C150/A21.50-96 and C151/A51-96, or latest revisions. Cast DIP shall have a minimum tensile strength of 60,000 psi with a minimum yield strength of 42,000 psi. Pipe wall thicknesses shall be computed in accordance with AWWA Standard Specification C150/A21.50-96, or latest revision, using the physical characteristics cited above with a minimum working pressure of 200 psi and a Laying Condition "Type 2." Unless otherwise indicated or specified herein, the pipe shall have the minimum wall thickness according to class designation for diameters shown. All pipe shall be given a minimum factory hydrostatic test of 500 pounds per square inch.

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**TABLE 7.1
PRESSURE CLASS**

SIZE (INCHES)	OUTSIDE DIAMETER (INCHES)	300 PSI THICKNESS (INCHES)	350 PSI THICKNESS (INCHES)
3	3.96	---	0.25
4	4.80	---	0.25
6	6.90	---	0.25
8	9.05	---	0.25
10	11.10	---	0.26
12	13.20	---	0.28
14	15.30	0.30	0.31
16	17.40	0.32	0.34
18	19.50	0.34	0.36
20	21.60	0.36	0.38
24	25.80	0.40	0.43
30	32.00	0.45	0.49
36	38.30	0.51	0.56
42	44.50	0.52	0.63
48	50.80	0.64	0.70
54	57.76	0.72	0.79
60	61.61	0.76	0.83
64	65.67	0.80	0.87

Fittings

All underground fittings shall be either push-on, restrained, or mechanical joint. Mechanical joints shall conform to AWWA Standard Specification C110/A21.10-98) or C153/A21.53-00), or latest revisions. All aboveground fittings shall be flanged joint.

The pressure rating shall be 350 psi (Class 350 Pipe).

All fittings shall be lined with the same material as specified for the pipe, as per paragraph 6.04.

Joint restraints, when required, shall be in accordance with IRCDUS Approved Manufacturers' Products List or approved equal.

Lining and Coating

Unless otherwise indicated, all DIP shall be factory lined and coated.

For 4 inches and larger, the interior protective coating shall be an amine cured novalac epoxy (Protecto 401 or similar). The epoxy material shall be applied in 1 coat with a minimum dry film thickness of 40.0 mils, in accordance with IRCDUS Approved Manufacturers' Products List

Unless otherwise specified, the exterior of the pipe shall have a bituminous coating to a minimum dry film thickness of 1.0 mil. See Approved Manufacturers' Products list for coating material.

Lining Inspection:

1. All DIP and fitting linings shall be checked for thickness using a magnetic film thickness gauge. The thickness testing shall be done using the method outlined SSPC-PA-2 film thickness rating.
2. The interior lining of all pipe and fittings shall be tested for pinholes with a nondestructive 2,500-volt test.
3. Each pipe joint and fitting shall be marked with the date of application of the lining system and with its numerical sequence of application on that date.

The pipe or fitting manufacturer must supply a certificate attesting to the fact that the applicator met the requirements of this specification, and that the material used was as specified, and that the material was applied as required by the specification.

Anywhere that the coating is removed purposely or accidentally, the area shall be cleaned of any rust, grease, and dirt and re-coated to a minimum dry film as specified for the individual piece.

If and when directed by IRCDUS's Engineer, a polyethylene encasement shall be provided around pipe, fittings, and valves. The material, installation, and workmanship shall conform to applicable sections of AWWA Standard Specifications C105/A21.5-99, or latest revision. Installation methods A or B shall be employed using flat tube polyethylene. The Contractor shall make provisions to keep the polyethylene from direct exposure to sunlight prior to installation. Backfilling following installation shall be completed without delay to avoid exposure to sunlight.

Bell And Spigot Connections

Joints in bell and spigot pipe shall be push-on, mechanical, or restrained joints in accordance with AWWA Standard Specifications C111/A21.11-00, or latest revision. Pipe restraints shall also be in accordance with IRCDUS Standards or as directed by IRCDUS's Engineer.

Flanged Connections

All flanged pipe barrels shall comply with the physical and chemical requirements as set forth in the Handbook of Ductile Iron Pipe Research Association. Flanges shall be in accordance with ANSI Specification B16.1 for Class 125 flanges. Bolts shall be 316 stainless steel and comply with ANSI Specification B18.2.

Flanged pipes shall be faced and drilled to the American Standard Drilling, unless special drilling is called for or required. Where tap or stud bolts are required, flanges shall be tapped. Flanges shall be accurately faced and drilled smooth and true, at right angles to the pipe axis, and shall be covered with zinc dust and tallow or a rust preventive compound immediately after facing and drilling.

Flanged pipe with screwed-on flanges shall be furnished with long hubs, and the flanges shall be screwed on the threaded end of the pipe in the shop and the face of the flange and end of pipe refaced together. There shall be no leakage through the pipe threads and the flanges shall be designed to prevent corrosion of the threads from outside.

Flanged joints shall be made with bolts or stud bolts and nuts. Bolts, stud bolts, and nuts shall conform to American Standard heavy dimensions, semi-finished with square or hexagonal heads and cold punched hexagonal nuts, 316SS. Bolt sizes shall be American Standard for the flanges specified, and bolts and nuts shall have good, true threads.

Gaskets shall be in accordance with AWWA Standard Specifications C115/A21.15-99, or latest revisions.

Submittals

Before starting fabrication of the DIP and fittings, the Contractor shall submit one set of complete working drawings (shop drawings) to the Engineer of Record and IRCDUS for approval. Such drawings shall show the pipe, fittings, valves, expansion joints, hangers, supports, and other appurtenances to be installed. Where special fittings are required, they shall be shown in large detail with all the necessary dimensions. The Engineer of Record shall review the drawings and notify IRCDUS of the drawings approved and not approved. IRCDUS shall also review the drawings and coordinate approvals and disapprovals with the Engineer of Record and Contractor. The drawings submitted shall show flanged jointed sections placed so as to be removable without disturbance to the main pipe sections.

Marking

Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See Trace Wire Details Drawing M-13 for specifications regarding installation.

Trace Wire is required over or around all pipes.

Location tape is required over all pipes. Tape is to be installed 12" below proposed finished grade and additional tape shall be adhered directly on top of the pipe if required by IRCDUS engineering.

Installation

Handling and Protection of Pipe: Unless otherwise noted on the drawings or in other sections of this specification, the pipe shall be handled and installed in strict accordance with the manufacturers' instructions. The Contractor shall use every precaution during construction to protect the pipe against the entry of non-potable water, dirt, wood, small animals, and any other foreign material that would hinder the operation of the pipeline. Where the groundwater elevation is above the bottom of the trench, the Contractor shall provide suitable dewatering equipment at no additional cost to the IRCDUS. All piping shall be placed in a dry trench, unless IRCDUS approves wet trench installation.

Depth of Cover and Pipe Elevation: Unless otherwise shown on the drawings, or otherwise authorized by the Engineer, all pipe shall have a minimum cover of 36 inches. Contractor shall determine top of pipe elevation and top of ground elevation for every two joints of pipe installed using a level. Pipe must have the minimum cover described above and must be within +/- 0.2 feet of the top of pipe elevation indicated on the drawings. Installed pipe, which does not meet these requirements, shall be reinstalled until it does meet these requirements. Contractor shall record top of pipe and top of ground elevations and the locations of where these elevations were determined and submit this information to IRCDUS. IRCDUS reserves the right to have Contractor excavate and check top of pipe and top of ground elevations to see if they conform to the aforementioned requirements, at no cost to the IRCDUS.

*** END OF SECTION ***

SECTION 02628

WASTEWATER FORCE MAINS POLYVINYL CHLORIDE PIPE (PVC) AND FITTINGS

Scope

This section covers polyvinyl chloride pipe and fittings for wastewater and force mains.

General

PVC pipe shall be allowed for use as wastewater force main pipe where compatible with the specific conditions of the project. IRCDUS may require the use of material, other than PVC, during construction permit review or by IRCDUS field personnel during construction, if it is determined that PVC pipe is unsuitable for the particular application.

The pipe used for wastewater shall be green in color.

All pipe shall be identified by its nominal pipe size, plastic pipe material code, SDR class, pressure rating, ASTM Designation, manufacturers' name, production code, and the National Sanitation Foundation seal for potable water (NSF-pw).

Pipe for Sizes 12 Inches and Smaller in Diameter

All pipe intended for conveying or transmitting wastewater shall be designed for a minimum working pressure of 150 psi.

PVC chloride pressure pipe shall conform to AWWA Standards Specifications C900 latest revision, or C909, latest revision and ASTM D1784 and D2241, latest revision. PVC pressure pipe shall be made from Class 12454-A or Class 12454-B material and conform to the outside diameter of cast iron pipe.

PVC pressure pipe less than 4" diameter shall be DR-21, PR-200.

PVC pipe shall be purchased in accordance with IRCDUS Approved Manufacturer's Product List.

Pipe for Sizes 14 Inches through 36 Inches in Diameter

All pipe intended for conveying or transmitting wastewater shall be designed for a minimum working pressure of 150 psi.

PVC pressure pipe shall conform to the latest AWWA Standards Specifications C900-97 and ASTM D1784, latest revisions. PVC pressure pipe shall be made from Class 12454-A or Class 12454B material and conform to the outside diameter of cast iron pipe with a minimum wall thickness of DR18.

PVC pipe shall be purchased in accordance with IRCDUS Approved Manufacturer's Product List.

Joints

Joints for PVC pressure pipe shall be bell and spigot push-on rubber gasket type only. No solvent weld or threaded joints will be permitted.

IRCDUS may consider other type joints for specific installation upon submission of specifications and approval.

Restraint joints, when required, shall be in accordance with IRCDUS Approved Manufacturer's Product List.

Fittings

All underground fittings shall be either ductile iron push-on, restrained, or mechanical joint. Mechanical joints shall conform to AWWA Standard Specifications C110/A21.10 or C153/A21.53 latest revisions. Fittings shall be fusion-bonded ceramic epoxy lined. The epoxy material shall be applied in one coat with a minimum dry film thickness of 40.0 mils and shall be Protecto 401 or approved equal. All aboveground exposed fittings shall be flanged.

The pressure rating shall be 350 psi (Class 350).

Joint restraint, when required; shall be in accordance with IRCDUS Approved Manufacturer's Product List.

Submittals

Before starting fabrication of the PVC pipe and fittings, the Contractor shall submit one set of complete working drawings (shop drawings) to the Engineer of Record and IRCDUS for approval. Such drawings shall show the pipe, fittings, valves, and other appurtenances to be installed. Where special fittings are required, they shall be shown in large details with all the necessary dimensions. The Engineer of Record shall review the drawings and notify IRCDUS of the drawings approved and not approved. IRCDUS shall also review the drawings and coordinate approvals and disapprovals with the Engineer of Record and Contractor.

Marking

Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See Trace Wire Details Drawing M-13 for specifications regarding installation.

Trace Wire is required over or around pipes.

Location tape is required over all pipes. Tape is to be installed 12" below proposed grade and additional tape shall be adhered directly on top of the pipe if required by IRCDUS engineering

Storage

PVC pipes are not be stored where exposed to direct sunlight because of possible ultraviolet light degradation. Pipes stored on the jobsite are to be covered. PVC pipes that exhibit discoloration or fading from their original color will be rejected by IRCDUS field representatives.

Installation

Handling and Protection of Pipe: Unless otherwise noted on the drawings or in other sections of this specification, the pipe shall be handled and installed in strict accordance with the manufacturers' instructions. The Contractor shall use every precaution during construction to protect the pipe against the entry of non-potable water, dirt, wood, small animals, and any other foreign material that would hinder the operation of the pipeline. Where the groundwater elevation

is above the bottom of the trench, the Contractor shall provide suitable dewatering equipment at no additional cost to IRCDUS. All piping shall be placed in a dry trench, unless otherwise approved by IRCDUS.

Depth of Cover and Pipe Elevation: Unless otherwise shown on the drawings, or otherwise authorized by IRCDUS, all pipe shall have a minimum cover of 36 inches. Contractor shall determine top of pipe elevation and top of ground elevation for every two joints of pipe installed using a level. Pipe must have the minimum cover described above and must be within +/-0.2 feet of the top of pipe elevation indicated on the drawings. Installed pipe, which does not meet these requirements, shall be reinstalled until it does meet these requirements. Contractor shall record top of pipe and top of ground elevations and the locations of where these elevations were determined and submit this information to IRCDUS. IRCDUS reserves the right to have Contractor excavate and check top of pipe and top of ground elevations to see if they conform to the aforementioned requirements, at no cost to IRCDUS.

*** END OF SECTION ***

SECTION 02629

WATER SERVICES, WATER MAINS AND WASTEWATER FORCE MAINS POLYETHYLENE (PE) TUBING & PRESSURE PIPES

Scope

This section covers Polyethylene (PE) pipe and fittings for water services and water and sewer force mains.

General

Polyethylene Tubing 3 Inches In Diameter & Smaller

Polyethylene tubing shall comply with applicable requirements for PE 3408 extrusion compound polyethylene plastic material as stated in AWWA Standard Specifications C901-96, or latest revision, and shall comply with the following:

1. Tubing shall have a working pressure of 200 psi at 73.40 F.
2. Tubing surfaces shall be glass smooth, and shall be free from bumps and irregularities. Materials must be completely homogeneous and uniform in appearance.
3. Tubing dimensions and tolerances shall correspond with the values listed in ASTM 0-2239, with a standard dimension ratio (SDR) of 9.
4. Tubing shall be fully labeled with brand name and manufacturer, NSF seal, size, type of plastic material, and ASTM designation with which the tubing complies.

Joints

Joints for polyethylene tubing shall be of the compression type, utilizing a totally confined grip seal and coupling nut. Stainless steel tube stiffener inserts shall also be used for PE tubing services.

Other type joints may be considered for specific installations upon submission of specifications and approval by IRCDUS.

Installation

Backfill shall be free of rocks and debris.

Bending radius shall be large enough so that tubing is not crimped or damaged and so that the flow of water is not restricted. Manufacturer's minimum radius recommendations are to be utilized during installation of PE tubing.

When a residential or commercial property exists within 500' of a County water main, a private water service may be extended with the water meter being installed by IRC Department of Utility Services in a location as near to the water main as practical. A private PVC service line will be installed in a dedicated right of way or in a legal utility easement by a licensed plumber at the customer's expense and will not exceed 500' in length from the meter to the lot line. Any and all costs associated with connecting a property to the potable water system, including cost associated with survey, design, permitting, construction, restoration, inspections, and certifications, will be borne by the owner of the connecting property. The plumber or property owner will be responsible for obtaining an Indian River County Building Permit and an Indian River County Right-of-Way Permit.

Marking

Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See trace wire Detail M-13 of IRCDUS's Utility Construction Standards, latest edition for specifications regarding installation.

Trace wire is required over all pipes.

A 2" wide magnetic I.D. location tape is required over all pipes. Tape is to be installed 12" below proposed grade and additional tape shall be adhered directly on top of pipe if required by IRCDUS engineering.

SCOPE FOR POLYETHYLENE (PE) PIPES

This section covers Polyethylene (PE) pipe and fittings.

General

Polyethylene (PE) pipe shall be allowed for use as all pressure utility pipes where compatible with the specific conditions of the project. The use of material other than PE pipe may be required by IRCDUS during construction permit review or by IRCDUS field personnel, if it is determined that PE is unsuitable for the particular application.

Documentation from the resin's manufacturer showing results of the following tests for resin identification:

1. Melt Flow Index ASTM D 1238
2. Density ASTM D 1505

All PE pipe and fittings shall be from a single manufacturer, who is fully experienced, reputable and qualified in the manufacturing of the PE pipe to be furnished. The pipe shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications. See Approved Manufacturer's Product List.

Finished Product Evaluation: Production staff for the items listed below shall check each length of pipe produced. The results of all measurements shall be recorded on production sheets that become part of the manufacturer's permanent records.

1. Pipe in process shall be checked visually, inside and out for cosmetic defects (grooves, pits, hollows, etc.)
2. Pipe outside diameter shall be measured using a suitable periphery tape to ensure conformance with ASTM F714 or ASTM D-3035 whichever is applicable.
3. Pipe wall thickness shall be measured at 12 equally spaced locations around the circumference at both ends of the pipe to ensure conformance with ASTM F714 or ASTM D-3035, whichever is applicable.
4. Pipe length shall be measured.
5. Pipe marking shall be examined and checked for accuracy.
6. Pipe ends shall be checked to ensure they are cut square and clean.

7. Subject inside surface to a "reverse bend test" to ensure the pipe is free of oxidation (brittleness).

Stress Regression Testing: The polyethylene pipe manufacturer shall provide certification that stress regression testing has been performed on the specific polyethylene resin being utilized in the manufacturing of this product. This stress regression testing shall have been done in accordance with ASTM D2837 and the manufacturer shall provide a product supplying a minimum Hydrostatic Design Basis (HOB) of 1,600 psi as determined in accordance with ASTM D2837.

Contractor is responsible for compatibility between pipe materials, fittings and appurtenances.

The pipe manufacturer shall provide a warranty against manufacturing defects of material and workmanship for a period of ten (10) years after the final acceptance of the project by the IRCUDS. The manufacturer shall replace at no expense to the IRCUDS any defective pipe material including labor within the warranty period.

Materials for Pipe Sizes 4" & Larger

Materials used for the manufacture of polyethylene pipe and fittings shall be made from a PE 3408 polyethylene resin compound meeting cell classification 334434D per ASTM D3350; and meeting Type III, Class C, Category 5, Grade P34 per ASTM D1248

Polyethylene (PE) pipe shall comply with AWWA Standard Specifications C906-99 or latest revision.

If rework compounds are required, only those generated in the Manufacturer's own plant from resin compounds of the same class and type from the same raw material supplier shall be used.

Dimensions and workmanship shall be as specified by ASTM F714. PE fittings and transitions shall meet ASTM D3261. PE pipe shall have a minimum density of 0.955 grams per cubic centimeter. All PE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi.

PE pipe and accessories 4" and greater in diameter, shall be 160 psi at 73.4° F meeting the requirements of Standard Dimension Ratio (SDR) 11 as MINIMUM STRENGTH.

The pipe manufacturer must certify compliance, with the above requirements.

Polyethylene flange adapters at pipe material transitions shall be backed up by stainless steel flanges conforming to ANSI B 16.1 and shaped as necessary to suit the outside dimensions of the pipe. The flange adapter assemblies shall be connected with corrosion resisting bolts and nuts of Type 304 Stainless Steel as specified in ASTM A726 and ASTM A307. All bolts shall be tightened to the manufacturer's specified torques. Bolts shall be tightened alternatively and evenly.

Materials for Pipe Sizes 3" & Under

Materials used for the manufacture of polyethylene pipe and fittings shall be made from a PE 3408 polyethylene resin compound meeting cell classification 345434C per ASTM D3350; and meeting Type 111, Class C, Category 5, Grade P34 per ASTM D1248.

Polyethylene (PE) pipe shall comply with AWWA Standard Specifications C901-96 or latest revision.

If rework compounds are required, only those generated in the Manufacturer's own plant from resin compounds of the same class and type from the same raw material supplier shall be used.

Dimensions and workmanship shall be as specified by ASTM D-3035. PE fittings and transitions shall meet ASTM D3261. PE pipe shall have a minimum density of 0.955 grams per cubic centimeter. All PE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi.

PE pipe and accessories 3" and smaller in diameter, shall be 160 psi at 73.4° F meeting the requirements of Standard Dimension Ration (SDR) 9 as minimum strength.

The pipe manufacturer must certify compliance with the above requirements.

Fittings

All molded fittings and fabricated fittings shall be fully pressure rated to match the pipe SDR pressure rating to which they are made. All fittings shall be molded or fabricated by the manufacturer. No Contractor fabricated fittings shall be used unless approved by the Engineer.

The manufacturer of the PE pipe shall supply or specify all PE fittings and accessories as well as any adapters and/or specials required to perform the work as shown on the Drawings and specified herein.

All transition from PE pipe to PVC or ductile iron shall be made per the PE, PVC, or ductile iron pipe manufacturer's recommendations and specifications whichever is more stringent. A molded flange connector adapter within a carbon steel back-up ring assembly shall be used for pipe type transitions. Ductile iron back-up rings shall mate with cast iron flanges per ANSI B16.1. A 304 stainless steel back-up ring shall mate with a 304 stainless flange per ANSI B16.1.

The pipe manufacturer must certify compliance with the above requirements.

Jointing Method

The PE pipe shall be joined with butt, heat fusion joints. All joints shall be made in strict compliance with the manufacturer's recommendations.

Lengths of pipe shall be assembled into suitable installation lengths by the butt-fusion process. All pipes so joined shall be made from the same class and type of raw material made by the same raw material supplier. Pipe shall be furnished in standard laying length's not to exceed 50 feet.

All above ground polyethylene shall have flange adapters. Below ground shall be MJ adapters. Stainless Steel inserts allowed on water main only 4" to 6". FM 4" and larger MJ adapter only with no insert. Pipe material transitions shall be backed up by stainless steel flanges conforming to ANSI B16.1 and shaped as necessary to suit the outside dimensions of the pipe. The flange adapter assemblies shall be connected with corrosion resisting bolts and nuts of Type 304 Stainless Steel as specified in ASTM A726 and ASTM A307. All bolts shall be tightened to the manufacturer's specified torques. Bolts shall be tightened alternatively and evenly.

Pipe Identification

The following shall be continuously indent printed on the pipe or spaced at intervals not exceeding 5-ft.:

1. Name and/or trademark of the pipe manufacturer.
2. Nominal pipe size.
3. Dimension ratio.
4. The letters PE followed by the polyethylene grade in accordance with ASTM D1248, followed by the hydrostatic design basis in 160's of psi, e.g., PE 3408.
5. Manufacturing standard reference, e.g., ASTM F714 or D-3035, as required.

6. A production code from which the date and place of manufacture can be determined.

Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of all pipe and fittings. See Trace Wire Detail M-13 in IRCDUS's "Utility Construction Standards" latest edition for specifications regarding installation.

Installation by Open Cut Method

Polyethylene (PE) Pipe shall be installed in accordance with the instruction of the manufacturer, as shown on the Drawings and as specified herein. A factory qualified joining technician as designated by the pipe manufacturer shall do all heat fusion joints.

Care shall be taken in loading, transporting and unloading to prevent injury to the pipe. Pipe or fitting shall not be dropped. All pipe or fittings shall be examined before installation, and no piece shall be installed which is found to be defective. Any damage to the pipe shall be repaired as directed by the Engineer of Record and IRCDUS. If any defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner by the Contractor, at his own expense.

Under no circumstances shall the pipe or accessories be dropped into the trench.

Care shall be taken during transportation of the pipe such that it will not be cut, kinked or otherwise damaged.

Ropes, fabric or rubber protected slings and straps shall be used when handling pipes. Chains, cables or hooks inserted into the pipe ends shall not be used. Two slings spread apart shall be used for lifting each length of pipe.

Pipes shall be stored on level ground, preferably turf or sand, free of sharp objects, which could damage the pipe. Stacking of the polyethylene pipe shall be limited to a height that will not cause excessive deformation of the bottom layers of pipes under anticipated temperature conditions. Where necessary due to ground conditions, the pipe shall be stored on wooden sleepers, spaced suitably and of such width as not to allow deformation of the pipe at the point of contact with the sleeper or between supports.

Care shall be exercised when lowering pipe into the trench to prevent damage or twisting of the pipe.

Pipe shall be laid to lines and grade shown on the Drawings with bedding and backfill as shown on the Drawings.

When installation of pipe is not in progress, including lunchtime, the open ends of the pipe shall be closed by fabricated plugs, or by other approved means.

Pipe shall be stored on clean level ground to prevent undue scratching or gouging. The handling of the pipe shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects. The maximum allowable depth of cuts, scratches or gouges on the exterior of the pipe is 5 percent of wall thickness. Sections of pipe with cuts, scratches or gouges exceeding five percent of the pipe wall thickness shall be removed completely and the ends of the pipeline rejoined. The interior pipe surface shall be free of cuts, gouges or scratches.

The pipe shall be joined by the method of thermal butt fusion, as outlined in ASTM D2657. All joints shall be made in strict compliance with the manufacturer's recommendations.

Mechanical connections of the polyethylene pipe to auxiliary equipment such as valves, pumps and tanks shall be through flanged connections which shall consist of the following:

1. A polyethylene flange shall be thermally butt-fused to the stub end of the pipe. A stainless steel or ductile iron backup ring shall be used on both sides of the connection prior to thermally butt-fusing the polyethylene flange.
2. A 304 stainless steel back-up ring shall mate with a 304 stainless steel flange.
3. Ductile iron back-up rings shall mate with cast iron flanges.

Flange connections shall be provided with a full-face neoprene gasket.

All PE pipe must be at the temperature of the surrounding soil at the time of backfilling and compaction.

No single piece of pipe shall be laid unless it is straight. The centerline of the pipe shall not deviate from a straight line drawn between the centers of the openings at the ends of the pipe by more than 1/16-in per foot of length. If a piece of pipe fails to meet this requirement check for straightness, it shall be rejected and removed from the site. Laying instructions of the manufacturer shall be explicitly followed.

If a defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner. All pipe and fittings shall be thoroughly cleaned before installation, shall be kept clean until they are used in the work and when laid, shall conform to the lines and grades required.

As soon as the excavation is complete to normal grade of the bottom of the trench, bedding shall be placed, compacted and graded to provide firm, uniform and continuous support for the pipe. Bell holes shall be excavated so that only the barrel of the pipe bears upon the bedding. The pipe shall be laid accurately to the lines and grades indicated on the Drawings. Blocking under the pipe will not be permitted. Bedding shall be placed evenly on each side of the pipe to mid-diameter and hand tools shall be used to force the bedding under the haunches of the pipe and into the bell holes to give firm continuous support for the pipe. Bedding shall then be placed to 12-in above the top of the pipe. The initial 3-ft of backfill above the bedding shall be placed in 1-ft layers and carefully compacted. Generally the compaction shall be done evenly on each side of the pipe and compaction equipment shall not be operated directly over the pipe until sufficient backfill has been placed to ensure that such compaction equipment will not have a damaging effect on the pipe. The pipe manufacturer's representative prior to use shall approve equipment used in compacting the initial 3-ft of backfill.

Good alignment shall be preserved during installation. The deflection at joints shall not exceed that recommended by manufacturer. Fittings, in addition to those shown on the Drawings, shall be provided, if required, in crossing of utilities that may be encountered upon opening the trench.

Each length of the pipe shall have the assembly mark aligned with the pipe previously laid and held securely until enough backfill has been placed to hold the pipe in place. Joints shall not be "pulled" or "cramped."

Before any joint is made, the pipe shall be checked to assure that a close joint with the next adjoining pipe has been maintained and that the inverts are matched and conform to the required grade. The pipe shall not be driven down to grade by striking it.

Precautions shall be taken to prevent flotation of the pipe in the trench.

When moveable trench bracing such as trench boxes, moveable sheeting, shoring or plates are used to support the sides of the trench, care shall be used in placing and moving the boxes or supporting bracing to prevent movement of the pipe, or disturbance of the pipe bedding and the backfill. Trench boxes, moveable sheeting, shoring or plates shall not be allowed to extend below the top of the pipe. As trench boxes, moveable sheeting, shoring or plates are moved, pipe bedding shall be placed to fill any voids created and the backfill shall again be compacted to provide uniform side support for the pipe.

Unless otherwise approved concrete thrust blocks shall be installed at all fittings and other locations as directed by the Engineer. Minimum bearing area shall be as shown on the Drawings. Concrete shall be placed against undisturbed material and shall not cover joints, bolts or nuts, or interfere with the removal of any joint. Wooden side forms shall be provided for thrust blocks.

Restrained joints shall be installed where shown on the Drawings, required by IRCDUS Standards, or as directed by the Engineer.

Marking for Open Cut Method

Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See trace wire Detail M-13 in IRCDUS's "Utility Construction Standards" latest edition for specifications regarding installation.

Trace wire is required over all pipes.

A 2" wide magnetic I.D. location tape is required over all pipes. Tape is to be installed 12" below proposed grade and additional tape shall be adhered directly on top of pipe if required by IRCDUS engineering.

TRENCH LESS INSTALLATION OF PRESSURE MAINS BY DIRECTIONAL BORING

Description

Portions of the pressure mains shall be installed by the directional bore method within the limits indicated of the contract plans and as specified here in. Generally, as a minimum, the pressure main is to be located within the road right-of-way and shall be installed by directional boring.

This section includes material, performance and installation standards, and the contractor's responsibilities associated with the furnishing of labor, material, equipment, and identical required to install, complete, required trenchless installation of pressure mains, as shown on the Drawings and as specified herein.

Experience

The Contractor must demonstrate expertise in trenchless method by providing a list of ten (10) utility references for which similar work has been performed in the last two years. The references should include a name and phone number where the contact can be made to verify the contractor's capability. The contractor must provide documentation showing successful completion of the projects used for reference. Conventional trenching experience will not be considered applicable.

Supervisory personnel must be adequately trained and shall have at least four (4) years' experience in directional boring. The Contractor shall submit the names and resumes of all supervisory field personnel prior to construction.

Because of time constraints, the Contractor may wish to provide multiple experienced directional boring crews.

Directional boring equipment shall be capable of installing the minimum pipe diameter noted on the drawings.

Submittals

Submit technical data for equipment including clay slurry material, method of installation with working drawings, and proposed sequence of construction for approval by the Engineer.

Prior approval for directional boring, the Contractor must submit the names of supervisory personnel, and history information of the directional boring experience. In addition, the Contractor must submit for approval the nameplate, data for the drilling equipment, mobile spoils removal units and Material Safety Data Sheets (MSDS) information for the drilling slurry compounds.

The Contractor is required to bring to the attention of the engineer any known design discrepancies with actual tunneling methods that the contractor will be performing. This shall be stated in writing to the Engineer at the preconstruction meeting.

Installation

Installation shall be in a trench less manner producing continuous bores.

The tunneling system shall be remotely steerable and permit electronic monitoring of tunnel depth and location. Accurate placement of pipe within a +/- 2-inch window is required both horizontally and vertically. Turning capability of 90-degrees radius in 40 feet is required. Continuous monitoring of the boring head is required, including across open water if necessary.

The directional boring Contractor shall submit certification, by a Professional Engineer licensed in the State of Florida, that the directional boring has been performed in accordance to the construction drawings, and shall submit signed and sealed drawings. Record Drawings (As-Built) shall provide both in both electronic format and hard paper copy.

Tunneling shall be performed by a fluid-cutting process (high pressure-low volume) utilizing liquid clay i.e. bentonite. The clay lining will maintain tunnel stability and provide lubrication in order to reduce frictional drag while the pipe is being installed. In addition, the clay fluid must be totally inert and contain no environmental risk. The Contractor must also have a mobile vacuum spoils recovery vehicle on site to remove the drilling spoils from the access pits. The spoils must then be transported from the job site and be properly disposed off the site. The drilling spoils shall not, under any circumstances, be disposed into a sanitary sewer, storm, or other public or private drainage system. Spoils may be transported to the County's Solid Waste Facility and the cost of disposal shall be by the County.

Liquid clay type colloidal drilling fluid shall consist of at least 10 percent (10%) of high-grade carefully processed bentonite to consolidate cuttings of the soil, to seal the walls of the hole, and to furnish lubrication for subsequent removal of cuttings. The slurry that is heavier than the surrounding material is high in colloids of the bentonite type and it will deposit a thin filter cake of low permeability material on the walls of the bore. This will allow only a small amount of the fluid to pass into the surrounding soils and will stabilize the bore. The colloidal content of the fluid imparts excellent lubricating qualities to the slurry that is a distinct aid to the removal of the soil cuttings.

Pneumatic or water-jetting methods will be considered unacceptable due to the possibility of surface subsidence.

After an initial bore has been completed, a reamer will be installed at the termination pit and the pipe shall be pulled back to the starting pit. The reamer shall be capable of discharging liquid clay to facilitate the installation of the pipe into a stabilized and lubricated tunnel.

A minimum of two (2) insulated #6 stranded tracer wire shall be installed along with the PE pipe. The tracer wire shall be tested for continuity upon completed installation. Should both tracer wires fail to test for continuity then the test shall be considered a failure and the wires shall be replaced. Tracing wires, #10 stranded conductor copper, shall be wrapped or affixed to the top of the pipe and fittings.

Upon completion of boring and pipe installation, the Contractor shall remove all spoils from the starting and termination pits. All pits shall be restored to their original condition.

The shoulders, ditches, banks, and slopes of roads and railroads crossed and paralleled shall not wash out before becoming consolidated. Restoration shall be as required by the jurisdictional authority and as specified within the Contract Document.

*** END OF SECTION ***

SECTION 02631

MISCELLANEOUS VALVES AND APPURTENANCES

Scope

This section covers miscellaneous valves and appurtenances (Drawing with M refers to “reference specifications”).

General

All of the types of valves and appurtenances shall be on the IRCDUS Approved Manufacturers' Products List.

All valves and appurtenances shall be designed, constructed, and installed in accordance with the best practices and methods and shall comply with these specifications as applicable.

All valves and appurtenances shall have the name of the manufacturer, year manufactured, and the working pressure for which they are designed cast in raised letters upon some appropriate part of the body.

All buried valves and appurtenances shall be mechanical joint. All aboveground/exposed valves and appurtenances shall be flanged.

Gate valves shall be used on water, sewer, reclaimed, and brine mains.

Plug valves may be used in lift station valve vaults as approved by IRCDUS.

IRCDUS, on a case-by-case basis, may approve valves and appurtenances other than those specifically called out in this Section for use. Criteria for approval shall include the interchangeability of the valve or appurtenance, or its parts, with those brands specifically called out in these specifications.

All exposed valves and appurtenances shall be painted in accordance with IRCDUS Approved Manufacturers' Products List. Water mains shall be painted blue, force mains shall be painted “green”, reuse mains shall be painted “purple” and brine shall be painted “brown”.

Gate Valves – 3 Inches and Larger

All buried gate valves shall meet the requirements of AWWA Standard Specification C509-C515, or latest revision. Valves shall be rated for 150-psi working pressure and a minimum 300-psi test pressure. Valves shall be ductile iron body, bronze-mounted, resilient seated, non-rising stem type fitted with “O-Ring” seals. All bolts to be used in valve bonnet are to be 316 stainless steel. The operating nuts shall be Standard AWWA 2” square. All valves shall open counterclockwise. Stuffing boxes shall be the “O-Ring” type. Gate valves shall be mechanical joint, ANSI Standards 21.11, except where shown otherwise.

Gate valves shall be provided with a valve box, cover, and concrete pad. Box cover opening shall be for valve stem and nut. The Contractor shall provide valve wrenches and extension stems from the same manufacturer as the valve to actuate the valves. The box and cover shall be in accordance with IRCDUS Approved Manufacturers' Products List. (See Drawing M-5 and M-6 for details on the valve box, cover, and concrete pad.)

Check Valves

Check valves for ductile iron pipelines shall be swing type and shall meet the material requirements of AWWA Standard Specifications C508-01, or latest revision. The valves shall be iron body, bronze mounted, single disc, 150 psi working water pressure, non-shock, and non-slam, slow closing, and hydrostatically tested at 300 psi. Ends shall be 125-pound ANSI B16.1 flange or 125-pound ANSI B2.1 threaded fitting, depending upon location.

When there is no flow through the line, the disc shall hang lightly against its seat. When open, the disc shall swing clear of the waterway.

Check valves shall have bronze seat and body rings, extended bronze hinge pins, and bronze nuts on the bolts of bolted covers.

Valves shall be so constructed that disc and body seat may easily be removed and replaced without removing the valve from the line. Valves shall be fitted with an extended hinge arm with outside lever and weight, as necessary.

Check valves for PVC pipe less than 3" in diameter shall be of PVC Type 1, Series BC, with union, socket, threaded, or flanged ends, as required and shall be per the Approved Manufacturers' Products List.

Plug Valves

Plug valves shall be non-lubricated eccentric type with semi-steel bodies, resilient faced plugs, and stainless steel or nickel seats in the body. Port area shall be at least 80% of full pipe area for valves 20" and smaller. Port area shall be 70% for all valves 24" and larger. All valves 4" and larger shall be of the bolted design. All exposed nuts, bolts, springs, and washers shall be hot dipped galvanized, except exposed hardware for submerged valves shall be of stainless steel. Valve bodies shall be semi-steel with 125-pound ANSI Standard flanged ends for interior or aboveground service; mechanical joint for buried service and for use with threaded cast iron or ductile iron piping shall have screwed end connections. The plug shall be one-piece and of sufficient design so as not to require a stiffening member opposite the face plug.

Plug valves 6" or greater in diameter shall be equipped with gear actuators, which shall clearly indicate valve position and an adjustable stop shall be provided. Construction of actuator housing shall be semi-steel. All gearing shall be enclosed, suitable for running in oil with seals provided on all shafts to prevent entry of dirt and water into the actuator. All shaft bearings shall be furnished with permanently lubricated bearing bushings.

Three-way plug valves shall be non-lubricated gear operated. Valve bodies shall be semi-steel with 125-pound ANSI Standard flanges, and plugs shall be resilient faced. Three-way valves shall be 3-way, 3-port, 270-degree turn.

Plug valves and actuators shall be as per the Approved Manufacturers' Products List.

Air Release Valves

The air release valves shall be installed as shown on the Drawings. Valves shall be provided with a vacuum check to prevent air from re-entering the line. Aboveground air release valves for wastewater shall be per the Approved Manufacturers' Products List. (See Drawing M-8.)

The fittings shall be threaded. Belowground air release valves for wastewater shall be as on the Approved Manufacturers' Products List. (See Drawing M-7.) Air release valves for water lines shall be as per the Approved Manufacturers' Products List.

Fire Hydrants

Fire hydrants shall be traffic type, 5¼" valve opening and manufactured per the Approved Manufacturers' Products List (See Drawing M-8). Fire hydrants shall comply with the current AWWA Standard Specification C502-94, or latest revision, for fire hydrants for water works service. Each hydrant shall have 6" mechanical joint ends with harnessing lugs ("dog ears") and shall open by turning to the left (counterclockwise). Fire hydrant shall be of ample length for 18" clearance between the center of all nozzles and finished grade. Hydrant should be set so that the "bury line" on the barrel is set at finished grade. It shall be provided with two 2½" hose nozzles and one 5¼" pumper nozzle, all having National Standard hose threads. Nozzles shall have caps attached by chains. Operating nuts shall be AWWA Standard (pentagonal, measuring 1½" point to flat). Fire hydrants shall be equipped with "O-Ring" packing. Fire hydrant shall be painted "Federal Safety Red".

Backflow Preventers

All backflow preventers shall be mounted aboveground, in non-traffic areas on the customer's side of the meter. Above ground piping shall be flanged ductile iron. Brass or Copper pipe may be used for pipe 2" in diameter or smaller. Backflow preventers shall be of reduced pressure/double check type with two (2) independently operating check valves, and shall be designed to operate in a horizontal flow mode. An independent relief valve shall be located between the two (2) check valves. Reduced pressure feature shall be included in all commercial applications. Preventers shall be University of Southern California (USC) approved as per the Approved Manufacturers' Products List.

Valve Boxes

All buried valves shall have cast iron two- or three-piece valve boxes with cast iron covers. Valve boxes shall be provided with suitable heavy bonnets and extend to match finished grade surface as directed by the Engineer. The barrel shall be one- or two-piece, screw or slide type, having 5¼" shaft. Covers shall have "WATER" cast into the top for all water mains, "SEWER" cast into the top for all wastewater force mains and "REUSE" cast into the top for all reuse mains. All valves shall have actuating nuts extended to within 24" of the top of the valve box cover. (See Drawing M-5.)

Valve boxes shall be provided with a concrete pad around the top of the box. A nameplate with a suitable anchor for casting in concrete shall be installed in valve pads in unpaved areas. Nameplate shall be 3" diameter brass disk with engraved lettering 1/8" deep, as shown on the Drawing M-6 and manufactured per the Approved Manufacturers' Products List.

A 3" diameter wire port box to house the trace wire shall be installed in valve boxes in unpaved areas.

Valve boxes shall be installed in a concrete pad, as specified in Drawings Detail M-5 & M-6.

Valve boxes shall be manufactured domestically (i.e.: "Made in USA") per the Approved Manufacturer's List.

Water Services

All water service fittings, including saddles, corporation stops, curb stops, and angled meter stops shall be no-lead brass or bronze suitable for 150 psi operating pressure, shall be iron pipe or AWWA tapered thread design, shall be of sizes required and/or noted on the Drawings, and comply with the Approved Manufacturer's Products List.

Saddles shall be no-lead brass/bronze bodies with double stainless-steel strap.

Flexible Couplings

Flexible couplings shall be either split type or the sleeve type.

1. Split type coupling shall be used with all interior piping and with exterior piping as noted. The couplings shall be mechanical type for radius groove piping. The couplings shall mechanically engage and lock grooved pipe ends in a positive couple and allow for angular deflection and contraction and expansion.
2. Couplings shall consist of ductile iron, ASTM Specification A47, Grade 32510 housing clamps in two (2) or more parts, a single chlorinated butyl composition sealing gasket with a "C" shaped cross-section and internal sealing lips projecting diagonally inward, and two (2) or more oval track head type bolts with hexagonal heavy nuts conforming to ASTM Specification A183 and A194 to assemble the housing clamps. Bolts and nuts shall be 316 stainless-steel.
3. Sleeve type couplings shall be used with all buried piping. The couplings shall be of ductile iron and shall be per the Approved Manufacturers' Products List. The coupling shall be provided with 316 stainless-steel bolts and nuts, unless indicated otherwise.
4. All couplings shall be furnished with the pipe stop removed.
5. Couplings shall be provided with gaskets of a composition suitable for exposure to the liquid within the pipe.
6. Ductile iron followers and middle rings conform to ASTM A-536, Grade 65-45-12, NSF-61 fusion bonded powder epoxy coating, testing per AWWA C-219 (ANSI A21-11), rating 200 psi working pressure per AWWA C-219, compounded gaskets conform to compression test ASTM D-395 Method A & B, approved for water application.

Tapping Sleeves and Valves

See Page 02632-1 "Gate Valves" for Tapping (Gate) Valves.

Tapping sleeves shall be fully-passivated stainless steel wraparound type per the Approved Manufacturers' Products List.

All force main taps shall be a minimum of 4" diameter.

All taps shall be performed under supervision of IRCDUS Inspector. A pre-construction meeting may be held on-site at Inspector's discretion.

Tapping contractor MUST be approved by IRCDUS.

Tapping machine shall be disinfected prior to tap per AWWA C651.

No taps will be performed on Fridays or days preceding holidays.

Tapping saddle and valve shall be hydrostatically tested at a minimum 150 psi for 15 minutes duration. Any loss of pressure during the test period shall indicate failure.

*** END OF SECTION ***

SECTION 02632

LINE STOPS

Scope

This section covers Line Stops.

Description Of Work

Line stops shall include furnishing and installation of line stops at the locations shown on the plans. Line stops shall be installed only as directed by Indian River County Utilities if existing valves are not useable to stop water flow and to isolate the work area.

Materials

Line stops shall be stainless-steel, expandable-stopper type as manufactured by Hydra-Stop, or similar.

Before ordering, Contractor shall submit detailed shop drawings to the Engineer for review.

Methods of Construction

Prior to installation, the Contractor shall coordinate with Indian River County Utilities Department to isolate the work area. Line stops shall be installed only if and where the County Utilities Department determines that existing valves are unable to isolate the work area. If existing water and/or wastewater valves are unable to isolate the work area and line stops are required, the Contractor shall coordinate with the Indian River County Utilities Department to determine the best location for installation.

Line stops and all potable water and wastewater mains in the work area shall be properly restrained to prevent failure of pipe and fitting joints.

*** END OF SECTION ***

SECTION 02633

FIRE HYDRANT ASSEMBLY

GENERAL

Scope

This section consists of specifications for Fire Hydrant Assembly.

Description of Work

Fire Hydrant shall include furnishing and installation of dry-barrel traffic (break-away) type hydrant, 6" diameter gate valve; 6" diameter D.I.P. with integrally cast rotatable gland mechanical specifications and in close conformity to the locations and grades shown on the plans or as directed by the Engineer. Fire hydrant shall be of ample length for 18" clearance above centerline of roadway.

MATERIALS

Fire Hydrant

Fire hydrant shall be of ample length for 18" clearance between the center of all nozzles and finished grade. Hydrant should be set so that the "bury line" on the barrel is set at finished grade. It shall be provided with two (2) 2½" hose nozzles and one 5¼" pumper nozzle, all having National Standard hose threads. Nozzles shall have caps attached by chains. Operating nuts shall be AWWA Standard (pentagonal, measuring 1½" point to flat). Fire hydrants shall be equipped with "O-Ring" packing. Fire hydrant shall be painted "Federal Safety Red".

Main valve seat shall be made of bronze and threaded into a bronze retainer ring.

Hydrant seat ring shall be threaded into a bronze drain ring.

The hydrant shall be so designed to permit the removal of all working parts from the hydrant up through the barrel without disturbing the earth around the hydrant or disassembling the nozzle section. This shall be accomplished by use of a short wrench which will engage the top part of the hydrant rod.

Hydrant barrel shall be of the "breakable type" made in two (2) sections with the flange or break feature located approximately (2") above the ground line. The main valve stem shall be made in two (2) sections with a breakable coupling.

Operating nuts shall be AWWA Standard (pentagonal, measuring 1½" point to flat). The operating threads shall be contained in an operating chamber sealed at the top and bottom with a hold down nut and an "O-Ring" seal. The Chamber shall contain hydrant lubricating oil or contain a ball thrust bearing above thrust collar.

Fire hydrants shall be equipped with "O-Ring" packing.

All fire mains shall be equipped with a double detector check valve assembly as shown in IRCDUS Standards Detail W-10.

A gate valve must be installed on the same water main as the fire hydrant. An additional gate valve is required if the distance between the first gate valve and the hydrant is greater than 5-feet; as shown in IRCDUS Standards Detail W-2.

Fire hydrant shall be painted **Federal Safety Red**.

Before ordering, Contractor shall submit detailed shop drawings showing nuts and threads for hose connections for conformance with Indian River County Utilities fire hydrant standards.

Methods of Construction

Prior to installation, the Contractor shall inspect all hydrants and connecting pipe. Hydrants shall be inspected for direction of opening, nozzle threading, operating nut and cap nut dimensions, tightness of pressure-containing bolting, cleanliness of inlet elbow, handling damage and cracks. Defective hydrants shall be corrected or rejected and removed from the site at the discretion of the Engineer. Hydrants shall be set plumb and shall have their nozzles parallel with or at right angles to the curbs, with the pumper nozzle facing the curb. Each hydrant shall be connected to the main with a (6") branch controlled by an independent (6") gate valve. Hydrants shall be located as shown on the Plans, or as directed by the Engineer, with the centerline of the lowest nozzle at least (12") above the established finished grade or as directed by the Engineer.

It shall be demonstrated that the water distribution system can supply the required demand rate and fire flow prior to acceptance by IRCDUS, and an onsite fire flow test shall be conducted by the Indian River County Fire Department or EMS. Prior to acceptance by IRCDUS, the fire hydrant shall be bagged as "OUT OF SERVICE".

END OF SECTION

SECTION 02634

TESTING AND INSPECTION OF WATER MAINS, RECLAIMED MAINS, WASTEWATER FORCE MAINS AND GRAVITY SEWER LINES

Pressure And Leakage Tests Of Underground Pressure Piping

No testing will be permitted until record drawings have been submitted and approved by IRCDUS.

Prior to conducting pressure and leakage tests, all new water and reclaimed water pipelines shall be full bore flushed (see Drawing W-9) and all pipelines including wastewater force mains shall be thoroughly cleaned to remove all dirt, stones, pieces of wood, and any other materials that may have entered the pipeline during construction, and all dirty water and/or discolored water from the pipelines. After this cleaning, if any obstructions remain, they shall be removed. All debris cleaned from the pipelines shall be removed from the job site. Hydrostatic pressure and leakage tests shall conform to AWWA Standard Specifications C-605-94, or latest edition, for PVC pipe. Hydrostatic pressure and leakage tests shall conform to AWWA Standard Specifications C-600-99, or latest revision, for DIP. The Contractor shall furnish all gauges, meters, pressure pumps and other equipment needed to test the line. IRCDUS shall be present during all testing, televising, and final inspections.

The pressure required for the field hydrostatic pressure test shall be not less than 150 psi for water mains, reclaimed water mains and for sewer force mains. The Contractor shall provide temporary plugs and blocking necessary to maintain the required test pressure. Corporation cocks at least 1 inch in diameter, pipe riser and angle globe valves shall be provided at each pipe dead-end in order to bleed air from the line. Duration of pressure test shall be at least 2 hours.

Allowable amount of makeup water for expansion during the pressure test of the pipe shall conform to Plastic Pipe Institute (PPI) Handbook of Polyethylene Pipe; Inspection, Tests, and Safety Considerations, unless otherwise approved by IRCDUS. The Operating Safety Considerations, Post Installation, Hydrostatic Testing, Monitored Make-up Water Test, Table III, is on Pages 24 and 25 of the Handbook.

The leakage test may be conducted concurrently with the hydrostatic pressure test and shall be of not less than 2 hours duration. All leaks evident at the surface shall be repaired and leakage eliminated regardless of total leakage as shown by test. Lines that fail to meet tests shall be repaired and re-tested as necessary until satisfactory test requirements are complied. Defective materials, pipes, valves and accessories shall be removed and replaced. The pipelines shall be tested in such sections as may be directed by IRCDUS by shutting valves or installing temporary plugs as required. The line shall be filled with water and all air removed and the test pressure shall be maintained in the pipe for the entire test period by means of a force pump to be furnished by the Contractor. Accurate means shall be provided for measuring the water required to maintain this pressure. The amount of water required is a measure of the leakage. Testing shall be in accordance with the applicable provisions as set forth in Section 13 of AWWA Standard Specification C-600-99, or latest revision. The allowable rate of leakage shall be less than the number of gallons per hour determined by the following formula:

$$L = \frac{ND \times (P)^{1/2}}{7400}$$

L = allowable leakage in gallons per hour

N = number of joints in the section tested

D = nominal diameter of the pipe in inches

P = average test pressure maintained during the leakage test in pounds per square inch gauge

The Contractor shall remove and adequately dispose of all blocking material and equipment after completion and acceptance of the field hydrostatic test, unless otherwise directed by IRCDUS. The Contractor shall repair any damage to the pipe coating. Lines shall be totally free and clean prior to final acceptance.

IRCDUS must be present during testing.

If thrust blocks have been approved for use, thrust blocks shall not be backfilled until inspected by IRCDUS.

At the beginning of the testing period, thoroughly clean all new pipelines by whatever means necessary, including flushing, to remove all dirt, stones, pieces of wood, other material that may have entered during the construction period, and any dirty or discolored water from the lines. If, after this cleaning, any obstructions remain, they shall be removed. All debris cleaned from the lines shall be removed from the job site.

All PE water mains and service lines shall be field-tested. The Contractor shall supply all labor, equipment, material, gauges, pumps, meters and incidentals required for testing. The Contractor shall pressure test each water main upon completion of the pipe laying and backfilling operations, including placement of any required temporary roadway surfacing.

All water mains shall be tested to a minimum of 150 psi. The test pressure shall be measured on site in the presence of IRCDUS personnel during the test period.

Testing shall be conducted after backfilling has been completed and before placement of permanent surface.

Allowable amount of makeup water for expansion during the pressure test of the pipe shall conform to Plastic Pipe Institute (PPI) Handbook of Polyethylene Pipe; Inspection, Tests, and Safety Considerations, unless otherwise approved by IRCDUS. The Operating Safety Considerations, Post Installation, Hydrostatic Testing, Monitored Make-up Water Test, Table III, is on Pages 24 and 25 of the Handbook.

In any test of pipe laid, disclosed leakage or significant pressure drop greater than that allowed, the Contractor shall, at its own expense, locate and repair the cause of leakage and retest the line. The amount of leakage that may be permitted shall be in accordance with AWWA Standard Specifications.

All visible leaks are to be repaired regardless of the amount of leakage.

Disinfecting Potable Water Lines

Before being placed in service, all potable water pipelines shall be disinfected in accordance with AWWA Standard Specifications C-651-99, or latest revision. The location of the chlorination and sampling points will be as shown on the drawings. The Contractor shall uncover and backfill taps for chlorination and sampling, as required.

The general procedure for chlorination shall be first to flush all dirty or discolored water from the lines, and then introduce chlorine in approved dosages in accordance with Table 10-1 through a tap at one end, while water is being withdrawn at the other end of the line. The chlorine solutions shall remain in the pipeline for no less than 24 hours.

The use of chlorine tablets is strictly prohibited.

Following the chlorination period, all treated water shall be flushed from the lines at their extremities and replaced with water from the distribution system. The Contractor’s lab shall then make bacteriological sampling and analysis of the replacement water in full accordance with AWWA Standard Specifications C-651, or latest revision. The Contractor will be required to re-chlorinate, if necessary. The line shall not be placed in service until all the requirements of the Florida Department of Environmental Protection are met and a letter of clearance issued with a copy provided to IRCDUS.

Special disinfecting procedures shall be used in connections to existing mains where the method outlined above is not practical.

The Contractor shall make all arrangements necessary with an independent commercial laboratory approved by the National Environmental Laboratory Accreditation Program (NELAP) for the collection and examination of samples of water from disinfected water mains. Note: The Contractor may not collect his own samples. These samples shall be examined for compliance with the Florida Department of Environmental Protection’s requirements. Sampling shall be made daily and continuously until two successive examinations are found satisfactory. Should one examination be found unsatisfactory, the line shall be flushed and disinfected again. Certified copies of all laboratory analyses shall be provided to the IRCDUS. The cost of all sampling, flushing and disinfecting shall be included in the contract price. IRCDUS shall operate all valves and be present to determine and control the volume of water used for flushing..

TABLE 10-1

**Chlorine Required to Produce a 25-mg/L
Concentration in 100 feet of Pipe**

Pipe Diameter (inches)	100-percent Chlorine (pounds)	1-percent Chlorine Solution (gallons)
4	0.013	0.16
6	0.030	0.36
8	0.054	0.65
10	0.085	1.02
12	0.120	1.44
16	0.217	2.60
For Pipes larger than 16	See AWWA Standard Specifications C-651-99	

Testing Of Gravity Sewers

No testing will be permitted until record drawings have been submitted and approved by IRCDUS.

Leakage test by exfiltration and infiltration, as described below, shall be made on all pipes.

Exfiltration tests shall be made on all pipes after backfilling. All sewers shall be tested such that water is filled to the rim of the lowest manhole being tested within each section being tested, as directed by the IRCDUS. Mechanical plugs shall be used on the gravity sewer system in such a manner that the air can be released from the sewer while it is being filled with water. The test shall be continued for one hour and provisions shall be made for measuring the amount of water required to maintain the water at a constant level during this period. If test results are unsatisfactory, IRCDUS may direct that additional test be made on any section or the entire pipe.

If any joint shows an appreciable amount of leakage, the jointing material shall be removed and joint remade. If any pipe is defective, it shall be removed and replaced. If the quantity of water required to maintain a constant level in the sewer for one hour does not exceed 100 gallons per inch of diameter per day per mile of sewer and if all the leakage is not confined to a few joints, the workmanship shall be considered satisfactory. If the amount of leakage indicates defective joints or broken pipes, the Contractor shall correct them.

Pipe shall be tested for infiltration after the backfill has been placed. Infiltration tests shall be made under the supervision IRCDUS. The length of line to be tested shall be as directed by IRCDUS. The allowable infiltration shall be 100 gallons per inch of diameter per day per mile of sewer.

Rate of infiltration shall be determined by means of V-notch weirs, pipe spigot or by plugs in the end of the pipe, to be provided and installed by the Contractor in an approved manner and at such times and locations as may be directed by IRCDUS.

In an inspection of the completed sewer or any part thereof shows any manholes, pipes or joints that allow the infiltration of water in a noticeable stream or jet, the defective work or material shall be replaced or repaired, as directed by IRCDUS.

Leakage between two adjacent manholes may be double the amount above stated, provided the average leakage for a total length of any size does not exceed the amount first stated and provided there are not gushing or spurting leaks.

All water used in testing and flushing shall be furnished at the Contractor's expense. The minimum amount of water to be used is two times the volume of the pipe.

The Contractor may use an air test in lieu of the exfiltration test as described above. If he elects to do this, he shall submit his proposed method to the IRCDUS for approval.

If the results of the air test are unsatisfactory, as determined by IRCDUS, the Contractor shall be required to perform the exfiltration test as outlined above.

At the conclusion of the work, the Contractor shall thoroughly clean the entire inside of the pipe by flushing with water or other means to remove all dirt, stones, and pieces of wood or other material that may have entered during the construction period. Debris cleaned from the lines shall be removed from the lowest outlet. If, after this outlet cleaning, obstructions remain, they shall be removed. After the pipe is cleaned and if the groundwater level is above the pipe, or following a heavy rain, the IRCDUS will examine the pipe for leaks. If defective pipes or joints are discovered at this time, the Contractor shall repair them at no expense to IRCDUS.

Upon completion of the work, the sewer system or selected sections therein shall be subjected to a final test and inspection. All work in the system or sections therein being tested shall be complete, cleaned and ready for use. Tests shall be as specified herein and shall meet all requirements as to line, grade, clean lines, infiltration, exfiltration and workmanship.

Inspection of mains shall be by use of a self-contained television system and lamping upon satisfactory completion and acceptance of final road base material. The facilities shall be provided and operated by the Contractor as specified below:

The Contractor shall provide IRCDUS with a video record, on CD format, of the interior of all main line gravity sewers and the interior of all sewer laterals. The CD shall be contained in a proper container to prevent damage to the CD. The video shall be obtained by pulling a television camera through the line along the axis of the pipe. The television equipment shall consist of a self-contained camera and a monitoring unit connected by a coaxial cable. These videos shall be done during the inspection of the mains. Monitors shall be available to IRCDUS during these inspections. Monitors shall also be provided with a stop action camera, so that as may be requested by IRCDUS. Photographs shall be made of a particular portion of the main being viewed. The video shall be properly exposed and the camera shall be in proper focus so that good, clear recordings showing detail are produced. The visual recordings shall be identified by audio recordings noting the manhole numbers, distances to service lateral connections, direction of lateral connection and any leaks, cracks or pipe defects. Each CD shall be clearly marked as to the contents and number, with an index of all CD's. The CD's of the completed mains shall be delivered to IRCDUS. The Contractor shall provide any assistance required by the IRCDUS.

A maximum tolerance of 1/2" dip will be accepted in gravity sewer construction.

END OF SECTION

SECTION 02635

SUBMERSIBLE WASTEWATER PUMPING STATION

Scope

This section covers specifications for a submersible wastewater pumping station

General

The station shall be complete with pumps, motors, piping, valves, and electrical work, including motor controls, structure, connections and all other needed appurtenances. The station shall be tested and ready for service prior to the sign off or acceptance by IRCDUS.

These specifications are intended to give a general description of what is required, but do not cover all details, which will vary in accordance with the requirements of the equipment as offered. It is, however, intended to cover the furnishing, shop testing, delivery and complete installation and field testing of all materials, equipment and appurtenances for the complete pumping units as herein specified, whether specifically mentioned in these specifications or not.

For all units, there shall be furnished and installed all necessary and desirable accessory equipment and auxiliaries, whether specifically mentioned in these specifications or not, and as required for an installation incorporating the highest standard for the type of service, including field testing of the entire installation and instructing the IRCDUS's regular operating personnel in the care, operation, and maintenance of all equipment. All Operation and Maintenance Manuals, along with warranty information shall be supplied to IRCDUS.

All private lift stations must provide a repair company name and emergency telephone number on the electrical panel in case of a malfunction of the station. If a name and number is not provided, the IRCDUS reserves the right to call a company of its choosing to make a service call and repair the malfunctioning station. All charges to repair said station shall be charged to the owner of the station.

A manhole shall be constructed within 20' upstream of a lift station. There shall be only one (1) pipe connection from this manhole to the lift station. The pipe between the lift station and manhole shall be C-900, DR-18 PVC pipe.

Paint outside walls, underside of wet-well top slab and valve vault with two (2) coats of water base epoxy.

Description of Systems

The pump station shall be comprised of a concrete wet-well, concrete valve vault, Remote Telemetry Unit (RTU), at least two (2) submersible wastewater pumps and controls, discharge piping and all appurtenances as specified herein or needed. The pump station will pump raw, unscreened, domestic wastewater into a force main.

Qualification

The pumps covered by these specifications are intended to be standard pumping equipment of proven ability as manufactured by a reputable manufacturer having extensive experience in the production of such pumps. The pumps furnished shall be designed, constructed and installed in

accordance with the best practice and methods, and shall operate satisfactorily when installed. Pumps shall be manufactured in accordance with the Hydraulic Institute Standards.

The control system shall have an established record of successful performance for similar service and be approved by IRCDUS.

All equipment furnished under this specification shall be new, and shall be the standard product of manufacturers having a successful record of manufacturing and servicing the equipment and systems specified herein for a minimum of five years.

The pumps shall be furnished complete with controls and accessories required, and shall be as on the Approved Manufacturers' Products List. Grinder pumps shall be permitted for pumps 5.0 HP or less, unless otherwise approved by IRCDUS. Three (3) phase electrical power will be required for all pumping stations. 120/240 volt service will be required for pump stations up to 20 HP. 277/480 volt service will be required for pump stations larger than 20 HP.

Operating Instructions

Operating and maintenance manuals shall be furnished. The manuals shall be prepared specifically for the installation and shall include all required cut sheets, drawings, equipment lists, descriptions, etc., that are required to instruct operating and maintenance personnel unfamiliar with such equipment.

An authorized representative of all major component parts of the lift station, with complete knowledge of proper operation and maintenance, shall be present on start-up of the lift station to instruct IRCDUS personnel on proper operation and maintenance of the station, and to provide operation manuals. If there are difficulties in operation of the equipment due to the manufacturers design or fabrication, the authorized representative shall be responsible for all corrective action to the satisfaction of IRCDUS. This service shall be provided at no cost to IRCDUS.

Tools & Spare Parts

Any special tools required shall be provided.

The manufacturer shall furnish a complete set of recommended spare parts necessary for the first three (3) years of operation of the pumping system, which shall include at least the following:

1. 1 set of upper bearings for the pumps
2. 1 set of lower bearings for the pumps
3. 1 set of upper and lower shaft seals for the pumps
4. 1 relay and phase monitor for each type supplied with the pump control panel for each station
5. Grinder Pump Station (2 Complete Sets) Impeller and Bottom Plate is one set.
6. Solids Handling Pumps (2 Impellers)
7. 1 –TCU001 Programmed to the corresponding Frequency
8. Impeller puller.

Spare parts shall be properly bound and labeled for easy identification without opening the packaging, and suitably protected for long-term storage.

Warranty

The Contractor and the equipment manufacturers shall warrant all equipment supplied under this section for a period of five (5) years. Warranty period shall commence on final date when IRCDUS accepts the project.

The equipment shall be warranted to be free from defects in workmanship, design and materials. If any part of the equipment should fail during the warranty period, it shall be replaced in the machine(s) and the unit(s) restored to service at no expense to IRCDUS.

The manufacturer's warranty period shall run concurrently with the Contractor's warranty period. No exception to the provision shall be allowed.

Materials and Equipment

The pumping units required under this section shall be complete, including pumps and motors with proper alignment and balancing of the individual units. All parts shall be so designed and proportioned as to have liberal strength, stability, and stiffness, and to be especially adapted for the work to be done. Ample room shall be provided for inspection, repairs, and adjustments.

Each foundation plate for each pump shall be rigidly and accurately anchored into position. The same pump manufacturer shall furnish all necessary foundation bolts, plates, nuts, and washers for installation by the Contractor. Each foundation plate shall be ½" thick Type 316 stainless steel. Foundation bolts, nuts, washers, and spare parts shall be Type 316 stainless steel.

Stainless steel nameplates giving the name of the manufacturer, head, speed, and all other pertinent data shall be attached to each pump and motor.

PUMPS

General

1. The pumps shall be totally submersible centrifugal pumps with close-coupled motors designed to pump sewage. The design shall be such that the pumping units shall be automatically connected to the discharge piping when lowered into place on the discharge connection. The pumps shall be easily removable for inspection or service, requiring no bolts, nuts or other fastenings to be removed for this purpose, or need for personnel to enter the wet well. Each pump shall be fitted with a 316 stainless steel lifting cable of adequate strength, and shall be five (5) feet longer than wet well depth to control panel to permit raising the pump for inspection and removal.
2. The impeller shall be constructed of nodular iron SP (spheroidal graphite). The hydraulic design shall incorporate a single vane centrifugal impeller. The design shall permit low liquid velocities and gradual acceleration and change of flow direction of the pumped media. The impeller/casing design shall result in a passage free of surfaces to which solid or fibrous materials can adhere. The overall pump design shall combine high efficiency, low required Net Positive Suction Head (NPSH), large ball passage and the ability to handle high solids concentrations efficiently. All other parts shall be of close grain gray iron construction, with all parts coming into contact with sewage protected by a coat of rubber-asphalt paint. All external bolts and nuts shall be of Type 316 stainless steel. The impeller shall be of a centrifugal type, capable of passing 3-inch minimum diameter solids, fibrous material, and heavy sludge. If riser pipes are less than 3 inches in diameter in the wet well, then the pumps must be grinder pumps.

3. Each pump shall be provided with a tandem double mechanical seal running in an oil reservoir, composed of two separate lapped face seals, each consisting of one stationary and one rotating tungsten-carbide or silicon carbide ring with each pair held in contact by a separate spring, so that the outside pressure assists spring compression in preventing the seal faces from opening. The compression spring shall be protected against exposure to the pumped liquid. The pumped liquid shall be sealed from the oil reservoir by one face seal and sealed from the oil reservoir from the motor chamber by the other. The seals shall require neither maintenance nor adjustment, and shall be easily replaced. Conventional double mechanical seals with a single spring between the rotating faces, requiring constant differential pressure to effect sealing and subject to opening and penetration by pumping forces, shall not be considered equal to tandem seal specified and required.
4. A sliding guide bracket shall be an integral part of the pumping unit, and the pump casing shall have a machined connecting flange to connect with the cast iron discharge connection, which shall be bolted to the floor of the wet well with stainless steel anchor bolts and so designed as to receive the pump connection without the need of any bolts or nuts. Sealing of the pumping units to the discharge connection shall be accomplished by a simple linear downward motion of the pump, with the entire weight of the pumping unit guided by 316 stainless steel guide rails which will press it tightly against the discharge connection. No portion of the pump shall bear directly on the floor of the sump, and no rotary motion of the pump shall be required for sealing.
5. Pump motors shall be housed in an air-filled, watertight casing. Motors shall be a NEMA Design B with a 1.15 service factor. Insulation shall be moisture-resistant NEMA Class F with a maximum temperature rise of 90 degrees Celsius above ambient temperature (4 degrees Celsius). Motor characteristics are noted on the Drawings. Pump motors shall have cooling characteristics suitable to permit continuous operation, in a totally, partially or non-submerged condition. Each motor shall incorporate an ambient temperature compensated overheat sensing device and a moisture sensing device wired in series. The protective devices shall be wired into the pump controls in such a way that if either device operates, the pump will shut down. The devices shall be self-resetting. The cable shall be fixed to the pump using a watertight trumpet assembly. The pump shall be capable of running continuously in a totally dry condition under full load, without damage, for extended periods. Before final acceptance, a field running test demonstrating this ability, with four hours of continuous operation (water supplied by the contractor) under the above conditions, shall be performed for all pumps being supplied, if required by the IRCDUS. Pump motor cables shall be suitable for submersible pump applications and shall be properly sealed.
6. Motor windings shall be treated with a mildew preventative.

Each pumping unit and its driving equipment shall be designed and constructed to withstand the maximum turbine runaway speed of the unit due to backflow through the pump.

Performance Requirements, refer to IRCDUS Standards, Pumping Station Data Table on Drawing No. S-21.

Access Frames & Guides

The pumping station shall be furnished with the necessary aluminum access frames, complete with hinged and hasp-equipped covers, stainless steel upper guide rail holder, power cable holder and level sensor cable holder. The frames shall be securely mounted above the pumps. Access covers shall have safety locking handles in open position. Access covers shall be of aluminum-

checkered plate with 316 stainless steel hinges and hardware. The access cover and frame shall be as sized on the Drawings.

Lower guide rail holders shall be integral with the discharge connection. Guide rails shall be of Schedule 40, 2" Welded 316 stainless steel pipe of the size indicated on the Approved Drawings and of the length required by the pump manufacturer.

A safety grate with 316 stainless steel hardware is required for all wet wells and shall be in accordance with IRCDUS Approved Manufacturers' Products List.

PUMP CONTROL SYSTEM-MANUAL SYSTEM (NON-REMOTE TELEMETRY UNIT)

General

A pump controller shall be provided for the wastewater pumping station. The controller shall respond to the liquid level sensor to automatically start and stop pumps to pace pump station influent flow, and shall be approved by IRCDUS.

The pump controller shall be the standard system of the manufacturer as modified for this application. The wet well levels to be used in operation are as shown on Detail Drawings S-15 and S-21 of the IRCDUS Standards.

Operation Requirements

The control panels shall consist of a main circuit breaker and generator breaker with mechanical interlock, an emergency generator receptacle, a motor control breaker (MCB) and magnetic starter for each pump motor, and 20 ampere, 120/240 volt circuit breakers as required. The motor control panel (MCP) shall meet all requirements of service entrance by properly bonding neutral or shall be Underwriters Laboratories service entrance rated. A low and high level alarm and pump shutoff shall be accomplished by float type, liquid level control system, with all components mounted in one common enclosure. Control switches shall provide means to operate each pump manually or automatically. When operated in the automatic mode, the control assembly shall provide means to manually select or automatically alternate the position of the "lead" and "lag" pumps after each pumping cycle. A three position alternate switch labeled "hands-off-auto" (H-O-A) shall be provided to manually select which pump shall be the lead pump, when necessary, and also be able to test the alternator to see if it is still operational.

A float type liquid level control system shall continuously monitor wet well liquid level and control operation of the low-level cutoff for the pumps, and shall operate on a 24-volt circuit.

A non-fused safety switch shall be installed between the meter and panel. This switch shall be in a NEMA 4X, UL rated, stainless steel waterproof enclosure, in accordance with IRCDUS Approved Manufacturers' Products List. Amperage shall be at least equal to that of the main breaker.

Construction

1. The electrical control equipment shall be mounted within a modified NEMA 4X, UL rated, white powder coated stainless steel (316), dead front enclosure. The enclosure shall be equipped with a door and may incorporate a removable back panel on which control components shall be mounted. Back panel shall be secured to enclosure with collar studs. All lines entering the enclosure shall be protected by conduit seal bushings (supplied by pump manufacturer) at the source and shall be behind the dead front enclosure, entering from the side or bottom only. The seals shall prevent moisture and gas from entering the

enclosure. Two cable connectors (shall be in accordance with IRCDUS Approved Manufacturers' Products List) shall be provided to terminate the motor cables in the control panel. The connectors shall be suitable for a 2" conduit with a seal bushing suitable for the motor cables.

2. Components

All motor branch circuit breakers, motor starters, and control relays shall be of highest industrial quality, securely fastened to the removable back panels with screws and lock washers. Back panels shall be tapped to accept all mounting screws. Self-tapping screws shall not be used to mount any component. A non-corrosive material shall be utilized for wire connection locations within the box.

A thermal-magnetic air circuit breaker, per Approved Manufacturers' Products List, shall be furnished for the main breaker. The manufacturer shall seal all circuit breakers after calibration to prevent tampering. A Motor Control Breaker (MCB) shall be provided for each motor starter. Each MCB shall be adequately sized to meet the pump motor and station operating conditions.

An open frame, across-the-line, NEMA rated, magnetic motor starter, Class 8536, in accordance with IRCDUS Approved Manufacturers' Products List, shall be furnished for each pump motor. Reduced voltage motor starters, Class 8606, per Approved Manufacturers' Products List, are required for all 30 HP and larger motors. All motor starters shall be equipped to provide under-voltage release and overload protection on all three phases. Motor starter contacts shall be easily replaceable without removing the motor starter from its mounted position. Overload reset push buttons shall be located on the inside of the control compartment door.

An emergency generator receptacle (EGR) shall be installed in the side of the control panel and connected to the line side of the generator breaker. The receptacle shall be in accordance with IRCDUS Approved Manufacturers' Products List.

A ground fault interrupter (GFI) duplex utility receptacle providing 120 volt, 20 amp, 60 hertz, single phase current shall be mounted on the internal door.

The control panel shall include an adjustable time delay relay to prevent both pumps from starting simultaneously. Time delay relays shall be electronic type.

3. Operating Controls & Instruments

All operating controls and instruments shall be securely mounted on the control compartment door. All controls and instruments shall be clearly labeled to indicate function.

Pump mode selector switches shall be Hand-Off-Auto type to permit override of automatic level control and manual actuation of shutdown of either pump motor. Operation of pumps in manual mode shall bypass all safety shutdown circuits except pump motor overload shutdown. Switches shall be oil-tight, in accordance with IRCDUS Approved Manufacturers' Products List, providing three switch positions, each of which shall be clearly labeled according to function. Separate indicator lamps, which shall operate at 115 volts input, shall be provided mounted above H.O.A. selector switches. Lamps shall be easily replaceable from the front of control compartment door without removing switch modules from their mounted positions.

Indicator lamps shall be mounted in oil-tight modules, in accordance with IRCDUS Approved Manufacturers' Products List. Lamp modules shall be equipped to operate at 115-volt input. Lamps shall be easily replaceable from the front of the control compartment door without removing lamp module from its mounted position.

A six-digit, non-reset elapsed time meter shall be connected to each motor starter to indicate the total running time of each pump in "hours" and "tenth of hours." The elapsed time meters shall be in accordance with IRCDUS Approved Manufacturers' Products List.

Pump Control System (Remote Telemetry Unit)

A Remote Telemetry Unit (RTU) shall be supplied with the pump control system. The RTU shall be capable of acquiring analog and discrete data for transmission to the Central Telemetry Unit (CTU). The RTU shall also be capable of receiving instructions from the CTU for the operation of the pumps. See IRCDUS Approved Manufacturers' Products List for the separate components.

Shop Painting

Before exposure to weather and prior to shop painting, all surfaces shall be thoroughly cleaned, dry and free from all mill-scale, rust, grease, dirt and other foreign matter.

All pumps and motors shall be shop primed with primer compatible with the field painting.

All nameplates shall be properly protected during painting.

Gears, bearing surfaces, and other similar surfaces obviously not to be painted shall be given a heavy shop coat of grease or other suitable rust-resistant coating. This coating shall be maintained as necessary to prevent corrosion during periods of storage and erection, and shall be satisfactory to IRCDUS up to the time of final acceptance test.

Control Panels shall be made of stainless steel (316).

Field Painting

The primer and paint used in the shop shall be products of the same manufacturer as the field paint to assure compatibility.

All nameplates shall be properly protected during painting.

Lift Station - General

The Lift Stations Wet Wells shall conform to the following size:

DEPTH (ft)	DIAMETER (ft)
0-10	6
11-15	8
16-20	10
21-25	12

Or as approved by IRCDUS's Engineer.

Lift Station Liners - General

A protective liner for the concrete shall be installed in the lift station/wet wells, re-pump lift stations, receiving manholes, drop manholes, and manholes as required by IRCDUS.

After the lift station lining operation has been completed, the Contractor in the presence of the IRCDUS's representative shall visually inspect the lift station. In addition, at IRCDUS request, the Contractor shall be required within one year to visually inspect the lift stations that were lined. The Contractor shall redo any work that has become defective.

Lift Station Liners Material HDPE

The Lift Station Liner shall be High Density Polyethylene (HDPE) with a minimum thickness of 2 mm. All HDPE liner sheets shall be extruded with a large number of anchoring studs, a minimum of **39ft / ²**, manufactured during the extrusion process in one piece with the sheet so there is no welding and no mechanical finishing work to attach the studs to the sheet. The liner shall have a pull out of 112.5 lbs./anchoring stud.

Flat liner sheet, non anchored, used for overlapping joints, shall have a minimum thickness of 3mm. All joints shall be sealed by means of thermal welding performed by certified welders.

The lining shall have good impact resistance, shall be flexible, and shall have an elongation sufficient to bridge up to a 1/4-inch settling crack, without damage to the lining. The liner shall be able to bridge any expansion cracks that may occur.

Lining shall be repairable at any time during the life of the structure.

A certified fabricator shall custom fit the liner to the form work in order to protect the concrete surfaces from sewer gases. The interior surfaces to be protected shall include the walls, ceiling, and pipe entries.

For all lined manholes the use of HDPE Grade rings shall be used in lieu of brick or precast grade rings. Grade rings shall meet HS-25 load rating. Butyl sealant shall be used between each ring to make a watertight joint. The first grade ring shall be welded to the liner to provide a gas tight seal.

Upon request, the manufacturer shall provide written certification that the liner used meets or exceeds the requirement of this specification.

Provide a five (5) year unlimited warranty on all workmanship and products. The work includes the surface preparation and application of the liner system, shall protect the structure for at least five years from all leaks, and from failure due to corrosion from exposure to corrosive gases such as hydrogen sulfide.

Lift Station Liners – Fiberglass

The lift station liner shall meet all requirements of ASTM Specifications D-3753 for glass fiber reinforced polyester manholes or lift stations. See IRCDUS Approved Manufacturers' Products List

Fiberglass liners shall have a three (3) year warranty period.

*** END OF SECTION ***

SECTION 02640

TURF MATERIAL & PERFORMANCE

Scope

This section consists of Turf Material and Performance

General

The work specified in this item shall conform to Section 570 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (Latest Edition), except as modified herein.

Description

Sod for the project shall be of the variety that is common to the area and of a variety approved by the Engineer. This work shall also include mowing, to be mowed at maximum 6" height with a mulching mower.

Scope of Work

The work specified in this section consists of the establishing of a stand of grass, within the project, right-of-way, easements, and other areas indicated on the Drawings, by furnishing and placing grass sod. Also included are fertilizing, watering and maintenance as required to assure a healthy stand of grass. Two (2) applications of fertilizer will be required with the initial application being fertilizer and the second application being "weed and feed".

Guarantee

All sodded areas shall be guaranteed for one year after date of final acceptance.

Replacement of Defective Sod: Any dead sod or sod showing (less than 95% of a square) indication of probable non survival or lack of health and vigor, or which do not exhibit the characteristics to meet specifications, shall be replaced within two weeks of notice from Owner or Engineer. All replacement sod shall be furnished/installed at no additional cost to the Owner and shall be guaranteed for three months. All replacement shall meet original specifications.

The Contractor shall notify the IRCDUS and Engineer ten (10) days prior to the end of the guarantee period and such guarantee shall be extended until notification is received.

At the end of the guarantee period, all sod that is dead or in unsatisfactory growth shall be replaced within two (2) weeks.

Fertilizer

Commercial fertilizers shall comply with the Indian River County Fertilizer Ordinance 2013-012 and Supplement Ordinance 2013-014.

Water for Grassing

Contractor shall provide the water used in the sodding operations as necessary to meet the requirements of Article 570-3.6.

Preparation of Ground

The area over which the sod is to be placed shall be scarified or loosened to a depth and then raked smooth and free from debris. Where the soil is sufficiently loose and clean, the Owner, at his discretion, may authorize the elimination of ground preparation.

Application of Fertilizer

Before applying fertilizer, the soil pH shall be brought to a range of 6.0 - 7.0.

Contractor shall apply two (2) applications. The initial shall be fertilizer and the second application shall be "weed and feed".

The fertilizer shall be spread uniformly over the sodded area at the rate of 436 pounds per acre, or 10 pounds per 1,000 square feet, by a spreading device capable of uniformly distributing the material at the specified rate.

Contractor shall apply applications as per manufacturer's specification. All tickets from bags shall be handed over to the County Inspector.

On steep slopes, where the use of a machine for spreading or mixing is not practicable, the fertilizer shall be spread by hand and raked in and thoroughly mixed with the soil to a depth of approximately 2 inches.

Placing Sod

The sod shall be placed on the prepared surface, with edges in close contact and shall be firmly and smoothly embedded by light tamping with appropriate tools.

Where sodding is used in drainage ditches, the setting of the pieces shall be staggered so as to avoid a continuous seam along the line of flow. Along the edges of such staggered areas, the offsets of individual strips shall not exceed 6 inches. In order to prevent erosion caused by vertical edges at the outer limits, the outer pieces of sod shall be tamped so as to produce a featheredge effect.

Where sodding is placed abutting paved shoulder, the contractor is to ensure that the finished sod elevation is 1½" below paved shoulder.

On slopes greater than 3:1, the Contractor shall prevent the sod from sliding by means of wooden pegs driven through the sod blocks into firm earth, at suitable intervals.

Sodding shall not be performed when weather and soil conditions are, in the Engineer's opinion, unsuitable for proper results.

Sod shall be placed around all structures, equipment pads, etc.

Watering

The areas on which the sod is to be placed shall contain sufficient moisture, as determined by the Engineer, for optimum results. After being placed, the sod shall be kept in a moist condition to the full depth of the rooting zone for at least 2 weeks. Thereafter, the Contractor shall apply water as needed until the sod roots and starts to grow for a minimum of 60 days (or until final acceptance, whichever is latest).

Maintenance

The Contractor shall, at his expense, maintain the sodded areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include repairing of any damaged areas and replacing areas in which the establishment of the grass stand does not appear to be developing satisfactorily.

Replanting or repair necessary due to the Contractor's negligence, carelessness or failure to provide routine maintenance shall be at the Contractor's expense.

The Contractor shall maintain the sodded area up to the final acceptance date as directed by the Engineer. Grass height shall not exceed 6" without mowing. Clippings shall be removed from sidewalk.

Article 570-9

The first two paragraphs under this Article are deleted and the following is added:

The contract unit price for performance turf shall include the costs of sod, fertilizer (2 applications), sidewalk sweeping after mowing, mowing, pegging disposal of clippings, water, tools, equipment, labor and all other incidentals necessary.

END OF SECTION

APPENDIX A

PERMITS



FLORIDA DEPARTMENT OF Environmental Protection

Southeast District Office
3301 Gun Club Road, MSC 7210-1
West Palm Beach, FL 33406
561-681-6600

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Noah Valenstein
Secretary



Notification of Acceptance of Use of a General Permit

Permittee:

Indian River County Department of Utility services
Mr. Arjuna Weragoda, Capital Project Manager
1801 27th Street
Vero Beach, FL 32690
aweragoda@ircgov.com

Permit Number: 0039206-981-DSGP

Issue Date: April 5, 2019

Expiration Date: April 4, 2024

County: Indian River

Project Name: N. County Water Distribution-
Phase 2 WM

Water Supplier: Indian River County WTP

PWS I.D.: 3314052

Dear Mr. Weragoda:

On March 3, 2019, the Florida Department of Environmental Protection received a “*Notice of Intent to Use the General Permit for Construction of Water Main Extensions for PWSs*” [DEP Form No. [62-555.900\(7\)](#)], under the provisions of Rule [62-4.530](#) and Chapter [62-555](#), Florida Administrative Code (F.A.C.).

The proposed project includes construction of:

109 linear feet (LF) of 4-inch PVC
21,474 LF of 6-inch PVC
3,314 LF 8-inch PVC
832 LF 8-inch HDPE
408 LF 10-inch HDPE
Thirty (30) fire hydrants
Fifty-three (53) sample points
All associated fittings and appurtenances

Located at: North Indian River County, U.S. Hwy 1; Residential areas to the east and west of U.S. Highway #1 and to the north and south of Roseland Road.

Based upon the submitted Notice and accompanying documentation, this correspondence is being sent to advise that the Department does not object to the use of such General Permit at this time. Please be advised that the permittee is required to abide by Rule [62-555.405, F.A.C.](#), all applicable rules in Chapters [62-4](#), [62-550](#), [62-555](#), F.A.C., and the General Conditions for All General Drinking Water Permits (found in [62-4.540, F.A.C.](#)).

Permittee:
Mr. Arjuna Weragoda, Capital Project Manager
Indian River County Department of Utility service
Page 2 of 3

DEP File No.:
0039206-981-DSGP

The permittee shall comply with all sampling requirements specific to this project. These requirements are attached for review and implementation.

Pursuant to Rule [62-555.345, F.A.C.](#), the permittee shall submit a certification of construction completion [DEP Form No. [62-555.900\(9\)](#)] to the Department and obtain approval, or clearance, from the Department before placing any water main extension constructed under this general permit into operation for any purpose other than disinfection or testing for leaks.

Within 30 days after the sale or legal transfer of ownership of the permitted project that has not been cleared for service in total by the Department, both the permittee and the proposed permittee shall sign and submit an application for transfer of the permit using Form [62-555.900\(8\), F.A.C.](#), with the appropriate fee. The permitted construction is not authorized past the 30-day period unless the permit has been transferred.

When any existing asbestos cement (AC) pipes are replaced under this permit, the permittee shall do so in accordance with the applicable rules of the Federal Asbestos Regulation and Florida DEP requirements. For specific requirements applicable to AC pipes, the permittee should contact the Air and Waste Management section managers prior to commencing any such activities at (561) 681- 6672. Please be aware that a notification is required to be submitted to the Department for a regulated project.

This permit will expire five years from the date of issuance. If the project has been started and not completed by that time, a new permit must be obtained before the expiration date in order to continue work on the project, per Rule [62-4.030, F.A.C.](#)

Sincerely,



John Kent Edwards
Environmental Administrator

April 5, 2019
Date

JKE/MEP

cc:

Indian River/Brevard County Health Department — Cheryl.Dunn@flhealth.gov
FDEP/SED — Jocelyn.Labbe@dep.state.fl.us Mark.Peters@dep.state.fl.us
Masteller & Moler, Inc. — Earl H. Masteller, P.E. mastmolr@bellsouth.net
Sean Green, E.I. — sean.green@mastellermoler.com

**A Civil Penalty May Be Incurred
if this project is placed into operation before obtaining a clearance from this office.**

Requirements for clearance upon completion of projects are as follows:

1) Clearance Form

Submission of a fully completed Department of Environmental Protection (DEP) Form [62-555.900\(9\)](#) *Certification of Construction Completion and Request for Clearance to Place Permitted PWS Components into Operation*.

2) Record Drawings, if deviations were made

Submission of the portion of record drawings showing deviations from the DEP construction permit, including preliminary design report or drawings and specifications, if there are any deviations from said permit (Note that it is necessary to submit a copy of only the portion of record drawings showing deviations and not a complete set of record drawings.).

3) Bacteriological Results

Copies of satisfactory bacteriological analysis (a.k.a. Main Clearance), taken within sixty (60) days of completion of construction, from locations within the distribution system or water main extension to be cleared, in accordance with Rules [62-555.315\(6\)](#), [62-555.340](#), and [62-555.330](#), F.A.C. and American Water Works Association (AWWA) Standard C 651-92, as follows:

Connection to an existing system
The end point of the proposed addition
Any water lines branching off a main extension
Every 1,200 feet on straight runs of pipe

Each location shall be sampled on two consecutive days, with sample points and chlorine residual readings clearly indicated on the report. A sketch or description of all bacteriological sampling locations must also be provided.

For further clarification contact:
Mark E. Peters
Engineer Specialist III
Florida Dept. of Environmental Protection - Southeast District
3301 Gun Club Rd
MSC 7210-1
West Palm Beach, FL 33406
Tel: 561 681 6751 / Fax: 561 681 6760



FLORIDA DEPARTMENT OF Environmental Protection

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Noah Valensteln
Secretary

Southeast District Office
3301 Gun Club Road, MSC 7210-1
West Palm Beach, FL 33406
561-681-6600

May 2, 2019



NOTICE OF PERMIT ISSUANCE

In the Matter of an
Application for Permit by:

PERMITTEE:

Mr. Arjuna Weragoda, P.E.
Capital Projects Manager
Indian River County Department of
Utilities Services
1801 27th Street Vero Beach, FL 32960
Email: aweragoda@ircgov.com

PERMIT NUMBER: 0039002-076-DWC-CM

COUNTY: Indian River

PROJECT NAME: Indian River County North County Water
and Sewer System – Phase 2

WASTEWATER TREATMENT: IRCUD Central WWTF

FACILITY ID: FLA010431

NOTICE OF RIGHTS

The Department will issue a Permit 0039002-076-DWC-CM, unless a petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. On the filing of a timely and sufficient petition, this action will not be final and effective until further order of the Department. Because the administrative hearing process is designed to formulate final agency action, the hearing process may result in a modification of the agency action or even denial of the application.

Petition for Administrative Hearing

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. Pursuant to Rules 28-106.201 and 28-106.301, F.A.C., a petition for an administrative hearing must contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number, if known;
- (b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;
- (c) A statement of when and how the petitioner received notice of the agency decision;
- (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
- (e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action;
- (f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

The petition must be filed (received by the Clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, or via electronic

correspondence at Agency_Clerk@dep.state.fl.us. Also, a copy of the petition shall be mailed to the applicant at the address indicated above at the time of filing.

Time Period for Filing a Petition

In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing by the applicant and persons entitled to written notice under Section 120.60(3), F.S., must be filed within 14 days of receipt of this written notice. Petitions filed by any persons other than the applicant, and other than those entitled to written notice under Section 120.60(3), F.S., must be filed within 14 days of publication of the notice or within 14 days of receipt of the written notice, whichever occurs first. The failure to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

Extension of Time

Under Rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, or via electronic correspondence at Agency_Clerk@dep.state.fl.us, before the deadline for filing a petition for an administrative hearing. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

Mediation: Mediation is not available in this proceeding.

Executed in West Palm Beach, Florida.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION



Diane Pupa
Program Administrator
Permitting and Waste Cleanup

May 2, 2019
Date

DP/JKE/ls: 0039002-076-DWC-CM

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this document and all attachments were sent on the filing date below to the following listed persons:

FDEP: Diane M. Pupa, John Kent Edwards, Lisa M. Self, Lyudmila Sokolova

Earl Masteller, Masteller & Moler, Inc., mastmolr@bellsouth.net
Sean Green, Masteller & Moler, Inc., sean.green@mastellermoler.com

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to Section 120.52, F. S., with the designated Department Clerk, receipt of which is hereby acknowledged.

Barbara Browning

Clerk

May 2, 2019

Date



FLORIDA DEPARTMENT OF Environmental Protection

Southeast District Office
3301 Gun Club Road, MSC 7210-1
West Palm Beach, FL 33406
561-681-6600

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Noah Valenstein
Secretary

May 2, 2019



STATE OF FLORIDA DOMESTIC WASTEWATER COLLECTION/TRANSMISSION INDIVIDUAL PERMIT

PERMITTEE:

Mr. Arjuna Weragoda, P.E.
Capital Projects Manager
Indian River County Department of
Utilities Services
1801 27th Street Vero Beach, FL 32960
Email: aweragoda@ircgov.com

PERMIT NUMBER: 0039002-076-DWC-CM

ISSUANCE DATE: May 2, 2019

EXPIRATION DATE: May 1, 2024

COUNTY: Indian River

PROJECT NAME: Indian River County
North County Water and Sewer System – Phase 2
WASTEWATER TREATMENT: IRCUD Central
WWTF

FACILITY ID: FLA010431

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4 and 62-604, Florida Administrative Code (F.A.C.).

The above-named permittee is hereby authorized to construct the facility shown on the application and other documents on file with the Department and made a part hereof and specifically described as follows:

DESCRIPTION OF PROJECT: A wastewater collection system consisting of:

- Approximately 27,742 linear feet of 8 (eight) inch gravity main
- Approximately 1,193 linear feet of 4 (four) inch force main
- 109 (one hundred nine) manholes
- 1 (one) Lift Station 150GPM@35.6TDH

TO SERVE:

1. 140 Single -Family Homes, generating wastewater at the amount of 49,000 GPD, located north of Roseland Road and along the east and west sides of U.S. Highway # 1, as well as along Old Dixie Highway. These residential areas are connected by gravity to the proposed lift station
2. 62 Single -Family Homes at the Ercildoune Heights residential areas, generating wastewater at the amount of 27,000 GPD, with the private lift stations, provided by owners and connected by the proposed force main to the existing lift station

LOCATION OF PROJECT: Indian River County, Sebastian City

IN ACCORDANCE WITH: The limitations, requirements and other conditions set forth in pages 1 through 2 of this permit.

PERMIT CONDITIONS:

1. This permit is subject to the general conditions of Rule 62-4.160, F.A.C., as applicable. This rule is available at the Department's Internet site at:
<http://www.dep.state.fl.us/legal/Rules/shared/62-4/62-4.pdf> [62-4.160]
2. Upon completion of construction of the collection/transmission system project, and before placing the facilities into operation for any purpose other than testing for leaks or testing equipment operation, the permittee shall submit to the Department's Southeast District Office Form 62-604.300(8)(b), Request for Approval to Place a Domestic Wastewater Collection/Transmission System into Operation. This form is available at the Department's Internet site at:
<http://www.dep.state.fl.us/water/wastewater/forms.htm> [62-604.700(2)]
3. The new or modified collection/transmission facilities shall not be placed into service until the Department clears the project for use. [62-604.700(3)]
4. Permit revisions shall only be made in accordance with Rule 62-4.050(4)(s), F.A.C. Request for revisions shall be made to the Department in writing and shall include the appropriate fee. Revisions not covered under Rule 62-4.050(4)(s), F.A.C., shall require a new permit. [62-604.600(8)]
5. Abnormal events shall be reported to the Department's Southeast District Office in accordance with Rule 62-604.550, F.A.C. For unauthorized spills of wastewater in excess of 1000 gallons per incident or where information indicates that public health or the environment may be endangered, oral reports shall be provided to the STATE WARNING POINT TOLL FREE NUMBER (800) 320-0519 as soon as practical, but no later than 24 hours from the time the permittee or other designee becomes aware of the circumstances. Unauthorized releases or spills less than 1000 gallons per incident are to be reported orally to the Department's Southeast District Office within 24 hours from the time the permittee, or other designee becomes aware of the circumstances. [62-604.550]
6. This permit is for CONSTRUCTION ONLY of the collection/transmission system project. This permit does not authorize the connection of this collection/transmission system project to the designated wastewater treatment plant. This permit shall not be construed to infer that the clearance necessary for connection shall be granted. Any such clearance shall be granted only when reasonable assurance is given that adequate treatment and disposal is available in accordance with Department rules, regulations, and permits. Partial clearance may be granted, if required. Also, any such clearance shall be granted only when reasonable assurance is given that the downstream collection/transmission system is constructed and has capacity available for the proposed flow in accordance with Department rules, regulations, and permits. [62-604.130(1) and 62-604.600(7), 11-6-03]
7. The owner shall be responsible for contracting with a licensed and insured environmental services company to provide routine inspection and operation of the grinder systems located within owners' properties. The cost of the environmental services company described in this paragraph shall be an individual owner expense. Indian River County Utilities shall be responsible for ensuring that the owner has a valid service contract prior to allowing connection, and that a contract is maintained and current.

Executed in West Palm Beach, Florida

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



Diane Pupa
Program Administrator
Permitting and Waste Cleanup

May 2, 2019

Date