



**CONTRACT DOCUMENTS AND
SPECIFICATIONS
FOR**

UPPER FLORIDAN AQUIFER SOUTH WELL NO.1 REPLACEMENT (S1R)

BID NO. 2023030

PREPARED FOR
THE BOARD OF COUNTY COMMISSIONERS
INDIAN RIVER COUNTY, FLORIDA

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SEAN LIESKE, UTILITY SERVICES DIRECTOR

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SECTION – 00100 Advertisement for Bids

BOARD OF COUNTY COMMISSIONERS

1801 27th Street
Vero Beach, Florida 32960



**ADVERTISEMENT FOR BIDS
INDIAN RIVER COUNTY**

Sealed bids will be received by Indian River County until **2:00 P.M. on Thursday, June 15, 2023**. Each bid shall be submitted in a sealed envelope and shall bear the name and address of the bidder on the outside and the words **“UPPER FLORIDAN AQUIFER SOUTH WELL NO.1 REPLACEMENT (S1R)”** and **“Bid 2023030.”** Bids should be addressed to Purchasing Division, Room B1-301, 1800 27th Street, Vero Beach, Florida 32960. All bids will be opened publicly and read aloud at 2:00 P.M. All bids received after 2:00 P.M., on the day specified above, will not be accepted or considered.

PROJECT DESCRIPTION: The proposed project consists of replacing Upper Floridan Aquifer (UFA) production well S-1R. The scope of work will include clearing/grubbing, well construction permitting, drill site preparation, drilling, setting of steel and PVC casings, grouting, flow testing, wellhead assembly, acidizing (if necessary), well logging, pump testing, formation water disposal system (including temporary piping and pumps), well facility disinfection and restoration of well site.

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 at www.ircgov.com/departments/budget/purchasing under “Current Solicitations”.

All bidders shall submit one (1) original and one (1) copy of the Bid Proposal forms provided within the specifications. Please note that the questionnaire must be filled out completely including the financial statement. BID SECURITY must accompany each Bid, and must be in the form of an AIA Document A310 Bid Bond, properly executed by the Bidder and by a qualified surety, or a certified check or a cashier’s check, drawn on any bank authorized to do business in the State of Florida. Bid Security must be in the sum of not less than **Five Percent (5%)** of the total amount of the bid, made payable to Indian River County Board of County Commissioners. In the event the Contract is awarded to the Bidder, Bidder will enter in a Contract with the County and furnish the required 100% Public Construction Bond and certificates of insurance 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 penalty.

The County reserves the right to delay award of the Contract for a period of **ninety (90)** days after the bid opening, to waive informalities 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 judgement, will serve the best interest of Indian River County, Florida. The County will not reimburse any Bidder for bid preparation costs.

A **NON-MANDATORY** Pre-Bid Conference will be held on **Wednesday, May 31, 2023 at 10:00 A.M.**, at the South County (Oslo) RO WTP conference room, located at 1550 9th St SW, Vero Beach, FL 32962. ATTENDANCE AT THIS CONFERENCE BY ALL BIDDERS IS HIGHLY ENCOURAGED.

INDIAN RIVER COUNTY

By: Jennifer Hyde
Purchasing Manager

For Publication in the Indian River Press Journal
Date: May 15, 2023

For: Indian River Press Journal

Please furnish tear sheet and Affidavit of Publication to:

INDIAN RIVER COUNTY
PURCHASING DIVISION
1800 27th Street
Building "B"
Vero Beach, FL 32960

*** * END OF SECTION * ***

SECTION 00200 – Instructions to Bidders

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SECTION 00200 – Instructions to Bidders

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SECTION 00200 – Instructions to Bidders

ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:

- A. Bidder--The individual or entity who submits a Bid directly to OWNER.
- B. Issuing Office--The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
- C. Successful Bidder--The lowest responsible Bidder submitting a responsive Bid to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.
- D. ENGINEER – References County's Consultant, Kimley-Horn and Associates, or their designee.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement for Bids or Invitation to Bid may be obtained from the Issuing Office.
- 2.02 Complete sets of Bidding 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 Bidding Documents.
- 2.03 OWNER and ENGINEER in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, within five days of OWNER's request Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below.
 - A. Bidder must have at least five years' experience in the construction of similar projects of this size and larger.
 - B. Bidder must have successfully constructed, as prime CONTRACTOR, at least three projects similar in scope to this project.
 - C. Bidder must have good recommendations from at least three clients similar to the OWNER.
 - D. The Bidder's superintendent and assistants must be qualified and experienced in similar projects in all categories.
 - E. Bidder must be able to provide evidence of authority to conduct business in the jurisdiction in which the project is located.

- 3.02 Each bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract.
- 3.03 The OWNER reserves the right to reject bids from Bidders that are unable to meet the listed required qualifications.
- 3.04 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.
- 3.05 Bidder must hold a current registration as a General Contractor in the State of Florida.
- 3.06 **Conflict of Interest:** Any entity submitting a bid or proposal or entering into a contract with the County shall disclose any relationship that may exist between the contracting entity and a County Commissioner or a County Employee. The relationship with a County Commissioner or a County Employee that must be disclosed is 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*. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of the entity. The disclosure of relationships shall be a sworn statement made on a County approved form. Failure to submit the form may be cause for rejection of the bid or proposal.
- 3.07 **Public Entity Crimes:** 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.
- 3.08 **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 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.

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

4.01 Subsurface and Physical Conditions

A. 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 Bidding Documents.

2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in paragraph 4.01.A will be made available by OWNER to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in paragraph 4.02 of the General Conditions has been identified and established in paragraph 4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

4.02 Underground Facilities

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

4.03 Hazardous Environmental Condition

A. The Supplementary Conditions identify those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that ENGINEER has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in paragraph 4.03.A will be made available by OWNER to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in paragraph 4.06 of the General Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which

was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in paragraph 4.06 of the General Conditions.

4.05 Upon a request directed to the Purchasing Division (purchasing@ircgov.com or (772) 226-1416), OWNER will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.06 "This paragraph has been deleted intentionally"

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

A. examine and carefully study the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;

B. VISIT THE SITE AND BECOME FAMILIAR WITH AND SATISFY BIDDER AS TO THE GENERAL, LOCAL, AND SITE CONDITIONS THAT MAY AFFECT COST, PROGRESS, AND PERFORMANCE OF THE WORK;

C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the Work;

D. carefully study all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and carefully study all reports and drawings of a Hazardous Environmental Condition, if any, at the Site which have been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions;

E. obtain and carefully study (or assume responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (overhead, surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;

F. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;

G. become aware of the general nature of the work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents;

H. correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

I. promptly give ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by ENGINEER is acceptable to Bidder; and

J. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

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

ARTICLE 5 - PRE-BID CONFERENCE

5.01 The date, time, and location for the Pre-Bid conference, if any, is specified in the Advertisement for Bids. Representatives of OWNER and ENGINEER will be present to discuss the Project. ENGINEER will transmit to all prospective Bidders of record such Addenda as ENGINEER considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 6 - SITE AND OTHER AREAS

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

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

7.01 CONE OF SILENCE. Potential bidders and their agents shall 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 shall be effective from the time of bid advertisement until the Board of County Commissioners meets to authorize award. Such communication may result in disqualification.

7.02 All questions about the meaning or intent of the Bidding Documents are to be submitted to PURCHASING (purchasing@ircgov.com) in writing. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda mailed or delivered to all parties through the Issuing Office as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.03 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by OWNER or ENGINEER.

ARTICLE 8 - BID SECURITY

8.01 Each Bid must be accompanied by Bid Security made payable to OWNER in the amount of five percent 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 5.01 of the General Conditions. The Bid Bond 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. The Surety must be authorized to issue surety bonds in Florida. The Bidder shall require the attorney-in-fact who executes any 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 for all Bonds, 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. The Surety shall also meet the requirements of paragraphs 5.01 and 5.02 of the General Conditions.

8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 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 owner. The Bid Security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of seven days after the Effective Date of the Agreement or 91 days after the Bid opening, whereupon Bid Security furnished by such Bidders will be returned.

8.03 Bid Security of other Bidders whom OWNER believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

ARTICLE 9 - CONTRACT TIMES

9.01 The number of calendar days within which, or the dates by which, the Work is to be (a) Substantially Completed and (b) also completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 - LIQUIDATED DAMAGES

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

ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR 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 CONTRACTOR and consideration by ENGINEER is set forth in the General Conditions and may be supplemented in the General Requirements.

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to OWNER in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to OWNER a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by OWNER. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, OWNER may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid.

12.02 If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in paragraph 6.06 of the General Conditions.

12.03 CONTRACTOR shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom CONTRACTOR has reasonable objection.

ARTICLE 13 - PREPARATION OF BID

13.01 The Bid form is included with the Bidding Documents. Only the bid form provided by OWNER is acceptable (Bidders are not to recreate or modify the bid form). ***Bids not submitted on the bid form(s) shall be rejected, as will bids submitted on rewritten, recreated or modified bid forms.***

13.02 All blanks on the Bid form shall be completed by printing in ink or by typewriter and the Bid signed. A Bid price shall be indicated for each section, Bid item, alternative, adjustment unit price item, and unit price item listed therein, or the words "No Bid," "No Change," or "Not Applicable" entered.

13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown below the signature.

13.06 A Bid by an individual shall show the Bidder's name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venturor in the manner indicated on the Bid form. The official address of the joint venture must be shown below the signature.

13.08 All names shall be typed or printed in ink below the signatures.

13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid form.

13.10 The address and telephone number for communications regarding the Bid shall be shown.

13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number or county registration number for the state or county of the Project, if any, shall also be shown on the Bid form.

13.12 All supporting information requested in the Bid Form must be furnished. Do not leave any questions or requests unanswered.

13.13 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. The Bidder shall not include ANY PERMIT, IMPACT, NOR INSPECTION FEES payable to **Indian River County** in the bid.

13.14 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. 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.

ARTICLE 14 - BASIS OF BID; EVALUATION OF BIDS

14.01 Unit Price

A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule. Omission of unit prices where required will result in disqualification of the bid.

B. The total of all estimated prices will be determined as the sum of the products of the estimated quantity of each item and the unit price Bid for the item. The final quantities and Contract Price will be determined in accordance with paragraph 11.03 of the General Conditions.

C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

14.02 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in paragraph 11.02 of the General Conditions.

14.03 The Bidder's attention is called to the fact that any estimate of quantities of work to be done and materials to be furnished under the Specifications as shown on the Bid Schedule, or elsewhere, is approximate only and not guaranteed. The OWNER does not assume any responsibility that the final quantities shall remain in strict accordance with the estimated quantities, nor shall the Bidder plead misunderstanding or deception because of such estimate of quantities or of the character, location of the work, or other conditions pertaining thereto.

ARTICLE 15 - SUBMITTAL OF BID

15.01 The Bid form is to be completed and submitted with the Bid security and the following data:

- A. Sworn Statement under Section 105.08, Indian River County Code, on Disclosure of Relationships.
- B. Sworn Statement under the Florida Trench Safety Act.
- C. Qualifications Questionnaire.
- D. List of Subcontractors.
- E. Certification Regarding Prohibition Against Contracting with Scrutinized Companies

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project Title and Bid Number (and, if applicable, the designated portion of the Project for which the Bid is submitted), Bid Number, the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If mail or other delivery system sends a Bid, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to Indian River County, Purchasing Division, 1800 27th Street, Vero Beach, Florida, 32960.

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid 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 prior to the date and time for the opening of Bids.

16.02 If within 48 hours after Bids are opened any Bidder files a duly signed written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 - OPENING OF BIDS

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

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 19 - AWARD OF CONTRACT

19.01 OWNER reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. OWNER further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. OWNER may also reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder. OWNER also reserves the right to waive all technicalities and informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder. The County will not reimburse any Bidder for bid preparation costs. Owner reserves the right to cancel the award of any Contract at any time before the execution of such Contract 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.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

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

19.04 In evaluating Bidders, OWNER will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.

19.05 OWNER may conduct such investigations as OWNER deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.

19.06 If the Contract is to be awarded, OWNER will award the Contract to the Bidder whose Bid is in the best interests of the Project.

19.07 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.

19.08 Any actual or prospective bidder or proposer who is aggrieved in connection with the bidding and/or selection process may protest to the OWNER's Purchasing Manager. The protest shall be submitted in writing to the Purchasing Manager within five (5) calendar days after the bidder or proposer knows or should have known of the facts giving rise to the protest.

19.09 CONTRACTOR certifies that it and its related entities 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 its related entities as defined above 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.

OWNER may terminate this Contract if CONTRACTOR 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.

OWNER may terminate this Contract if CONTRACTOR, 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.

ARTICLE 20 - CONTRACT SECURITY AND INSURANCE

20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth OWNER's requirements as to Public Construction Bond and insurance. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by the required insurance certificate(s) and Bond, unless the Bond has been waived due to the total contract being less than \$100,000.

ARTICLE 21 - SIGNING OF AGREEMENT

21.01 When OWNER gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within fifteen (15) days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER.

21.02 OWNER shall return one fully signed counterpart to Successful Bidder.

21.03 Should Bidder to whom the Contract has been awarded refuse or fail to complete the requirements of Article 21.01 above, the additional time in calendar days, required to correctly complete the documents will be deducted, in equal amount, from the Contract time. Or, the OWNER may elect to revoke the Award and the OWNER shall hold the Bid Bond for consequential damages incurred, and the Contract may be awarded as the OWNER desires.

*** * END OF SECTION * ***

SECTION 00300 – Bid Package Contents

THIS PACKAGE CONTAINS:

<u>SECTION TITLE</u>	<u>SECTION NUMBER</u>
Bid Form	00310
Bid Bond	00430
Sworn Statement on Disclosure of Relationships	00452
Sworn Statement Under the Florida Trench Safety Act	00454
Qualifications Questionnaire	00456
List of Subcontractors	00458
Certification Regarding Prohibition Against Contracting with Scrutinized Companies	00460

SUBMIT ONE (1) ORIGINAL AND ONE (1) COPY OF THIS COMPLETED PACKAGE

**** END OF SECTION ****

SECTION 00310 – Bid Form

PROJECT IDENTIFICATION:

Project Name: **Upper Floridan Aquifer South Well No. 1 Replacement (S1R)**

Bid Number: **2023030**

Project Address: **1550 9th St SW**
Vero Beach, FL 32962

Project Description: ***The project consists of replacing one (1) Upper Floridan Aquifer (UFA) production well S-1R for Indian River County Utilities Department (OWNER). The well site location is shown on the attached well location map drawing. The scope of work will include well construction permitting, drill site preparation, drilling, setting of steel and PVC casings, grouting, flow testing, wellhead assembly, acidizing (if necessary), well logging, pump testing, formation water disposal system (including temporary piping and pumps), well facility disinfection and restoration of well site, as described herein and shown on the drawings.***

THIS BID IS SUBMITTED TO: INDIAN RIVER COUNTY
1800 27th Street
VERO BEACH, FLORIDA 32960

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

2.01 Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.

3.01 In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

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

<u>Addendum Date</u>	<u>Addendum Number</u>
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and (2) reports and drawings of a Hazardous Environmental Condition, if any, which have been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions.

E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.

I. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.

J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

4.01 Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any 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 individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

[The remainder of page intentionally left blank]

BID SCHEDULE OF VALUES
INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES
REPLACEMENT OF UFA WELL S-1R

BIDDER'S NAME: _____

1. GENERAL CONDITIONS

ITEM NO.	ITEM	UNIT PRICE	UNIT	QUANTITY	TOTAL
1	BONDS AND INSURANCE/GENERAL CONDITIONS	\$	LS	1	\$
2	MOBILIZATION/DEMOBILIZATION	\$	LS	1	\$

2. SITE WORK

ITEM	ITEM	UNIT PRICE	UNIT	QUANTITY	TOTAL
3	DRILL A NOMINAL 32-INCH DIAMETER BOREHOLE FROM LAND SURFACE TO 130 FEET	\$	LF	130	\$
4	FURNISH AND INSTALL, INCLUDING GROUT, 26-INCH STEEL SURFACE CASING TO 130 FEET	\$	LF	130	\$
5	DRILL NOMINAL 15-INCH PILOT HOLE FROM 130 FEET TO 450 FEET	\$	LF	320	\$
6	GEOPHYSICAL LOGGING (COMPLETE)	\$	LS	1	\$
7	REAM 15-INCH PILOT HOLE TO NOMINAL 25-INCHES FROM 130 FEET TO 420 FEET	\$	LF	290	\$
8	FURNISH AND INSTALL 17.4-INCH DIAMETER SDR17 CERTA-LOK PVC CASING IN PLACE TO 420 FEET	\$	LF	420	\$
9	CEMENT GROUT PVC CASING IN PLACE	\$	LF	420	\$
10	DRILL NOMINAL 15-INCH DIAMETER PILOT HOLE USING REVERSE AIR METHOD FROM 420 FEET TO APPROXIMATELY 835 FEET	\$	LF	415	\$
11	SETUP TO BACK PLUG	\$	LS	1	\$
12	CEMENT BACK PLUG	\$	LF	20	\$
13	JETTING AND CLEAN OUT	\$	HR	20	\$
14	INSTALL AND REMOVE PUMP DISCHARGE APPARATUS	\$	LF	1	\$
15	PUMP DEVELOP WELL	\$	HR	80	\$
16	STEP RATE PUMPING TEST	\$	HR	8	\$
17	PERFORM VIDEO LOG	\$	LS	1	\$
18	FORMATION WATER DISPOSAL SYSTEM	\$	LS	1	\$
19	WELL ACIDIZATION SETUP	\$	LS	1	\$
20	WELL ACIDIZATION	\$	GAL	4,000	\$
21	FINAL WELLHEAD	\$	LS	1	\$
22	SITE RESTORATION	\$	LS	1	\$
23	WELL DISINFECTION AND WATER QUALITY SAMPLING	\$	LS	1	\$
24	FORCE ACCOUNT (SEE SECTION 00200-13.14)	\$ 300,000.00	LS	1	\$ 300,000.00
Total Base Bid					\$

Total Base Bid Amount in Words: _____

Note: The Bid Schedule of Values is based on an estimate. Actual quantities of items will be determined by the OWNER AND OWNER'S CONSULTANT during drilling and testing.

BID SCHEDULE OF VALUES
INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES
REPLACEMENT OF UFA WELL S-1R

BIDDER'S NAME: _____

ADDITIVE ALTERNATE EXPLORATORY BOREHOLE DRILLING AND TESTING					
ITEM	ITEM	UNIT PRICE	UNIT	QUANTITY	AMOUNT
25	NOMINAL 12" DIA. EXPLORATORY BOREHOLE DRILLING FROM 835-1500 FEET BLS	\$	FT	665	\$
26	EXTENDED GEOPHYSICAL LOGGING SUITE FROM 835 FEET BLS TO 1500 FEET BLS (XY CALIPER, DUAL IND., GAMMA, BHCS, SP, SPR, STATIC & DYNAMIC FLUID COND., TEMP and FLOW, STATIC & DYNAMIC VIDEO)	\$	LS	1	\$
27	PERFORM VIDEO LOG	\$	LS	1	\$
28	INSTALL INFLATABLE STRADDLE PACKER FROM 850-950' BLS AND PERFORM PACKER TEST OF CONFINING UNIT	\$	LS	1	\$
29	INSTALL INFLATABLE OFF BOTTOM PACKER FROM @ ~950' BLS	\$	LS	1	\$
30	48-HOUR CONSTANT RATE PUMPING TEST OF AAPZ	\$	LS	1	\$
31	48-HOUR PUMPING TEST OF UFA	\$	LS	1	\$
32	SET UP TO BACK PLUG BOREHOLE	\$	LS	1	\$
33	BACK PLUG BOREHOLE WITH NEAT CEMENT GROUT FROM APPROXIMATELY 1,250- FEET TO 1,500- FEET AND FROM 835- FEET TO 950- FEET	\$	LF	300	\$
34	GRAVEL BACKFILL AAPZ FROM APPROXIMATELY 950- FEET TO 1,250- FEET	\$	LF	365	\$
Total Additive Alternate Exp. Borehole Drilling and Testing					\$

Note: The Bid Schedule of Values is based on an estimate. Actual quantities of items will be determined by the OWNER AND OWNER'S CONSULTANT during drilling and testing.

5.01 Bidder shall complete the Work in accordance with the Contract Documents for the price(s) contained in the Bid Schedule:

- A. The Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.
- B. The Owner reserves the right to omit or add to the construction of any portion or portions of the work heretofore enumerated or shown on the plans. Furthermore, the Owner reserves the right to omit in its entirety any one or more items of the Contract without forfeiture of Contract or claims for loss of anticipated profits or any claims by the Contractor on account of such omissions.
- C. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities provided. The quantities actually required to complete the contract 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.
- D. Unit Prices have been computed in accordance with paragraph 11.03.B of the General Conditions.

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

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified, which shall be stated in the Agreement.

7.01 The following documents are attached to and made a condition of this Bid:

- A. Itemized Bid Schedule;
- B. Required Bid security in the form of _____;
- C. Sworn Statement under Section 105.08, Indian River Code, on Disclosure of Relationships;
- D. Sworn Statement Under the Florida Trench Safety Act;
- E. Qualifications Questionnaire;
- F. List of Subcontractors;
- G. Certification Regarding Prohibition Against Contracting with Scrutinized Companies

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

SUBMITTED on _____, 20__.

State Contractor License No. _____

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)
(Individual's signature)

Doing business as: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Email: _____

A Partnership

Partnership Name: _____ (SEAL)

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

Name (typed or printed): _____

Business address: _____

Phone No.: _____ FAX No.: _____

Email: _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

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

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

Name (typed or printed): _____

Title: _____

(CORPORATE SEAL)

Attest _____
(Signature of Corporate Secretary)

Business address: _____

Phone No.: _____ FAX No.: _____

Email: _____

Date of Qualification to do business is _____.

A Joint Venture

Joint Venture Name: _____

(SEAL)

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

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Email: _____

Joint Venture Name: _____

(SEAL)

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

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Email: _____

Phone and FAX Number, and Address for receipt of official communications:

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

**** END OF SECTION ****

SECTION 00430 – Bid Bond

AIA DOCUMENT A310 BID BOND

The Contractor shall use the document form entitled “AIA Document A310 Bid Bond.”

END OF SECTION

SECTION 00452 – Sworn Statement on Disclosure of Relationships

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. 2023030 for Upper Floridan Aquifer South Well No. 1 Replacement (S1R).

2. This sworn statement is submitted by: _____

(Name of entity submitting Statement)

whose business address 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 _____

Sworn to (or affirmed) and subscribed 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 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 Bid No. 2023030 for Upper Floridan Aquifer South Well No. 1 Replacement (S1R).

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 is _____.
(Print Name of Individual Signing) (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 Statute(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 _____

Sworn to (or affirmed) and subscribed 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 – Qualifications Questionnaire

NOTICE: THE OWNER RETAINS THE DISCRETION TO REJECT THE BIDS OF NON-RESPONSIBLE BIDDERS.

Documentation Submitted with Bid No. 2023030

Project Name: Upper Floridan Aquifer South Well No. 1 Replacement (S1R)

1. Bidder's Name / Address: _____

2. Bidder's Telephone & FAX Numbers: _____

3. Licensing and Corporate Status:
 - a. Is Contractor License current? _____
 - b. Bidder's Contractor License No: _____
[Attach a copy of Contractor's License to the bid]
 - c. Attach documentation from the State of Florida Division of Corporations that indicates the business entity's status is active and that lists the names and titles of all officers.

4. Number of years the firm has performed business as a Contractor in construction work of the type involved in this contract: _____

5. What is the last project OF THIS NATURE that the firm has completed?

6. Has the firm ever failed to complete work awarded to you? _____

[If your answer is "yes", then attach a separate page to this questionnaire that explains the circumstances and list the project name, Owner, and the Owner's telephone number for each project in which the firm failed to complete the work.]

7. Has the firm ever been assessed liquidated damages? _____

[If your answer is "yes", then attach a separate page to this questionnaire that explains the circumstances and list the project name, Owner, and the Owner's telephone number for each project in which liquidated damages have been assessed.]

8. Has the firm ever been charged by OSHA for violating any OSHA regulations? _____

[If your answer is "yes", then attach a separate page to this questionnaire that explains the circumstances and list the project name, Owner, and the Owner's telephone number for each project in which OSHA violations were alleged.]

9. Has the firm implemented a drug-free workplace program in compliance with Florida Statute 287.087? _____

(In the case of a tie, preference will be given to businesses with drug-free workplace programs)

10. Has the firm ever been charged with noncompliance of any public policy or rules?

[If your answer is “yes”, then attach a separate page to this questionnaire that explains the circumstances and list the project name, Owner, and the Owner’s telephone number for each project.]

11. Attach to this questionnaire, a notarized financial statement and other information that documents the firm’s financial strength and history.

12. Has the firm ever defaulted on any of its projects? _____

[If your answer is “yes”, then attach a separate page to this questionnaire that explains the circumstances and list the project name, Owner, and the Owner’s telephone number for each project in which a default occurred.]

13. Attach a separate page to this questionnaire that summarizes the firm’s current workload and that demonstrates its ability to meet the project schedule.

14. Name of person who inspected the site of the proposed work for the firm:

Name: _____ Date of Inspections: _____

15. Name of on-site Project Foreman: _____

Number of years of experience with similar projects as a Project Foreman: _____

16. Name of Project Manager: _____

Number of years of experience with similar projects as a Project Manager: _____

17. State your total bonding capacity: _____

18. State your bonding capacity per job: _____

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

[The remainder of this page was left blank intentionally]

19. Complete the following table for a minimum of three (3) SIMILAR projects:

Name of Project	Date Completed	Owner	Contact Person: Name/ Email Address/Phone	Original Contract Amount	Final Contract Amount

SECTION 00458 – List of Subcontractors

The Bidder **MUST** list below the name and address of each Subcontractor who will perform work under this Contract in excess of one-half percent of the total bid price, and shall also list the portion of the work which will be done by such Subcontractor. After the opening of Bids, additions, changes or substitutions will not be allowed unless approved by Indian River County after a request for such a change has been submitted in writing by the Contractor, which shall include reasons for such request. Subcontractors must be properly licensed and hold a valid Certificate of Competency.

Documentation Submitted with Bid 2023030 for Upper Floridan Aquifer South Well No 1. Replacement (S1R)

	Work to be Performed	Subcontractor's Name/Address	Portion of Work (%)
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			

Note: Attach additional sheets if required.

**** END OF SECTION ****

SECTION 00460 – CERTIFICATION REGARDING PROHIBITION AGAINST CONTRACTING WITH SCRUTINIZED COMPANIES

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: _____

BOARD OF COUNTY COMMISSIONERS



Month xx, 2023

via Email

Company

Attn:

Address

Address

Email address

NOTICE OF AWARD

Reference: *Indian River County Bid No. 2023030*
Project Name: *Upper Floridan Aquifer South Well No. 1 Replacement (S1R)*

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, NIGP-CPP, CPPO
Purchasing Manager

cc: Howard Richards, P.E.

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 of Award - 00510-1

SECTION 00520 Agreement (Public Works)

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[The Remainder of THIS Page WAS LEFT BLANK INTENTIONALLY]

SECTION 00520 Agreement (Public Works)

THIS AGREEMENT is 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

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

The proposed project consists of replacing one (1) Upper Floridan Aquifer (UFA) production well S-1R for Indian River County Utilities Department (OWNER). The well site location is shown on the attached well location map drawing. The scope of work will include well construction permitting, drill site preparation, drilling, setting of steel and PVC casings, grouting, flow testing, wellhead assembly, acidizing (if necessary), well logging, pump testing, formation water disposal system (including temporary piping and pumps), well facility disinfection and restoration of well site, as described in the Invitation to Bid, and shown on the drawings.

ARTICLE 2 - THE PROJECT

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

Project Name: Upper Floridan Aquifer South Well No. 1 Replacement (S1R)
Bid Number: 2023030
Project Address: 1550 9th Street SW, Vero Beach, FL 32962

ARTICLE 3 - ENGINEER

3.01 Kimley-Horn and Associates is hereinafter called the ENGINEER and will act as OWNER's representative, assume all duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 - CONTRACT TIMES

4.01 *Time of the Essence*

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

4.02 *Days to Achieve Substantial Completion, Final Completion and Final Payment*

A. The Work will be substantially completed on or before the **300th** calendar day after the date when the Contract Times commence to run as provided in paragraph 2.03 of the General

Conditions, and completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions on or before the **330th** calendar day after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

A. CONTRACTOR and OWNER recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. Liquidated damages will commence for this portion of work. The parties 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 **\$1,148.00** for each calendar day that expires after the time specified in paragraph 4.02 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER **\$1,148.00** for each calendar day that expires after the time specified in paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 - CONTRACT PRICE

5.01 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents, an amount in current funds equal to the sum of the amounts determined pursuant to paragraph 5.01.A and summarized in paragraph 5.01.B, below:

- A. For all Work, at the prices stated in CONTRACTOR's Bid, attached hereto as an exhibit.
- B. THE CONTRACT SUM subject to additions and deductions provided in the Contract:

Numerical Amount: \$ _____

Written Amount: _____

ARTICLE 6 - PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions and the Contract Documents.

6.02 *Progress Payments.*

- A. 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.

6.03 *Pay Requests.*

- A. Each request for a progress payment shall be submitted on the application provided 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.

6.04 *Paragraphs 6.02 and 6.03*

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.

6.05 *Acceptance of Final Payment as Release.*

- A. 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 Public Construction Bond.

ARTICLE 7 - INDEMNIFICATION

- 7.01 CONTRACTOR shall indemnify OWNER, ENGINEER, and others in accordance with paragraph 6.20 (*Indemnification*) of the General Conditions to the Construction Contract.

ARTICLE 8 - CONTRACTOR'S REPRESENTATIONS

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

- A. CONTRACTOR has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- B. CONTRACTOR has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

- C. CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. CONTRACTOR has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which have been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions.
- E. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, including applying the specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto
- F. CONTRACTOR does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- I. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.
- J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- K. 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 9 - CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 00520-1 to 00520-10, inclusive);

2. Notice to Proceed (page 00550-1);
3. Public Construction Bond (pages 00610-1 to 00610-3, inclusive);
4. Sample Certificate of Liability Insurance (page 00620-1);
5. Contractor's Application for Payment (pages 00622-1 to 00622-6 inclusive);
6. Certificate of Substantial Completion (pages 00630-1 to 00630-2, inclusive);
7. Contractor's Final Certification of the Work (pages 00632-1 to 00632-2, inclusive);
8. Professional Surveyor & Mapper's Certification as to Elevations and Locations of the Work (page 00634-1);
9. General Conditions (pages 00700-1 to 00700-38, inclusive);
10. Supplementary Conditions (pages 00800-1 to 00800-12, inclusive);
11. Technical Specifications and Attachments Provided with Invitation to Bid, prepared by Kimley-Horn and Associates
13. Addenda (if applicable _____);
14. Appendices to this Agreement (enumerated as follows):
 - Appendix A – Permits
15. CONTRACTOR'S BID (pages 00310-1 to 00310-6, inclusive);
16. Bid Bond (page 00430-1);
17. Sworn Statement Under Section 105.08, Indian River County Code, on Disclosure of Relationships (pages 00452-1 to 00452-2, inclusive);
18. Sworn Statement Under the Florida Trench Safety Act (pages 00454-1 to 00454-2, inclusive);
19. Qualifications Questionnaire (page 00456-1 to 00456-2, inclusive);
20. List of Subcontractors (page 00458-1);
21. Certification Regarding Prohibition Against Contracting with Scrutinized Companies (page 00460-1);
22. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a) Written Amendments;
 - b) Work Change Directives;

- c) Change Order(s);

ARTICLE 10 - MISCELLANEOUS

10.01 *Terms*

- A. Terms used in this Agreement will have the meanings indicated in the General Conditions.

10.02 *Assignment of Contract*

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

10.03 *Successors and Assigns*

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

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Venue*

- A. This Contract 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 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.

10.06 *Public Records Compliance*

- A. 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.

B. 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

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

[The remainder of this page was left blank intentionally]

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in duplicate. One counterpart each has been delivered to OWNER and CONTRACTOR. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or on their behalf.

This Agreement will be effective on _____ day _____ of 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: _____
Joseph H. Earman, Chairman

By: _____
(Contractor)

By: _____
John A. Titkanich, Jr., 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: _____
Deputy Clerk

Agent for service of process: _____

(SEAL)

Designated Representative:
Howard Richards, P.E.
Utilities Capital Projects Manager
1801 27th Street
Vero Beach, Florida 32960
(772) 226-1821
hrichards@ircgov.com

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

Phone: _____
Facsimile: _____

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

**** END OF SECTION ****

SECTION 00550 – Notice to Proceed

Dated

TO:

(BIDDER)

ADDRESS:

Contract For:

Error! Reference source not found.
(Insert name of Contract as it appears in the Contract Documents)

IRC Bid No. **2023030**

You are notified that the Contract Times under the above contract will commence to run on _____. By that date, you are to start performing your obligations under the Contract Documents. The contract has allocated **300** calendar days for Substantial Completion of this project and **330** calendar days for Final Completion. In accordance with Article 4 of the Agreement the date of Substantial Completion is _____ and the date of readiness for final payment is _____.

CONTRACTOR shall not commence work under this Contract until he has obtained all insurance required under Article 5 and such insurance has been delivered to the OWNER and approved by the OWNER, nor shall the CONTRACTOR allow any Subcontractor to commence work on his subcontract until all similar insurance required of the Subcontractor has been so obtained and approved. All such insurance shall remain in effect until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing *defective* Work in accordance with Article 13.

Also, before you may start any Work at the Site, you must:
(add other requirements, if applicable)

INDIAN RIVER COUNTY
(OWNER)

By: _____
(AUTHORIZED SIGNATURE)

(TITLE)

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 _____, _____, between Principal and Owner for construction of _____, 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.

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.

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 _____,

(Name of Principal)

By _____
(As Attorney in Fact)

(Name of Surety)

SECTION 620 – Sample Certificate of Liability Insurance

CERTIFICATE OF LIABILITY INSURANCE	
PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.
	COMPANIES AFFORDING COVERAGE
INSURED	COMPANY A -
	COMPANY B -
	COMPANY C -
	COMPANY D -
	COMPANY E -

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED NOTWITHSTANDING ANY REQUIREMENT TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN THE INSURANCE ACCORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.							
INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/D/YY)	LIMITS		
A	GENERAL LIABILITY <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE - <input type="checkbox"/> OCCUR <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				EACH OCCURRENCE	\$	1,000,000
					FIRE DAMAGE (Any One Fire)	\$	50,000
					MED. EXP. (Any One Person)	\$	5,000
					PERSONAL & ADV INJURY	\$	1,000,000
					GENERAL AGGREGATE	\$	1,000,000
					PRODUCTS – COMP/OP AGG.	\$	1,000,000
						\$	
A	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS <input type="checkbox"/> <input type="checkbox"/>				COMBINED SINGLE LIMIT (Ea. Occurrence)	\$	1,000,000
					BODILY INJURY (Per Person)	\$	
					BODILY INJURY (Per Accident)	\$	
					PROPERTY DAMAGE	\$	
	GARAGE LIABILITY <input type="checkbox"/> <input type="checkbox"/>				AUTO ONLY – EA ACCIDENT	\$	
					OTHER THAN	EA ACC	\$
					AUTO ONLY	AGG	\$
A	EXCESS LIABILITY <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE <input type="checkbox"/> RETENTION \$				EACH OCCURRENCE		
					AGGREGATE	\$	
						\$	
						\$	
A	WORKER'S COMPENSATION AND EMPLOYER'S LIABILITY THE PROPRIETOR/PARTNERS/ EXECUTIVE OFFICERS ARE: <input type="checkbox"/> INCL <input type="checkbox"/> EXCL				<input type="checkbox"/> WC STATUTORY LIMITS		
					E.L. EACH ACCIDENT	\$	100,000
					E.L. DISEASE – EA	\$	500,000
					E.L. DISEASE-POLICY LIMIT	\$	100,000
	OTHER: BUILDER'S RISK				FULL REPLACEMENT COST OF THE WORK		
DESCRIPTION OF OPERATIONS/LOCATIONS VEHICLES/SPECIAL ITEMS							
CERTIFICATE HOLDER		ADDITIONAL INSURED; INSURER LETTER:		CANCELLATION			
ADDITIONAL INSURED: INDIAN RIVER COUNTY 1801 27 TH STREET, VERO BEACH, FL 32960-3388				SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT. FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.			
				AUTHORIZED REPRESENTATIVE			

SECTION 00622 – Contractor’s Application for Payment

Application for Payment No. _____
For Work Accomplished through the period of _____ through _____

To: Indian River County (OWNER)
From: _____ (CONTRACTOR)

Bid No.: 2023030

1) Attach detailed schedule and copies of all paid invoices.

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

CONTRACTOR'S CERTIFICATION:

UNDER PENALTY OF PERJURY, the undersigned CONTRACTOR certifies that (1) the labor and materials listed on this request for payment have been used in the construction of this Work; (2) payment received from the last pay request has been used to make payments to all subcontractors, laborers, materialmen and suppliers except as listed on Attachment A, below; (3) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to OWNER indemnifying OWNER against any such Lien, security interest or encumbrance); (4) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective; and (5) If this Periodic Estimate is for a Final Payment to project or improvement, I further certify that all persons doing work upon or furnishing materials or supplies for this project or improvement under this foregoing contract have been paid in full, and that all taxes imposed by Chapter 212 Florida Statutes, (Sales and Use Tax Act, as Amended) have been paid and discharged, and that I have no claims against the OWNER.

Attached to or submitted with this form are:

1. Signed release of lien forms (partial or final as applicable) from all subcontractors, laborers, materialmen and suppliers except as listed on Attachment A, together with an explanation as to why any release of lien form is not included;

2. Updated Construction Schedule per [Specification Section 01310](#).

Dated _____

By: _____
(CONTRACTOR – must be signed by
an Officer of the Corporation)

Print Name and Title

STATE OF _____

COUNTY OF _____

Sworn to (or affirmed) and subscribed 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.

Please remit payment to:

Contractor's Name: _____

Address: _____

[The remainder of this page was left blank intentionally]

SURETY'S CONSENT OF PAYMENT TO CONTRACTOR:

The Surety, _____

_____, a corporation, in accordance with Public Construction Bond Number _____, hereby consents to payment by the OWNER to the CONTRACTOR, for the amounts specified in this CONTRACTOR'S APPLICATION FOR PAYMENT.

TO BE EXECUTED BY CORPORATE SURETY:

Attest:

Secretary

Corporate Surety

Business Address

BY: _____

Print Name: _____

Title: _____

(Affix Corporate SEAL)

STATE OF FLORIDA
COUNTY OF INDIAN RIVER

Before me, a Notary Public, duly commissioned, qualified, and acting, personally appeared _____, to me well known or who produced _____ as identification, who being by me first duly sworn upon oath, says that he/she is the _____ for and that he/she has been authorized by _____ it to approve payment by the OWNER to the CONTRACTOR of the foregoing Contractor's Application for Payment. Subscribed and sworn to before me this ____ day of _____, 20_____.

Notary Public, State of _____

My Commission Expires: _____

[The remainder of this page was left blank intentionally]

CERTIFICATION OF PROJECT MANAGER:

I certify that I have reviewed the above and foregoing Periodic Estimate for Partial Payment; that to the best of my knowledge and belief it appears to be a reasonably accurate statement of the work performed and/or material supplied by the Contractor. I am not certifying as to whether or not the Contractor has paid all subcontractors, laborers, materialmen and suppliers because I am not in a position to accurately determine that issue.

Dated _____

SIGNATURE

CERTIFICATION OF INSPECTOR:

I have checked the estimate against the Contractor's Schedule of Amounts for Contract Payments and the notes and reports of my inspections of the project. To the best of my knowledge, this statement of work performed and/or materials supplied appears to be reasonably accurate, that the Contractor appears to be observing the requirements of the Contract with respect to construction, and that the Contractor should be paid the amount requested above, unless otherwise noted by me. I am not certifying as to whether or not the Contractor has paid all subcontractors, laborers, materialmen and suppliers because I am not in a position to accurately determine that issue.

Dated _____

SIGNATURE

[The Remainder of This Page Was Left Blank Intentionally]

ATTACHMENT A

- 1. List of all subcontractors, laborers, materialmen and suppliers who have not been paid from the payment received from the last Pay Request and the reason why they were not paid (attach additional pages as necessary):**

- 2. List of all subcontractors, laborers, materialmen and suppliers for which a signed release of lien form (partial or final as applicable) is not included with this Pay Request, together with an explanation as to why the release of lien form is not included (attach additional pages as necessary):**

PROJECT NAME: Upper Floridan Aquifer South Well No. 1 Replacement (S1R)

Bid 2023030

Payment Application No. _____

Item No.	Description	Unit	Quantity	WORK COMPLETED																
				SCHEDULED VALUE		PREVIOUS APPLICATION		THIS PERIOD		TOTAL COMPLETED		%	MATERIALS STORED	BALANCE TO FINISH						
				Unit Price	Amount	QUANTITY	TOTAL	QUANTITY	TOTAL	QUANTITY	TOTAL			QUANTITY	TOTAL					
SUBTOTAL				SUBTOTAL	0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00	
	FORCE ACCOUNT	1	LS																	
GRAND TOTAL				TOTAL	0.00															

AMOUNT COMPLETED TO DATE	\$0.00
MATERIALS STORED TO DATE	\$0.00
SUB-TOTAL MATERIALS STORED AND COMPLETED TO DATE	\$0.00
RETAINAGE AT 5%	\$0.00
TOTAL COMPLETED AND STORED LESS RETAINAGE	\$0.00
LESS PREVIOUS PAYMENT	\$0.00
AMOUNT DUE CONTRACTOR	\$0.00

SECTION 00630 – Certificate of Substantial Completion

Date of Issuance: _____, 20____

OWNER: Indian River County
CONTRACTOR: _____
CONTRACT FOR: Upper Floridan Aquifer South Well NO. 1 Replacement (S1R)
Project No.: 2023030

Project Description: **The project consists of replacing one (1) Upper Floridan Aquifer (UFA) production well S-1R for Indian River County Utilities Department (OWNER). The well site location is shown on the attached well location map drawing. The scope of work will include well construction permitting, drill site preparation, drilling, setting of steel and PVC casings, grouting, flow testing, wellhead assembly, acidizing (if necessary), well logging, pump testing, formation water disposal system (including temporary piping and pumps), well facility disinfection and restoration of well site, as described herein and shown on the drawings.**

OWNER's Bid No. **Error! Reference source not found.**

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

To: _____
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 30 calendar days of the above 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:

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: _____ (Date).

ENGINEER: _____

By: _____
(Authorized Signature)

CONTRACTOR accepts this Certificate of Substantial Completion on _____ (date).

CONTRACTOR: _____

By: _____
(Authorized Signature)

OWNER accepts this Certificate of Substantial Completion on _____ (date).

OWNER: INDIAN RIVER COUNTY _____

By: _____
(Authorized Signature)

*** * END OF SECTION * ***

**SECTION 00632 - CONTRACTOR'S FINAL CERTIFICATION OF
THE WORK**
(TO ACCOMPANY CONTRACTOR'S FINAL APPLICATION FOR PAYMENT)

PROJECT NAME: Upper Floridan Aquifer South Well No. 1 Replacement (S1R)
PROJECT NO: 2023030

STATE OF _____
COUNTY OF _____

Personally before me the undersigned officer, authorized by the laws of said state to administer oaths, comes _____, who on oath says: That he is the CONTRACTOR with whom Indian River County, Florida, a political subdivision of said state, did on the _____ day of _____, 20____, enter into a contract for the performance of certain work, more particularly described as follows:

The project consists of replacing one (1) Upper Floridan Aquifer (UFA) production well S-1R for Indian River County Utilities Department (OWNER). The well site location is shown on the attached well location map drawing. The scope of work will include well construction permitting, drill site preparation, drilling, setting of steel and PVC casings, grouting, flow testing, wellhead assembly, acidizing (if necessary), well logging, pump testing, formation water disposal system (including temporary piping and pumps), well facility disinfection and restoration of well site, as described herein and shown on the drawings.

UNDER PENALTY OF PERJURY, affiant further says that said construction has been completed and the Contract therefore fully performed and final payment is now due and that all liens of all firms and individuals contracting directly with or directly employed by such CONTRACTOR have been paid in full EXCEPT:

Name	Description/Amount
_____	_____
_____	_____

who have not been paid and who are due the amount set forth.

Affiant further says that:

1. CONTRACTOR has reviewed the Contract Documents.
2. CONTRACTOR has reviewed the Work for compliance with the Contract Documents.
3. CONTRACTOR has completed the Work in accordance with the Contract Documents.

4. All equipment and systems have been tested in the presence of the ENGINEER or his representative and are fully operational with no defects or deficiencies except as listed below.

5. The Work is complete and ready for final acceptance by the OWNER.
6. CONTRACTOR hereby certifies that it has no claims against the OWNER.

(Corporate Seal)

(Contractor)

By: _____

STATE OF _____

COUNTY OF _____

Sworn to (or affirmed) and subscribed 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 00634 - PROFESSIONAL SURVEYOR AND MAPPER'S CERTIFICATION AS TO ELEVATIONS AND LOCATIONS OF THE WORK

(TO BE COMPLETED BY A FLORIDA PROFESSIONAL SURVEYOR AND MAPPER RETAINED BY THE CONTRACTOR AND TO ACCOMPANY CONTRACTOR'S FINAL APPLICATION FOR PAYMENT)

I CERTIFY that I am a Florida Professional Surveyor and Mapper retained by:

(Insert name of CONTRACTOR)

Who is the CONTRACTOR for the following Project:

PROJECT NAME: Upper Floridan Aquifer South Well No. 1 Replacement (S1R)

PROJECT # ERROR! REFERENCE SOURCE NOT FOUND.

I FURTHER CERTIFY that I have personally performed the survey work for the preparation of Record Drawings for the CONTRACTOR for this project or that such work was performed under my direct control and supervision.

I FURTHER CERTIFY that all constructed elevations and locations of the Work are in conformance with the Contract Documents, except for discrepancies listed below.

[Attach additional sheets as necessary]

(SURVEYOR'S SEAL)

CERTIFIED BY: _____

Printed Name: _____

Florida Professional Surveyor and Mapper Registration Number: _____

Date Signed and Sealed by Professional Surveyor and Mapper: _____

Company Name: _____

Company Address: _____

Telephone Number: _____

STANDARD
GENERAL CONDITIONS
OF THE
CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the 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. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

7. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

8. *Bonds*--Performance and payment bonds and other instruments of security.

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*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and ENGINEER's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR 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 Substantial Completion; and (ii) 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. *ENGINEER's Consultant*--An individual or entity having a contract with ENGINEER to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

~~21. *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.~~

22. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

23. *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.

24. *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.

25. *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.

26. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

27. *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.

28. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

29. *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.

30. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.

31. *Partial Utilization*--Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

32. *PCBs*--Polychlorinated biphenyls.

33. *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.

34. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the Contract Documents.

35. *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.

36. *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.

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. *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.

40. *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.

41. *Specifications*--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

42. *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.

43. *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.

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

45. *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.

46. *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.

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

48. *Work*--The entire completed 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.

49. *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.

50. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

1.02 *Terminology*

A. *Intent of Certain Terms or Adjectives*

1. Whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or 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 action or determination will be solely to evaluate, in general, the completed 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 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 9.10 or any other provision of the Contract Documents.

B. *Day*

1. The word "day" shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

C. *Defective*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection,

reference standard, test, or approval referred to in the Contract Documents, or 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).

D. *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.

E. 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*

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

2.02 *Copies of Documents*

A. OWNER shall furnish to CONTRACTOR up to ten copies of the Contract Documents. 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 ninetieth 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. *CONTRACTOR's Review of Contract Documents:* 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; however, 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. *Preliminary Schedules:* Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for its 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 Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; 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.

~~C. *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.~~

2.06 *Preconstruction Conference*

~~A. Within 20 days after the Contract Times start to run, but before any Work at the Site is started, a conference attended by 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.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.~~

2.07 *Initial Acceptance of Schedules*

A. Unless otherwise provided in the Contract Documents, at least ten 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.B. CONTRACTOR shall have an additional ten 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 any specified Milestones and 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 Shop Drawing and Sample 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 called for by one is as binding as if called for 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, nor shall any such provision or instruction be effective to assign to OWNER, ENGINEER, or any of ENGINEER's Consultants, agents, or employees 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. 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 report it to ENGINEER in writing at once. 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; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity, or discrepancy 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 in one or more of the following ways: (i) a Written Amendment; (ii) a Change Order; or (iii) 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: ~~(i) a Field Order;~~ (ii) ENGINEER's approval of a Shop Drawing or Sample; or (iii) 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 any of the Work under a direct or indirect contract with OWNER: (i) shall not 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 Consultant, including electronic media editions; and (ii) shall not 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 adaption by ENGINEER. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL 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, 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, ENGINEER, or any of ENGINEER's Consultants 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 9.08 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 in respect of 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 within the time and 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, ENGINEER, and ENGINEER's Consultants 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, ENGINEER or any of ENGINEER's Consultants 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); 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, ENGINEER, ENGINEER's Consultants and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.E 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, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, other 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.F 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 are not intended to 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 CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, 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 such 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 within 20 days thereafter substitute 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. ~~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: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) 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 so required by this paragraph 5.04 to be purchased and maintained shall:

1. with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER's Consultants, 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, and other 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 6.07, 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 thirty 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 CON-

TRACTOR 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 (and 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, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an 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, 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, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, 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 or Written Amendment. 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, ENGINEER, ENGINEER's Consultants, 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, and other 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, and other 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, ENGINEER, ENGINEER's Consultants, 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, and other 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, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other 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 peril 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, ENGINEER, or ENGINEER's Consultants and the officers, directors, partners, employees, agents, and other 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 or Written Amendment.~~

~~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 2.05.C. 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, but 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. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent thereto 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, lay out, and construct the Work 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, and CONTRACTOR will not permit overtime work or the performance of Work on 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 General Requirements, 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 warranties and guarantees specifically called for 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. 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 (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

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: (i) it

is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;

b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, 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 procedure 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 first 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 shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice CONTRACTOR's achievement of Substantial Completion on time, 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 work on the Project) to adapt the design to the proposed substitute item and 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. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also 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, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and 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 procedure for review by ENGINEER will be similar to that provided in subparagraph 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 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 time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of

ENGINEER and ENGINEER's Consultants for evaluating each such 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 or Written Amendment signed. 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 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 shall it 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, ENGINEER, ENGINEER's Consultants, 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, and other 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. To the fullest extent permitted by Laws and Regulations,

CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees or agents, and other consultants 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. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto, such as plant investment fees.

6.09 *Laws and Regulations*

A. CONTRACTOR shall give all notices and 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 may 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.
- B. OWNER qualifies for state and local sales tax exemption in the purchase of all material and equipment.

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, ENGINEER, ENGINEER's Consultant, and the officers, directors, partners, employees, agents, and other consultants 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 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, Written Amendments, 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. 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 ENGINEER's Consultant, 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). 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 to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The 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.E.

B. CONTRACTOR shall also submit Samples to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, 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.

D. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

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

b. 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 means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

d. CONTRACTOR 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 indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submittal, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

E. ENGINEER's Review

1. ENGINEER will timely review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample 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 of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of each submittal as required by paragraph 6.17.D.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 approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

F. 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, ENGINEER, and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and will not be defective. 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.

B. 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 acceptance by OWNER or any failure to do so;
6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;
7. any inspection, test, or approval by others; or
8. 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, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other 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:

1. 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; and

2. is caused in whole or in part 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, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemni-

fied party by Laws and Regulations regardless of the negligence of any such individual or entity.

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 Consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them 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.

ARTICLE 7 - OTHER WORK

7.01 *Related Work at Site*

A. OWNER may perform other work related to the Project at the Site by OWNER's employees, or let 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 and each utility owner (and OWNER, if OWNER is performing the other work with OWNER's employees) proper and safe access to the Site and 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. Unless otherwise provided in the Contract Documents, 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.

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 Promptly When Due*

A. OWNER shall make payments to CONTRACTOR promptly 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 9.10, and 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 responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the Supplementary Conditions. 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 *Clarifications and Interpretations*

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. 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, that should be allowed as a result of a written clarification or interpretation, a Claim may be made therefor as provided in paragraph 10.05.

9.05 *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 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, as a result of a Field Order, a Claim may be made therefor as provided in paragraph 10.05.~~

9.06 *Rejecting Defective Work*

A. ENGINEER will have authority to disapprove or 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.

9.07 *Shop Drawings, Change Orders and Payments*

A. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

9.08 *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.

9.09 *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. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred

initially to ENGINEER in writing, in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, 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. The rendering of a decision by ENGINEER pursuant to this paragraph 9.09 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.07) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

9.10 *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 9.10 shall also apply to ENGINEER's Consultants, Resident Project Representative, and assistants.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Agreement 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 Written Amendment, 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 (or Written Amendments) 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 and Disputes

A. *Notice:* Written notice stating the general nature of each Claim, dispute, or other matter 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. Notice of the amount or extent of the Claim, dispute, or other matter 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, dispute, or other matter). 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).

B. *ENGINEER's Decision:* ENGINEER will render a formal decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. ENGINEER's written decision on such Claim, dispute, or other matter will be final and binding upon OWNER and CONTRACTOR unless:

1. an appeal from ENGINEER's decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. if no such dispute resolution procedures have been set forth in Article 16, a written notice of intention to appeal from ENGINEER's written decision is delivered by OWNER or CONTRACTOR to the other and to ENGINEER within 30 days after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction within 60 days after the date of such decision or within 60 days after Substantial Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), to exercise such rights or remedies as the appealing party may have with respect to such Claim, dispute, or other matter in accordance with applicable Laws and Regulations.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. No Claim for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; CASH 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 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 tempo-

rary 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, expressage, and similar petty cash items in connection with the Work.

i. When the Cost of the Work is used to determine the value of a Change Order or of a

Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim.

j. When all the Work is performed on the basis of cost-plus, 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, 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 Cash 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 as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. CONTRACTOR's costs for unloading and handling on the Site, labor, installation costs, overhead, profit, and other expenses contemplated for the 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.

B. 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. 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 9.08.

B. 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.

C. 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. if CONTRACTOR believes that CONTRACTOR is entitled to an increase in Contract Price as a result of having incurred additional expense or OWNER believes that OWNER is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

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

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order or by a Written Amendment. 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 (or Milestones) may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Times (or Milestones) shall be based on written notice submitted by the party making the claim to the ENGI-

NEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. Any adjustment of the Contract Times (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones) will be determined in accordance with the provisions of this Article 12.

12.03 *Delays Beyond CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) 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 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.

12.04 *Delays Within CONTRACTOR's Control*

A. The Contract Times (or Milestones) will not be extended due to 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.

12.05 *Delays Beyond OWNER's and CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

12.06 *Delay Damages*

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. delays caused by or within the control of CONTRACTOR; or
2. delays beyond the control of both OWNER and CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, or acts or neglect by utility owners or other contractors

performing other work as contemplated by Article 7.

B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inactions of OWNER or anyone for whom OWNER is responsible.

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, ENGINEER's Consultants, 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.B; 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. If it is found that such 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. If, however, such 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 Milestones), 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. 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).

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 Laws or Regulations or 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: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) 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. If CONTRACTOR does not promptly comply with the terms of such 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, and 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.~~

~~B. 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 or by Written Amendment.~~

C. 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.

D. 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 and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In connection with such corrective and 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 (or Milestones) 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 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 9.08, 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: (i) 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 (ii) 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 to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for CONTRACTOR's failure to comply with Laws and Regulations applicable to CONTRACTOR's performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or 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 referred to 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 Written Amendment or 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 must 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. Promptly thereafter, 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 therefore. ~~If ENGINEER considers the Work substantially complete, ENGINEER will prepare and 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. 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.~~

B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Use by OWNER at OWNER's option of 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, may be accomplished prior to Substantial Com-

pletion of all the Work subject to the following conditions.

1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If 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. 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. 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.

2. No 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: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) 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. *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 will become due and, when due, 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 and recommendation of ENGINEER, and without terminating the Agreement, 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 writing which are 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 allowed 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 the surety, if any) seven days written notice, terminate the services of CONTRACTOR, 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), 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 finish the Work as OWNER may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. 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.

C. 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.

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, elect to terminate the Contract. In such case, CONTRACTOR shall be paid (without duplication of any items):

1. for 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. for 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. for 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. for reasonable expenses directly attributable to termination.

B. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other eco-

conomic 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, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, ~~or 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. 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. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

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 delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

if delivered at or sent by registered 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, and 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 Agreement.

17.05 *Controlling Law*

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

**SECTION 00800 - SUPPLEMENTARY CONDITION TO THE
GENERAL CONDITIONS**

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+++ END OF THIS SUPPLEMENTARY CONDITIONS INDEX +++

SECTION 00800 - SUPPLEMENTARY CONDITIONS TO THE GENERAL CONDITIONS

SC-1.00 Introduction

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. 1910-8, 1996 Edition) and other provisions of the Contract Documents as indicated below. All provisions, which are not so amended or supplemented, remain in full force and effect.

The terms used in these Supplementary Conditions will have the meanings indicated in the General Conditions.

SC-1.01 Defined Terms

SC-1.01.A.20 *Add the following language to the end of GC 1.01.A.20.*

ENGINEERS's Consultant:	Kimley-Horn and Associates, Inc. 1920 Wekiva Way, Suite 200 West Palm Beach, FL 33411
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SC-1.01.A.21. Delete paragraph GC 1.01.A.21 in its entirety.

SC-1.02 Terminology

SC-1.02.D.1, 2, and 3 *Delete paragraphs GC-1.02.D.1, 2, and 3 in their entirety and insert the following paragraphs in their place:*

D. *Furnish, Install, Perform, Provide*

1. The word "furnish" shall mean to supply and deliver 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" shall mean to put into use or place in final position services, materials, or equipment complete and ready for intended use.
3. The words "perform" or "provide" shall mean to furnish and install services, materials, or equipment complete and ready for intended use.

SC-2.05 Before Starting Construction

SC-2.05.C. *Delete paragraph GC 2.05.C in its entirety and insert the following paragraph in its place:*

- C. Evidence of Insurance: CONTRACTOR shall not commence work under this Contract until he has obtained all insurance required under Article 5 and such insurance has been delivered to the OWNER and approved by the OWNER, nor shall the CONTRACTOR allow any Subcontractor to commence work on his subcontract until all similar insurance required of the Subcontractor has been so obtained and approved. All such insurance shall remain in effect until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing *defective* Work in accordance with Article 13.

SC-2.06 Preconstruction Conference

SC-2.06 *Delete paragraph GC-2.06.A in its entirety and insert the following paragraph in its place:*

- A. Immediately after awarding the contract, but before the CONTRACTOR begins work,
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the Project Manager will call a preconstruction conference at a place the ENGINEER designates to establish an understanding among the parties as to the work and to discuss schedules referred to in paragraph 2.05.B, procedures for handling Shop Drawings and other submittals, and maintaining required records. Utility companies and others as appropriate will be requested to attend to discuss and coordinate work.

- B. Per the FDOT Standard Specifications for Road and Bridge Construction, the Contractor will certify to the Engineer the following:
1. A listing of on-site clerical staff, supervisory personnel and their pro-rated time assigned to the contract,
 2. Actual Rate for items listed in Table 4-3.2.1 (see below),
 3. Existence of employee benefit plan for Holiday, Sick and Vacation benefits and a Retirement Plan, and,
 4. Payment of Per Diem is a company practice for instances when compensation for Per Diem is requested.

Such certification must be made by an officer or director of the Contractor with authority to bind the Contractor. Timely certification is a condition precedent to any right of the Contractor to recover compensations for such costs, and failure to timely submit the certification will constitute a full, complete, absolute and irrevocable waiver by the Contractor of any right to recover such costs. Any subsequent changes shall be certified to the Engineer as part of the cost proposal or seven calendar days in advance of performing such extra work.

FDOT Table 4-3.2.1	
Item	Rate
FICA	Rate established by Law
FUTA/SUTA	Rate established by Law
Medical Insurance	Actual
Holidays, Sick & Vacation Benefits	Actual
Retirement Benefits	Actual
Workers Compensation	Rates based on the National Council on Compensation Insurance basic rates tables adjusted by Contractor's actual experience modification factor in effect at the time of the additional work or unforeseen work
Per Diem	Actual but not to exceed State of Florida's rate
Insurance*	Actual
*Compensation for Insurance is limited solely to General Liability Coverage and does not include any other insurance coverage (such as, but not limited to, Umbrella Coverage, Automobile Insurance, etc.).	

SC-3.06 Coordination of Plans, Specifications, and Special Provisions

SC-3.06 Add the following new paragraphs immediately after paragraph GC-3.05:

SC-3.06 Coordination of Plans, Specifications, and Special Provisions

- A. In case of discrepancy, the governing order of the documents shall be as follows:
1. Written Interpretations
 2. Addenda
 3. Specifications
 4. Supplementary Conditions to the General Conditions
 5. General Conditions
 6. Approved Shop Drawings

- 7. Drawings
- 8. Referenced Standards.
- B. Written/computed dimensions shall govern over scaled dimensions.

SC-4.02 Subsurface and Physical Conditions

SC-4.02 *Add the following new paragraphs immediately after paragraph GC-4.02.B:*

- C. In the preparation of Drawings and Specifications, ENGINEER or ENGINEER's Consultants relied upon the following reports of explorations and tests of subsurface conditions at the Site:
N/A
- D. Reports and drawings itemized in SC-4.02.C are included with the Bidding Documents in Appendix D.

SC-5.01 Performance, Payment and Other Bonds

SC-5.01.A. *Delete paragraph GC-5.01.A in its entirety and insert the following paragraphs in its place:*

Within fifteen (15) days of receipt of the Contract Documents for execution, the CONTRACTOR shall furnish a Public Construction Bond in an amount equal to 100% of the Contract Price.

- 1. In lieu of the Public Construction Bond, the CONTRACTOR may furnish an alternative form of security in the form of cash, money order, certified check, cashier's check, irrevocable letter of credit or a security as listed in Part II of F.S. Chapter 625. Any such alternative form of security shall be for the same purpose, and be for the same amount and subject to the same conditions as those applicable to the bond otherwise required. The determination of the value of an alternative form of security shall be made by the OWNER.
- 2. Such Bond shall continue in effect for one (1) year after acceptance of the Work by the OWNER.
- 3. The OWNER shall record the Public Construction Bond with the Public Record Section of the Indian River County Courthouse located at 2000 16th Avenue, Vero Beach, Florida 32960.

SC-5.03 Certificates of Insurance

SC-5.03 *Delete the second sentence of paragraph GC-5.03 in its entirety.*

SC-5.04 CONTRACTOR's Liability Insurance

SC-5.04 *Add the following new paragraphs immediately after paragraph GC-5.04.B:*

- C. The limits of liability for the insurance required by paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:
 - 1. Worker's Compensation: To meet statutory limits in compliance with the Worker's Compensation Law of Florida. This policy must include Employer Liability with a limit \$100,000 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 and ENGINEER on account of injury sustained by an employee(s) of the CONTRACTOR.

2. Commercial General Liability: Coverage shall provide minimum limits of liability of \$1,000,000 per occurrence Combined Single Limit for Bodily Injury and Property Damage. This shall include coverage for:
 - a. Premises/Operations
 - b. Products/Completed Operations
 - c. Contractual Liability
 - d. Independent Contractors
 - e. Explosion
 - f. Collapse
 - g. Underground.
 3. Business Auto Liability: Coverage shall provide minimum limits of liability of \$1,000,000 per occurrence Combined Single Limit for Bodily Injury and Property Damage. This shall include coverage for:
 - a. Owned Autos, and other vehicles
 - b. Hired Autos, and other vehicles
 - c. Non-Owned Autos, and other vehicles.
 4. Special Requirements:
 - a. Ten (10) days prior to the commencement of any work under this Contract, certificates of insurance and endorsement forms in the exact wording and format as presented in these Contract Documents will be provided to the OWNER's Risk Manager for review and approval.
 - b. "Indian River County Florida" will be named as "Additional Insured" on both the General Liability and Auto Liability.
 - c. The OWNER will be given thirty (30) days notice prior to cancellation or modification of any stipulated insurance. Such notification will be in writing by registered mail, return receipt requested and addressed to the OWNER's Risk Manager.
 - d. An appropriate "Indemnification" clause shall be made a provision of the Contract (see paragraph 6.20 of the General Conditions).
 - e. It is the responsibility of the CONTRACTOR to insure that all subcontractors comply with all insurance requirements.
 - f. It should be remembered that these are minimum requirements, which are subject to modification in response to high hazard operation.
 - g. Insured must be authorized to do business and have an agent for service of process in Florida and have Best's Rating of A-VII or better.
 - h. All insurance requirements shall be at the Contractor's sole cost and expense, including any deductible or self-insured retention, without contribution from Indian River County or its insurance carriers.
- D. Additional Insureds:
1. In addition to "Indian River County, Florida," the following individuals or entities shall be listed as "additional insureds" on the CONTRACTOR's general liability, auto liability, and Contractor's Builders' Risk "All Risk" insurance policies:
 - a. Kimley-Horn and Associates, Inc. as Engineer
- E. Contractor shall be responsible for any deductible or self-insured retention.

SC-5.07 Waiver of Rights

SC-5.07 Delete GC-5.07 (paragraphs A, B, and C) in its entirety.

SC-5.08 Receipt and Application of Insurance Proceeds

SC-5.08 *Delete GC-5.08 (paragraphs A and B) in its entirety.*

SC-5.09 Acceptance of Bonds and Insurance; Option to Replace

SC-5.09 *Delete GC-5.09 (paragraph A) in its entirety.*

SC-6.02 Labor; Working Hours

SC-6.02.B. *Add the following paragraphs immediately after paragraph GC-6.02.B:*

1. Regular working hours are defined as Monday through Friday, excluding Indian River County Holidays, from 7 a.m. to 5 p.m.
2. Indian River County Holidays are: New Year's Day, Martin Luther King, Jr. Day, Good Friday, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Friday after Thanksgiving, Christmas Eve and Christmas Day. Working on these days will not be permitted without prior written permission and approval from the Construction Coordination Manager.
3. The CONTRACTOR shall receive no additional compensation for overtime work, i.e., work in excess of eight hours in any one calendar day or 40 hours in any one calendar week, even though such overtime work may be required under emergency conditions and may be ordered by the ENGINEER in writing.
4. All costs of inspection and testing performed during overtime work by the CONTRACTOR, which is allowed solely for the convenience of the CONTRACTOR, shall be borne by the CONTRACTOR, and a credit given to the OWNER to deduct the costs of all such inspection and testing from any payments otherwise due the CONTRACTOR.
5. All costs of OWNER's employees and costs of ENGINEER's Consultant resulting from overtime work by the CONTRACTOR, which is allowed solely for the convenience of the CONTRACTOR, shall be borne by the CONTRACTOR, and a credit given to OWNER to deduct all such costs from any payments otherwise due the CONTRACTOR.
6. No work shall commence before 7 a.m. or continue after 5 p.m. except in case of emergency upon specific permission of the ENGINEER.

SC-6.06 Concerning Subcontractors, Suppliers, and Others

SC-6.06.C. *Add the following sentence at the end of paragraph GC-6.06.C:*

OWNER or ENGINEER may furnish to any such Subcontractor, Supplier, or other individual or entity, to the extent practicable, information about amounts paid to CONTRACTOR on account of Work performed for CONTRACTOR by a particular Subcontractor, Supplier, or other individual or entity.

SC-6.08 Permits

SC-6.08 *Add the following paragraphs immediately after paragraph GC-6.08.A:*

1. The OWNER has obtained the following permits (copies of these permits are contained in Appendix A):
 - A. St. Johns River Water Management District – Permit No. 10524-10 (District ID 7309)
2. The CONTRACTOR shall obtain and pay for all other required permits and

licenses. The CONTRACTOR shall provide copies of the permits to the OWNER and ENGINEER and shall comply with all conditions contained in the permits at no extra cost to the OWNER.

3. The CONTRACTOR shall be familiar with all permit requirements during construction and shall be responsible for complying with these requirements. The cost of this effort shall be included in the pay item in which the work is most closely associated with.

SC-9.05 Authorized Variations in Work

SC-9.05.A. *Delete the second sentence in paragraph GC-9.05.A in its entirety.*

SC-11.01 Cost of the Work

SC-11.01.A.1. *Delete paragraph GC-11.01.A.1 in its entirety, and insert the following sentences in its place:*

1. CONTRACTOR will receive payment for actual costs of direct labor and burden (see SC-2.06.B) for the additional or unforeseen work. Labor includes foremen actually engaged in the work; and will not include project supervisory personnel nor necessary on-site clerical staff, except when the additional or unforeseen work is a controlling work item and the performance of such controlling work item actually extends completion of the project due to no fault of the Contractor. Compensation for project supervisory personnel, but in no case higher than a Project Manager's position, shall only be for the pro-rata time such supervisory personnel spent on the contract. In no case shall an officer or director of the Company, nor those persons who own more than 1% of the Company, be considered as project supervisory personnel, direct labor or foremen hereunder. 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.

SC-13.03 Test and Inspections

SC-13.03.B. *Delete paragraph GC-13.03.B in its entirety, and insert the following sentences in its place:*

- B. OWNER shall employ and pay for the services of an independent testing laboratory to perform all initial inspections, tests, or approvals required by the Contract Documents except those inspections, tests, or approvals listed immediately below. Subsequent inspections, tests, or approvals required after initial failing inspections, tests, or approvals shall be paid for by the CONTRACTOR by back charge to subsequent applications for payment. The CONTRACTOR shall arrange, obtain, and pay for the following inspections, tests, or approvals:
 1. inspections, tests, or approvals covered by paragraphs 13.03.C and 13.03.D below;
 2. 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.B;
 3. tests otherwise specifically provided in the Contract Documents.

SC-13.05 OWNER May Stop the Work

SC-13.05.A. *Delete paragraph GC-13.05.A in its entirety and insert the following paragraph in its place:*

- A. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to comply with permit requirements, or fails to

comply with the technical specifications, 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.

SC-13.07 Correction Period

SC-13.07 A. Delete the first sentence of paragraph GC-13.07.A in its entirety and insert the following sentence in its place

- A. If within one year after the date of Final Completion or such longer period of time as may be prescribed by Laws or Regulations or 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: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) 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.

SC-13.07 B. Delete paragraph GC-13.07.B in its entirety and insert the following sentence in its place

- B. In special circumstances where a particular item of equipment is placed in continuous service before Final 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 or by Written Amendment.

SC-14.02 Progress Payments

SC-14.02.B.5. Delete paragraph GC-14.02.B.5.d in its entirety and insert the following paragraph in its place:

- d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A; or

SC-14.02.B.5. Add the following sentences at the end of paragraph GC-14.02.B.5:

- e. OWNER has been required to pay ENGINEER additional compensation because of CONTRACTOR delays or rejection of defective Work; or
- f. OWNER has been required to pay an independent testing laboratory for subsequent inspections, tests, or approvals taken after initial failing inspections, tests, or approvals.

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

- C. Payment Becomes Due

1. Payment shall be made by OWNER to CONTRACTOR according to the Local Government Prompt Payment Act. F.S. 218.70 et. seq.

SC-14.04 Substantial Completion

SC-14.04A. *After the third sentence in paragraph GC-14.04A of the General Conditions, delete the remainder of paragraph 14.04A 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 208.735(7)(a)(2005), 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 this Agreement (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 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 this Agreement; 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 this Agreement; and 3) any and all items that require correction under this Agreement 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-14.04B *Add the following new paragraph immediately after paragraph GC 14.04B:*

C. 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

SC-14.07 Final Payment

SC-14.07.C.1. *Delete paragraph GC-14.07.C.1 in its entirety and insert the following paragraph in its place:*

C. Payment Becomes Due

1. Payment shall be made by OWNER to CONTRACTOR according to the “Local Government Prompt Payment Act” , Florida Statutes section 218.70, et. seq.

SC-15.01 OWNER May Suspend Work

SC-15.01.A *Delete the last sentence in paragraph GC-15.01.A and insert the following in its place:*
CONTRACTOR shall be allowed an extension of the Contract Times, directly attributable to any such suspension if CONTRACTOR makes a Claim for an extension as provided in paragraph 10.05. CONTRACTOR

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shall not be allowed an adjustment of the Contract Price and 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 Work suspension.

SC-15.02 OWNER May Terminate For Cause

SC-15.02.A.5 and SC-15.02.A.6 *Add the following new paragraphs immediately after paragraph GC-15.02.A.4:*

5. CONTRACTOR's violation of Section 02225 – "Erosion Control and Treatment of Dewatering Water From the Construction Site."
6. CONTRACTOR's failure to make payment to Subcontractors or Suppliers for materials or labor in accordance with the respective agreements between the CONTRACTOR and the Subcontractors or Suppliers.
7. CONTRACTOR certifies that it and its related entities 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 its related entities as defined above 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.

OWNER may terminate this Contract if CONTRACTOR 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.

OWNER may terminate this Contract if CONTRACTOR, 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.

SC-15.04 CONTRACTOR May Stop Work or Terminate

SC-15.04 *Delete the following text from the first sentence of paragraph GC-15.04.A:*

~~or OWNER fails for 30 days to pay CONTRACTOR any sum finally determined to be due,~~

SC-15.04 *Delete the following text from the second sentence of paragraph GC-15.04.A:*

~~or OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due,~~

SC-16 Dispute Resolution

SC-16.02 Mediation

SC-16 *Add the following new paragraph immediately after paragraph GC-16.01.*

SC-16.02 Mediation

- A. OWNER and CONTRACTOR agree that they shall submit any and all unsettled Claims or counterclaims, disputes, or other matters in question between them arising out of or relating to the Contract Documents or the breach thereof, to mediation by a certified mediator of the 19th Judicial Circuit in Indian River County unless delay in initiating mediation would irrevocably prejudice one of the parties. The mediator of any dispute submitted to mediation under this agreement shall not serve as arbitrator of such dispute unless otherwise agreed.

SC-17 Miscellaneous**SC-17.06 Liens**

Add the following new paragraphs immediately after paragraph GC17.05:

SC-17.06 Liens

- A. This project is a "Public Works" under Chapter 255, Florida Statutes. No merchant's liens may be filed against the OWNER. Any claimant may apply to the OWNER for a copy of this Contract. The claimant shall have a right of action against the CONTRACTOR for the amount due him. Such action shall not involve the OWNER in any expense. Claims against the CONTRACTOR are subject to timely prior notice to the CONTRACTOR as specified in Florida Statutes Section 255.05. The CONTRACTOR shall insert the following paragraph in all subcontracts hereunder:

"Notice: Claims for labor, materials and supplies are not assessable against Indian River County and are subject to proper prior notice to (CONTRACTOR'S Name) and to (CONTRACTOR Surety Company Name), pursuant to Chapter 255 of the Florida Statutes. This paragraph shall be inserted in every sub-subcontract hereunder." The payment due under the Contract shall be paid by the OWNER to the CONTRACTOR only after the CONTRACTOR has furnished the OWNER with an affidavit stating that all persons, firms or corporations who are defined in Section 713.01, Florida Statutes, who have furnished labor or materials, employed directly or indirectly in the Work, have been paid in full. The OWNER may rely on said affidavit at face value. The CONTRACTOR does hereby release, remiss and quit-claim any and all rights he may enjoy perfecting any lien or any other type of statutory common law or equitable lien against the job.

++END OF SUPPLEMENTARY CONDITIONS++

 *Technical Specifications*

South Oslo Road Water Treatment Plant (WTP) Well S-1 Replacement (S-1R)

Prepared For:
Indian River County Utilities Department

Prepared By:
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Ca 00000696

SEPTEMBER 2022
PROJECT NO. 044572106

Kimley»»Horn



SECTION 01000

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SECTION 01010

SUMMARY OF WORK

PART I GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. Furnish all labor, equipment, and materials necessary to replace one (1) Upper Floridan Aquifer (UFA) production well S-1R for Indian River County Utilities Department (OWNER). The well site location is shown on the attached well location map drawing. The scope of work will include well construction permitting, drill site preparation, drilling, setting of steel and PVC casings, grouting, flow testing, wellhead assembly, acidizing (if necessary), well logging, pump testing, formation water disposal system (including temporary piping and pumps), well facility disinfection and restoration of well site, as described herein and shown on the drawings.
- B. The proposed UFA production well S-1R is located at the South County (Oslo Road) reverse osmosis treatment facility. Formation water shall be discharged to the CONTRACTOR's formation water disposal system and then to discharge locations identified in the project drawings. The well site will require additional temporary piping to discharge water to the approved locations. Settling and treatment of formation water to be discharged is the CONTRACTOR'S responsibility and shall be in accordance with all applicable regulations and as described herein.
- C. The CONTRACTOR shall diligently perform the scope of work independently of all others who may perform concurrent tasks during execution of the scope of work.
- D. The OWNER reserves the right to add to the work in accordance with the Contract Documents.

1.02 WORK BY OTHERS

- A. The CONTRACTOR shall yield to operations at the water treatment plant at all times and not interfere in any way with operations or personnel. The CONTRACTOR shall comply and adhere to all security requirements including but not limited to background checks and issuance of security badges. Access to the well site and work areas shall be limited to the areas shown on the project drawings and as discussed in the pre-construction meeting(s).
- B. Site conditions may necessitate removal of vegetation in the vicinity of the well site(s) in order to allow construction of the production well. Vegetation removal shall be completed by the CONTRACTOR, only with approval by the OWNER.
- C. The well site must be secured at all times including but not limited to the installation of security fencing required for construction. CONTRACTOR must submit a plan outlining the installation and removal of fencing for approval by OWNER prior to mobilization.
- D. The OWNER's representative reserves the right to, throughout the construction process, perform onsite inspections of the CONTRACTOR and construction

process. Documentation of work may include, but not be limited to, detailed documentation of daily work performed by the CONTRACTOR, and photographs and/or videos of critical phases of well construction, development, and testing

1.03 WORK SEQUENCE

- A. Sequence of the work will be discussed at the pre-construction conference and will be as described in the Specifications.
- B. CONTRACTOR must contact the SJRWMD and County Health Department and submit the "Well Construction Permit Application", and any others required for construction, prior to commencement of well drilling activities.
- C. Sequence of detailed work shall be discussed at the Pre-Construction meeting. Alternative sequence of work may be considered if the proposed sequence is of benefit to the OWNER. The Contractor shall be prepared to perform the sequence as outlined.
- D. The construction schedule shall be met based on day work only (M-F, 7 AM – 7 PM) and excludes nights, weekends, and Indian River County and Federal holidays.
- E. The CONTRACTOR shall obtain approval from the OWNER for all 24-hour work excluding weekends and Federal holidays.

END OF SECTION

SECTION 01050

FIELD ENGINEERING AND SURVEYING

PART I GENERAL

1.01 SECTION INCLUDES

- A. Provide and pay for surveying services required for the project.

1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. Section 01010 - Summary of Work.
- C. Section 01720 – Project Record Drawings.

1.03 QUALIFICATIONS OF SURVEYOR

- A. Qualified Land Surveyor and Mapper registered in the State of Florida.

1.04 SURVEY REFERENCE POINTS

- A. Existing basic horizontal and vertical control points for the project are those designated on the drawings and on the survey referenced in the Appendix.
- B. Contractor shall locate and protect survey control and reference points. Contractor shall provide additional benchmarks and survey control points as required to construct the work.
- C. Control datum for survey is that indicated on Drawings.
- D. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- E. Promptly report to Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- F. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Engineer.

1.05 PROJECT SURVEY REQUIREMENTS

- A. Establish lines, grades, and elevations by instrumentation or similar appropriate means utilizing recognized engineering survey practices.
- B. Horizontal alignment for the proposed construction will be controlled by right-of-

way lines, northings and eastings, property lines, reference lines, and existing structures. The Contractor shall be responsible to establish reference lines and necessary offsets to establish well locations, well site easement corners, and access road alignment.

- C. Vertical alignment for the proposed construction will be based on the existing grades and benchmarks identified on the drawings. The Contractor shall be responsible to establish and construct the well sites to proposed grades. The grade stakes shall be provided by the Contractor.
- D. Establish a minimum of two permanent bench marks on site referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.
- E. Periodically verify layouts by same means.
- F. Upon project completion, final surveys of each site are required identifying well site easement corner elevations, well site and access road, access road alignment, grade elevations at well casing benchmark elevations, and benchmark elevations provided on at least one of the well site corner monuments (each site).

1.06 RECORDS

- A. Maintain a complete, accurate log of all control and survey work as it progresses.
- B. Submit a copy of the site drawing and certificate signed by land surveyor that the elevations and locations of the Work are in conformance with the Contract Documents.

1.07 SUBMITTALS

- A. Submit name and address and licensure of land of Surveyor.
- B. On request, submit copies of field notes and documentation verifying the accuracy of the survey work.

1.08 EXAMINATION

- A. Contractor is responsible for verifying survey control points prior to initiation of work.
- B. Contractor shall promptly notify Engineer of any discrepancies discovered.

1.09 QUALITY CONTROL

- A. Quality control of the Work shall be the Contractor's responsibility and Contractor shall make every effort to produce the best quality of work, as specified on the drawings and specifications.
- B. Twenty-four (24) hour notification to the Engineer by the Contractor shall be required for all specified field investigations unless otherwise noted.

PART II **PRODUCTS (NOT USED)**

PART III **EXECUTION (NOT USED)**

END OF SECTION

SECTION 01090

REFERENCE STANDARDS

PART I GENERAL

1.01 THE REQUIREMENT

A. Wherever reference is made to any published standards, codes, or standard specifications, it shall mean the latest standard code, specification, or tentative specification of the technical society, organization, or body referred to, which is in effect at the date of invitation for Bids.

B. All materials, products, and procedures used or incorporated in the work shall be in strict conformance with applicable codes, regulations, specifications, and standards.

C. A partial listing of codes, regulations, specifications, and standards includes the following:

Air Conditioning and Refrigeration Institute (ARI)

Air Diffusion Council (ADC)

Air Moving and Conditioning Association (AMCA)

The Aluminum Association (AA)

American Architectural Manufacturers Association (AAMA)

American Concrete Institute (ACI)

American Gear Manufacturers Association (AGMA)

American Hot Dip Galvanizers Association (AHDGA)

American Institute of Steel Construction, Inc. (AISC)

American Iron and Steel Institute (AISI)

American National Standards Institute (ANSI)

American Society of Civil Engineers (ASCE)

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE)

American Society of Mechanical Engineers (ASME)

American Society for Testing and Materials (ASTM)

American Standards Association (ASA)

American Water Works Association (AWWA)
American Welding Society (AWS)

American Wood-Preserver's Association (AWPA)

Anti-Friction Bearing Manufacturers Association (AFBMA)

Building Officials and Code Administrators (BOCA)

Consumer Product Safety Commission (CPSC)

Factory Mutual (FM)

Federal Specifications

Florida Building Code (FBC)

Instrument Society of America (ISA)

Institute of Electrical and Electronics Engineers (IEEE)

National and Local Fire Codes

Lightning Protection Institute (LPI)

National Electrical Code (NEC)

National Electrical Manufacturer's Association (NEMA)

National Electrical Safety Code (NESC)

National Electrical Testing Association (NETA)

National Fire Protection Association (NFIPA)

Regulations and Standards of the Occupational Safety and Health Act (OSHA)

Southern Building Code Congress International, Inc. (SBCCI)

Sheet Metal & Air Conditioning Contractors National Association (SMACCNNA)

Standard Building Code

Standard Mechanical Code

Standard Plumbing Code

Uniform Building Code (UBC)

Underwriters Laboratories Inc. (UL)

- D. Contractor shall, when required, furnish evidence satisfactory to the Engineer that materials and methods are in accordance with such standards where so specified.
- E. In the event any questions arise as to the application of these standards or codes, copies shall be supplied on-site by the Contractor.

PART II PRODUCTS

(NOT USED)

PART III EXECUTION

(NOT USED)

- END OF SECTION -

SECTION 01150

MEASUREMENT AND PAYMENT

PART I **GENERAL**

1.01 **GENERAL REQUIREMENTS**

- A. The Unit Cost Prices stated in the Contract shall be considered payment in Full for the completion of all work. Payment shall be made under each item only for work as it is not specifically included under other items.
- B. The CONTRACTOR shall furnish all labor, equipment and material required to complete the construction and testing of one (1) Upper Floridan Aquifer (UFA) production well for the Indian River County Utilities Department (OWNER).

PART II **PRODUCTS (NOT USED)**

PART III **EXECUTION**

3.01 **PAYMENT ITEMS**

A. **ITEM NO. 1 – GENERAL CONDITIONS, BONDS AND INSURANCE**

This pay item shall include the costs of bonds and any required insurance for the start of work, including temporary environmental controls, sanitary facilities and permits. Bonds and insurance shall be paid for at the Contract Lump Sum Cost as listed on the Bid Form completed and accepted.

B. **ITEM NO. 2 – S-1R MOBILIZATION/DEMobilIZATION**

The work specified in this item consists of the work and operations necessary in mobilizing and demobilizing for the work as described by the contract documents, including but not limited to, those operations necessary for the movement of personnel, equipment, supplies and incidentals to and from the project site, as required by these specifications, including but not limited to, staging and storage areas, security facilities and services, temporary environmental controls, sanitary facilities, and the special provisions made by State and local laws and regulations. This item also includes any costs incurred to comply with the General Conditions of the contract. Payment for this item shall be: made at 50% of the Contract Lump Sum Price upon completion of mobilization to the S-1R well site where OWNER has authorized CONTRACTOR to reconstruct the well; and made at 50% of the Contract Lump Sum Price following completion of well construction and returned to service and accepted the OWNER. Maximum allowable price for mobilization shall not exceed 8% of the total project cost.

C. **ITEM NO. 3 – DRILL A NOMINAL 32-INCH DIAMETER BOREHOLE FROM TO 130 FEET**

This pay item includes the actual length of reamed hole drilled and accepted and

shall be measured vertically from land surface to the bottom of the nominal 32-inch diameter drilled borehole interval. The drilled hole depth shall be to approximately 130 feet bls but may vary depending on results of drilling. The reamed hole shall be paid for at the Contract Unit Cost Price of hole reamed and accepted, as listed on the Bid Form. The said unit shall include but not be limited to the furnishing of all material, labor, and equipment necessary to complete the work as specified in the Contract Documents and accepted by the HYDROGEOLOGIST.

D. ITEM NO. 4 – FURNISH AND INSTALL, INCLUDING GROUT, 26-INCH STEEL SURFACE CASING TO 130 FEET

The 26-inch outside diameter (O.D.) pit casing furnished, installed, and grouted in place shall be installed to the depth specified by the HYDROGEOLOGIST as listed on the Bid Form. Payment for this item shall be by Contract Unit Cost Price from land surface to the total depth installed and accepted and shall include but not be limited to all labor, equipment, centralizers, annular grout and other materials necessary to properly install the casing as described in Section 02745 and as specified in the Contract Documents and accepted by the HYDROGEOLOGIST

E. ITEM NO. 5 – DRILL NOMINAL 15-INCH PILOT HOLE FROM 130 FEET TO 420 FEET

This pay item includes the actual length of hole drilled and accepted and shall be measured vertically from the bottom of the 26-inch diameter surface casing to the bottom of the nominal 15-inch diameter pilot hole. The pilot hole shall be paid for at the Contract Unit Cost Price, drilled and accepted, as listed on the Bid Form. The said unit shall include but not be limited to the furnishing of all material, labor and equipment necessary to complete the work. As specified in Sections 02720 and 02740 and as specified in the Contract Documents and accepted by the HYDROGEOLOGIST.

F. ITEM NO. 6 – GEOPHYSICAL LOGGING (COMPLETE)

Logging shall be paid for at the Contract Lump Sum Cost as listed on the Bid Form for all logs specified in Section 02765 for the well and shall include but not be limited to furnishing all material, labor and equipment necessary to complete the item work in accordance with the Contract Documents and accepted by the HYDROGEOLOGIST.

G. ITEM NO. 7 – REAM 15-INCH PILOT HOLE TO NOMINAL 25-INCHES FROM 130 FEET TO 420 FEET

This pay item includes the actual length of hole reamed and accepted and shall be measured vertically from the bottom of the 26-inch diameter surface casing to the bottom of the nominal 25-inch diameter reamed hole interval. The reamed hole depth shall be to approximately 420 feet bls, but may vary depending on results of pilot hole drilling. The drilled hole shall be paid for at the Contract Unit Cost Price of hole reamed and accepted, as listed on the Bid Form. The said unit shall include but not be limited to the furnishing of all material, labor and equipment necessary to complete the work as specified in the Contract Documents and accepted by the HYDROGEOLOGIST.

H. ITEM NO. 8 – FURNISH AND INSTALL 17.4-INCH DIAMETER SDR17 CERTA-LOK PVC CASING IN PLACE TO 420 FEET

The length of casing furnished and installed shall be the actual measured quantities specified and approved by the HYDROGEOLOGIST as listed in the Bid Form. Estimated depth is approximately 420 feet; paid length shall be calculated from land surface. This item shall be paid for at the Contract Unit Cost Price for installed casing and shall include but not be limited to all labor, equipment, centralizers and other materials necessary to properly install the casing as described in Section 02745 and as specified in the Contract Documents and accepted by the HYDROGEOLOGIST.

I. ITEM NO. 9 – CEMENT GROUT PVC CASING IN PLACE

Cement for the 17.4-inch diameter PVC final casing installation shall be paid for at the Contract Unit Cost Price per 94-pound sack of cement furnished, in place and accepted by the HYDROGEOLOGIST, as listed on the Bid Form and described in Section 02755. Contract Unit Cost Price includes but is not limited to materials, labor, equipment, delivery charges, additives, operations, setup and removal of equipment for grout emplacement as specified in the Contract Documents and accepted by the HYDROGEOLOGIST.

J. ITEM NO. 10 – DRILL NOMINAL 15-INCH DIAMETER PILOT HOLE USING REVERSE AIR METHOD FROM 420 FEET TO APPROXIMATELY 835 FEET

This pay item includes the actual length of hole drilled and accepted and shall be measured vertically from the bottom of the 17.4-inch diameter PVC final casing to the bottom of the pilot hole. The pilot hole shall be paid for at the Contract Unit Cost Price, drilled and accepted, as listed on the bid form. The said unit shall include but not be limited to the furnishing of all material, labor and equipment necessary to complete the work as described in Section 02740 and as specified in the Contract Documents and accepted by the HYDROGEOLOGIST.

K. ITEM NO. 11 – SETUP TO BACK PLUG

Mobilization and demobilization of drilling pipe and equipment necessary to back plug well. The setup to back plug shall be paid for at the Contract Lump Sum Price as listed on the Bid Form as specified in the Contract Documents and accepted by the HYDROGEOLOGIST.

L. ITEM NO. NO. 12 – CEMENT BACK PLUG

Cement back plug to a depth specified by the HYDROGEOLOGIST. Cement grout shall be paid for at the Contract Unit Cost Price per 94-pound sack of cement furnished, in place and accepted by the HYDROGEOLOGIST, as listed on the Bid Form and described in Section 02755. Contract Unit Cost Price includes but is not

limited to materials, labor, equipment, delivery charges, additives, operations, setup and removal of equipment for grout emplacement as specified in the Contract Documents and accepted by the HYDROGEOLOGIST.

M. ITEM NO. 13 – JETTING AND CLEAN OUT BOREHOLE

This pay item includes the work required to perform jetting and clean out of the borehole, as described in the specifications, to the total drilled depth to the satisfaction of the HYDROGEOLOGIST and as described in Section 02760. Payment shall be at the Contract Unit Cost Price as listed on the Bid Form for jetting the hole (including simultaneous airlift or flow) as specified or reverse air clean out of the hole with the borehole following jetting. The jetting and clean out Unit Cost Price shall include only hours of actual jetting or reverse air clean out of the hole as approved by the HYDROGEOLOGIST, and all material, labor, equipment and preparations necessary to complete the scope of work as specified in the Contract Documents and accepted by the HYDROGEOLOGIST.

N. ITEM NO. 14 – INSTALL AND REMOVE PUMP DISCHARGE APPARATUS

The CONTRACTOR shall install and remove the test pumping and discharge apparatus as specified in project specifications. Payment for this item shall be at the Contract Lump Sum Price as listed on the Bid Form and as specified in the Contract Documents and accepted by the HYDROGEOLOGIST.

O. ITEM NO. 15 – PUMP DEVELOP WELL

Well Development shall be paid for at the Contract Unit Cost Price as listed on the BID FORM as determined by the HYDROGEOLOGIST as development and as described in Section 02760. The said Contract Unit Cost Price shall include only hours of actual pumping as approved by the HYDROGEOLOGIST and shall not be limited to the furnishing of all material, labor and equipment necessary to complete development in accordance with the Contract Documents and accepted by the HYDROGEOLOGIST.

P. ITEM NO. 16 – STEP RATE PUMPING TEST

The pumping test shall be paid for at the Contract Unit Cost Price listed on the BID FORM as approved by the HYDROGEOLOGIST and as described in Section 02775. The said Contract Unit Cost Price shall include only hours of actual pumping during the step rate test and shall not be limited to the furnishing of all material, labor and equipment necessary to complete the test in accordance with the Contract Documents and accepted by the HYDROGEOLOGIST.

Q. ITEM NO. 17 – PERFORM VIDEO LOG

The video log shall be paid following each successful video log at the Contract Lump Sum Price listed on the Bid Form as specified in the Contract Documents and accepted by the HYDROGEOLOGIST. Video logging (in both static and dynamic conditions) shall include but not be limited to the furnishing of all material, labor and equipment required, as specified in Section 02765. Only video logs accepted by the HYDROGEOLOGIST shall be paid for under this pay item.

R. ITEM NO. 18 – FORMATION WATER DISPOSAL SYSTEM

This pay item includes the costs to supply and install required tie-ins, temporary above grade HDPE or equivalent formation water disposal piping from the well to CONTRACTOR'S settling tanks, to the designated discharge point shown on the contract drawings, described in Section 02785 and as specified in the Contract Documents and accepted by the HYDROGEOLOGIST. This item includes all labor, material and equipment and removal of the piping from the project site after construction is complete. This pay item also includes the costs to maintain the disposal and settling systems and shall include but not be limited to piping, fittings, pumps, settling tanks, filter media, monitoring, operation and maintenance. Payment shall be made per Contract Lump Sum Price as listed on the Bid Form.

Well discharge (including well flow test, borehole jetting, development, pumping test, and reverse air discharge water) shall be discharged to the CONTRACTOR'S formation water disposal system and described on project drawings. Settling and treatment of formation water to be discharged is the CONTRACTOR'S responsibility and shall be in accordance with all applicable regulations and Section 02785. All turbidity, sand and settleable solids shall be removed from the formation discharge water prior to discharge.

CONTRACTOR will be required to supply and install temporary above grade pipe suitable for formation water disposal as shown in the project drawings.

S. ITEM NO. 19 – WELL ACIDIZATION SETUP

The well acidization shall be paid for at the Contract Lump Sum Price as listed on the BID FORM. The said Contract Lump Sum Price shall include but not be limited to setup, provide acid pumping, labor and equipment necessary to acidize the well and to complete the acid treatment as specified in Section 02790 and as specified in the Contract Documents and accepted by the HYDROGEOLOGIST.

T. ITEM NO. 20 – WELL ACIDIZATION

The well acidization shall be paid for at the Contract Unit Cost Price per gallon as listed on the BID FORM. The said Contract Unit Cost Price shall include but not be limited to furnishing and placing the acid as specified in Section 02790 and as specified in the Contract Documents and accepted by the HYDROGEOLOGIST.

U. ITEM NO. 21 – FINAL WELLHEAD & STAINLESS STEEL SPOOL PIECE

The completed wellhead as depicted on project drawings shall be paid for at the Contract Lump Sum Price as listed on the BID FORM. The said Contract Lump Sum Price shall include but not be limited to furnishing and installing all required flanges, stainless steel appurtenances, cementing to the top of the casings as specified in the Contract Documents, Project Drawings and accepted by the HYDROGEOLOGIST.

V. ITEM NO. 22 – SITE RESTORATION

The work specified under this pay item includes restoring the site to better than its original condition, the intended grades as shown on the site plan, restoring site conditions to the satisfaction of the HYDROGEOLOGIST and OWNER and as described in Section 02485. Payment shall be at the Contract Lump Sum Price as listed on the Bid Form and shall include all equipment, tools and labor necessary to restore the site complete and accepted by the OWNER.

W. ITEM NO.23 – DISENFECTION AND WATER QUALITY SAMPLING

Work under this pay item shall include, but not be limited to, all equipment, materials and labor to satisfactorily disinfect well, bacteriological sampling and testing, and perform full primary and secondary drinking water quality analytical testing, including FDEP discharge sampling and permit (if required) as required by the contract documents, state and local laws and regulations as related to this pay item.

Payment of this item shall be made at the Contract Lump Sum Price as listed on the Bid Form as specified in the Contract Documents and accepted by the OWNER AND HYDROGEOLOGIST. The CONTRACTOR shall be responsible for costs associated with testing, re-chlorination, re-sampling, and re-testing as needed to satisfactorily disinfect the well and obtain passing and acceptable water quality test results as described in Section 02780.

X. ITEM NO.24 – UNDEFINED CONDITIONS ALLOWANCE

Included in this allowance is work associated with undefined conditions or conflicts developing from undefined conditions. All work authorized for payment under this pay item must be requested by the CONTRACTOR in writing and authorized by the OWNER, in writing with the cost for the work to be performed, prior to the performance of any such work. The amount to be paid for under this Pay Item shall be negotiated and agreed to by both parties in writing prior to the work being performed. The OWNER reserves the right to authorize for use any, all, or none of the money associated with this allowance. Any work performed by the CONTRACTOR and charged to this allowance without written approval by the OWNER will have been performed at the CONTRACTOR'S risk and will not be required to be paid for by the OWNER

3.02 ADDITIVE ALTERNATE PAYMENT ITEMS (DEEPENING AND TESTING)

A. PAY ITEM NO. 25 – EXTEND BOREHOLE FROM 835 to 1,500 FEET BELOW LAND SURFACE (BLS)

Payment of this item shall be on a unit price basis. The item shall be paid for at the Contract Unit Price per foot and shall include the actual length of drilled borehole measured and approved by the ENGINEER. The item shall include but not be limited to the furnishing of all material, labor and equipment necessary to complete the work as described in Summary of Work.

B. PAY ITEM NO. 26 – EXTEND GEOPHYSICAL LOGGING SUITE FROM 835 to 1,500 FEET BLS

Logging shall be paid for at the Contract Lump Sum Cost as listed on the Bid Form for all logs specified in Summary of Work for the well(s) and shall include but not be limited to furnishing all material, labor and equipment necessary to complete the item work in accordance with the Contract Documents and accepted by the HYDROGEOLOGIST.

C. ITEM NO. 27 – PERFORM VIDEO LOG

The video log shall be paid following each successful video log at the Contract Lump Sum Price listed on the Bid Form as specified in the Contract Documents and accepted by the HYDROGEOLOGIST. Video logging (in both static and dynamic conditions) shall include but not be limited to the furnishing of all material, labor and equipment required, as specified in Section 02765. Only video logs accepted by the HYDROGEOLOGIST shall be paid for under this pay item.

D. PAY ITEM NO. 28 – INSTALL INFLATABLE STRADDLE PACKER FROM 850-950 FEET BLS AND PERFORMANCE OF PUMPING TEST OF CONFINING UNIT

This pay item includes all materials, labor, and equipment necessary to install (and remove) a straddle packer assembly and successfully complete a pump test to evaluate the confining layer, as described in the Summary of Work. The installation of the straddle packer and performance of the pump test shall be paid for at the Contract Lump Sum Cost listed in the Bid Form.

E. PAY ITEM NO. 29 – INSTALL INFLATABLE OFF BOTTOM PACKER AT APPROXIMATELY 950 FT BLS

This pay item includes all materials, labor, and equipment necessary to successfully install (and remove) an off bottom packer assembly to perform two aquifer performance tests (one for the APPZ and another for the UFA). The installation of the off-bottom packer shall be paid for at the Contract Lump Sum Cost listed in the Bid Form. This pay item is for the installation and removal of the inflatable off bottom packer only. The successful installation of the packer will facilitate the performance of pump tests itemized below.

F. PAY ITEM NO. 30 – 48-HOUR CONSTANT RATE PUMPING TEST OF APPZ

This pay item includes all materials, labor and equipment necessary to perform a constant rate pump test of the Avon Park Permeable Zone (APPZ)

as outlined in Summary of Work and accepted by the HYDROGEOLOGIST. The APPZ Pump Test shall be paid for at the Contract Lump Sum Price as listed on the Bid Form.

G. PAY ITEM NO. 31 – 48-HOUR CONSTANT RATE PUMPING TEST OF UFA

This pay item includes all materials, labor and equipment necessary to perform a constant rate pump test of the Upper Floridan Aquifer (UFA) as outlined in Summary of Work and accepted by the HYDROGEOLOGIST. The UFA Pump Test shall be paid for at the Contract Lump Sum Price as listed on the Bid Form.

H. PAY ITEM NO. 32 – SET UP TO BACKPLUG BOREHOLE

This pay items includes all equipment, labor, operations, setup and removal of equipment necessary for emplacement of grout as specified in Pay Item No. 14. This item shall be paid for at the Contract Lump Sum Price listed in the Bid Form.

I. PAY ITEM NO. 33 – BACK PLUG BOREHOLE WITH NEAT CEMENT GROUT FROM APPROXIMATELY 1,250 FEET TO 1,500 FEET AND FROM 850 FEET TO 900 FEET

Cement required to back plug the nominal 12-inch diameter borehole shall be paid for per linear foot or borehole cemented in place and accepted by the HYDROGEOLOGIST, as listed on the Bid Form and described in Summary of Work. Price per linear foot includes but is not limited to materials, equipment, labor, delivery charges, additives, operations, and grout emplacement as specified in the Contract Documents and accepted by the HYDROGEOLOGIST.

J. PAY ITEM NO. 34 – GRAVEL BACKFILL APPZ FROM APPROXIMATELY 900 FEET TO 1,250 FEET BLS

Payment of this item shall be paid for per linear foot of borehole backfilled, as described in the Summary of Work. Price per linear foot includes, but is not limited to equipment, materials, labor, delivery charges, additives, operations and emplacement of gravel and sand backfill as specified in the Summary of Work and accepted by the HYDROGEOLOGIST.

END OF SECTION

SECTION 01300

SUBMITTALS

PART I **GENERAL**

1.01 **REQUIREMENTS INCLUDED**

- A. Submit to the HYDROGEOLOGIST, shop drawings, project data, samples and miscellaneous work related submittals required by the Specification Sections. Individual submittal requirements are specified in applicable sections of these Contract Documents.

- B. The HYDROGEOLOGIST's review is only for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Corrections or comments made on the shop drawings during the HYDROGEOLOGIST's review do not relieve the CONTRACTOR from compliance with the requirements of the Contract Documents. Review of a specific item shall not include approval of an assembly of which the item is a component. The CONTRACTOR is responsible for: dimensions to be confirmed and correlated at the job site; information that pertains to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; impact on other work; coordination of CONTRACTOR'S Work with that of all other trades; and for performing all work in a safe and satisfactory manner.

- A. Miscellaneous submittals related directly to the Work (non-administrative) include warranties, guarantees, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical records, statements of applicability, quality testing and certifying reports, copies of industry standards, record drawings, overrun stock, and similar information, devices and materials applicable to the Work and not defined as shop drawings, product data or samples.

1.02 **RELATED REQUIREMENTS**

Not used

1.03 **SCHEDULE**

- A. The CONTRACTOR shall provide an updated construction schedule to the OWNER/HYDROGEOLOGIST during each monthly progress meeting.

- B. Prepare and submit with the Construction Schedule, a separate schedule listing dates for submission and review of shop drawings, project data and samples that shall be needed for each product or piece of equipment.

- C. Coordinate and prepare the delivery and processing of submittals with the performance of the Work so that the Work is not delayed by submittals. Coordinate and sequence different categories of submittals for the same Work,

and for interfacing units of Work, so that one is not delayed for coordination with another.

- D. No extension of time shall be allowed because of the CONTRACTOR'S failure to properly coordinate and sequence submittals.
- E. Do not proceed with purchasing, fabrication and delivery of Work related to a submittal until the submittal procedure is successfully complete.
- F. Coordinate fabrication and delivery of CONTRACTOR furnished materials.

PART II **PRODUCTS**

2.01 **SHOP DRAWINGS**

- A. Original drawings, prepared by a Contractor, subcontractor, supplier or distributor which illustrate some portion of the Work and showing fabrication, layout, setting or erection details, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, dimensions, measurements and other similar information not in standard printed form applicable to other projects.
- B. Provide information prepared by a qualified detailer showing dimensions and notes based on field measurements, identifying materials and products in the work shown indicating compliance with standards and special coordination requirements.
- C. Identify details by reference to sheet and detail numbers shown on the Contract Drawings.

2.02 **PROJECT DATA**

- A. Includes standard printed information on materials, products and systems not custom prepared for this project. Collect the required data into one (1) submittal for each material, product or system; and mark each copy to show which choices and options are applicable to the project.
- B. Manufacturer's standard schematic drawings and standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked, and special coordination requirements:
 - 1. Modify drawings to delete information which is not applicable to the project.
 - 2. Supplement standard information to provide additional information applicable to the project.
- C. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.
 - 1. Clearly mark each copy to identify pertinent materials, products or models

2. Show dimensions and clearances required.
3. Show performance characteristics and capacities.
4. Show wiring diagrams and controls.

2.03 SAMPLES

- A. Physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed Work is judged.
- B. Office samples of sufficient size and quantity to clearly illustrate:
 1. Functional characteristics of products or materials, with integrally related parts and attachment devices.
 2. Full range of color samples.
- C. Field samples and mock-ups:
 1. Erect at the project site at a location acceptable to the OWNER.
 2. Construct each sample or mock-up complete, including work of all trades required in finished work.

2.04 WARRANTIES

- A. Refer to individual sections of these Specifications for specific general requirements on the submittal of warranties, guarantees, product/workmanship bonds, and maintenance agreements which are uniquely prepared and executed for the project.

PART III EXECUTION

3.01 CONTRACTOR RESPONSIBILITIES

- A. Review shop drawings, project data and samples for compliance with these Specifications prior to submission.
- B. Verify:
 1. Field measurements.
 2. Field construction criteria.
 3. Catalog numbers and similar data.
- C. Coordinate each submittal with requirements of the Work and of the Contract Documents.

- D. The CONTRACTOR'S responsibility for errors and omissions in submittals is not relieved by the HYDROGEOLOGIST'S review of submittals.
- E. The CONTRACTOR'S responsibility for deviations in submittals from the requirements of the Contract Documents is not relieved by the HYDROGEOLOGIST 'S review of submittals, unless the OWNER or the HYDROGEOLOGIST gives written acceptance of Specific deviations.
- F. Notify the HYDROGEOLOGIST, in writing at the time of submission, of deviations in submittals from the requirements of the Contract Documents.
- G. Begin no Work requiring submittals until return of submittals with the HYDROGEOLOGIST'S stamp and initials or signature indicating review and approval.
- H. After HYDROGEOLOGIST'S review, distribute copies.

3.02 SUBMISSION REQUIREMENTS

- A. Schedule submissions at least 14 days before dates reviewed submittals shall be needed; the OWNER and OWNER'S representatives shall have a maximum of 14 days for review of the submittal following receipt, for approval or rejection.
- B. Submit ten (10) copies of shop drawings, project datum and samples which the CONTRACTOR requires for distribution plus four (4) copies which shall be retained by the HYDROGEOLOGIST.
- C. Accompany submittals with a transmittal letter, in duplicate, containing:
 - 1. Date of submission.
 - 2. Project title and number.
 - 3. Contractor name and address.
 - 4. The number of each shop drawing, project datum and sample submitted.
 - 5. Notification of any deviations from the Contract Documents.
 - 6. Other pertinent data.
- D. Submittals must include:
 - 1. Date of submittal and revision dates.
 - 2. Project title and number.
 - 3. The names of:
 - a. Hydrogeologist
 - b. Contractor
 - c. Subcontractor (if applicable)

- d. Supplier
 - e. Manufacturer
 - f. Separate detailer, when pertinent
4. Identification of products or materials.
 5. Relation to adjacent structures or materials.
 6. Field dimensions, clearly identified as such.
 7. Specification Section Number.
 8. Applicable standards, such as ASTM number or Federal Specifications.
 9. A blank space, 4" X 4", for the HYDROGEOLOGIST'S stamp.
 10. Identification of deviations from the Contract Documents.
 11. CONTRACTOR'S stamp, initialed or signed, certifying as to review of the submittal, verification of field measurements and compliance with the Contract Documents.

3.03 RESUBMISSION REQUIREMENTS

- A. Shop Drawings:
 1. Revise initial drawings as required and resubmit as specified for initial submittal.
 2. Indicate on drawings any changes which have been made other than those requested by the HYDROGEOLOGIST.
- B. Project Data and Samples:
 1. Submit new datum and samples as required for initial submittal.

3.04 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

- A. Distribute copies of Shop Drawings and project datum which carry the HYDROGEOLOGIST'S stamp to:
 1. Other prime CONTRACTOR'S.
 2. Subcontractors.
 3. Suppliers.
 4. Fabricators.
 5. CONTRACTOR'S file.

6. Job site file.
 7. Record samples as directed.
- B. Distribute samples as directed.

3.05 List of Required Submittals by Section

01300: Submittals

- OWNER Contract required submittals
- Updated project schedule, provided bi-weekly
- Shop Drawings showing fabrication, layout, setting or erection details, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, dimensions, measurements and other similar information not in standard printed form
- Final wellhead, isolation valve details, piping, pipe support, materials, manufacture information, date of manufacture, specifications, performance data, applicable cut sheets, drawings, orifice details and pipe termination details (pursuant to the Project Drawings).
- Samples, if required.

02400: Temporary Construction Wellhead

- Shop drawings of temporary construction wellhead

02760: Well Development

- Flow meter calibrations certificates
- Daily log development sheets
- Development Pump Curve

02775: Pumping Tests

- Flow meter calibrations certificates
- Pump and power details, performance curves
- Temporary piping layout

02780: Disinfection

- State and County certifications for proposed laboratory
- Sampling reports, chain of custody forms, analytical results

02785: Formation Water Disposal System

- Schematic plan and equipment, piping, road crossing, planned for used of water discharge, environmental controls

02790: Acidization

- Acidization Plan
- Acid Header
- All chemical manufacturer information and Material Safety Data Sheets
- Acid transportation manifest and load weight tickets

END OF SECTION

SECTION 01410

TESTING LABORATORY SERVICES

PART I GENERAL

1.01 DESCRIPTION

- A. The Owner shall employ and pay for services of an independent testing laboratory to perform services related to vibration monitoring and field density testing. The Contractor will be responsible for scheduling field testing services with the Owner's independent testing lab and the Owner's field representative, as requested by Owner.
- B. Inspection, Sampling and Testing is required for:
 - 1. Densities and Proctors (for soil compaction)
 - 2. Vibration Monitoring
 - 3. Well development
 - 4. Well water quality testing and disinfection
 - 5. Other operations specified in these specifications or as required by the Engineer or Owner.
- C. The Contractor shall employ and pay for the services of a qualified laboratory for bacteriological and water quality sampling and testing as required by the Contract Documents and State and regulatory rules and regulations.

1.02 QUALIFICATION OF LABORATORY

- A. Meet "Recommended Requirements for Independent Laboratory Qualification", latest edition, published by American Council of Independent Laboratories.
- B. Meet basic requirements of ASTM E 329-90 "Standard Practice for Use in the Evaluation of Testing Agencies for Concrete and Steel as Used in Construction".
- C. Meet basic requirements of FDOT Section 455 for Protection of Existing Structures
- D. Certified in the State of Florida in accordance with FDEP requirements.
- E. Laboratories conducting bacteriological and water quality sampling and testing under this Contract must provide State of Florida, Department of Health, Bureau of Laboratories certification that the laboratory has complied with FAC 64E-1 for the examination of environmental samples in the category of drinking water-microbiology.
- F. Analytical test methods selected for bacteriological and water quality analyses shall be approved, in advance, by the Owner prior to scheduling tests

1.03 LABORATORY DUTIES; LIMITATIONS OF AUTHORITY

- A. Cooperate with Owner, Engineer, and Contractor; provide qualified personnel promptly on notice. The Laboratory shall notify the Contractor of how much notice is required by the Laboratory to ensure that Laboratory personnel will be available for testing.

- B. Perform specified inspections, sampling and testing of materials and methods of construction:
 - 1. Comply with specified standards; ASTM, AWWA or other recognized authorities, and as specified.
 - 2. Ascertain compliance with requirements of Contract Documents.

- C. Promptly notify Owner, Engineer, and Contractor, of irregularities or deficiencies of Work which are observed during performance of services.

- D. Promptly submit 2 copies of reports of inspections and tests to Owner and Engineer, including:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Testing Laboratory name and address.
 - 4. Name of Inspector
 - 5. Date of inspection or sampling.
 - 6. Record of temperature and weather.
 - 7. Date of test.
 - 8. Identification of product and specification section.
 - 9. Location in project.
 - 10. Type of inspection or test.
 - 11. Observations regarding compliance with Contract Documents.

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

1.04 CONTRACTOR'S RESPONSIBILITIES

- A. Conduct monitoring, testing and reporting as detailed in the Contract. This includes, but is not limited to, those items related to well development and monitoring of discharge water
- B. Coordinate testing with Laboratory and Owner's representative. The Contractor shall give the Laboratory sufficient notice of when testing is required so as to ensure that Laboratory personnel will be available.
- C. Cooperate with Laboratory personnel, provide access to Work. This includes providing easily accessible sampling locations for bacteriological sampling.
- D. Protection of testing laboratory's monitoring equipment. Contractor shall be responsible for damage made to testing laboratory's equipment
- E. Provide to Laboratory, preliminary representative samples of materials to be tested, in required quantities.
- F. Furnish copies of test reports.
- G. Furnish casual labor and facilities:

1. To provide access to Work to be tested.
 2. To obtain and handle samples at the site.
 3. To facilitate inspections and tests.
 4. For Laboratory's exclusive use for storage and curing of test samples.
- H. Notify Laboratory sufficiently in advance of operations to allow for his assignment of personnel and scheduling of tests.
- I. Pay for services of the Testing Laboratory to perform additional inspections, sampling and testing required:
1. For Contractor's convenience.
 2. When initial tests indicate Work does not comply with Contract Documents.
 - i. Such payment shall be made directly by the Contractor.
- J. Contractor will be responsible for payment for all failing tests. Including reimbursement to the County for failing density tests. Reimbursement will be made in the form of a deductive change order on the Contract.
- K. Contractor shall notify the Owner's representative twenty-four (24) hours prior to all laboratory tests. The Owner's representative must be present when testing is conducted.
- L. If at any time test results are unsatisfactory or do not meet Contract requirements, the Contractor shall immediately stop work, notify the Owner or the Owner's representative and implement corrective measures. Corrective measures shall be considered satisfactory as evidenced by passing test results.

PART II **PRODUCTS (NOT USED)**

PART III **EXECUTION (NOT USED)**

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART I **GENERAL**

1.01 **REQUIREMENTS INCLUDED**

- A. Furnish install and maintain all methods, equipment and temporary utilities as required to provide controls over environmental conditions at the construction site and related areas under the CONTRACTOR'S influence. Remove physical evidence of temporary facilities upon completion of work.
- B. Providing adequate facilities at every stage of performing the work is the CONTRACTOR'S sole responsibility, and is not limited by the requirements hereof.
- C. Except as otherwise indicated, the cost of providing and using temporary utility services is to be included in the Contract Sum.
- D. Maintain distinct markers for underground lines and protect from damage during excavation operations.
- E. These references shall govern the work except where they conflict with the OWNER'S terms and conditions. In case of conflict, the OWNER'S terms and conditions shall govern to the extent of such difference.

1.02 **REQUIREMENTS OF REGULATORY AGENCIES**

- A. Comply with the National Electrical Code.
- B. Comply with Federal, State and local codes, ordinances, rules, regulations, standards and permits.
- C. Comply with the "Manual of Accident Prevention in Construction" by the Associated General CONTRACTORS (AGC).

PART II **PRODUCTS**

2.01 **MATERIALS**

Materials may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements to applicable codes, ordinances, rules, regulations and standards.

2.02 **TEMPORARY ELECTRICITY AND LIGHTING**

- A. Install circuit and branch wiring, with area distribution boxes located so that power and lighting is available throughout the construction by the use of construction type power cords.

- B. Provide adequate artificial lighting for all areas of work when natural lighting is not adequate for work and night work is allowed by the contract documents.

2.03 TEMPORARY PHONE SERVICE

- A. The CONTRACTOR shall provide onsite phone service to the CONTRACTOR'S project superintendent and for each driller on site. Phone supplied personnel shall be available by phone during all working hours during execution of the scope of work.
- B. Cellular phones are acceptable.

2.04 TEMPORARY WATER

- A. Only potable quality water will be used for well construction. Water necessary for construction activities shall be provided by the OWNER at no cost to the CONTRACTOR. CONTRACTOR shall be required to pay for and obtain a temporary construction meter from the OWNER for use during construction. The meter must be locked at all times except while in use by the CONTRACTOR.
- B. Water is limited at the project site, therefore, wasteful use of OWNER'S water by CONTRACTOR will forfeit CONTRACTOR'S use of OWNER'S water and CONTRACTOR will be required to purchase water elsewhere.
- C. OWNER'S use of OWNER'S water takes priority at all times. CONTRACTOR shall temporarily restrict or discontinue use of OWNER'S water if required to do so by OWNER.

2.05 TEMPORARY SANITARY FACILITIES

- A. Provide sanitary facilities in compliance with laws, ordinances and regulations.
- B. Service, clean and maintain facilities and enclosures.

2.06 TEMPORARY ACCESS ROAD, PARKING AND TRAFFIC CONTROL

- A. Construct and maintain new and existing temporary access roads over designated easements from public thoroughfare to the site.
- B. Maintain traffic areas free of excavated materials, construction equipment, products and debris.
- C. Traffic control warning signs and barricades shall be in strict accordance with the provisions of the Florida Department of Transportation Manual on Traffic Controls and Safe Practices for Street and Highway Construction Maintenance and Utility Operations latest revision.
- D. No road or street shall be closed to the public except with the permission of the HYDROGEOLOGIST and appropriate governmental agency.
- E. The work shall be conducted at all times so as to ensure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the work, and to insure the protection of persons and property.
- F. Well site discharge locations are shown on the drawings and security requirements apply. CONTRACTOR shall secure all gates and fences per contract requirements.
- G. Shared access roads to, from, adjacent to and around the well sites shall be kept open at all times.

2.07 TEMPORARY CONTROLS

- A. Noise Control:
 - 1. CONTRACTOR shall comply with all County and City ordinances.
 - 2. CONTRACTOR shall immediately cease operations and mitigate sound to the extent required by County and City ordinance if residents complain about noise as applicable.
- B. Light Control:
 - 1. CONTRACTOR shall mitigate stray light during approved night work by directing light source to the work area only.
 - 2. Lighting shall be directed away from nearby residences and properties.
 - 3. CONTRACTOR shall immediately mitigate stray light upon complaint.
- C. Dust Control:
 - 1. Provide positive methods and apply dust control materials to minimize raising dust from construction operations, and provide positive means to prevent air-borne dust from dispersing into the atmosphere.

2. CONTRACTOR shall immediately mitigate dust upon complaint

D. Water Control:

1. Provide methods to contain storm water drainage within the CONTRACTORS approved work area, prevent storm water and project related water containing turbidity above the allowable standard from entering adjacent surface water bodies. Provide settling and treatment before discharge of water to approved discharge location.
2. Provide methods to control surface water to prevent damage to the project, the site, or adjoining properties.
3. Control fill, grading and ditching to direct surface drainage away from excavation, trenches, pits and other construction areas, and to direct drainage to proper runoff.
4. Provide, operate and maintain hydraulic equipment of adequate capacity to control surface water.
5. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or adjoining areas.

E. Debris and Waste Materials Control:

1. Maintain all areas under the CONTRACTOR's control free of extraneous debris, garbage and waste matter.
2. Initiate and maintain a specific program to prevent accumulation of debris at the construction site, storage and parking areas, or along access roads and haul routes.
3. Provide acceptable containers for deposit of debris and waste.
4. Prohibit overloading of trucks to prevent spillage on access and haul roads.
5. Provide periodic inspection of traffic areas to enforce requirements.
6. Schedule periodic and as needed collection and disposal of debris and waste.

F. Pollution Control:

1. Provide methods, means and facilities required to prevent contamination of soil, water or air by the discharge of noxious substances from construction operations.
2. Immediately remove and properly dispose of all contaminated materials upon discovery of spillage of noxious substances.

3. Take special precautions to prevent harmful substances from entering public waters.
 4. Provide systems for control of atmospheric pollutants and prevent toxic concentrations of chemicals.
- G. Erosion Control:
1. Plan and execute construction and earthwork by methods to control surface drainage from cuts and fills and from borrow and waste disposal areas to prevent erosion and sedimentation.
 2. Hold areas of bare soil exposed at one time to a minimum and provide temporary control measures such as berms, dikes and drains.
 3. Construct fills and waste areas by selective placement to eliminate surface silts and clays from eroding.
 4. Construct and maintain properly installed silt fencing and hay bales around the perimeter of the construction area to control surface drainage and runoff.

PART III **EXECUTION**

3.01 **GENERAL**

- A. Comply with all applicable requirements of local building codes.
- B. Maintain and operate systems to assure continuous service.
- C. Modify and extend systems as work progress requires.
- D. Preserve from damage all property along the line of work or which is in the vicinity of or is in any way affected by the Work. Wherever such property is damaged due to the activities of the CONTRACTOR, it shall be immediately restored to its original condition by the CONTRACTOR at no cost to the OWNER.

3.02 **INSPECTIONS**

Prior to placing temporary facilities into service, inspect and test each service and arrange for inspections and tests by governing authorities and obtain required certifications and permits for use thereof.

3.03 **REMOVAL**

- A. Completely remove temporary materials and equipment when their use is no longer required.
- B. Clean and repair damage caused by temporary installations or use of temporary facilities.
- C. Restore permanent facilities used for temporary services to specified conditions.

END OF SECTION

SECTION 01535

PROTECTION OF EXISTING UTILITIES FACILITIES

PART I

GENERAL

1.01 GENERAL REQUIREMENTS

- A. The CONTRACTOR shall protect all existing utilities and improvements, regardless of whether they were shown on the plans, not designated for removal and shall restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than they were prior to such damage or temporary relocation, all in accordance with requirements of the Contract Documents.
- B. The CONTRACTOR shall verify the exact locations and depths of all existing utilities, and the CONTRACTOR shall make exploratory excavations of all utilities that may interfere with the Work.
- C. All such exploratory excavations shall be performed as soon as practicable after award of the Contract and, in any event, a sufficient time in advance of construction to avoid possible delays to the CONTRACTOR'S work.
- D. When such exploratory excavations show the utility location as shown to be in error, the CONTRACTOR shall so notify the HYDROGEOLOGIST.
- E. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility.

1.02 RIGHTS-OF-WAY

- A. The CONTRACTOR shall not do any Work that would affect any oil, gas, sewer, or water pipeline; any telephone, telegraph, or electric transmission line; any fence; or any other structure, nor shall the CONTRACTOR enter upon the rights-of-way involved until notified by the HYDROGEOLOGIST that the OWNER has secured authority therefore from the proper party.
- B. After authority has been obtained, the CONTRACTOR shall give said party due notice of its intention to begin work, if required by said party, and shall remove, shore, support, or otherwise protect such pipeline, transmission line, ditch, fence, or structure, or replace the same.
- C. When two or more contracts are being executed at one time on the same or adjacent land in such manner that work on one Contract may interfere with that on another, the OWNER shall determine the sequence and order of the Work.
- D. When the limits of one Contract are the necessary or convenient means of access for the execution of another Contract, such privilege of access or any other reasonable privilege may be granted by the OWNER to the CONTRACTOR so desiring to the extent, amount, in the manner, and at the times permitted.

- E. No such decision as to the method or time of conducting the Work or the use of territory shall be made the basis of any claim for the delay or damage, except as provided for temporary suspension of the Work.

1.03 PROTECTION OF STREET OR ROADWAY MARKERS

- A. The CONTRACTOR shall not destroy, remove, or otherwise disturb any existing survey markers or other existing street or roadway markers without proper authorization.
- B. No pavement breaking or excavation shall be started until all surveyor or other permanent marker points that shall be disturbed by the construction operations have been properly referenced.
- C. All survey markers or points disturbed by the CONTRACTOR shall be accurately replaced after all street or roadway re-surfacing has been completed.

1.04 RESTORATION OF PAVEMENT

A. General:

1. All paved areas including asphaltic concrete berms cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific re-surfacing requirements have been called for in the Contract Documents or the requirements of the agency issuing the permit.
2. All temporary and permanent pavement shall conform to the requirements of the affected pavement OWNER.
3. All pavements which are subject to partial removal shall be neatly saw-cut in straight lines.

B. Temporary Re-surfacing:

1. Wherever required by the public authorities having jurisdiction, the CONTRACTOR shall place temporary surfacing promptly after backfilling and shall maintain such surfacing for the period of time fixed by said authorities before proceeding with the final restoration of improvements.

C. Permanent Re-surfacing:

1. To obtain a satisfactory junction with adjacent surfaces, the CONTRACTOR shall saw cut back and trim the edge so as to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement.
2. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting straight lines.

3. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.

D. Restoration of Sidewalks or Private Driveways:

1. Wherever sidewalks or private roads have been removed for purposes of construction, the CONTRACTOR shall place suitable temporary sidewalks or roadways promptly after backfilling and shall maintain them in satisfactory condition for the period of time fixed by the authorities having jurisdiction over the affected portion before proceeding with the final restoration or, if no such period of time is so fixed, the CONTRACTOR shall maintain said temporary sidewalks or roadways until the final restoration thereof has been made.

1.05 EXISTING UTILITIES AND IMPROVEMENTS

A. General:

1. The CONTRACTOR shall protect underground utilities and other improvements which may be impaired during construction operations.
2. It shall be the CONTRACTOR responsibility to ascertain the actual location of all existing utilities and other improvements that shall be encountered in its construction operations, and to see that such utilities or other improvements are adequately protected from damage due to such operations.
3. The CONTRACTOR shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be deemed necessary.
4. CONTRACTOR shall pothole all conflicts within the first 30 days of the Contract to avoid delays while installing the pipelines.
5. CONTRACTOR is responsible for relocation and restoration of utilities, buried or overhead, to complete the project. OWNER shall perform some relocation of utilities; CONTRACTOR shall coordinate with OWNER for all relocation and restoration of utilities.

B. Utilities to be Moved

1. In case it may be necessary to move the property of any public utility or franchise holder, such utility company or franchise holder shall, upon request of the CONTRACTOR, be notified by the OWNER to move such property within a specified reasonable time.
2. When utility lines that are to be removed are encountered within the area of the operations, the CONTRACTOR shall notify the HYDROGEOLOGIST a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.

C. Temporary Removal and/or Relocation:

1. Where the proper completion of the Work requires the temporary removal and/or relocation of an existing utility or other improvement which is indicated, the CONTRACTOR shall remove and, without unnecessary delay, temporarily replace or relocate such utility or improvement in a manner satisfactory to the HYDROGEOLOGIST and the OWNER of the facility.
 2. In all cases of such temporary removal or relocation, restoration to the former location shall be accomplished by the CONTRACTOR in a manner that shall restore or replace the utility or improvement as neatly as possible to its former locations and to as good or better condition than found prior to removal.
- D. The right is reserved to the OWNER and to the owners of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the Work of this Contract.
- E. Existing utility lines that are indicated or the locations of which are made known to the CONTRACTOR prior to excavation and that are to be retained, and all utility lines that are excavation and backfilling and, if damage, shall be immediately repaired or replaced by the CONTRACTOR.
- F. Underground Utilities Not Indicated:
1. In the event that the CONTRACTOR damages any existing utility lines that are not indicated or the location of which shall not make known to the CONTRACTOR prior to excavation, a written report thereof shall be made immediately to the HYDROGEOLOGIST.
 2. If directed by the HYDROGEOLOGIST, repairs shall be made by the CONTRACTOR under the provisions for changes and extra work contained in the General Conditions.
- G. All costs of locating, repairing damage not due to failure of the CONTRACTOR to exercise reasonable care, and removing or relocating such utility facilities not shown on the Contract Documents with reasonable accuracy, and for equipment on the project which was actually working on that portion of the work which was interrupted or idled by removal or relocation of such utility facilities, and which was necessarily idled during such work shall be paid for as extra work in accordance with the provisions for changes and extra work contained in the General Conditions.
- H. All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement OWNER being concealed by backfill or other work.
1. All oil and gasoline pipelines, power, and telephone or the communication cable ducts, gas mains, water mains, irrigation lines, sewer lines, storm drainage, poles and overhead power and communication wires and cables encountered along the line of the work shall remain continuously in service during all the operations under the Contract, unless other arrangements

satisfactory to the HYDROGEOLOGIST are made with the OWNER(s) of said pipelines, ducts, main, irrigation lines, sewers, storm drains, poles, wires or cables.

2. The CONTRACTOR shall be responsible for and shall repair all damage due to its operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

1.06 TREES WITHIN PROJECT LIMITS

A. General:

1. The CONTRACTOR shall exercise all necessary precautions so as not to damage or any trees or shrubs, including those lying within street right-of-way and project limits, and shall not trim or remove any trees unless such trees have been approved for trimming or removal by the OWNER.
2. All existing trees and shrubs which are damaged during construction shall be trimmed or replaced by the CONTRACTOR or a certified tree company under permit from the jurisdictional agency and/or OWNER.
3. Tree trimming and replacement shall be accomplished in accordance with the following paragraphs.

B. Trimming:

1. Symmetry of the tree shall be preserved; no stubs, splits or torn branches left; clean cuts shall be made close to the trunk or large branch.
2. Spikes shall not be used for climbing live trees.
3. All cuts over 1-1/2" in diameter shall be coated with an asphaltic emulsion material.

C. Replacement:

1. The CONTRACTOR shall immediately notify the OWNER if any tree is damaged by the CONTRACTOR's operations.
2. If, in the opinion of OWNER, the damage is such that replacement is necessary, the CONTRACTOR shall replace the tree at its own expense.

1.07 NOTIFICATION BY THE CONTRACTOR

- A. Prior to any excavation in the vicinity of any existing underground facilities, including all water, sewer, storm drain, gas, petroleum products, or other pipelines; all buried electric power, communications, or television cables; all traffic signal and street lighting facilities; and all roadway and state highway rights-of-way the CONTRACTOR shall notify the respective authorities representing the owners or agencies responsible for such facilities not less than three (3) days nor more than

seven (7) days prior to excavation so that a representative of said owners or agencies can be present during such work if they so desire.

- B. The CONTRACTOR shall also notify "SUNSHINE UNDERGROUND UTILITIES NOTIFICATION CENTER" at 811 at least three (3) full business days, but not more than ten (10) days prior to such excavation.

PART II **PRODUCTS**

Not Used

PART III **EXECUTION**

Not Used

END OF SECTION

SECTION 01600

EQUIPMENT AND MATERIALS

A. TRANSPORTATION AND HANDLING

Deliver manufactured materials and products to the project site as needed for installation, undamaged, in original packages, containers, or bundles, as packaged by the manufacturer with manufacturer's name, brand, seals, and labels intact. Materials other than those designated within the Specifications shall not be delivered to the project site.

B. STORAGE AND PROTECTION

1. Protect and preserve all materials until final acceptance of the Project. Store all materials in a manner to facilitate inspection and to prevent damage, contamination, intermixing, or theft.
2. Miscellaneous metal, reinforcement bars, welded wire fabric, and masonry reinforcement materials shall be stored to prevent contact with the ground and from being damaged by its own weight or by other loads. Reinforcement which has become muddy shall be cleaned before use.
3. Store cementitious materials in weathertight sheds on elevated floors away from damp surfaces. Prevent freezing.
4. Do not use and dispose of materials that have been stored for longer than their maximum recommended shelf life or beyond their recommend shelf date.
5. Store and protect all material and equipment in accordance with manufacturer's recommendations.

C. PROTECTION OF EQUIPMENT

1. During construction, protect all equipment from moisture absorption and metallic component corrosion by appropriate use of strip heaters, lamps, coverings, or other suitable means. Apply protection immediately on receiving the products and maintain continually.
2. Keep products clean by elevating above ground or floor and by using suitable coverings. Take such precautions as are necessary to protect apparatus and materials from damage. Failure to protect materials is sufficient cause for rejection of the apparatus or material in question.
3. Protect factory finish from damage during construction operations and until acceptance of the project. Satisfactorily restore any finishes that become stained or damaged.

D. EQUIPMENT SELECTION AND SERVICEABILITY

1. Locate and install all equipment so that it may be serviced. Demonstrate that there is room to remove all fan shafts, bearings, filters, pumps and motors, and similar equipment.
2. Equipment which is too large or poorly located to permit servicing shall be replaced or repositioned at no additional cost to the Owner.
3. Where piping, control diagrams or sequencing differ from the recommended piping arrangements of the equipment manufacturer, and will directly affect the equipment performance, the manufacturer's recommendations shall be submitted in writing to the Engineer for review prior to purchasing the equipment involved. Obtain such recommendations from the manufacturers in order to effect correct and perfect operation of the equipment at the capacities and temperatures indicated.

END OF SECTION

SECTION 01700
PROJECT CLOSEOUT

PART I **GENERAL**

1.01 **REQUIREMENTS INCLUDED**

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. Comply with requirements stated in General and Special Conditions of the Contract and in Specifications for administrative procedures in closing out the work.
- C. Related requirements specified in other sections:

Section 01720: Project Record Documents

1.02 **SUBSTANTIAL COMPLETION**

- A. When Contractor considers his work is substantially complete, he shall submit to Owner:
 - 1. A written notice that the work, or designated portion thereof, is substantially complete.
 - 2. A list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, Owner or Engineer will make a site review to determine the status of completion.
- C. Should Owner or Engineer determine that the work is not substantially complete:
 - 1. Owner or Engineer will promptly notify the Contractor, in writing, giving the reasons.
 - 2. Contractor shall remedy the deficiencies in the work, and shall send a second written notice of substantial completion to Owner and Engineer
 - 3. Owner or Engineer will re-review the work
- D. When Owner or Engineer concurs that the work is substantially complete, he will:
 - 1. Prepare a Certificate of Substantial Completion, accompanied by a list of items to be completed or corrected
 - 2. Submit the Certificate to Owner and Contractor for their written acceptance of the responsibilities assigned to them in the certificate.

1.03 FINAL COMPLETION

- A. When Contractor considers the work is complete, he shall submit written certification that:
 - 1. Contract Documents have been reviewed
 - 2. Work has been inspected for compliance with Contract Documents
 - 3. Work has been completed in accordance with Contract Documents
 - 4. Wells have been tested in the presence of the Owner's representative and are operational
 - 6. Work is completed and ready for final inspection
- B. Owner or Engineer will make a site review to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should Owner or Engineer consider that the work is incomplete or defective:
 - 1. Owner or Engineer will promptly notify the Contractor, 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 Owner and Engineer that the work is complete.
 - 3. Owner or Engineer will re-review the work
- D. When Owner and Engineer finds that the work is acceptable under the Contract Documents, he shall request the Contractor to make closeout submittals.

1.04 RE-REVIEW FEES

Should the Owner or Engineer perform re-review due to failure of the work to comply with the claims of status of completion made by the Contractor, Contractor will compensate Engineer/Owner for such additional services.

1.05 ADDITIONAL SERVICES

Should Engineer be required to provide representation at the site for the administration of the Contract for Construction, more than thirty days after the specified Date of Substantial Completion of the work, Contractor will compensate Engineer for such additional services.

1.06 CLOSEOUT TIMETABLE

- A. The Contractor shall establish dates for testing, acceptance periods, and on-site instructional periods, where applicable and as required under the Contract. Such dates shall be established not less than one (1) week prior to beginning any of the foregoing items to allow the Owner and their authorized representatives sufficient time to schedule attendance at such activities.

- B. Should the Owner or Engineer perform re-review due to failure of the work to comply with the claims of status of completion made by the Contractor, Contractor will compensate Engineer/Owner for such additional services.

1.07 FINAL SUBMITTALS

- A. Prior to the final acceptance of the project, the Contractor shall submit to the Owner certain records, certifications, etc., which are specified elsewhere in the Contract Documents. Missing, incomplete, or unacceptable items, as determined by the Owner, shall constitute grounds for withholding final acceptance and final payment to the Contractor. A partial list of such items appears below, but it shall be the Contractor's responsibility to submit any other items which are required in the Contract Documents:

1. Project Record Documents: To requirements of Section 01720
2. Written Test results of project components
3. Spare Parts and Operation and Maintenance Materials: To requirements of each specification section
4. During the entire construction operation, the Contractor shall maintain records of all deviations from the Drawings 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. These record drawings shall conform to recognized standards of drafting and shall be neat, legible, and on Mylar or other reproducible material acceptable to the Owner.
5. Written guarantees, where required
6. Certificates of inspection and acceptance by local governing agencies having jurisdiction
7. Certification of Insurance for Products and Completed Operations
8. Certificate of Operation from equipment manufacturers
9. Releases from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of law

1.08 PUNCH LISTS

- A. Final cleaning and repairing shall be scheduled upon completion of the project.
- B. The Owner will make his final inspection whenever the Contractor has notified the Owner that the Work is ready for the inspection. Any Work not found acceptable and requiring cleaning, repair, and/or replacement will be noted on the "Punch" list. Work that has been inspected and accepted by the Owner shall be maintained by the Contractor until final acceptance of the entire project.

- C. Whenever the Contractor has completed the items on the "Punch" list, he shall again notify the Owner that it is ready for final inspection. This procedure will continue until the entire project is accepted by the Owner. The "Final Payment" will not be processed until the entire project has been accepted by the Owner and all of the requirements in Article 1.07 of this Section entitled "Final Submittals" have been satisfied.

1.09 MAINTENANCE AND GUARANTEE

- A. The Contractor shall comply with all maintenance and guarantee requirements of the Contract Documents.
- B. Replacement of earth fill or backfill, where it has settled below the required finish elevations, shall be considered as a part of such required repair work, and any repair or resurfacing constructed by the Contractor which becomes necessary by reason of such settlement shall likewise be considered as a part of such required repair work unless the Contractor has obtained a statement in writing from the affected private owner or public agency relieving the Owner of further responsibility in connection with such repair or resurfacing.
- C. A final survey of each site is required that includes identification of corner elevations and grade elevation at well casing with benchmark provided on casing and at other locations as required in the Contract documents.
- D. The Contractor shall make all repairs and replacements promptly upon receipt of written order from the Owner. If the Contractor fails to make such repairs or replacements promptly, the Owner reserves the right to do the Work and the Contractor and his surety shall be liable to the Owner for the cost thereof.

1.10 FINAL CLEANUP

- A. The Contractor shall promptly remove from the vicinity of the completed Work, all rubbish, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction. Final acceptance of the Work by the Owner will be withheld until the Contractor has satisfactorily complied with the foregoing requirements for final cleanup of the project site.

1.11 FINAL ADJUSTMENT OF ACCOUNTS (UNIT PRICE CONTRACTS ONLY)

- A. Submit a final statement of accounting to Owner
- B. Statement shall reflect all adjustments to the Contract Sum
 - 1. The original Contract Sum
 - 2. Additions and deductions resulting from:
 - a. Previous change orders
 - b. Unit prices
 - c. Deductions for liquidated damages

d. Other adjustments

3. Total contract sum, as adjusted
4. Previous payments
5. Sum remaining due

1.12 FINAL APPLICATION FOR PAYMENT

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

PART II PRODUCTS (NOT USED)

PART III EXECUTION (NOT USED)

END OF SECTION

SECTION 01720

PROJECT RECORD DRAWINGS

PART I

GENERAL

1.01 PROJECT RECORD DOCUMENTS

- A. Maintain at the site for the Owner one record copy of:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other Modifications to the Contract.
 - 5. Owner/Engineer Field Orders or written instructions.
 - 6. Reviewed Shop Drawings.
 - 7. Field test records.

1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. Section 01700 – Project closeout
- C. Town's Standards

1.03 MAINTENANCE OF DOCUMENTS

- A. Store documents in approved location apart from documents used for construction.
- B. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- C. Make documents available at all times for inspection by Engineer and Owner. Record drawing information shall be maintained concurrently with monthly Pay Requests.

1.04 MARKING DEVICES

- A. Provide ink marking pens for recording information in a color code.

1.05 RECORDING

- A. Label each document "PROJECT RECORD" in neat large printed letters.
- B. Record information currently with construction progress. Do not conceal any work until required information is recorded.

C. Record Drawings shall be drawn to record actual construction and be prepared by a third party professional surveyor and mapper licensed in the state of Florida. Record Drawings shall contain, at a minimum, the following information:

1. Horizontal location of structures, pipes, conduits, pullboxes, and other appropriate existing utilities shall be provided and referenced to a permanent reference point any time the pipe or conduit passes a permanent surface reference point. Permanent surface reference points must be permanent structures and can include manholes, catch basins, utility poles, buildings, concrete sidewalks or concrete curbs. Edge of pavement and road intersections may not be used without the Owner's approval. Any deviations from the alignment shown on the drawings must be noted.

Top elevations for all the above elements of construction shall be in relation to N.G.V.D. 1929. Depth of cover, where applicable, shall be provided for all the elements of construction.

2. Contractor will be responsible to maintain existing permanent concrete survey monuments at the well site easement corners during construction of all wells. Damage to the existing survey monuments will be corrected by a licensed surveyor at the expense of the Contractor.

Contractor will be responsible to establish a survey benchmark on each individual final well casing.

Contractor will be responsible to provide GPS coordinates and survey record documents identifying the center of each new production well installed, each test well location, and pilot hole location completed under this Contract. Survey information shall be obtained by a licensed surveyor in the State of Florida.

Contractor shall provide record documents related to the details of construction/abandonment of each well, including depths, diameters, and materials of construction and abandonment, etc. for all well components.

3. Field changes of dimension and detail.
4. Changes made by Field Order or by Change Order.
5. Details not on original Contract Drawings.

D. Specifications and Addenda; legibly mark each Section to record:

1. Manufacturer, trade name, catalog number, and supplier of each item actually installed.
2. Changes made by Field Order or by Change Order.

1.05 SUBMITTAL

- A. Submit red-lined up to date record drawings of work that has been completed on a monthly basis along with each monthly application for payment.
- B. At Contract Close-out, Record Documents shall be submitted to Engineer in the following formats for Owner:
 - 1. Six (6) sets of signed and sealed record drawings on 24" x 36".
 - 2. One compact disc or DVD with drawings in Adobe Acrobat format and AutoCAD Release 2007 or earlier. Create new layers as required for all new record drawing information by adding "-rec-dwg" to the end of the existing layer name. Use the same color and linetype as provided in the base file from the TOWN. All new record drawing entities in the drawing shall be "bylayer". Do not change any properties (color, linetype, etc.). Keep base file and all new information in the same coordinate system, scale and rotation.
- C. 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 II PRODUCTS (NOT USED)

PART III EXECUTION (NOT USED)

END OF SECTION

SECTION 02016

EXISTING UTILITIES AND UNDERGROUND STRUCTURES

PART I GENERAL

1.01 GENERAL

- A. The plans depict the approximate location of the existing subsurface utilities. The locations of those facilities (horizontal and vertical) were obtained as follows:
 - 1. Field investigation of valves, junction boxes, pavement patches, etc.
 - 2. Correlation of the above data with the following organizations:
 - a. Florida Power & Light Company
 - b. AT&T
 - c. Indian River County
 - d. Applicable Local Utilities
 - e. Cable TV Companies

1.02 CONTRACTOR'S RESPONSIBILITIES

- A. Notify the above mentioned organizations at least 48 hours in advance of construction occurring near these existing utilities.
- B. Locate the cables, ducts, conduit, pipeline, etc. in advance of the proposed pipeline construction in cooperation with the above referenced organizations.
- C. Notify OWNER of any substantial changes that would require a deviation in the plans.
- D. Repair any damage done to existing utilities at no additional expense to the OWNER.

END OF SECTION

SECTION 02100
CLEARING AND GRUBBING

PART I GENERAL

1.01 SCOPE

- A. The work specified in this section consists of clearing and grubbing of areas to be occupied by the proposed wells and any other areas, as required, to complete the scope of work
- B. Remove and/or dispose of material and debris resulting from these operations
- C. Principal items of work include:
 - 1. Contractor shall discuss with the Owner required tree removal prior to removal of any trees.
 - 2. Notifying all authorities owning utility lines running to or on the property. Protecting and maintaining all utility lines to remain and capping those that are not required in accordance with instructions of the Utility Companies, and all other authorities having jurisdiction.
 - 3. Boxing and protecting all trees, shrubs, lawns and the like within areas to be preserved.
 - 4. Damage to trees, shrubs, and other plants caused by site preparation operations shall be repaired immediately. Work shall be done by qualified personnel in accordance with standard horticultural practice.
 - 5. Disposing from the site all debris resulting from work under this Section.

1.02 PROTECTION OF PERSONS AND PROPERTY

- A. All work shall be performed in such a manner to protect all personnel, workmen, pedestrians and adjacent property and structures from possible injury and damage.
- B. All conduits, wires, cables and appurtenances above or below ground shall be protected from damage.
- C. Open excavation shall be backfilled or plated and provided with warning and barrier fence as required.

PART II **PRODUCTS (NOT USED)**

PART III **EXECUTION**

3.01 **STANDARD CLEARING AND GRUBBING**

- A. Prior to the start of construction, the Contractor shall survey the entire Contract site and shall prepare a plan which defines the areas to be cleared and grubbed, trees to be pruned, extent of tree pruning, and/or areas which are to be cleared but not grubbed. This plan shall be submitted to the Owner for approval. Should it become necessary to remove a tree, bush, brush or other plants adjacent to the area to be excavated, the Contractor shall do so only after permission has been granted by the Owner
- B. Work Included: Standard Clearing and Grubbing shall consist of the complete removal and disposal of all timber, brush, stumps, roots, rubbish and debris and all other obstructions resting on or protruding through the surface of the existing ground and the surface of excavated areas, and of all other structures and obstructions necessary to complete the project.
- C. Depths of Removal of Roots, Stumps, and other Debris: In all areas where excavation is to be done and where the excavated material is to be used in the construction of the project earthwork and foundations, roots and other debris shall be removed to a depth of at least one foot below the ground surface.
- D. All stumps within the foundation shall be completely removed and disposed of by the CONTRACTOR.
- E. Within all other areas where Standard Clearing and Grubbing is to be done, roots and other debris, projecting through or appearing on the surface of the original ground, shall be removed to a depth of one foot below the surface.
- F. Excavation resulting from the removal of trees, roots and the like shall be filled with suitable material, as approved by the Engineer, and thoroughly compacted per the requirements detailed elsewhere

3.02 **DISPOSAL OF MATERIALS**

- A. General Disposal: Timber, stumps, brush, roots, rubbish, and other objectionable material resulting from clearing and grubbing shall be disposed of by the CONTRACTOR, at his sole expense.
- B. Burning of any debris resulting from the clearing and grubbing work will not be permitted at the site

END OF SECTION

SECTION 02200

EARTHWORK, EXCAVATION, AND BACKFILL

PART 1 - GENERAL

1.01 SECTION INCLUDES

The work covered by this section consists of furnishing all labor, equipment, and materials, and performing all earthwork operations to include:

- A. Excavation and backfill of structures, foundations, and pavements.
- B. Surface preparation for structures, foundations, and pavements.
- C. Excavation and backfill of pipe trenches.
- D. Excavation and backfill after removal of underground structures and piping.
- E. Site grading
- F. Soil compaction and stabilization requirements
- G. Soil testing

1.02 REFERENCES

- A. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Latest Edition.
- B. American Society for Testing and Materials (ASTM)
 - D698 Moisture-Density Relationship of Soils.
 - D1556 Standard Method of Test for Density of Soil in Place by Sand Cone Method.
 - D1557 Method for Test for Moisture-Density Relations of Soils Using a 10-Pound Rammer and 18-Inch Drop.
 - D2487 Classification of Soils for Engineering Purposes.
 - D2922 Density of Soil and Soil-Aggregate in Place by Nuclear Methods

1.03 RELATED SECTIONS SPECIFIED ELSEWHERE

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions and Division 1 Specification sections, apply to this section.

- B. Section 01410 - Testing Laboratory Services
- C. Section 02016 - Existing Utilities and Underground Structures
- D. Section 02150 – Dewatering
- E. Section 15100 – Piping and Valves

1.04 FIELD MEASUREMENTS AND COORDINATION

- A. Verify that survey benchmark, control point, and intended elevations for the work are as shown on the Drawings.
- B. Verify that work associated with lower elevation utilities is complete before placing higher elevation utilities.
- C. Maintain carefully all benchmarks, monuments and other reference points; if disturbed or destroyed, replace at no expense to Owner.

1.05 SUBSURFACE SOILS DATA

- A. Owner and Engineer make no representations or statements as to site or soil conditions and therefore do not assume any responsibility for actual site or soil conditions. It shall be Contractor's responsibility to determine for himself existing site and/or soil conditions.

PART 2 - PRODUCTS

2.01 EXCAVATION

- A. All excavation is unclassified. Complete all excavation regardless of the type, nature, or condition of the materials encountered.

2.02 SOURCE QUALITY CONTROL

- A. If tests for a material type fail three times, the Engineer may reject the source supplier and require the contractor to submit a new source for approval, at no additional cost to the Owner. The on-site soils are considered acceptable material and may be used, provided that it meets the specified requirements.
- B. Quality control of the work shall be the Contractor's responsibility and Contractor shall make every effort to produce the best quality work as specified on the Drawings and in these Specifications.

2.03 STRUCTURAL FILL AND BACKFILL

- A. Fill and backfill under and around all structures shall be suitable approved imported or on-site material. Material shall be free of organic material, shall have not more than 10 percent by dry weight passing the U.S. Standard No. 200 sieve, and shall have no rocks larger than 1 inch in size.

- B. On site organic soils or other on-site soils with more than 10% by dry weight passing the U.S. Standard No. 200 sieve are not suitable for use as fill under structures, pavers, pavements, and concrete.

2.04 EARTHFILL

- A. On-site excavated material free from roots, trash, and rocks larger than 1 inch.

2.05 WATER FOR COMPACTION

- A. Contractor shall furnish potable water, as required. Contractor may coordinate with the Owner to arrange for a hydrant meter for water during construction. Costs associated with the hydrant meter shall be paid for by the Contractor. Contractor will not be charged for water used unless Owner determines contractor is being wasteful with its use.

2.06 EQUIPMENT

- A. All equipment shall be suitable and adequate to perform the work specified. Vibratory rollers are not allowed on the water plant site. Hand vibratory compactors are allowed.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Identify required lines, levels, contours, and datum locations. Protect bench marks, survey control points, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- B. Locate, identify, and protect utilities that remain from damage.

3.02 STRIPPING TOPSOIL

- A. Stripping of topsoil shall be performed prior to any cutting, excavation, removal and/or replacement or fill materials.
- B. Strip topsoil from area within boundaries of proposed construction lines to a depth of approximately 4". The top materials stripped shall be removed and disposed of off site, unless authorized for use on the site by the Owner/Engineer.
- C. Stripping of topsoil shall ensure that entire site is stripped and scraped clean of all brush, weeds, grass, roots, vegetation, etc.

3.03 CUTTING

- A. Except as otherwise specified, after stripping of topsoil all site areas which are above elevation required shall be cut to subgrades required by drawings.

3.04 PROOF ROLLING

- A. Not Used.

3.05 FILLING

- A. Except as otherwise specified, after stripping of topsoil all site areas which are below elevation required shall be compacted as specified and then over such areas clean granular fill placed and compacted in layers not exceeding 12" in uncompacted thickness. Each layer of fill shall be compacted to at least 98% of the modified proctor maximum dry density (ASTM D1557). Filling and compaction shall continue until subgrades required for various areas are reached. All holes and depressions caused from removal of trees, stumps, etc. shall be filled and compacted. Fill shall be good clean material as previously specified.

3.06 EXCAVATION UNDER STRUCTURES AND PAVEMENT AREAS

- A. Excavation shall be performed to elevations and dimensions required by drawings with suitable allowance made for construction operations and inspections. Excavation carried to depths below required elevations shall be replaced in layers a maximum of 4" in depth and compacted in a manner to achieve a minimum density of 98% of the maximum dry density as determined by a modified proctor in accordance with ASTM D-1557. Contractor may place additional concrete in lieu of replacing and compacting excess excavation as specified above to fill excess cut under structures provided the excess excavation does not exceed 6 inches. The concrete shall have a compressor value no less than 2500 psi. Correction of excess cut shall be responsibility of Contractor at no additional cost to Owner.
- B. Compact disturbed load bearing soil in direct contact with foundations to achieve a minimum density of 98% of the maximum dry density as determined by a modified proctor in accordance with ASTM D-1557.
- C. Slope banks with machine to angle of repose or provide necessary shoring.
- D. Do not interfere with 45 degree bearing splay of existing foundations without providing adequate means of shoring protection.
- E. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- F. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- G. Correct areas over excavated in accordance with this section.
- H. Remove excavated material unsuitable for backfill from site at contractor's expense. Contractor is required to perform subsurface soil investigations as described in part 1.05 of this specification section.
- I. When muck or other deleterious materials is encountered in the excavation, it shall be completely removed within the area of the structure or pavement and to a depth where acceptable material is encountered. After removal of all muck or other deleterious material, the area shall be backfilled with approved fill material to the

specified grade. Removal of muck or other deleterious material greater than 6 inches below the required subgrade elevation shall be considered unforeseen circumstances and eligible for additional compensation to be arrived at in accordance with these specifications.

3.07 TRENCH EXCAVATION AND PREPARATION

- A. Excavation: Excavate as required for the installation of all piping, utilities, conduits, and appurtenances.
- B. Trench Width: Cut trenches sufficiently wide to enable installation, compaction and inspection. The maximum width will not be limited except where excessive trench width would cause damage to adjacent structures or piping.
- C. Grade: Excavate the bottom of the trench to the line and grade shown, or as established by the Engineer with proper allowance for pipe bedding.
- D. All trench work shall comply with the Trench Safety Act of 1990, with latest revisions.
- E. Piping shall be installed in a dry trench.
- F. When acceptable material is encountered in the trench, the bottom shall be excavated and graded to the depth required so as to provide a uniform and continuous bearing and support for the pipe on solid and undisturbed ground at every point between bell holes.
- G. Bell holes shall be provided at each joint to permit the joint to be made properly. At no time shall the bells support the pipe when in the trench.
- H. When muck or other deleterious materials is encountered in the trench, it shall be completely removed for the width of the trench at the pipe and to a depth where acceptable material is encountered. After removal of all muck or other deleterious material, the trench shall be backfilled with bedding material to the bottom of pipe grade.
- I. See the Town's Standards for additional requirements.

3.08 MAINTENANCE OF EXCAVATION

- A. The excavation shall be maintained at a dry condition at all times.
- B. All side slopes shall be such that material will not slide into the bottom of the excavation and any material doing so shall be immediately removed. Trench side slopes shall be in accordance with local codes, OSHA requirements, and the Trench Safety Act.
- C. All excavated material shall be piled in a manner that will not endanger the work and that will avoid obstructing sidewalks and driveways. Hydrants under pressure, valve pit covers, valve boxes, curb stop boxes, fire and police call boxes, or other utility controls shall be left unobstructed and accessible until the work is completed.

- D. Trees, shrubbery, fences, poles, bollards and all other property and surface structures shall be protected unless their removal is shown on the drawings or authorized by the Owner/Engineer.

3.09 BACKFILL UNDER STRUCTURES AND PAVEMENT AREAS

- A. Backfilling of excavated areas under, around or over building and structural appurtenances and pavement or pavers shall be performed with clean fill materials which are free of debris, organics, trash or other deleterious substances. Suitable compaction equipment, as described in Section 2.06, shall be used to obtain density described previously for entire depth of backfilling. Each layer of backfill under structures, pavements, and pavers shall be compacted to a minimum of 98% of the maximum dry density as determined by a modified proctor in accordance with ASTM D-1557. Each layer of compacted backfill shall not exceed 12" in thickness. The completed, compacted surface shall be at the proper final subgrade elevation.
- B. Verify that the specified density extends to 12 inches below the bottom of the structure or pavement base course to be installed.

3.10 TRENCH BACKFILLING

- A. Haunch Backfill: Carefully place Pipe Bedding material so as not to damage the pipe in maximum 6 inch loose lifts and compact to the pipe centerline. Use hand-held compaction equipment.
- B. Pipe Zone: Backfill with Pipe Bedding material in maximum 12 inch loose lifts and compact to a point 12 inches above the pipe crown.
- C. Under Pavement/Paver Areas, Sidewalks, and Structures: In areas where backfill settlement must be held to a minimum, backfill above the pipe zone with Pipe bedding material in maximum 12 inch loose lifts and compact to a minimum 98 percent of the maximum dry density (ASTM D 1557) up to the subgrade elevation.
- D. Outside Pavement/Paver Areas: In areas where backfill settlement is not critical, backfill above the pipe zone with earthfill material to a density equal to or greater than the soil adjacent to the pipe trench, but not less than 95 percent of the maximum dry density (ASTM D 1557), to final grade.
- E. No material shall be used for backfill which contains muck or other deleterious material or material with an excessive void content. All backfill shall be composed of select clean granular material.
- F. All trenches and excavation shall be backfilled immediately after all pipe and joints have been investigated and approved by the Engineer or Utility Department, subject to satisfactory pressure and leakage test results, as required.
- G. Backfill, in general, shall be kept up with the rate of pipe laying. No more than 200 feet of pipe trench shall be open at one time at any one project location.
- H. Refer to the Town's Standards for additional requirements.

3.11 BACKFILL AROUND STRUCTURES

- A. Obtain Owner/Engineer's acceptance of concrete work and attained concrete strength prior to backfilling.
- B. Backfill with Structural Backfill material placed in maximum 12 inch loose lifts and compacted to a minimum 98 percent of maximum dry density as determined by the modified proctor test (ASTM D 1557).
- C. Compact backfill adjacent to structures with equipment that will not damage the structure.
- D. Backfill with flowable fill or other material shall be only if reviewed and approved by the Owner/Engineer.

3.12 SITE GRADING

- A. Fill and contour site areas with earth fill material to elevations shown and as required to prepare the site for landscape grading and sodding.
- B. Place materials in maximum 12 inch loose lifts and compact to 95% maximum density in areas outside of pavement and 98% maximum density under pavement or structures.

3.13 COMPACTION TESTING

- A. In-situ compaction testing shall be performed by the Owner's contracted geotechnical materials testing laboratory. Owner will pay for passing tests. Contractor will be responsible to pay for failing tests.
- B. Compaction testing shall be done by nuclear density equipment or other approved methods. (ASTM D-2937, D-1557, D-2922)
- C. Density testing shall be performed as follows:
 - 1. Pipe Trenches: 1 test per lift per 100 feet of pipe or as requested by Owner.
 - 2. Fill/Backfill Under/Around Structures: 1 test per lift or as requested by Owner.
 - 3. Fill Under Pavement Areas: 1 test per lift per 2,000 square feet of compacted surface area or as requested by Owner.
- D. Test results in a specific location are only representative of a larger area if the contractor has used consistent compaction means and methods and the soils are practically uniform throughout. If it is determined by the Owner/Engineer that there are variations in the compaction methods and/or soil uniformity, additional testing may be required.
- E. It is the contractor's responsibility to schedule and coordinate testing with the testing laboratory and the Town's field representative. The Town's field representative must be present for testing. Failure of contractor to coordinate with Town's field representative will result in testing at the contractor's expense.

3.14 FINAL AND FINISH GRADING

- A. Using clean topsoil, perform all final and finish grading in all yard and planting areas indicated on drawings. Topsoil shall be placed to a minimum of 6" thickness, rototilled to a minimum depth of 8", leveled and finish graded in all areas.
- B. Final grading shall be performed and grades shaped to finished elevations indicated. Finish grades (top of the soil) shall be approximately 1-1/2" below edges of pathways, curbs and other paved or concrete slabs. After sod installation, the top of the sod shall not be more than 1/2" below or shall be flush with the grade established by any adjacent paved or curbed surface.
- C. The Contractor shall verify that all finish subgrades are correct prior to beginning installation of sod and planting materials. Upon completion of the project work, the Contractor shall prepare "record drawings" verifying that all finish grades are in accordance with the contract documents and shall submit same to the Owner/Engineer for review and acceptance prior to requesting final inspection of the project. The "record drawings" shall be prepared by a surveyor registered in the State of Florida.
- D. Upon project completion, all areas of site within immediate construction and adjacent areas shall be completely cleaned of all debris occasioned by this construction. Particular attention is called to any cement, mortar, masonry drippings and plaster which shall be completely removed from planting and lawn areas and shall be disposed of off site.
- E. All areas adjacent to site and all areas not within contract construction areas shall be left in reasonably same condition as they were found prior to commencement of construction.
- F. Any damage to the existing adjacent facilities including adjacent lakes or roads, and related areas such as, but not limited to, finish grades, slopes, grass sod, structures, pipe, etc. shall be repaired and restored to a proper and appropriate condition acceptable to the Owner/Engineer.

3.15 EXCESS MATERIAL

- A. Remove all excess suitable material from the site and dispose of at Contractor's expense.
- B. Unsuitable materials shall also be removed and disposed of off-site at Contractor's expense.

END OF SECTION

SECTION 02270

EROSION AND SEDIMENTATION CONTROL

PART I GENERAL

1.01 DESCRIPTION

The work specified in this Section consists of measures required to control erosion on the project and in areas outside the project area where work is accomplished in conjunction with the project, so as to prevent pollution of water, detrimental effects of public or private property adjacent to the project area and damage to work on the project. These measures will consist of construction and maintenance of temporary erosion control features or, where practical, the construction and maintenance of permanent erosion control features.

1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. Section 02485 – Grassing
- C. Section 02785 – Formation Water Disposal System

1.03 START OF WORK

Do not start work until erosion control measures are in place.

PART II PRODUCTS

2.01 GENERAL

- 1. No testing of materials used in construction of temporary erosion control features will be required.
- 2. Materials used for the construction of the temporary erosion and sedimentation control measures not to be incorporated into the completed project may be new or used, but they must be in good condition and suitable for its intended use.

PART III EXECUTION

3.01 GENERAL

- 1. Temporary erosion control features shall consist of, but not be limited to, temporary sodding, sandbagging, slope drains, sediment basins, artificial coverings, berms, baled hay or straw, floating silt barriers, staked silt barriers,

staked silt fences, and filter fabric on inlets. Design details for some of these items may be found in the Owner's Standards.

2. Incorporate permanent erosion control features into the project at the earliest practical time. Correct conditions, using temporary measures, that develop during construction to control erosion prior to the time it is practical to construct permanent control features.
3. Construct temporary and permanent erosion and sediment control measures to prevent the pollution of adjacent water ways in conformance with the laws, rules and regulations of Federal, State and local agencies.

3.02 INSTALLATION

1. Filter fabric: This work shall consist of furnishing, installing, maintaining, and removing filter fabric covers for drainage inlet protection.
2. Baled Hay or Straw:
 - a. This work shall consist of construction of baled hay or straw dams to protect against downstream accumulations of silt. The baled hay or straw dams shall be constructed in accordance with the details shown in FDOT's Roadway and Traffic Design Standards.
 - b. The dam shall be placed so as to effectively control silt dispersion under conditions present on this project. Alternate solutions and usage of materials may be used if approved.
3. Temporary Silt Fences and Staked Silt Barriers: This work shall consist of furnishing, installing, maintaining and removing staked turbidity barriers in accordance with the manufacturer's directions, these specifications and the details as shown in FDOT's Roadway and Traffic Design Standards.
4. Other Measures: See the Indian River County Department of Utility Services Standards.

3.03 REMOVAL OF TEMPORARY EROSION CONTROL FEATURES

In general, remove or incorporate into the soil any temporary erosion control features existing at the time of construction of the permanent erosion control features in such a manner that there will be no detrimental effect.

3.04 MAINTENANCE OF EROSION CONTROL FEATURES

General: Provide routine maintenance of permanent and temporary erosion control features until the project is completed and accepted.

3.05 PROTECTION DURING SUSPENSION OF CONTRACT TIME

In the event that it is necessary that the construction operations be suspended for any appreciable length of time, shape the top of the earthwork in such a manner as to permit

runoff of rainwater and construct earth berms along the top edges of embankments to intercept runoff water. Provide temporary slope drains to carry runoff from cuts and embankments which are located in the vicinity of rivers, streams, canals, lakes, and impoundments. Should such preventive measures fail, immediately take such other action as necessary to effectively prevent erosion and siltation.

END OF SECTION

SECTION 02485

GRASSING

PART 1 **GENERAL**

1.01 **DESCRIPTION OF WORK**

The Contractor shall furnish all labor, equipment, and materials necessary for grassing all areas disturbed by his operations and any other areas on the plans indicated to receive grassing. All areas within the limits of construction shall be sodded unless otherwise indicated on the plans or by the Owner. It is the intent of this specification that damaged areas are to be replaced in kind, with sod to be used for all maintained yard areas. The Owner/Engineer shall designate those areas to receive sod. Owner/Engineer shall also designate the type of sod to be used in each area. Contractor shall take all steps practical to minimize the area required to be sodded.

1.02 **STORAGE OF MATERIALS**

The Contractor shall provide space for storage of sod prior to placement in a manner that will not endanger or restrict pedestrian or vehicular traffic or interfere with other aspects of the work.

PART 2 **PRODUCTS**

2.01 **SOD**

- A. Types: Sod shall be St. Augustine Floratam, Argentine Bahia, Centipede, or Bermuda, depending on type of existing sod in adjacent area to be matched or as specified on the plans. Sod shall be well matted with roots. Where sodding will adjoin, or be in sufficiently close proximity to types of sod other than those listed above, consult Owner for type of sod required to be installed. Sod shall be delivered in commercial-size rectangles, preferably 12-inch by 24-inch or larger.
- B. Condition: The sod shall be sufficiently thick to secure a dense stand of live grass. The sod shall be live, fresh, and uninjured at the time of planting. It shall have a soil mat of sufficient thickness adhering firmly to the roots to withstand all necessary handling. It shall be reasonably free of weeds and other grasses. It shall be planted as soon as possible after being dug and shall be kept moist from the time it is planted.

PART 3 **EXECUTION**

3.01 **SODDING**

- A. Preparation of Area to be Sodded: The ground which is to receive sod shall have been graded to proper elevations (2" below sodded grade) to match pre-construction conditions or proposed grades. All disturbed swales and ditches

shall have been restored to their pre-construction condition or better. The pre-construction grade shall be maintained and the prepared soil shall be loose and reasonable smooth. It shall be reasonably free of large clods, roots, patches of existing grass, and other material which will interfere with the sod-laying operations or subsequent mowing and maintenance operations.

- B. Laying of Sod: Sod shall be installed in all areas so designated by Owner/Engineer. Sod shall be carefully placed so that each piece abuts flush to all surrounding sod, regardless of whether surrounding sod is new or existing. Where new sod is to be placed adjacent to existing sod, the new sod must be cut in to match the elevation of the existing sod. Uneven sod which might cause mowing problems will be rejected. New sod laid on top of existing sod will also be rejected. All sod placed on steep slopes (greater than 1:1) shall be pinned with a wooden pin to keep it in place. Contractor shall install rows of sod in a staggered pattern.
- C. Rolling: Immediately after completion of the sod laying, the entire sodded area shall be rolled thoroughly with the equipment specified. At least two trips over the entire area will be required.
- D. Watering: Newly-sodded areas are to be watered by Contractor as necessary to keep sod alive until the Contract is closed out or the sod becomes well established, whichever is later. Dead sod shall be replaced by Contractor at his expense during the Contract one-year warranty period. If replanting is necessary due to factors determined to be beyond the control of the Contractor, payment for replacement will be made under the appropriate contract pay items.

END OF SECTION

SECTION 02720

WELL CONSTRUCTION SEQUENCE

PART I **GENERAL**

1.01 **SCOPE OF WORK**

- A. This section covers the sequence of work to construct one (1) Upper Floridan Aquifer production well S-1R for Indian River County Utilities Department (OWNER).
- B. The production well completion interval is expected to be between 420 feet (PVC casing depth) and 835 feet (total depth) below land surface but may vary depending on site conditions.
- C. The CONTRACTOR may be required to cement back a portion of the completion interval based on testing results.
- D. All equipment shall be in accordance with local noise ordinances and OWNERS requirements for the applicable working hours. The CONTRACTOR shall be required to keep within noise requirements during all phases of the work. The maximum allowable noise at the project site boundaries is 85 decibels or 15 decibels above background, whichever is less. Noise abatement may require an acoustical sound barrier wall, enclosures or other means to minimize noise. Mitigation of noise to allowable levels is considered incidental to the Work and does not constitute additional payment to the CONTRACTOR. Noise control and compliance are the sole responsibility of the CONTRACTOR. CONTRACTOR shall stop work and mitigate sound at OWNERS discretion.
- E. Discharge water generated during drilling shall be discharged from the well through the CONTRACTORS formation water disposal system to the discharge location shown in the project drawings. The CONTRACTORS formation water disposal system shall clarify the water prior to discharge to the location shown in the project drawings. Settling of discharge formation water is the CONTRACTOR'S responsibility and shall be in accordance with all applicable regulations and Section 02785.
- F. The CONTRACTOR shall be solely responsible for any damage due to excessive vibration or sound during construction activities.

PART II **PRODUCTS (NOT USED)**

PART III **EXECUTION**

3.01 **CONSTRUCTION SCHEDULE – PRODUCTION WELL S-1R**

- A. The CONTRACTOR shall complete the scope of work within the timeframe specified in the contract.

- B. The CONTRACTOR shall mobilize within 30 days of the NTP.
- C. The construction schedule shall be met based on day work only (7:00 am to 7:00 pm) and excludes nights, weekends and Federal holidays.
- D. The CONTRACTOR shall obtain approval from the OWNER for all 24-hour work excluding weekends and Federal holidays. Requests for 24-hour work shall be submitted as outlined in Section 01300.

3.02 UPPER FLORIDAN AQUIFER PRODUCTION WELL S-1R CONSTRUCTION SEQUENCE

The Upper Floridan Aquifer Production Well Construction Sequence is described in the work items below. The attached project drawings show the proposed construction details for the production well.

- A. Mobilize to the site, cut and grade soil, fill and stabilize, grade the site and prepare the construction site for drilling of the production well. Set up drilling rig and support equipment within the area shown on the project drawings or as approved by the HYDROGEOLOGIST.
- B. Drill a nominal 32-inch diameter borehole to approximately 130 feet in accordance with Section 02740. Perform geophysical logging (Caliper Log) of the nominal 32-inch diameter borehole prior to installation in accordance with Section 02765.
- C. Furnish and install approximately 130 feet of 26-inch diameter steel surface casing having a minimum wall thickness of 0.375 inches. Casings shall have machine-cut beveled ends and shall be arc welded together by the standards of the American Welding Society. Installation shall be in accordance with Section 02745.
- D. Welded casings shall be straight and true of alignment to the satisfaction of the HYDROGEOLOGIST and in accordance with ASTM standards. The top of casing shall extend above land surface and be fitted to the flanged cementing header for pressure grouting. Casing construction, assembly and installation shall be in accordance with Section 02745.
- E. CONTRACTOR shall pressure grout the annular space between the 26-inch casing and the borehole and pit casing with cement as described in Section 02755. A minimum of 48 hours shall be allotted for curing prior to resuming drilling operations.
- F. Drill out the cement plug at the base of the 26-inch diameter casing prior to 15-inch diameter pilot hole drilling.
- G. Drill a nominal 15-inch diameter pilot hole using the mud rotary method to approximately 420 feet, collecting cuttings every 5 feet in accordance with Section 02740. Conduct geophysical logging of pilot hole in accordance with Section 02765.
- H. Ream the pilot hole to a nominal 25-inches in diameter using the mud rotary method to 420 feet. A staged bit shall be used that includes a 15-inch diameter lead bit placed a minimum of 5 feet below the reaming bit assembly. Prepare the borehole for casing installation by circulating the drilling fluid until all drill cuttings have been

removed. A caliper log shall be performed in accordance with Section 02765.

- I. Install a casing string of approximately 420 feet. The casing string shall consist of 420 feet of Certa-Lok SDR17, 17.4-inch diameter PVC casing and The base of the 17.4-inch casing string shall be set at approximately 420 feet. The HYDROGEOLOGIST shall determine the actual amount of casing to be installed. Casing construction, assembly and installation shall be in accordance with Section 02745.
- J. Grout the annular space between the 17.4-inch casing and the 2-inch borehole, and 26-inch diameter casing with neat cement grout as described in Section 02755. Grouting shall be conducted in stages; the top of the hardened grout from the previous grouting stage shall be measured in the presence of the HYDROGEOLOGIST prior to each cementing stage. Each stage shall be given 12 hours of curing time prior to resuming cementing. Grout shall be allowed to cure for 48 hours before continuation of drilling operations.
- K. Install temporary construction wellhead assembly to the 26-inch diameter casing as shown in the attached project drawings and flow measurement equipment and piping to the wellhead. Set up formation water disposal system, as described in Section 02785. The CONTRACTOR shall provide pumps, transmission piping, settling tanks and other items needed to assemble, operate and maintain the formation water disposal system. Transmission piping and tie-ins shall be required from the well to the settling tanks and from the settling tanks to the outfall locations as shown on the attached drawings. Multiple vessels shall be connected and sequential to provide sufficient retention time for solids separation prior to pumping settled formation water to the discharge location. Vessel layout and arrangement must be located within the designated construction area specified on the project drawings for approval by the HYDROGEOLOGIST and OWNER.
- L. Drill out the cement plug at the base of the 17.4-inch diameter casing prior to nominal 15-inch diameter pilot hole drilling.
- M. Bentonite drilling fluids shall be purged using clear water from the 17.4-inch diameter casing prior to reverse air drilling.

IF ADDITIVE ALTERNATE BID ITEMS ARE ACCEPTED BY OWNER CONTINUE WELL CONSTRUCTION SEQUENCE IN SECTION IV

- N. Drill a nominal 15-inch diameter pilot hole from 420 feet to a depth of approximately 835 feet using the reverse air method. Bentonite drilling fluids shall be purged using clear water from the 17.4-inch diameter PVC casing prior to reverse air drilling.
- O. Purge the well and obtain representative formation water samples for FDEP Permit for the discharge of Produced Groundwater from a non-contaminated site activity (62-621.300(2) FAC) for discharge of water as specified in Section 02785.
- P. Clear water, with an available chlorine residual of 1.0 mg/l, may be added to the well until formation water is sufficient for drilling. Water samples shall be collected every 10 feet and flow rate at the wellhead shall be measured and recorded at 30-foot intervals.

- Q. Flow test the well during reverse air drilling every 30 feet or drill rod change. Water level measurements shall be performed with the use of a marked manometer tube. Flow shall be measured using a recently calibrated flow meter and verified by an orifice weir. If orifice pipe and flow meter are not capable of measuring low flow conditions, volumetric tests may be performed to determine flow rates and confirm flow meter measurements. Drilling flow tests shall be conducted in accordance with Section 02740. A flow test shall also be performed during geophysical logging in accordance with Section 02765. A manometer tube and fixed measuring tape shall be connected to the construction header and erected to a height above the static water level of the drilled zone. Drilling, sample collection and flow tests shall be in accordance with Section 02740.
- R. Upon completion of drilling to total depth, prepare the borehole for geophysical logging by continuing to pump water from the bottom of the hole until the discharge water is clear and free of drill cuttings. Prepare the borehole for a suite of geophysical, water quality and flow logs from the base of casing to the total depth of the well in accordance with Section 02765. All static (non-flowing) logs shall be performed prior to dynamic (flowing) logs.
- S. **Contract “Hold Point”**: The CONTRACTOR shall not perform any work while the OWNER reviews information to date for a period up to 7 business days. During this period, no standby time compensation will be provided to the CONTRACTOR.
- T. If requested by the HYDROGEOLOGIST and OWNER, grout the 15-inch diameter pilot hole back to a depth of 785 feet or as directed by the HYDROGEOLOGIST with neat cement as described in Section 02755. If grouting is conducted in stages; the top of the hardened grout from the previous grouting stage shall be measured in the presence of the HYDROGEOLOGIST prior to each cementing stage. Each stage shall be given 12 hours of curing time prior to resuming cementing. Grout shall be allowed to cure for 48 hours before continuation of drilling operations.
- U. Perform water jetting with simultaneous airlift development of the open borehole to dislodge and remove particulate matter to the satisfaction of the HYDROGEOLOGIST. Following jetting, clean out accumulated solids in the bottom of the open borehole using the reverse air setup. Jetting and borehole cleanout shall be performed in accordance with Section 02760.
- V. If requested by the HYDROGEOLOGIST, acidize the well in accordance with Section 02790. Acid treatment may occur before, during or after development pumping or development jetting if required by the HYDROGEOLOGIST. The acid treatment header shall be constructed and set up as shown on project drawings.
- W. Install a test pump with a minimum of 120 feet of pump column and develop the well until the discharge water is free of cuttings and visible sediment. The CONTRACTOR provided test pump shall be capable of a variable discharge rate with sustained surges up to 3,000 gpm. Development shall continue to the satisfaction of the HYDROGEOLOGIST. If acid treatment occurs after development pumping, the HYDROGEOLOGIST may require reinstallation of the CONTRACTOR provided test pump and additional development.

- X. Conduct a five step, variable rate pumping test to measure drawdown and well efficiency. A manometer tube and pressure transducer/data logger setup shall be used to measure the static water level and pumping water levels and during pumping steps when the water level is above the top of the wellhead. Water level measurement below the wellhead shall be performed using an electric water level tape and the data logger/transducer setup as described in Section 02775.
- Y. Perform a down hole camera video log of the casing and open interval under artesian flow conditions. Turbidity and suspended sediment shall have been removed from the formation water by the CONTRACTOR to the extent that visibility is not impaired during logging to the satisfaction of the HYDROGEOLOGIST. All static (non-flowing) logs shall be performed prior to dynamic (flowing) logs. Video logging shall be performed in accordance with Section 02765.
- Z. Measure the total depth of the borehole; clean out fill from the borehole if necessary, as determined by HYDROGEOLOGIST. If fill must be cleaned out from the borehole, if requested by the OWNER, the CONTRACTOR shall perform a second video of the borehole following removal of fill at the Contract Unit Price as listed on the Bid Form.
- AA. Complete the wellhead as shown on the project drawings and in Section 02745 and restore the site.
- BB. Complete restoration of the project site, including but not limited to sodding, grassing, and landscaping in accordance with Section 02485. The well shall be left clean and free of oils, grease, and all other substances used during CONTRACTOR activities. All areas, structures and facilities disturbed by the CONTRACTOR's activities shall be restored by CONTRACTOR.

PART IV **ADDITIVE ALTERNATE WORK SEQUENCE**

- A. Drill a nominal 15-inch diameter pilot hole from 420 feet to a depth of approximately 835 feet using the reverse air method. Bentonite drilling fluids shall be purged using clear water from the 17.4-inch diameter PVC casing prior to reverse air drilling. Continue drilling with nominal 10-inch diameter borehole using the reverse air method from current total depth 835 feet BLS to approximately 1,500 feet bls, collecting cuttings and water quality every five (5) feet
- B. Purge the well and obtain representative formation water samples for FDEP Permit for the discharge of Produced Groundwater from a non-contaminated site activity (62-621.300(2) FAC) for discharge of water as specified in Section 02785.
- C. Clear water, with an available chlorine residual of 1.0 mg/l, may be added to the well until formation water is sufficient for drilling. Water samples shall be collected every 10 feet from the reverse air discharge. Water quality samples shall be collected from the wellhead flow at 30 feet intervals. Flow rate and water levels at the wellhead shall be measured and recorded at 30-foot intervals.
- D. Flow test the well during reverse air drilling every 30 feet or drill rod change. Water level measurements shall be performed with the use of a marked manometer tube. Flow shall be measured using a recently calibrated flow meter and verified by an

orifice weir. If orifice pipe and flow meter are not capable of measuring low flow conditions, volumetric tests may be performed to determine flow rates and confirm flow meter measurements. Drilling flow tests shall be conducted in accordance with Section 02740. A flow test shall also be performed during geophysical logging in accordance with Section 02765. A manometer tube and fixed measuring tape shall be connected to the construction header and erected to a height above the static water level of the drilled zone. Drilling, sample collection and flow tests shall be in accordance with Section 02740.

- E. Upon completion of drilling to total depth, prepare the borehole for downhole well video and geophysical logging by continuing to pump water from the bottom of the hole until the discharge water is clear and free of drill cuttings. Prepare the borehole for a downhole video log and suite of geophysical, water quality and flow logs from the base of casing to the total depth of the well in accordance with Section 02765. All static (non-flowing) logs shall be performed prior to dynamic (flowing) logs.
- F. **Contract "Hold Point"**: The CONTRACTOR shall not perform any work while the OWNER reviews information to date for a period up to 7 business days. During this period, no standby time compensation will be provided to the CONTRACTOR.
- G. The OWNER and HYDROGEOLOGIST will review the collected geophysical and video logging and will be provided up to seven (7) working days to evaluate what intervals of the well to further test. The evaluation days shall be included in the CONTRACTOR price; no standby time will be awarded for this evaluation time.
- H. Perform Straddle and off bottom packer pump testing, as directed by the HYDROGEOLOGIST to test the intermediate confining unit, the Avon Park Permeable Zone (APPZ) and the UFA. The details and execution are as follows:
- J. If requested by the HYDROGEOLOGIST and OWNER, grout the nominal 12-inch diameter pilot hole back with neat cement between a depth of 1,250 and 1,500 feet bls as directed by the HYDROGEOLOGIST. If grouting is conducted in stages; the top of the hardened grout from the previous grouting stage shall be measured in the presence of the HYDROGEOLOGIST prior to each cementing stage. Each stage shall be given 8 hours of curing time prior to resuming cementing. Grout shall be allowed to cure for 48 hours before continuation of drilling operations.
- K. If requested by HYDROGEOLOGIST, backfill the nominal 12-inch diameter borehole from approximately 900-feet to approximately 1,250 feet bls (anticipated to be the AAPZ) using clean gravel topped with an approximately 5 foot layer of fine sand to seal the zone at approximately 950 feet bls (depth to be determined by HYDROGEOLOGIST). The top of the gravel and sand backfill shall be hard tagged in the presence of the HYDROGEOLOGIST prior to cementing. Prior to installation in the well, the gravel and sand shall be immersed for a minimum of 4 hours in a chlorinated water solution, having not less than 50 PPM available chlorine.
- L. If requested by the HYDROGEOLOGIST and OWNER, grout the nominal 12-inch diameter pilot hole back with neat cement between a depth of 835 and 950 feet bls as directed by the HYDROGEOLOGIST. If grouting is conducted in stages; the top of the hardened grout from the previous grouting stage shall be measured in the presence of the HYDROGEOLOGIST prior to each cementing stage. Each stage

shall be given 12 hours of curing time prior to resuming cementing. Grout shall be allowed to cure for 48 hours before continuation of drilling operations.

**FOLLOWING COMPLETION OF EXPLORATORY BOREHOLE BACKPLUGGING
RESUME S-1R CONSTRUCTION IN SECTION III PARAGRAPH U.**

END OF SECTION

SECTION 02740

DRILLING

PART I **GENERAL**

1.01 **SCOPE OF WORK**

This section covers the work, materials, and equipment necessary for drilling of Well S-1R.

1.02 **SUBMITTALS**

- A. A list of any drilling additives intended for use on this project shall be submitted to the HYDROGEOLOGIST prior to drilling activities. All drilling additives shall be NSF approved.
- B. A list of drilling equipment to be used on this project shall be submitted to the HYDROGEOLOGIST prior to mobilization, including drill bit diameters and dimensions of staged bit assemblies proposed for drilling.
- C. Water well drilling, copper-free drilling joint compound.
- D. Submit to the HYDROGEOLOGIST a copy of Sure-Shot measurements for all reamed boreholes used for casing installation.
- E. Submit detailed plans to mitigate the construction noise impacts and comply with the noise criteria specified herein, including the method of construction, the equipment to be used, and acoustical treatments if necessary.
- F. Submit to HYDROGEOLOGIST vibration compliance plan for approval prior to drilling activities.

PART II **PRODUCTS**

2.01 **DRILLING EQUIPMENT**

- A. All equipment shall be in good working condition and suitable for the proposed work. Prior to mobilization, a list of drilling equipment to be used on the project is to be submitted to the HYDROGEOLOGIST. The CONTRACTOR shall provide assurances that he has the proper equipment to adequately complete the project and overcome possible complications.
- B. The OWNER shall reserve the right to inspect the equipment of each CONTRACTOR submitting a bid as a part of the evaluation of bids.
- C. The CONTRACTOR shall provide all tools, bits, and all other necessary equipment for drilling. A portion of the drilling scope shall be performed under artesian aquifer conditions and the water level is above land surface. A rotating head assembly, that makes a watertight connection between the drill string and the construction

wellhead shall be used at all times during drilling in the Floridan Aquifer.

- D. The CONTRACTOR shall commit, by submitting a bid, that the CONTRACTOR shall use a drilling rig having a hook load capacity capable of handling 1.5 times the maximum static hook load capacity, as defined by the American Petroleum Institute (API), that will be placed upon the rig's drilling and supporting equipment. Confirmatory written documentation shall be provided by API upon request. If conditions develop in the field that prove the rig and supporting equipment that were supplied by the CONTRACTOR are, in the opinion of the HYDROGEOLOGIST, incapable of completing the well as specified, the CONTRACTOR shall be required to provide a more suitable rig with the necessary capacity at his own cost to perform the scope of work contemplated herein.
- E. Drilling equipment shall be capable of performing mud rotary, reverse air and reverse mud drilling methods within the established time of construction.
- F. During drilling within the PVC casing, the CONTRACTOR shall fit rubber protective bumpers to each drill pipe within the casing. The bumpers shall be located adjacent to tool joints.
- G. All equipment shall be in accordance with local noise ordinances and OWNERS requirements for the applicable working hours. The CONTRACTOR shall be required to keep within noise requirements during all phases of the work. The maximum allowable noise at the project site boundaries is 85 decibels or 15 decibels above background, whichever is less. This shall include use of hospital-grade mufflers on equipment (as appropriate) to comply. Noise abatement may require an acoustical sound barrier wall, enclosures or other means to minimize noise. Mitigation of noise to allowable levels is considered incidental to the Work and does not constitute additional payment to the CONTRACTOR. Noise control and compliance are the sole responsibility of the CONTRACTOR.
- H. The CONTRACTOR shall plan and execute construction activities by methods to control vibration to prevent damage to surrounding foundations, structures, and buildings.

2.02 DRILLING FLUID

The CONTRACTOR shall provide all drilling fluids, water, and additives as required. No drilling fluids other than clear water shall be used during reverse air drilling. During reverse air drilling, any water added to the well shall have a minimum chlorine residual of 50 ppm. When control of artesian conditions is required, and a rotating head assembly is not in place and functional, only a concentrated salt water solution shall be used. Salt water solutions used to control well flow shall be removed from the well by the CONTRACTOR as soon as possible after use, salt water shall be contained and disposed by the CONTRACTOR to a HYDROGEOLOGIST approved location off site.

2.03 TEST AND SAMPLING EQUIPMENT

Provide sampling bags or containers for collection and storage of formation samples.

PART III EXECUTION

3.01 GENERAL REQUIREMENTS

- A. Notify the HYDROGEOLOGIST 7 days prior to drilling. Normal working hours shall be 7:00 a.m. to 7:00 p.m. excluding Sunday and holidays unless otherwise directed by the OWNER or HYDROGEOLOGIST. The CONTRACTOR shall obtain approval from the OWNER for all 24 hour work including weekends and Federal holidays. Should the CONTRACTOR desire to carry on his work at night or outside regular working hours, they shall submit written notice to the OWNER/HYDROGEOLOGIST as previously stated and allow a minimum of 48 hours for satisfactory arrangements to be made and for inspecting the work in progress. No night work shall be permitted except as specifically authorized by the OWNER or HYDROGEOLOGIST on a case by case basis.

- B. Provide at all times a thoroughly experienced, qualified, and licensed driller during all operations at the drill site. Provide sufficient competent driller's helpers during all operations at the drill site.

- C. The CONTRACTOR shall maintain all slopes and prevent erosion. Measures taken to prevent erosion shall include but not be limited to the use of silt fences, hay bales, silt screens in surface water and containment dikes to prevent runoff.

- D. CONTRACTOR to have drilled a minimum of three (3) (16-inch diameter or greater) wells with cased and total depths of approximately 400 and 1,500 feet below land surface, respectively, within the last five (5) years.

3.02 DRILLING

- A. Anticipated borehole depths and diameters for the production well are depicted on the project drawings. Borehole diameters are considered nominal dimensions. The CONTRACTOR shall recommend the appropriate bit size for drilling the correct borehole diameter. Borehole depths provided in the specifications are estimates, only; actual depths may vary and shall be determined by the HYDROGEOLOGIST.

- B. Boreholes shall be advanced in such a manner that the drilled hole shall proceed straight and plumb. The drilling rate shall be optimized for cuttings removal with minimal mixing and accurate formation sample collection at 5 feet intervals. Cuttings shall be cleared from the borehole at the end of each drill pipe or at 30-foot intervals, whichever is less.

- C. Boreholes shall be drilled and conditioned to permit geophysical logging and casing installation as per Sections 02765 and 02745. The borehole shall be cleared of cuttings and stable to permit subsequent tasks to be completed without impairment. Redrilling of boreholes due to collapse or dredging of formation materials during borehole drilling are considered incidental to the drilling work and do not constitute extra work.

- D. At any time a pilot hole is drilled within a casing or borehole of a larger diameter than the pilot hole bit, the pilot hole bit shall be centered in the casing or borehole using the reaming assembly. The reaming assembly outer diameter shall be approximately equal to the larger casing or larger borehole diameter. The centered lead hole shall have a minimum length of 5 feet.
- E. The reaming assembly shall consist of a lead bit with the same outer diameter as the pilot hole and progressively larger diameter bits up to the reamed hole diameter. The reaming assembly should not exceed 8 feet in length.
- F. The CONTRACTOR shall perform Sure Shot measurements every 90 feet on any reamed borehole to be used for casing installation.

3.03 DRILLING FLUIDS AND SETTLING TANKS

- A. All drilling fluid storage tanks shall be above ground. Dug mud pits shall not be permitted. Tanks shall be of sufficient length and construction to allow settling or removal of cuttings and prevent their reintroduction to the borehole. A mud system shall be used that includes a vibratory shale shaker and centrifugal desanders.
- B. During mud drilling, settled solids shall be physically removed from the tanks on a weekly basis, and the mud shall be reconditioned as needed. During reverse air drilling, all settled solids shall be removed from the tanks at the beginning of each working day.
- C. During reverse air drilling, a rotating drum system or vibratory shale shaker that separates the discharge water from the drilled cuttings shall be used. The drum system or shaker shall be connected to the reverse air/water discharge hose. The drum system or shaker shall be situated such that all water is returned to the settling tanks without spillage to the ground surface and cuttings are discharged outside the tanks for collection, sampling and disposal. The CONTRACTOR shall maintain the drum system or shaker so that it operates properly during drilling. If the drum or shaker is not operating properly, drilling must cease until the malfunctioning system is corrected.
- D. The CONTRACTOR shall provide ample settling tanks at the well site to settle solids prior to discharge.
- E. The CONTRACTOR is solely responsible for attaining all permits required for access to and discharge into the Intracoastal Waterway.
- F. Drilling fluids shall not be discharged to the ground surface at the drilling site.
- G. A pump that is capable of pumping all flow test water shall be fitted to the settling tanks. The pump shall be sized such that the rate of the pumped flow is equal or greater to the flow test flow. If multiple tanks are needed for settlement of solids, then multiple pumps shall be used as necessary to move water through the tank system. A pump shall be capable of discharging water from the settling tanks to the outfall location.

- H. Well discharge shall be discharged to the CONTRACTORS formation water disposal system to the outfall location shown on the project drawings.
- I. Salt "kill" water shall not be allowed to discharge to the CONTRACTORS formation water disposal system and pumped to the outfall location shown on the project drawings. All "kill" water shall be containerized when stored on site, and hauled off site by the CONTRACTOR to an approved location when needed. Disposal of "kill" water is considered incidental to the work and does not constitute extra work. No "kill" water shall be allowed to discharge to the outfall location shown on the project drawings.
- J. Sand and settleable solids shall be removed from the wellhead flow water and reverse air discharge water prior to discharge into the outfall location. Turbidity of the formation discharge water shall be less than 29 NTU above background at the discharge point as shown on project drawings.

3.04 ALIGNMENT REQUIREMENTS

- A. Pilot holes and reamed holes shall be drilled round and straight throughout.
- B. The completed well shall be sufficiently plumb and straight so that there shall be no interference with installation, alignment, operation or future removal of the permanent well pump.
- C. The alignment shall be tested by lowering into the well to a depth of at least 200 feet, a section of pipe 40 feet long or having dimensions specified by the HYDROGEOLOGIST. The outer diameter of the test pipe or "dummy" shall not be more than one inch smaller than the inside diameter of the casing or hole being tested. The lowered unit shall pass freely through the entire tested depth.
- D. If the "dummy" fails to pass the upper 200 feet of casing, the well shall be repaired according to the written recommendations of the CONTRACTOR and approved by the HYDROGEOLOGIST. If, in the opinion of the HYDROGEOLOGIST, the well cannot be repaired, the well shall be plugged as per current state requirements and a new well constructed solely at the CONTRACTOR's expense. The "dummy" test shall be included in the cost for casing installation.
- E. Perform plumbness and alignment test in accordance with AWWA A100-06 to 200 feet prior to the final stage of cementation of the casing. The plumbness and alignment test shall be included in the cost for casing installation.

3.05 COMPLIANCE WITH GOVERNMENTAL REGULATIONS

Construct the well in strict conformance with all laws, rules, regulations, and standards related to the construction of wells in the State of Florida and local regulatory agencies.

3.06 FORMATION SAMPLES

- A. One (1) set of representative formation samples shall be collected by the

CONTRACTOR from surface to the total depth of the well. Samples shall be taken at each 5-foot level and each change in formation or material type. The method must yield samples that are representative of the actual depth to which drilling has progressed.

- B. Each sample shall be approximately 8 ounces and be placed in a cotton, soil sample bag, Hubco or equivalent, or as approved by the HYDROGEOLOGIST. Each sample shall be labeled with the date, well identification, and depth from which the sample was taken clearly marked on the container in indelible ink. The CONTRACTOR shall store and protect the samples from damage or disturbance until they have been released to and accepted by the HYDROGEOLOGIST.

3.07 WATER SAMPLES

- A. The CONTRACTOR shall supply new 500 ml HDPE sample bottles and collect water samples every 10-feet during reverse air drilling. A fixed, safe, accessible location to collect samples must be provided to the satisfaction of the HYDROGEOLOGIST. Samples shall be collected from the point of discharge at every ten-foot interval. Sample bottles shall be labeled with well number, depth date and time collected.
- B. The CONTRACTOR shall prevent additives such as salt or added fresh water during the drilling process from affecting water samples collected from the reverse air discharge point.
- C. The water column in the well shall be periodically purged to obtain representative water samples. The HYDROGEOLOGIST shall determine when the well is to be purged. Purging of the water column may occur overnight, however the CONTRACTOR shall be present on site during the time period that the well is purged.

3.08 DRILLING FLOW TESTS

- A. Flow tests shall be conducted every 30 feet or drill rod change during reverse air drilling of the open hole interval. Each drilling flow test shall not exceed 40 minutes in duration or until water quality parameters have stabilized. All piping, flow measurement devices, valves and fabrications shall be provided by the CONTRACTOR.
- B. The drilling flow test set up shall include a 12-inch diameter butterfly valved flow line that gravity discharges into a tank that is no higher than 5 feet above land surface/pad elevation. The CONTRACTOR shall need to install a pump to transfer flow test water to the settling tanks at a sufficient rate that does not limit the duration of the flow test. The CONTRACTOR may elect to install a second valved flow line that discharges directly to the formation water disposal system as a bypass. However, only the flow line that discharges to the settling tanks shall be used for flow testing during drilling. Discharge water that meets surface water discharge criteria may bypass the settling tanks.
- C. Drilling flow test procedure:

1. At the beginning and end of each day, during drilling of the open interval, the static water level of the well shall be measured using the manometer tube and fix measuring tape setup.
2. During the drilling process, the well shall constantly flow into the settling tanks in a controlled manner. If necessary, flow may be controlled using a gate valve at the wellhead. The flow rate shall be measured using a calibrated flow meter and a properly placed and sized orifice weir located at the settling tanks. The flow meter shall be calibrated just prior to start of the project. Flow meter calibration certification shall be provided to the HYDROGEOLOGIST prior to using the flow meter. The orifice pipe and plate shall be changed as needed as flow increases with depth. If the orifice pipe and flow meter are not capable of measuring flow, volumetric tests may be performed to determine flow rates.
3. After completion of drilling of each drill rod interval (or 30 feet), and after cuttings have been removed from the borehole, reverse air discharge shall be discontinued and an additional drill pipe added. With the bit at the bottom of the drilled hole, the well shall be permitted to flow at the maximum artesian flow rate. Flow water shall be free of turbidity to the satisfaction of the HYDROGEOLOGIST prior to starting each flow test. The rate of flow shall be measured using the orifice weir located at the settling tanks, the water level in the well shall be measured, and a water sample shall be collected from the discharge at the wellhead.
4. After the flow rate is measured to the satisfaction of the HYDROGEOLOGIST, the well shall be shut in and a static level shall be measured in the manometer tube. Recovery time shall be limited by the 40-minute test duration.

3.09 DRILLING LOGS

- A. Prepare a daily drilling log for inspection and submittal to the HYDROGEOLOGIST. Include in the log the depths and type of geologic formation encountered; drilling penetration rate, in minutes, for each five foot interval; general formation hardness based on drilling; type of drilling, chemical, water and mud additives; loss of circulation zones; additives to the well to control flow; water added to supplement reverse air drilling; problems during drilling; date, time, and depth for each entry. The log shall be kept current with a copy located at the drill site. The CONTRACTOR shall maintain an up to date drill string tally which shall be available for inspection by the HYDROGEOLOGIST.
- B. A final well log shall be prepared that includes copies of the above; casing dimensions and details; and hole dimensions.
- C. Submittals shall be made as required to the appropriate regulatory agencies per the applicable local, state and federal regulations. The CONTRACTOR shall provide copies of all submittals to the HYDROGEOLOGIST.

3.10 WASTE DISPOSAL

- A. All solid and liquid waste, including but not limited to drilled solids, cuttings, drilling mud, drilling additives, salt and salt residues, spent or unused chemicals and

unused products shall be disposed of or recycled by the CONTRACTOR in an environmentally responsible manner and in accordance with applicable regulations. The disposal or recycling location must be identified in a submittal to the HYDROGEOLOGIST. Prior to disposal, the location must be accepted by the HYDROGEOLOGIST. The CONTRACTOR shall prevent wastes from migrating from the designated construction area and cuttings storage area. The CONTRACTOR shall conduct daily inspections of the site for waste or drilling by-products. The CONTRACTOR shall promptly clean up drilling by-products that migrate outside of the designated construction area. Furthermore, the CONTRACTOR shall minimize the spillage of formation water at all times and promptly repair leaks where formation water may be released to the ground surface.

- B. The CONTRACTOR shall reduce the amount of solids going to the outfall location to a maximum of 29 NTU above background with the use of onsite settling tanks and turbidity control measures in accordance with Section 02785.
- C. The CONTRACTOR shall remove from the drilling site all cuttings and other material removed by the drilling operations that are not required to complete the work. Solid material shall be disposed of in accordance with local and state regulations at an approved disposal site, approved by the HYDROGEOLOGIST. Removal of cuttings, mud and formation water from the site is considered incidental to the Work and does not constitute additional payment to the CONTRACTOR.
- D. Depressions left in the land surface from the cleanup of residues, or for any other reason resulting from the CONTRACTOR's activities, shall be filled with clean fill material and graded smoothly.

END OF SECTION

SECTION 02745

WELL CASING

PART I **GENERAL**

1.01 **SCOPE OF WORK**

This section covers the work, equipment and materials necessary for furnishing and installing the well casing for Well S-1R.

PART II **PRODUCTS**

2.01 **GENERAL REQUIREMENTS**

- A. All casings shall be approved for use in municipal public supply wells, and to the specifications as outlined. Casing material and dimensions are provided in Section 02720 and illustrated in the project drawings. Pit casing shall be constructed of carbon steel. The CONTRACTOR shall furnish, satisfactorily install and grout each string of casing. All casings shall be new, unused and in good physical condition. Warped or damaged casing shall be rejected.
- B. The Contract provides an estimate of the amount of casing. The OWNER or the HYDROGEOLOGIST shall determine actual lengths based on drilling results. The CONTRACTOR shall be responsible for ensuring that the selected casing shall withstand all stresses of construction without impairment.
- C. The CONTRACTOR shall provide the HYDROGEOLOGIST with an inventory of all casing delivered to the site and maintain a tally during installation.
- D. Production well casings shall include: carbon steel 26-inch diameter surface casing and PVC SDR17 CertainTeed Certa-Lok 17.4-inch diameter final casing.

2.02 **CARBON STEEL CASING**

- A. All steel casing shall be new and unused carbon steel pipe that conforms to API 5L grade B or A53 (26-inch well casing). Wall thickness shall be a minimum 0.375 for the 26-inch diameter casing.
- B. Steel casing mill certificates shall be submitted to the HYDROGEOLOGIST by the CONTRACTOR prior to delivery of the casing to the site for approval. Casing will not be approved for installation without mill certification submittal and approval by the HYDROGEOLOGIST.
- C. Steel casing shall be left with a minimum of 5 feet above land surface to facilitate final wellhead construction (wellhead construction to be performed by others).

2.03 **POLY VINYL CHLORIDE (PVC) CASING**

- A. PVC casing and couplings shall be SDR17 Certa-Lok by CertainTeed or equivalent.

Any equivalent casing selected must be shown to have sufficient joint and tensile strength, internal pressure rating, resistance to collapse and ability to withstand all stresses of construction. Any alternates must be approved in advance by the HYDROGEOLOGIST.

- B. All casings shall be clearly marked with type, grade and manufacturer. If required by the HYDROGEOLOGIST, the CONTRACTOR shall provide additional backup supporting documentation from the Manufacturer.
- C. Casing elevators must be approved by the HYDROGEOLOGIST.
- D. Only Certainteed Certa-Lok splines will be used with Certa-Lok couplings. The CONTRACTOR shall provide a copy of the installation and connection procedure on site for review prior to casing assembly.
- E. Final PVC well casing shall be completed as shown on the drawings.
- F. Bills of lading shall be provided for casings delivered for well construction.

2.04 CENTERING GUIDES

- A. Casing centering guides (centralizers) shall be placed on all casing strings, prior to installation, at 40-foot intervals with the first set of centralizers placed within 5 feet from the bottom of the casing. At the location five feet above the base of the casing, six equally spaced centralizers shall be installed and at all other locations four equally spaced centralizers shall be installed. Centralizers shall be fixed to the casing at coupling locations.
- B. Centralizer material shall be steel when attached to carbon steel, and stainless steel when attached to stainless steel and PVC casing. Guides shall be welded when attached to steel; and steel strapped to PVC.
- C. Fixed centering guides shall extend outward from the casing to within 1/2 inch of the maximum drill bit dimension.
- D. Uppermost centering guide for the final PVC casing shall be installed at a minimum of 15 feet below finished grade.

PART III EXECUTION

3.01 GENERAL

- A. Casings shall be installed as described in the specifications and drawings. Actual casing depths shall be determined by the HYDROGEOLOGIST.
- B. The casing installation method shall be approved in advance by the HYDROGEOLOGIST and be consistent with manufacturer specifications.
- C. Casing failure by any means, including but not limited to: any collapse, breakage, separation, dents, tears or rips during construction that in any way impairs the use of the well in the opinion of the HYDROGEOLOGIST, shall be repaired or replaced at

the CONTRACTOR's sole expense.

- D. Casing connections shall meet manufacture specifications for water tightness. Connections shall have equal strength to the casing itself.
- E. All steel and stainless steel casings shall have machine cut beveled ends and shall be arc welded together according to the standards of the American Welding Society. Welded casings shall be straight and true of alignment to the satisfaction of the HYDROGEOLOGIST.
- F. Final well casing, shall be set in accordance with project drawings and to facilitate final wellhead installation.

END OF SECTION

SECTION 02755

ANNULAR GROUT

PART I **GENERAL**

1.01 **SCOPE OF WORK**

This section covers the labor, equipment and materials required to furnish and install the annular grout.

1.02 **SUBMITTALS**

- A. Provide data on all proposed additives and manufacturer's specifications.
- B. Provide bulk cement units weight tickets for verification of cement quantities pumped.
- C. Prior to each cement stage the CONTRACTOR shall submit a plan including anticipated theoretical lift for the specific cement stage. If theoretical lift differs from actual lift by greater than 40%, the CONTRACTOR shall immediately provide alternative means of verifying the cement grout is uniform and continuous prior to continuing subsequent stages of grout. This verification shall be performed at the CONTRACTOR'S expense and shall be performed in a timely manner so as not to hinder successful grouting of subsequent stages.
- D. During cementing, provide cement slurry weight data for each grouting stage. A fixed, safe, accessible location to collect samples must be provided to the satisfaction of the HYDROGEOLOGIST. Samples of the cement slurry shall be collected, weighed and recorded. The correct mix ratios shall be maintained. If performed in batches, provide slurry weight and collect sample for each batch mixed. If performed in continuous mixing, provide slurry weights and collect samples at the beginning, middle, and end of pumping for each grouting stage.

PART II **PRODUCTS**

2.01 **GENERAL REQUIREMENTS**

- A. The CONTRACTOR shall furnish and install all grout and additives as specified.
- B. Cement and dry additives shall be delivered to the site in their dry state and mixed with water on site. "Ready-mix", cement mixed with water prior to delivery to the site shall not be accepted for annular grouting.

2.02 **PORTLAND CEMENT**

Cement grout shall be API class B Portland cement and conform to ASTM C150, Type II standards.

2.03 BENTONITE

- A. Bentonite furnished for cementing shall be raw bentonite and be added at the bulk facility and thoroughly mixed at the ratio specified. Small batches (less than 50, 94 lb. bags of cement) of grout may be mixed on site. Bentonite-cement mix ratio shall not exceed applicable regulations for cement grout.
- B. If the CONTRACTOR proposes to mix bentonite with cement on site, all ingredients shall be thoroughly mixed, at the ratio specified, to the satisfaction of the HYDROGEOLOGIST. The CONTRACTOR shall demonstrate the dry mixing method to the HYDROGEOLOGIST prior to mixing the slurry. Following dry mixing, the CONTRACTOR shall mix a slurry sample for measurement and provide a method of measurement to determine the weight in pounds per gallon of cement slurry to confirm proper mix ratios. Bentonite-cement mix ratio shall not exceed applicable regulations for cement grout.

PART III EXECUTION

3.01 GROUTING

- A. The CONTRACTOR is solely responsible for the successful execution of grouting. Annular grout shall be in conformance with all applicable local and state regulations.
- B. The CONTRACTOR is solely responsible for defects in the grout or grouted interval. The CONTRACTOR shall take all precautions to protect the casing from collapse or damage during grouting. Any defects in the grout job or casing damage resulting from grouting shall be corrected by the CONTRACTOR at his own expense.
- C. The CONTRACTOR shall provide 24-hour notice prior to each stage of cementing of the well to enable the HYDROGEOLOGIST to observe all cementing operations.
- D. Provide a method of measurement to determine the weight in pounds per gallon of cement slurry to confirm proper mix ratios. Samples of the cement slurry shall be collected, weighed and recorded by the CONTRACTOR in sight of the HYDROGEOLOGIST. The correct mix ratios shall be maintained. If performed in batches, provide slurry weight and collect samples for each batch mixed. If performed in continuous mixing, provide slurry weights and collect samples at the beginning, middle and end of pumping for each grout stage. The CONTRACTOR shall provide a fixed, safe, accessible location for the HYDROGEOLOGIST to view and/or collect grout samples during the cementing process.
- E. Grouting is to be conducted in stages. The first cementing stage shall be conducted via the pressure grout method through the base of the casing. Subsequent lifts of grout shall be performed using the tremie method. The top of the hardened grout from the previous grouting stage shall be measured in the presence of the HYDROGEOLOGIST prior to each cementing stage. Each cementing stage shall be given 12 hours of curing time prior to resuming cementing. It is the responsibility of the CONTRACTOR to determine the collapse strength of the casing and the appropriate amount of grout for each grouting stage.

Cementing calculations shall be reviewed with the HYDROGEOLOGIST in advance of each grouting stage. Grout shall be allowed to cure for 48 hours before continuation of drilling operations.

- F. During grouting, the casing is to be filled with water and pressurized to 50 pounds per square inch (psi). All pressure gauges shall be fitted with an isolation valve. This pressure shall be maintained during cement emplacement and the cement set up period for 8 hours following the grout stage completion; this pressure shall be monitored for a minimum 1 hour period following pressure grouting stage by the CONTRACTOR. Clear water shall be circulated within the casing from bottom to top to cool the casing during the set-up period.
- G. The grout mixture for the initial grouting stage after each casing installation shall be API Class B neat Portland cement mixed with no more than 5.5 gallons of water per sack of cement. At a minimum, the neat cement mixture shall be used to grout the lower 200 linear feet of casing. Additional grouting stages after casing installation above the initial grouting stage shall be API Class B Portland cement mixed with up to 6% bentonite and no more than 9 gallons of water per sack of cement as approved by the HYDROGEOLOGIST. Only potable water shall be used for the grout mix.
- H. Where boreholes have been significantly eroded in the opinion of the HYDROGEOLOGIST and PVC casing is being installed, a 12% bentonite cement mix shall be used. The CONTRACTOR shall obtain regulatory approvals prior to using this type of cement.
- I. CONTRACTOR is solely responsible for the proper grouting of all casings in accordance with all applicable AWWA, SFWMD, FDEP and HD standards.

3.02 SETTING TIME

- A. The cement must be allowed to cure 12 hours between cementing stages.
- B. The final cement stage shall have a minimum 48 hours to cure before continuation of drilling operations.

END OF SECTION

BOREHOLE CLEANING AND WELL DEVELOPMENT

PART I GENERAL

1.01 SCOPE OF WORK

- A. This section covers the labor, equipment and materials required to perform development of the well. Development shall include borehole jetting, bottom hole clean out, and surge/sustained rate pumping at rate of up to 3,000 gpm or as directed by the HYDROGEOLOGIST.
- B. The drilling rig shall remain on site during development, step rate testing and video logging. Contractor may demobilize upon verification that the open hole is at the total drilled depth and no fill remains in the borehole.
- C. Under no circumstances shall the pumping equipment create a vacuum within the well casing.
- D. Development shall be considered complete when sand concentrations are less than 0.1 part per million (PPM) and SDI values are less than 1.0 as determined by the HYDROGEOLOGIST at the design pumping rate of 1600 gpm.

1.02 SUBMITTALS

- A. Provide certificates of calibration for flow meters to be used for flow measurement by the HYDROGEOLOGIST.
- B. Provide shop drawings showing dimensions of the jetting tool.
- C. Completed daily development logs for weekly submittal to the HYDROGEOLOGISTS.

PART II PRODUCTS

2.01 DEVELOPMENT EQUIPMENT

- A. Provide drilling tools, bits, jetting tools, pumps as needed to water jet and clean out open hole prior to pump development.
- B. Provide all pumps, motors, air compressors and other ancillary equipment needed to develop the well to the extent that, as practical, suspendable solids are removed from the borehole. Provide all pipe, fittings, and valves required to transmit discharge water from the pump to the settling tanks as required in Section 02785.
- C. The test pumping equipment shall have access ports, water level measurement setup and discharge piping as required in Section 02775.
- D. The CONTRACTOR shall provide a calibrated flow meter near the pump. The flow

meter shall be accurate and precise within the range of 100 gpm to 3,000 gpm. The flow meter may be bypassed during jetting. The placement of the flow meter shall be in accordance with manufacturer recommendations for flow meter placement. The CONTRACTOR shall also consult the HYDROGEOLOGIST for optimal flow meter placement. Air release valves shall be provided and installed by the CONTRACTOR at as many locations as required. Air release valves shall consist of tapping the discharge pipe and providing and installing a 2-inch diameter riser and gate valve.

PART III **EXECUTION**

3.01 **JETTING AND CLEAN OUT OF OPEN INTERVAL**

- A. The CONTRACTOR shall install drilling tools into the well and clean out the open interval beginning at the base of the PVC casing. The CONTRACTOR shall clean out the open interval using the HYDROGEOLOGIST approved jetting tool.
- B. Clean out shall be performed with the well flowing at the maximum artesian flow rate; the water level in the well being not more than 5 feet above land surface (drilling pad level). If necessary, the CONTRACTOR shall fit a pump to the well to obtain the maximum flow from the well.
- C. The CONTRACTOR shall recommend a jetting tool setup that when installed into the open interval shall deliver a minimum water velocity of not less than 50 feet per second horizontal water flow onto the borehole wall. The jetting tool shall have at least 4 1-inch diameter horizontal jets equally spaced at 90 degree increments. The total flow rate delivered to the jetting tool shall be not less than 500 gpm.
- D. The CONTRACTOR shall make as many passes as needed throughout the open interval until, to the satisfaction of the HYDROGEOLOGIST, the borehole has been cleaned. During jetting, the CONTRACTOR shall rotate, raise and lower the jetting tool as needed to completely dislodge and remove loose sediment from the bore hole wall. Simultaneously during jetting, the well shall be artesian flowed to the Formation Water Disposal System to remove development solids from the borehole. The CONTRACTOR shall maintain all discharge water in accordance with Section 02785.
- E. Following jetting of the open interval, the CONTRACTOR shall install the drilling tools and bit into the borehole and clean out all accumulated solids from the bottom of the borehole. Bottom borehole clean out shall be performed using the reverse air drilling method.
- F. Water for jetting shall be recycled using the settling tanks. Prior to reintroduction into the borehole, jetting water shall be chlorinated to obtain a 50 ppm residual. Water shall be clear and free of sand and suspended solids prior to reintroduction into the borehole. The CONTRACTOR shall use all means necessary to settle, clean and chlorinate water prior to reintroduction into the borehole, including but not limited to use of the settling tanks.
- G. If necessary the CONTRACTOR shall provide additional tanks, storage and filtration to meet the above criteria.

3.02 SURGE PUMPING

- A. Using the test pump setup described in Section 02775, the CONTRACTOR shall pump surge the well until, to the satisfaction of the HYDROGEOLOGIST, and the discharge water is free of suspended material. The CONTRACTOR shall install a pump in the well capable of pumping steadily and in surges up to 3,000 gpm from the well through the Formation Water Disposal System. The CONTRACTOR shall surge the well frequently and be able to sustain a steady high flow rate as directed by the HYDROGEOLOGIST.
- B. The CONTRACTOR shall assist the HYDROGEOLOGIST with any connections required to connect the HYDROGEOLOGIST'S provided silt density index (SDI) testing equipment to the pump discharge. The CONTRACTOR shall provide, operate and maintain a clean auxiliary pump capable of maintaining 35 pounds per square inch (psi) for SDI testing. The auxiliary pump shall be plumbed to the Floridan Aquifer well discharge for sampling and testing. The CONTRACTOR shall provide fittings and fabricate connections as needed to enable the HYDROGEOLOGIST to perform the SDI tests.
- C. The CONTRACTOR shall measure static water level in the well prior to the start of development each day. Additionally, CONTRACTOR shall perform a capacity test daily, which will include measurement of flow rate followed by measurement of water level in the well.
- D. CONTRACTOR shall complete daily development summary forms provided by the HYDROGEOLOGIST, including daily static water level measurements, specific capacity measurements, and sand (Rossum) tests.

3.03 DISCHARGE WATER

- A. Discharge water generated during rehabilitation shall be discharged to the CONTRACTOR's formation water disposal system and described on project drawings. Settling and treatment of formation water to be discharged is the CONTRACTOR'S responsibility and shall be in accordance with all applicable regulations and Section 02785. The CONTRACTOR shall set up and maintain discharge water transmission piping, as required in Section 02785.
- B. Discharge water shall always be contained and under control by the CONTRACTOR. Discharge of formation water from the well to the ground shall be avoided to the greatest extent possible. The CONTRACTOR shall take all necessary precautions, and make repairs as needed, to minimize the discharge of formation water to the ground.

END OF SECTION

SECTION 02765

BOREHOLE GEOPHYSICAL LOGGING AND VIDEO LOGGING

PART I **GENERAL**

1.01 **SCOPE OF WORK**

- A. This section covers the equipment, work and materials necessary to perform geophysical and video logging of the borehole.
- B. Provide the following geophysical logging and well survey equipment:
 - 1. Dual Induction logs
 - 2. Natural gamma log
 - 3. Borehole Compensated Sonic
 - 4. Spontaneous potential log
 - 5. Caliper log
 - 6. Temperature log
 - 7. Fluid resistivity log
 - 8. Flow log (static and dynamic)
 - 9. DVD format video survey
- C. The geophysical logging schedule is provided in table format at the end of this section.

PART II **PRODUCTS (NOT USED)**

PART III **EXECUTION**

3.01 **GENERAL**

- A. All logging shall be supervised by the HYDROGEOLOGIST with 24 hours advanced notice. The CONTRACTOR is responsible to ensure that logs are complete and include the entire borehole and cased intervals as directed by the HYDROGEOLOGIST. Logging should be done as soon as possible after the drilling tools have been removed from the logged interval.
- B. When the hole has been drilled to a depth determined by the HYDROGEOLOGIST, it must be prepared for geophysical logging. Borehole preparation shall include but not be limited to: i) continuation of drilling fluid circulation until drill cuttings have been removed from the borehole and the fluid is uniform in the borehole; or ii) reverse air pumping until the discharge water is free of cuttings and suspended sediment. The CONTRACTOR must make all reasonable efforts to leave the borehole free from obstructions in preparation for geophysical logging. Logging must be done immediately following the completion of borehole preparation unless otherwise stated in the Contract or as stipulated by the HYDROGEOLOGIST.

- C. All static (non-flowing) logs, including video, shall be run prior to any dynamic (flowing) logs.
- D. Each log must be run and recorded in a continuous fashion to qualify as an acceptable log.
- E. The CONTRACTOR is responsible to ensure that the logs are complete. Any obstructions or fill material in the borehole or cased intervals shall be removed by the CONTRACTOR at his own expense.
- F. All logs shall include a repeat section of not less than 50 feet of the portion of the hole. The HYDROGEOLOGIST shall determine the repeat section.
- G. All logs shall be labeled with all appropriate information. Two (2) field copies and one (1) electronic copy shall be made available to the HYDROGEOLOGIST upon completion. Ten (10) paper copies and one (1) electronic copy of finished logs are to be provided within two (2) weeks of logging. The CONTRACTOR shall furnish one (1) DVD copy of each well video shall be made available to the HYDROGEOLOGIST upon completion. Ten (10) DVD copies of each video are to be provided to the OWNER within two (2) weeks of completion.
- H. A down hole video log in DVD format shall be conducted to inspect the casing and open intervals of the wells. The video shall be conducted in the presence of the HYDROGEOLOGIST. The video camera lens shall be color and capable of 360 degree movement; be controlled by the logging technician; be independent of the camera body; and have focus capability. The video camera shall be centralized in the borehole. The centralizers shall self-adjust to different casing and hole sizes as necessary. If the HYDROGEOLOGIST determines that the video is unacceptable due to poor quality, the CONTRACTOR at his expense shall obtain the necessary equipment to perform additional logging to the satisfaction of the HYDROGEOLOGIST.
- I. Video logging shall be conducted under both flowing and non-flowing conditions at the direction of the HYDROGEOLOGIST. Flow rate shall be a minimum of 500 gpm. If the well is not capable of flowing at the above rate, the CONTRACTOR shall install a test pump to pump the well at the said rate.
- J. Final videos shall be performed prior to demobilization of the drilling rig. If based on the video, the HYDROGEOLOGIST determines that the borehole is filled above the total drilled depth, then at the direction of the HYDROGEOLOGIST, the CONTRACTOR shall clean out the filled bore hole section using the drilling rig or by other means approved by the HYDROGEOLOGIST.

**FLORIDAN AQUIFER PRODUCTION WELL S-1R
SCHEDULE OF GEOPHYSICAL AND VIDEO LOGS (Estimated Depths)**

Construction Phase	Log Type
Nominal 32-inch reamed hole for 26-inch diameter surface casing installation (to 130 feet)	Caliper
15-inch Pilot Hole (130 feet to 420 feet)	Dual induction, single point resistivity, BHCS, SP, caliper, gamma ray
25-inch reamed hole for 17.4-inch PVC Final casing installation to 420 feet	Caliper
15-inch Pilot Hole (420 feet to 835 feet)	Dual induction, single point resistivity, BHCS, SP, caliper, gamma ray, temperature (static and dynamic), fluid resistivity (static and dynamic), flow (static and dynamic)
Well Completion	Video with rotating lens (Static and Dynamic)

END OF SECTION

SECTION 02775

PUMPING TESTS

PART I **GENERAL**

1.01 **SCOPE OF WORK**

- A. This section covers the labor, equipment and material required to perform pumping tests on the production wells.
- B. A five-step variable rate pumping test shall be performed on the wells. All equipment necessary to conduct this test shall be supplied, operated, manned, and maintained by the CONTRACTOR.
- C. The CONTRACTOR shall be responsible for failure of equipment and materials associated with the pumping test, and for negligence on the part of the CONTRACTOR. In the event of such failure or negligence that results in necessitating re-running of the pumping test, the CONTRACTOR shall repeat the test at his own expense.
- D. Under no circumstances shall the test pumping equipment create a vacuum within the well casing.
- E. The CONTRACTOR shall manage discharge water as described below and in Section 02875.

1.02 **SUBMITTALS**

- A. Provide certificates of calibration for flow meters to be used for flow measurement by the HYDROGEOLOGIST.
- B. Submit a pump curve prior to installation for approval by the HYDROGEOLOGIST.
- C. Submit to the HYDROGEOLOGIST following completion of pumping testing recovery, all pressure transducer and data logger data from pump test background, pumping and recovery periods.

PART II **PRODUCTS**

2.01 **TEST PUMP**

- A. Furnish the necessary instruments and pumping equipment capable of pumping at a steady rate ranging from 200 gpm to 3000 gpm with a throttling device and gate valve so that the flow rate can be adjusted as directed by the HYDROGEOLOGIST.
- B. Furnish a gate valve, orifice plate and manometer to control and measure discharge.

- C. Provide and install two (2), 1-inch ID drop tubes between the pump column and casing, from the water level access fitting at the wellhead to 5 feet above the pump intake or as directed by the HYDROGEOLOGIST. The drop tube shall enable the HYDROGEOLOGIST to manually measure water levels without interference of the pump, pump column or electronic water level monitoring equipment.
- D. The CONTRACTOR shall provide a pressure transducer, data logger and logger well cap seal for water level measurement prior to, during and after pump testing. The CONTRACTOR shall coordinate with the HYDROGEOLOGIST to determine the type of transducer and logger required for the anticipated drawdown, static water level logging periods, pumping periods and recovery periods. The HYDROGEOLOGIST shall determine data recording frequency and format. Data shall be precise, accurate and match manual water level measurements. Imprecise or inaccurate data shall be rejected requiring pumping tests and monitoring to be repeated at the CONTRACTOR's expense. Electronic data shall be submitted to the HYDROGEOLOGIST. The data logger will be installed in the well a minimum of 12 hours prior to and remain a minimum of 12 hours following the pumping tests for the purpose of collection of background and recovery water level data.
- E. Provide a manometer tube for manual measurement of static water levels and pumping water levels above land surface. The CONTRACTOR shall provide a method of erecting the tube and also provide access for water level measurement throughout the pumping test.

2.02 FLOW METER

Provide a calibrated flowmeter with direct measurement and a totalizer to measure flow. Anticipated metered flows shall range from 300 to 3000 gpm. Certification shall be no older than 60 days prior to notice to proceed and attest to a precision of 95 percent or greater for the range of the meter.

2.03 DISCHARGE PIPING

Provide all pipe, fittings, and valves required to transmit discharge water from the pump to the Formation Water Disposal System identified in Section 02785.

PART III EXECUTION

3.01 PUMPING TESTS

- A. Install and operate the pumping test equipment. Pumping tests shall consist of five steps to be run at rates between 300 gpm and 3,000 gpm or as determined by the HYDROGEOLOGIST. Step duration shall continue until drawdown in the production well stabilizes or a maximum of approximately two hours per step. The CONTRACTOR shall determine the appropriate engine and gate valve settings for the desired pumping rate prior to the test date in order to achieve a constant rate as soon as possible after the start of the test.
- B. Sufficient time shall be permitted for the HYDROGEOLOGIST to collect a static water level in the well. The static water level shall be measured by the CONTRACTOR prior to the start of pumping each day.

- C. The CONTRACTOR shall assist the HYDROGEOLOGIST with connections required to connect the HYDROGEOLOGIST'S provided silt density index (SDI) testing equipment to the pump discharge. The CONTRACTOR shall provide, operate and maintain a clean auxiliary pump capable of maintaining 35 pounds per square inch (psi) for SDI testing. The auxiliary pump shall be plumbed to the Floridan Aquifer well discharge for sampling and testing. The CONTRACTOR shall provide fittings and fabricate connections as needed to enable the HYDROGEOLOGIST to perform the SDI tests through the duration of the pumping test.
- D. At the option of the HYDROGEOLOGIST, a longer steady rate pumping test shall be conducted by the same method as described above. Payment for pump tests shall be at the hourly pumping test rate regardless of duration

3.02 DISCHARGE WATER

- A. Discharge water generated during pumping shall be discharged to the CONTRACTOR's formation water disposal system and described on project drawings. Settling and treatment of formation water to be discharged is the CONTRACTOR'S responsibility and shall be in accordance with all applicable regulations and Section 02785. The CONTRACTOR shall set up and maintain discharge water transmission piping, as required in Section 02785.
- B. Discharge water shall always be contained and under control by the CONTRACTOR. Discharge of formation water from the well to the ground shall be avoided to the greatest extent possible. The CONTRACTOR shall take all necessary precautions, and make repairs as needed, to minimize the discharge of formation water to the ground.

END OF SECTION

SECTION 02776

INFLATABLE PACKER TESTING

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. This section covers the work, materials, and equipment necessary for performing inflatable packer testing in S1R at the Indian River County Department of Utility Services South Oslo Water Treatment Plant (WTP)..

1.2 SUBMITTALS

- A. Provide calibration certificates of flowmeters for use during testing. Meter calibrations shall have been performed within six (6) months from the time of each test. The CONTRACTOR shall assume that multiple meters will be necessary to accurately measure the rates from the different tests.
- B. Provide diagram of proposed packer assemblies for both single packer and straddle-packer testing. The diagram shall include the diameters with the assembly deflated and the maximum diameters with the assembly safely inflated. The diagram also shall include the minimum length between the centerlines of the straddle packer assembly.
- C. Provide specifications of the pressure/water-level transducers to be used for both inside and outside the drill string. The manufacturer, model number, and pressure rating of the transducers shall be included.
- D. Provide all data from transducers from each test in Excel format and provide all manual data collected by the CONTRACTOR (including packer pressures, flow rates and totalizer readings). Data shall be accepted by the HYDROGEOLOGIST prior to deflating packers for each test.
- E. Provide proposed certified laboratory for analyzing packer test water quality samples.
- F. Provide laboratory reports from each packer test.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Furnish and install a dual-seal, open-hole packer, as manufactured by Baker, TAM J, Baski, or equal, of a diameter appropriate for the size of hole drilled. Large diameter packer or packer sleeves may be necessary to test large diameter portions of the borehole.
- B. The pipe used between the inflatable packers shall consist of appropriate diameter steel pipe or tubing. The pipe/tubing shall be uniformly slotted; the slots shall be distributed near the top, middle, and bottom of the tubing with the slotted openings occupying at least 25 percent of the surface area.

- C. Provide water level or pressure transducers and data logger manufactured by Insitu™ or equal. The transducers shall have an appropriate range and accuracy for the well as approved by the HYDROGEOLOGIST prior to testing.
- D. Pressure transducers shall be placed inside the drill pipe just above the pump and in the annulus with at least 50 feet of submergence. The recorded data-logger data must be able to be viewed during testing.
- E. The pressure transducers shall be calibrated in the well on the day that it is installed for monitoring the tests. The transducer pressure measurement shall be plotted against depth and a correction formula determined, if deemed necessary by the HYDROGEOLOGIST.
- F. The CONTRACTOR shall be responsible for providing appropriate-sized submersible pump and/or centrifugal pumps necessary to successfully complete each packer pumping test. The pump(s) shall have the capability of pumping at constant rate 100 gpm to 500 gpm at a total head up to 200 feet for testing the confining layer. The pumping rate for APPZ pump test is anticipated to be performed at rates up to 1,500 gpm through the work pipe. The pumping rate for UFA pump test is anticipated to be performed at rates up to 1,500 gpm through the annulus in between the well casing and work pipe.

PART 3 – EXECUTION

3.1 GENERAL

- A. The CONTRACTOR shall conduct inflatable packer-type tests as described in Section 02720 and as directed by the HYDROGEOLOGIST. The CONTRACTOR may be required to perform single-packer borehole pumping tests or straddle-packer pumping tests as specified in these Specifications at the discretion of the HYDROGEOLOGIST. The packer tests shall be conducted such that hydrologic properties of the formation can be determined and a representative water sample can be collected for analysis.
- B. For all packer tests, the uppermost 270 feet of work pipe shall consist of drill pipe with a minimum 8-inch inside diameter to facilitate the installation of an appropriate submersible electric pump. The pump shall be set at a depth of approximately 250 feet (or greater) below pad level.
- C. The internal surfaces of the drill pipe, casings and other fittings used for the packer tests shall be free of rust, scale and other materials that could be dislodged and interfere with the results of a test. The CONTRACTOR shall ensure the stand pipe and joints do not leak during testing operations.
- D. The CONTRACTOR shall provide, install and operate pressure transducers and data loggers capable of measuring changes in water level to an agreed accuracy as required by the HYDROGEOLOGIST for the intervals both below and above the upper packer. The CONTRACTOR shall provide a means to monitor the packer seal, by water-level measurements of the work (drop) pipe annulus, using an electronic probe/transducer and computerized data logger.
- E. Water levels at the pumping well and observation wells shall be measured and recorded using transducers and a data logger at frequencies specified by the HYDROGEOLOGIST.

The data logger shall allow visual observation of water levels being recorded during the tests. Manual water level measurement shall be collected during the pumping tests at frequencies specified by the HYDROGEOLOGIST. The manual water level data shall be used to monitor the appropriate functioning of the data logger used to record the water levels during the tests.

- F. CONTRACTOR shall ensure proper collection of data during the tests and perform measurements. Hand measurement with a battery powered water level probe shall be made and recorded for backup. CONTRACTOR shall provide data to the HYDROGEOLOGIST onsite who will evaluate the progress of the tests. CONTRACTOR shall submit the raw data from transducers and hand measurements in Excel spreadsheet format to the HYDROGEOLOGIST within 5 days after each pumping test is completed.
- G. The pumping tests shall be witnessed by the HYDROGEOLOGIST. The HYDROGEOLOGIST shall determine the duration of pumping and the duration of time for which recovery rate is monitored.
- H. Pressure transducers shall be placed inside the drill pipe just above the pump and in the annulus with at least 50 feet of submergence. The recorded data-logger data must be able to be viewed during testing.
- I. Pressure transducers may be installed in up to two additional nearby production wells during pump testing of S1R if requested by HYDROGEOLOGIST, to delineate the effects of pumping.
- J. The pressure transducers shall be calibrated in the well on the day that it is installed for monitoring the tests. The transducer pressure measurement shall be plotted against depth and a correction formula determined, if deemed necessary by the HYDROGEOLOGIST.
- K. The CONTRACTOR shall furnish and install in the pipeline within 30 feet of the well to be pumped, a flowmeter capable of recording instantaneous flow rates and totalizing flow. The flow meter shall have an accuracy of 5 percent at the tested rate. The flow meter shall be sufficiently removed from valves, elbows and reductions and obstructions in the pipeline to allow the meter to perform within specifications. The CONTRACTOR shall provide a throttling valve downstream of the flowmeter to regulate flow.

3.2 TESTING PROCEDURES

- A. The HYDROGEOLOGIST will select the depth intervals to be tested based on the geophysical logs (including video surveys), geologic logs, core samples and other available site-specific and regional data. The HYDROGEOLOGIST will discuss with the CONTRACTOR the packer testing plan for each borehole tested. The CONTRACTOR will be given the opportunity to evaluate the HYDROGEOLOGIST's packer depth selection before commencing packer setting.
- B. A straddle packer test is anticipated to be performed between the approximate depth of 850 and 950 feet bls. The HYDROGEOLOGIST will select the depth intervals to be tested based on the geophysical logs, geologic logs, and other available site-specific and regional data. The packer tests shall be conducted such that hydrologic properties of the formation can be determined and a representative water sample can be collected for

analysis (to be collected by OWNER/HYDROGEOLOGIST and facilitated by CONTRACTOR).

- C. The HYDROGEOLOGIST reserves the right to change the testing plan, the sequence of tests performed, the configuration of packer assembly (single or straddle) and the spacing of the packers. The CONTRACTOR shall assume that additional tests may be required by FDEP.
- D. After successfully setting and inflating the packer, the CONTRACTOR shall develop each zone so that the discharge water is free of any drilling mud/fluid (and produces stable water-quality results, as determined by the HYDROGEOLOGIST). Unless directed otherwise by the HYDROGEOLOGIST, the CONTRACTOR shall allow for a minimum of 8 hours of pre-test development (and development of a minimum of 2 drill pipe volumes) prior to each packer pumping test.
- E. The CONTRACTOR may perform multiple methods to develop the test interval. The final development shall be performed with the pump to be used for the packer test. The CONTRACTOR shall record data from pump development using the pressure transducers.
- F. After development, the CONTRACTOR shall allow water levels in the work pipe to return to static conditions to the satisfaction of the HYDROGEOLOGIST. The CONTRACTOR shall continue to record transducer data during recovery following development.
- G. After post-development recovery, the CONTRACTOR shall ensure the transducers and data-loggers are collecting data at the frequency required by the HYDROGEOLOGIST. A minimum of 12-hours of background data will be recorded. The CONTRACTOR shall then turn on the pump and initiate pump testing.
- H. The HYDROGEOLOGIST will determine the duration of the pump test, but the CONTRACTOR may assume a duration of forty-eight (48) hours for pump testing of the AAPZ and UFA, and approximately twenty-four (24) hours for the straddle packer test of the confining unit, or until a minimum of one drill pipe volume plus three test interval volumes have been pumped from the well, whichever is longer.
- I. The HYDROGEOLOGIST will determine the duration of the pump test, but the CONTRACTOR may assume duration of eight (8) hours or until a minimum of one drill pipe volume plus three test interval volumes have been pumped from the well, whichever is longer.
- J. Just prior to the completion of each test and as directed by the HYDROGEOLOGIST, the CONTRACTOR shall collect a water sample from the discharge for laboratory analysis. The CONTRACTOR shall provide appropriate sample containers obtained from the approved laboratory. The parameters shall be analyzed by a state certified laboratory. The CONTRACTOR shall refrigerate or ice the samples until the laboratory has custody of the samples. Samples shall be as noted in the table of test and production well water quality parameters in specification section 02780.

- K. If the formation does not produce enough water to purge one drill pipe volume and three test interval volumes within 8 hours, the CONTRACTOR may propose to collect the water quality sample using a thief sampler, subject to HYDROGEOLOGIST's approval. If approved, the sample shall be collected after completion of post-test recovery and prior to deflating the packers. The thief sampler shall be capable of collecting a sample directly within the test interval and shall be able to collect a sufficient volume of water for proper analysis of the required parameters.
- L. After collecting the water-quality samples and upon completion of the packer test, as determined by the HYDROGEOLOGIST, the CONTRACTOR shall ensure the transducers and data-loggers are collecting data at the frequency required by the HYDROGEOLOGIST. The CONTRACTOR shall then turn off the pump and allow water levels to recover.
- M. The HYDROGEOLOGIST will determine the duration of post-test recovery, but the CONTRACTOR shall assume a duration of eight (8) hours.
- N. Upon completion of post-test recovery, the CONTRACTOR shall provide the recorded data-logger data to the HYDROGEOLOGIST in Microsoft™ Excel format. The CONTRACTOR shall not deflate and move the packers until the HYDROGEOLOGIST receives the electronic data and confirms that it is acceptable.
- O. The CONTRACTOR shall be solely responsible for the collection and downloading of test data. Throughout development, testing and recovery activities, the CONTRACTOR shall provide the HYDROGEOLOGIST access to view transducer data on a real-time basis.

3.3 FAILURE TO COMPLETE TESTING

- A. In the event of test failure for any cause, including loss or non-recording of data, the CONTRACTOR shall repeat the test at his own cost.
- B. If accidental shutdown or a variation in the pumping rate occurs prior to the specified end of the test which invalidates the data in the HYDROGEOLOGIST's opinion, the CONTRACTOR shall make any necessary repairs and re-start the test from the beginning. No payment will be made for pumping time (or anything else) prior to any accidental shutdown.

END OF SECTION

SECTION 02780

WELL FACILITY DISINFECTION AND WATER QUALITY SAMPLING

PART I **GENERAL**

1.01 **SCOPE OF WORK**

- A. Provide labor, equipment and materials to disinfect the well pursuant to the requirements of AWWA C654-13 and wellhead according to the requirements of AWWA C-601.
- B. Provide labor, equipment and materials to perform analytical tests including (10) bacteriological tests and (1 complete set) Chapter 62-550 Florida Administrative Code (FAC) drinking water analyses on the completed well. The CONTRACTOR shall include all parameters required by the County Health Department and Florida Department of Environmental Protection (FDEP) for clearance and release of well S-1R into service.
- C. The CONTRACTOR shall subcontract an analytical laboratory to perform field sampling and analytical services in accordance with regulations. The laboratory shall be certified to perform the scope of work by the Florida Department of Environmental Protection and County Health Department.

1.02 **SUBMITTALS**

- A. Provide State and County certifications for proposed laboratory.
- B. Provide sampling reports, completed chain of custody forms and analytical results for all sampling events.

PART II **PRODUCTS**

2.01 **MATERIALS**

- A. Free chlorine liquid.
- B. Sodium Hypochlorite.
- C. Steriline.

PART III **EXECUTION**

3.01 **WELL FACILITY DISINFECTION**

- A. Provide notice to HYDROGEOLOGIST 48 hours in advance of treatment. Provide injection and measurement methods for approval.
- B. Post warning notices and secure the well facility from unauthorized access or use.

Secure the area.

- C. All water used for treatment shall be potable and from a HYDROGEOLOGIST approved source.
- D. Mix a sufficient concentration of chlorinated water solution to maintain a 200 parts per million chlorine residual throughout the well, pump and added piping facilities.
- E. Allow disinfectant to remain in the sealed system for 24 hours.

3.02 BACTERIOLOGICAL ANALYSIS

- A. Purge detectable chlorine solution from the well facility.
- B. Collect ten (10) water samples at an approved location 48 hours after disinfection procedure. Sample collection and handling procedures shall be in accordance with state approved laboratory quality assurance plan by an experienced sampling technician.
- C. Water samples shall be analyzed by an approved independent certified laboratory in accordance with state and local regulations, and in accordance with the methods published by AWWA.
- D. The CONTRACTOR shall continue to treat and conduct sample collection and analysis until an acceptable result is obtained. Any system disinfection (or any component thereof), sample collection or analysis required after an unsuccessful first attempt, shall be conducted at the CONTRACTOR's expense.

3.03 WATER QUALITY ANALYSIS

- A. Purge a minimum of five (5) well volumes of formation water from the well. Sample collection should be coordinated with pump testing so that representative samples can be readily collected.
- B. Collect one set of water samples from each well for drinking water analysis. Sample analysis shall include all drinking water parameters required in Florida Department of Environmental Protection, Chapter 62-550 FAC, and as required by the County Health Department including but not limited to copper pipe corrosion parameters: alkalinity, dissolved iron, dissolved oxygen, pH, total sulfide, and turbidity.
- C. Sample collection and handling procedures shall be in accordance with a State approved laboratory quality assurance plan by an approved sampling technician.
- D. Sample analysis shall include all parameters required by the County Health Department and Florida Department of Environmental Protection (FDEP) for clearance and release of well S-1R into service.
- E. Sample analysis shall reported in the Florida Department of Environmental Protection Safe Drinking Water Program Laboratory Reporting Format.
- F. Water samples shall be analyzed by an approved independent certified

laboratory in accordance with state and local regulations.

- G. Required water quality analyses
- a. The contractor shall have water samples collected from the completed well and analyzed for Florida primary and secondary drinking water standards (FAC 62-550.310 and 62-550.320). A table of parameters is provided at the end of this section. The contractor shall have water samples collected from the completed well and analyzed for membrane parameters. A table of parameters is provided at the end of this section with maximum acceptable detection limits.

TEST AND PRODUCTION WELL WATER QUALITY PARAMETERS:

Primary Drinking Water Standards

Alachlor	Fluoride
Aldicarb	Glyphosate
Aldicarb	sulfoxide Heptachlor
Aldicarb sulfone	Heptachlor epoxide
Aroclors (PCBs)	Hexachlorobenzene
Alpha, gross	Lindane
Antimony	Hexachlorocyclopentadiene
Arsenic	Lead
Barium	Mercury
Benzene	Methoxychlor
Benzo (a) Pyrene	Nickel
Bis (2-ethylhexyl) adipate	Nitrate (as N)
Bis (2-ethylhexyl) phthalate	Nitrite (as N)
Cadmium	Total Nitrite & Nitrate (as N)
Carbofuran	Oxamyl
Carbon Tetrachloride	Pentachlorophenol
Chlordane	Radium
Chlorobenzene	Selenium
Vinyl Chloride	Silver
Chromium	2,4,5-TP (Silvex)
Coliforms, Total	Simazine
Cyanide	Tetrachloroethylene
2,4-Dichlorophenoxyacetic Acid	Thallium
Dalapon	Toxaphene
Dibromochloropropane	1,2,4-Trichlorobenzene
Ethylene Dibromide	1,1,1-Trichloroethane
1,2-Dichlorobenzene	1,1,2-Trichloroethane
1,4-Dichlorobenzene	Trichloroethylene
1,2-Dichloroethane	Trihalomethanes (Total)
1,1-Dichloroethylene	Xylenes (Total)
Trans-1,2-Dichloroethylene	Picloram
Cis-1,2-Dichloroethylene	Beryllium
Dichloromethane	Sodium
1,2-dichloropropane	Styrene
Di (2-ethylhexyl) adipate	Toluene
Dinoseb	Diquat
Endothall	Atrazine
Endrin	2,4-D
Ethylbenzene	Dioxin

Secondary Drinking Water Standards

Aluminum	Manganese
Chloride	Odor
Color	pH
Copper	Silver
Corrosivity	Sulfate
Ethylbenzene	Toluene
Fluoride	Total Dissolved Solids (TDS)
Foaming Agents (MBAS)	Xylenes (Total)
Iron	Zinc

Membrane Parameters (MDL are Given in Parentheses)

Bromide (0.1 mg/L)
Calcium (1 mg/L)
Magnesium (1 mg/L)
Sodium (1 mg/L)
Potassium (1 mg/L)
Ammonium (Ion) (0.1 mg/L)
Strontium (0.1 mg/L)
Barium (0.010 mg/L)
Iron (0.01 mg/L)
Manganese (0.1 mg/L)
Gross Alpha (3 pCi/L)
Radium-226 (1 pCi/L)
Radium-228 (1 pCi/L)
Carbonate (1 mg/L)
Bicarbonate (1 mg/L)
Sulfate (1 mg/L)
Chloride (1 mg/L)
Fluoride (0.1 mg/L)
Nitrate/Nitrite (0.1 mg/L)
Orthophosphate (0.1 mg/L as PO₄)
Field pH (0.01 units)
Field Temperature
Field Conductivity
Field ORP
Turbidity (0.1 NTU)
Silica (as SiO₂) (0.1 mg/L)
Hydrogen Sulfide (0.1 mg/L)
Total Dissolved Solids (1 mg/L)
Total Hardness (QA check for multicharge cations) (1 mg/L as CaCO₃)
Total Alkalinity (QA check for carbonate/bicarbonate) (1 mg/l as CaCO₃)
Total Organic Carbon (0.1 mg/L as C)
Dissolved Organic Carbon (0.1 mg/L as C)
Color (1 CU)
UV-254

END OF SECTION

SECTION 02785

FORMATION WATER DISPOSAL SYSTEM

PART I

GENERAL

1.01 SCOPE OF WORK

- A. Provide labor, equipment and materials to furnish, assemble and maintain pumps and transmission piping as required to transmit formation water from the CONTRACTOR's construction wellhead, CONTRACTOR settling tanks to the outfall locations as shown in the project drawings.
- B. The CONTRACTOR is prohibited from discharging brackish formation water to the ground surface at the drilling site. All formation water discharged from the well must be contained at all times and be directed to the designated discharge location using the CONTRACTOR'S formation water disposal system.
- C. All well discharge (including well flow test, reverse air drilling, borehole jetting, development, and pumping test) shall be discharged to the CONTRACTORS formation water disposal system and pumped to the outfall location shown on the project drawings. No "kill" water shall be allowed to discharge to the outfall location shown on the project drawings. Turbidity of the discharged formation water shall be less than 29 NTU above background prior to discharge into the outfall location. CONTRACTOR shall provide adequate settling to prevent solids from discharging to the outfall location and shall meet all discharge criteria required by FDEP Generic discharge permits.
- D. The CONTRACTOR shall be responsible for obtaining, sampling, and monitoring for a FDEP Permit for the discharge of Produced Groundwater from a non-contaminated site activity (62-621.300(2) FAC) for discharge of water to discharge into an Indian River Farms Water Control District (IRFWCD) Canal.
- E. The CONTRACTOR shall be responsible for coordinating, sampling, monitoring and reporting of discharge water daily.
- F. The CONTRACTOR shall use Best Management Practices (BMPs) all means necessary to settle and clean discharge water prior to discharge, including but not limited to use of the settling tanks, filters, and floating turbidity barriers properly installed in receiving water body. Well drilling activities shall be adjusted accordingly and corrective actions taken prior to any exceedances of regulatory requirements at the discharge location with respect to the CONTRACTOR'S discharge water. The CONTRACTOR shall employ all methods necessary to ensure the discharge water entering the intracoastal water way shall be clear, less than 29 NTU turbidity above background and meet FDEP requirements for a Generic Permit for the discharge of Produced Groundwater from a non-contaminated site activity (62-621.300(2) FAC).
- G. The CONTRACTOR shall direct discharge from the CONTRACTOR furnished temporary discharge pipeline to prevent erosion (as applicable) and prevent turbidity greater than 29 NTU and silt from entering the system. The CONTRACTOR shall

use BMPs to minimize odor, erosion, and silting of the system. The CONTRACTOR shall monitor turbidity and specific conductance prior to discharging into the intracoastal water way outfall location and at the receiving water body.

- H. Discharges may be limited by the HYDROGEOLOGIST based on the results of water quality monitoring.
- I. The CONTRACTOR is solely responsible, by any and all methods necessary, to meet the requirements for discharge of water. If the CONTRACTOR fails to fulfill proper requirements of discharge water, the CONTRACTOR is responsible for complete restoration of the discharge location to the original condition at no cost to the OWNER.
- J. CONTRACTOR is solely responsible for the removal of discharged solids from the County raw water main and restoration to its original condition to the satisfaction of the HYDROGEOLOGIST and OWNER following well completion.
- K. The CONTRACTOR shall cease water discharge operations if weather conditions require the available capacity of the OWNER's storm water drainage system for the OWNER's facilities drainage or the drainage of nearby landowners.

1.01 SUBMITTALS

- A. Submit Best Management Practices plan including a schematic plan of all equipment, piping, silt and turbidity barriers planned for use of water discharge for approval by the OWNER and HYDROGEOLOGIST.
- B. Daily measurements of turbidity of the outfall location shall be recorded by the CONTRACTOR and submitted to the HYDROGEOLOGIST on a weekly basis during discharge activities.
- C. Submit a copy of Generic Discharge Permit (62-621.300(2) FAC) (submitted to FDEP by the CONTRACTOR) to the HYDROGEOLOGIST.

PART II PRODUCTS

2.01 EQUIPMENT

- A. The CONTRACTOR shall provide and maintain a transfer pump(s) capable of pumping the total volumes and anticipated maximum rates of discharge from the well as defined in Section 02775. The pump shall be used for transfer of water from the settling tanks to the designated discharge location.
- B. The CONTRACTOR shall provide polyethylene (fusion welded), or approved equal, transmission piping, couplings, valves, reusable fittings and other items needed to assemble, operate and maintain the formation water disposal system. Multiple vessels shall be connected and sequential to provide sufficient retention time for solids separation prior to fluid discharge. Vessel layout and arrangement must be located within the designated construction area specified on the project drawings.

- C. The CONTRACTOR shall provide, operate and maintain as many pumps as required to transmit water from the well to the outfall location. The pumps shall be capable of pumping at the maximum rates for the elements of work contemplated herein.
- D. The CONTRACTOR shall employ all means necessary to minimize to the greatest extent possible erosion, turbidity at the outfall location, and containment of discharge solids, including, but not limited to, the use of turbidity barriers at the outfall. CONTRACTOR shall use an energy diffuser at the formation water disposal location to aid in minimizing erosion. The CONTRACTOR shall minimize impact to OWNER's facilities and fully restore all areas used for formation water discharge. Daily measurements of turbidity of the outfall location shall be recorded by the CONTRACTOR and submitted to the HYDROGEOLOGIST on a weekly basis during discharge activities.

PART III **EXECUTION**

3.01 **PREPARATION**

Review final discharge location with HYDROGEOLOGIST to confirm proper location and to minimize impact to site erosion.

3.02 **CONSTRUCTION**

Assemble the transmission piping in accordance with the project drawings. Use high-density polyethylene (HDPE), fusion welded pipe, or other approved equivalent, that conforms to AWWA C906 or AWWA C905 for temporary formation water disposal piping. All fittings shall be fusion welded HDPE or approved equal.

3.03 **OPERATION**

- A. The formation water disposal piping shall be monitored continuously for leaks and possible problem areas. A thorough inspection of the complete pipeline shall be conducted daily prior to startup. Repairs shall be made prior to use.
- B. The CONTRACTOR shall coordinate discharge formation water activities with the HYDROGEOLOGIST.
- C. Pumps shall be capable of pumping water at the anticipated maximum rates of flow. Throttling devices shall be provided on the pumps to adjust the pumping rates accordingly. Valves shall be provided as needed to shut off flow and stop gravity drainage if necessary.

END OF SECTION

SECTION 02790

PRODUCTION WELL ACIDIZATION

PART I

GENERAL

1.01 SCOPE OF WORK

- A. Following completion of the final casing installation and grouting, the HYDROGEOLOGIST may require acidization of the production zone. The project drawings show a typical acid header to be used on the construction well head.
- B. The work as specified includes; installation of temporary acidization wellhead, pre-acidization specific capacity test, well kill(s), as required, acid treatment of the well; removal and treatment of the residual spent acid water; purging of the well until produced water is acceptable to the HYDROGEOLOGIST; and a post acidization specific capacity test to determine whether additional acid treatment is required.
- C. The CONTRACTOR is advised that acid treatment and associated setup includes pumping acid into the well, monitoring of the well, and removal, treatment and disposal of spent acid until discharge water returns to a consistent and repeated pH measurement of 6.0 or higher. Once discharge water has returned to an acceptable pH and specific conductance, the CONTRACTOR shall perform a specific capacity test to determine whether additional acid treatment is required. The post acidization specific capacity test shall be performed under artesian flow conditions at a rate equal to the pre-acidization specific capacity test and prior to setting up for pump development. Acidization treatment shall be considered complete upon inspection and approval by the HYDROGEOLOGIST. All costs associated with acid treatment, including purging of spent acid water and initial specific capacity test are to be included in the acid treatment setup Bid Item and well acidization Bid Item unit prices. The CONTRACTOR shall not bill against pump development or pump testing Bid Items for time spent flowing the well to remove spent acid and/or return to an acceptable pH and specific conductance.
- D. Upon completion of successful acid treatment as accepted and approved by the HYDROGEOLOGIST, the CONTRACTOR shall remove the acid treatment setup and continue to subsequent tasks including well development. Requirements for well development and pump testing are provided in Sections 02760 and 02775
- E. Furnish all labor, equipment and materials required for acidization.
- F. Acidization shall be performed with the artesian head at static condition.

1.02 SUBMITTALS

- A. Acidization header drawing including location of acid line, water injection line, gas bleed line, associated pressure gauges, and other access ports as needed to complete the scope of work.
- B. Prior to acidization, CONTRACTOR shall provide plan for acidization, temporary

acid storage, containment and safety plan including a drawing of equipment onsite layout, for approval by HYDROGEOLOGIST.

- C. Provide all chemical manufacturer information including NSF Standard 60 Certification and the Material Safety Data Sheets (MSDS) for all chemicals proposed for use in the well
- D. Provide acid transportation manifests and load weight tickets.
- E. Results of pre- and post- acidization specific capacity tests.

PART II **PRODUCTS**

2.01 **ACID**

- A. Furnish 4,000 gallons of 20 Baume strength, 32 percent hydrochloric acid (food service grade).
- B. The CONTRACTOR shall ensure proper design and containment of acid pumps, hoses, fittings and storage tanks to prevent spillage.
- C. Place chemical resistant PacTank (or equivalent) portable spill containment berm on ground where chemical transports and tanks are to be spotted. Additional containment berm shall be placed along all hose routes, beneath hoses and fittings. All fittings shall be suitable for use with the above specified acid grade.

2.02 **SODIUM BICARBONATE**

- A. Furnish sufficient sodium bicarbonate to manually distribute around the wellhead, acid hoses, valves and truck to neutralize any acid in the event of a spill.
- B. After acidization, prepare a sodium bicarbonate solution to raise the pH of the well discharge water to an acceptable level for disposal (pH between 6.0 and 8.5). pH testing shall be performed by the CONTRACTOR under the direction of the HYDROGEOLOGIST.

PART III **EXECUTION**

3.01 **WELL ACIDIZATION PROCEDURE SEQUENCE**

- A. Prior to acidization, the CONTRACTOR shall perform a preliminary flow test (1-2 hours) to determine well specific capacity. The CONTRACTOR shall record, static and pumping water levels, pumping rates, and duration of the pump test and submit data to the HYDROGEOLOGIST.
- B. Install approximately 500 feet of drop tubing, or as directed by the HYDROGEOLOGIST. Exact depth of drop tubing shall be determined by the HYDROGEOLOGIST. The drop tubing shall be attached to the construction wellhead assembly as depicted in the drawings. The acidization wellhead assembly shall have at a minimum access for drop tubing, a two-inch water injection line, a gas relief line and a pressure gage fitting.

- C. All access ports shall be fitted with isolation valves. The wellhead shall provide a tight seal up to 100 psi. Provide and install a pressure gage on the wellhead to monitor pressure at the wellhead.
- D. Pump the HYDROGEOLOGIST approved quantity of acid (estimated to be up to 4,000 gallons per pump) through the drop tubing at a minimum rate of 200 gallons per minute (gpm). The pumping method shall not introduce ambient air into the well. At all times the wellhead pressure shall be monitored and shall not exceed 50 psi. All equipment and materials must be approved by the HYDROGEOLOGIST. If a second pump is to be performed, approximately 8 hours is required between pumps or as directed by the HYDROGEOLOGIST. Between pumps the CONTRACTOR shall purge the casing and drop tubing of acid using clear water.
- E. Provide adequate water supply to pump up to at least 2,000 gallons of chase water or up to three (3) well volumes, plus the drop tubing capacity. This volume may be less depending on conditions and the acid reaction. The chase water shall be pumped into the well through the drop tubing and through the casing. The pumping rate shall be minimum 100 gpm or as designated by the HYDROGEOLOGIST. Chase water shall be potable water, chlorinated to 1 mg/l available chlorine.
- F. Casing pressures shall be monitored continuously by the CONTRACTOR for at least 12 hours following acid treatment. If required, excess gas pressure shall be bled off as needed. A gas relief pipe shall be extended a minimum of 50 feet away from the work area, down wind from any potential immediate receptor. Termination point of the gas relief pipe shall be specified by the CONTRACTOR in the acidization plan.
- G. Using the drop tubing, a water sample shall be collected by the HYDROGEOLOGIST for analysis 24 hours after acid treatment. If required by the HYDROGEOLOGIST, the CONTRACTOR shall pump up to two (2) well casing volumes of additional chase water into the well using the same method as Paragraph E.
- H. Discharge well through the formation water disposal connection until water is clear with a pH of 6.0 or higher. Water with a pH below 6.0 shall be contained and treated using a sodium bicarbonate solution to neutralize residual acid or be removed from the site. All remnant acid shall be neutralized immediately following acidization. No acid shall remain onsite following completion of acidization. Treated water shall only be discharged from the holding tank after approval by the HYDROGEOLOGIST. All discharge to the outfall location shall comply with FDEP Generic Permit discharge requirements and as specified in Section 02785.
- I. Purging of spent acid shall be considered complete when discharge water from the well is clear with a pH of 6.0 or higher, the specific conductance of the well is comparable to pre-acid treatment specific conductance values, and a specific capacity test has been conducted on the well to determine if additional acid treatment is necessary. If additional acid treatment is requested based on the results of specific capacity testing, no additional payment will be made for the acid treatment setup.
- J. Following completion of acidization and post acidization purging, the

CONTRACTOR shall perform a post-acid flow test (1-2 hours) to determine well specific capacity. The CONTRACTOR shall record, static and pumping water levels, pumping rates, and duration of the pump test and submit data to the HYDROGEOLOGIST.

- K. Develop well until produced water from well is approximately the same conductivity and pH as prior to acid treatment. Development shall be in accordance with Section 02760.

END OF SECTION

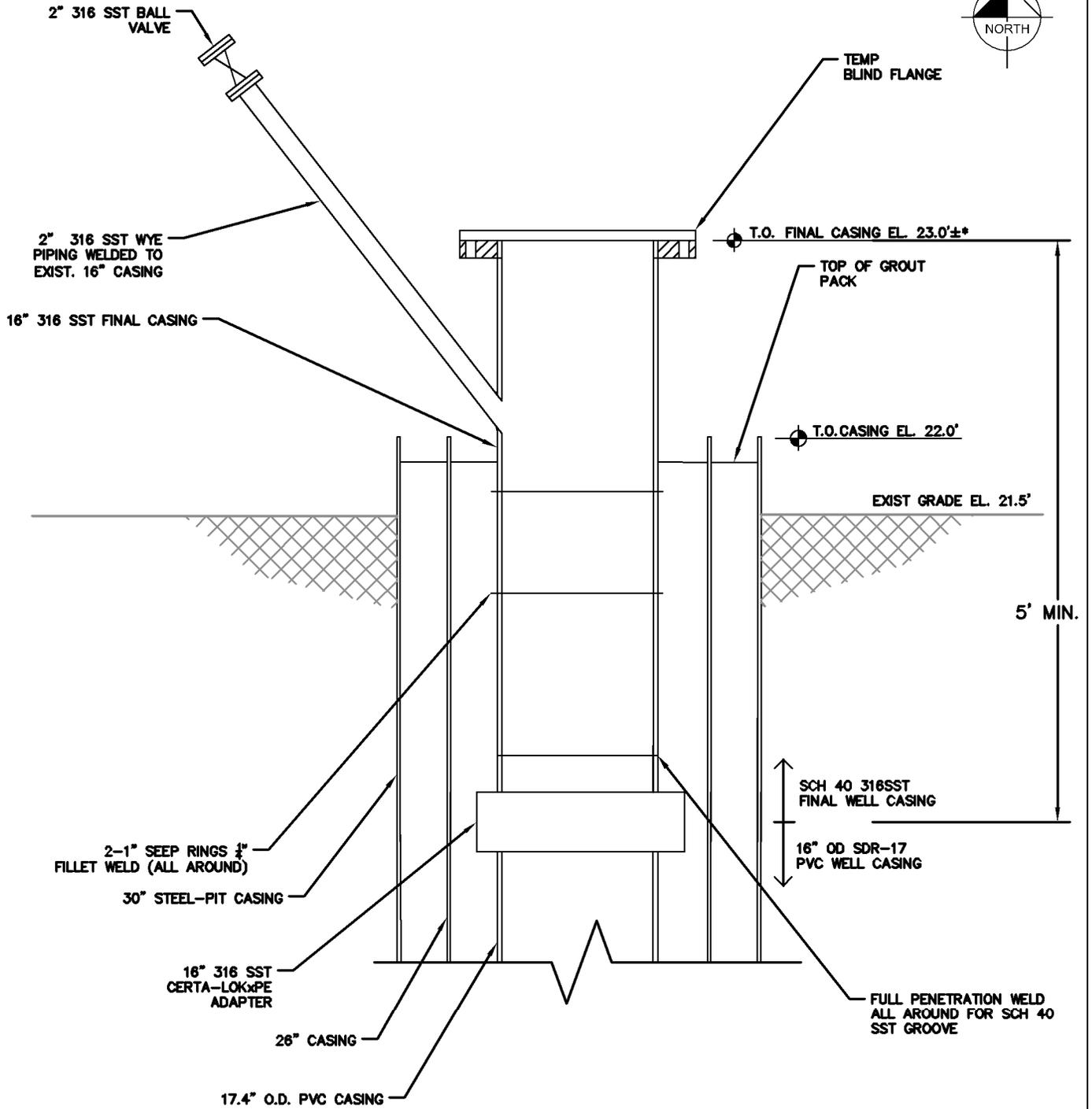
■ *Attachment 1*

Well S-1R Wellhead Details



Drawing name: K:\WPB_Civil\044572106 - OSLO WELL S-1 REPLACEMENT\CAD\Plansheets\FIG1_S1R WELLHEAD DETAIL.dwg FIG-1 Sep 20, 2022 4:06pm by: nick.black

This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adoption by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



NOTES:

1. FIGURE 2 SHALL BE USED FOR ELEVATION DATA ONLY. REFER TO JLA FIGURE FOR WELLHEAD CONSTRUCTION.

*COORDINATE W/ ENGINEER

SCALE	AS NOTED
DESIGNED BY	NPOB
DRAWN BY	BSK
CHECKED BY	NPOB

Kimley»Horn

© 2022 KIMLEY-HORN AND ASSOCIATES, INC.
 1920 Welke Way Suite 200, West Palm Beach, FL 33411
 PHONE (561) 845-0665 FAX (561) 863-8175
 WWW.KIMLEY-HORN.COM CA 0000696

DATE	AUG 2022
PROJECT NO.	044572106

**WELL S-1R WELLHEAD
 DETAILS**

DESIGN ENGINEER:	NICHOLAS P.O BLACK
FLORIDA P.E. LICENSE NUMBER:	84908

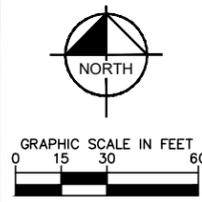
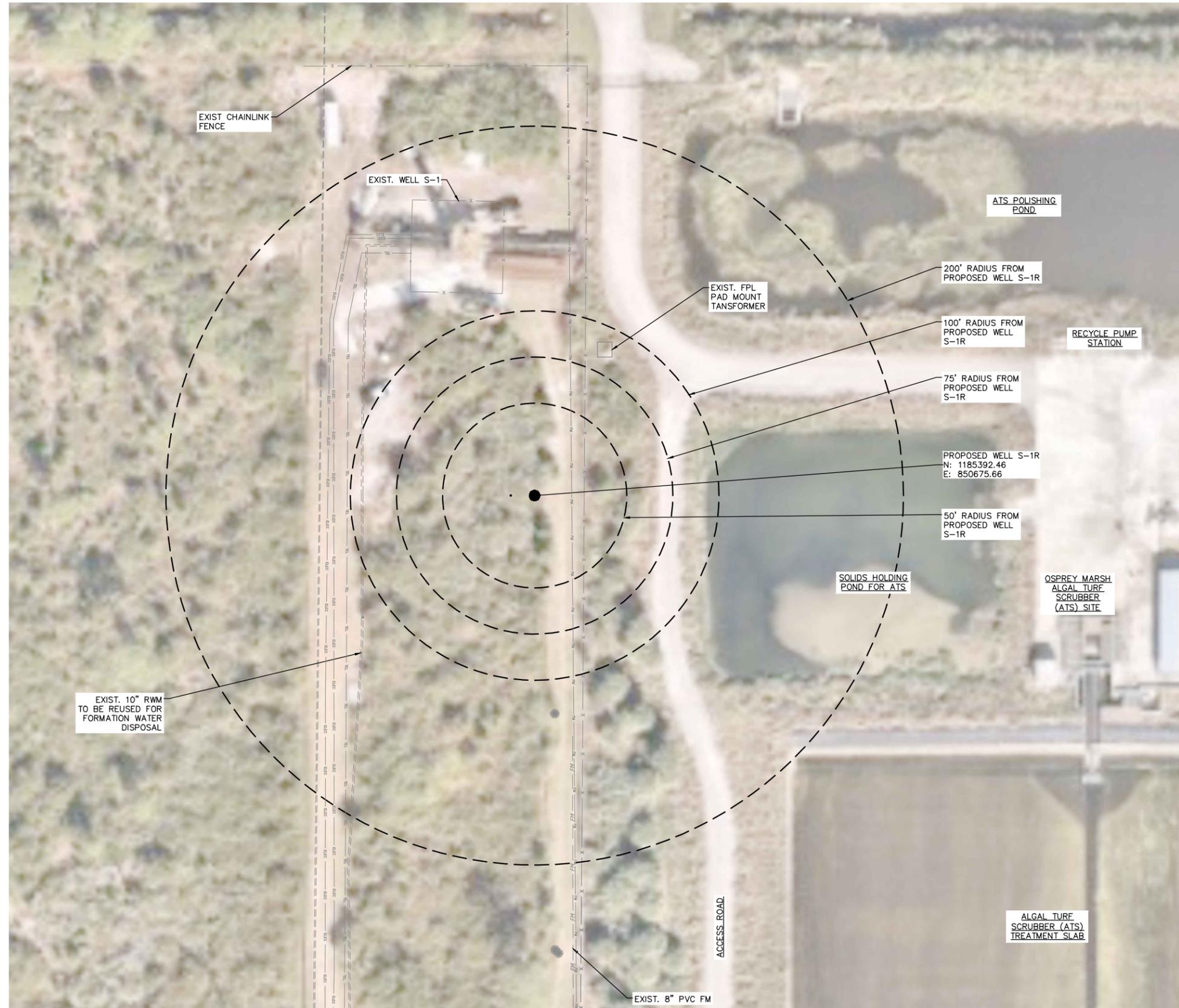
SHEET NUMBER	FIG. 1
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■ *Attachment 2*

Well S-1R Location Plan



Plotted By: Block, Nick Sheet: SOUTH WTP WELL S-1R Layout: C-2 WELL S-1R SITE PLAN September 20, 2022 04:15:38pm K:\WPB\Civil\044572106 - OSLO WELL S-1 REPLACEMENT\CAD\Plansheets\FIG 2 WELL LOCATION.dwg
 This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



- NOTES:**
- ELEVATIONS SHOWN ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PER TOPOGRAPHIC SURVEY BY WILLIAM B. ZENTZ + ASSOCIATES IN APRIL 2020.
 - CONTRACTOR SHALL CONSTRUCT TEMPORARY SITE FENCING AND IS SOLELY RESPONSIBLE FOR SECURITY OF JOB SITE THROUGHOUT DURATION OF PROJECT.
 - CONTRACTOR SHALL RE-SOD AND RESTORE SITE TO EQUAL OR BETTER CONDITION.
 - CONTRACTOR PERMITTED TO CLEAR VEGETATION AS NEEDED.
 - CONTRACTOR SHALL MAINTAIN SITE SECURITY THROUGHOUT DURATION OF PROJECT.

F.A.C. 62-532 PUBLIC SUPPLY WATER WELL SETBACK REQUIREMENTS		
SETBACK	DESCRIPTION	S-1R
500-FT (NOT SHOWN)	ON-SITE SLOW RATE AND RAPID RATE LAND APPLICATION FLOW SYSTEMS, DOMESTIC WASTEWATER RESIDUALS LAND APPLICATION, PHOSPHOGYPSUM STACK SYSTEMS, AND SOLID WASTE DISPOSAL FACILITIES	MEETS REQUIREMENTS
200-FT	ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS, YARD TRASH DISPOSAL, STORAGE, OR PROCESSING	MEETS REQUIREMENTS
100-FT	TRANSMISSION FACILITIES CONVEYING RECLAIMED WATER TO RESTRICTED PUBLIC ACCESS SLOW RATE LAND APPLICATION SYSTEMS, RAPID RATE LAND APPLICATION SYSTEM OR OVERLAND FLOW SYSTEMS, ABOVEGROUND OR UNDERGROUND STORAGE TANKS, ONSITE SEWAGE TREATMENT OR SOLID WASTE TANKS, SANITARY HAZARD AS DEFINED IN CHAPTER 62-550, F.A.C., FOR DRINKING WATER SUPPLY WELLS SERVING PUBLIC WATER SYSTEMS	*SETBACK VARIANCE
75-FT	PUBLIC ACCESS, RESIDENTIAL IRRIGATION, OR EDIBLE CROP SLOW-RATE LAND APPLICATION SYSTEMS, TRANSMISSION FACILITIES CONVEYING RECLAIMED WATER TO PUBLIC ACCESS, RESIDENTIAL IRRIGATION, OR EDIBLE CROP SLOW-RATE LAND APPLICATION SYSTEMS	MEETS REQUIREMENTS
50-FT	ABOVE GROUND STORAGE TANKS CONTAINING LIQUID POLLUTANT OR HAZARDOUS SUBSTANCES, PESTICIDE APPLICATION AREAS NOT UNDER OWNERSHIP OF SUPPLIER OF AGRICULTURAL SITES, GOLF COURSES, NURSERIES, PARKS, RAILROADS TRACKS, STORMWATER DETENTION OR RETENTION BASINS, AND SURFACE WATER	MEETS REQUIREMENTS

*PROPOSED WELL WILL BE DRILLED INTO THE CONFINED FLORIDAN AQUIFER AND PROTECTS THE RAW WATER SOURCE FROM POTENTIAL CONTAMINATION AND THUS, THE WELL DEPTH AND GEOLOGICAL BARRIER PROVIDED BY THE CONFINED AQUIFER JUSTIFIES A DECREASE IN THE STANDARD WELL SETBACK REQUIREMENTS. ALSO, THE WELL IS ARTESIAN FREE FLOWING PREVENTING ANY SURFACE OR SHALLOW GROUNDWATER INTRUSION. WELL WATER LEVELS DURING PUMPING WILL NATURALLY BE ABOVE GROUND SURFACE ELEVATIONS.

No.	REVISIONS	DATE	BY

Kimley»Horn

© 2022 KIMLEY-HORN AND ASSOCIATES, INC.
 1920 WEKIVA WAY SUITE 200, WEST PALM BEACH, FL 33411
 PHONE: 561-845-0665 FAX: 561-863-8175
 WWW.KIMLEY-HORN.COM REGISTRY NO. 696

KHA PROJECT
044572106
 DATE
AUGUST 2022
 SCALE AS SHOWN
 DESIGNED BY NPOB
 DRAWN BY BSK
 CHECKED BY NPOB

SOUTH WTP WELL S-1R
 PREPARED FOR
INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES
 INDIAN RIVER COUNTY FLORIDA

LICENSED PROFESSIONAL
 NICHOLAS P.O. BLACK
 FLORIDA LICENSE NUMBER
 84908

WELL LOCATION PLAN

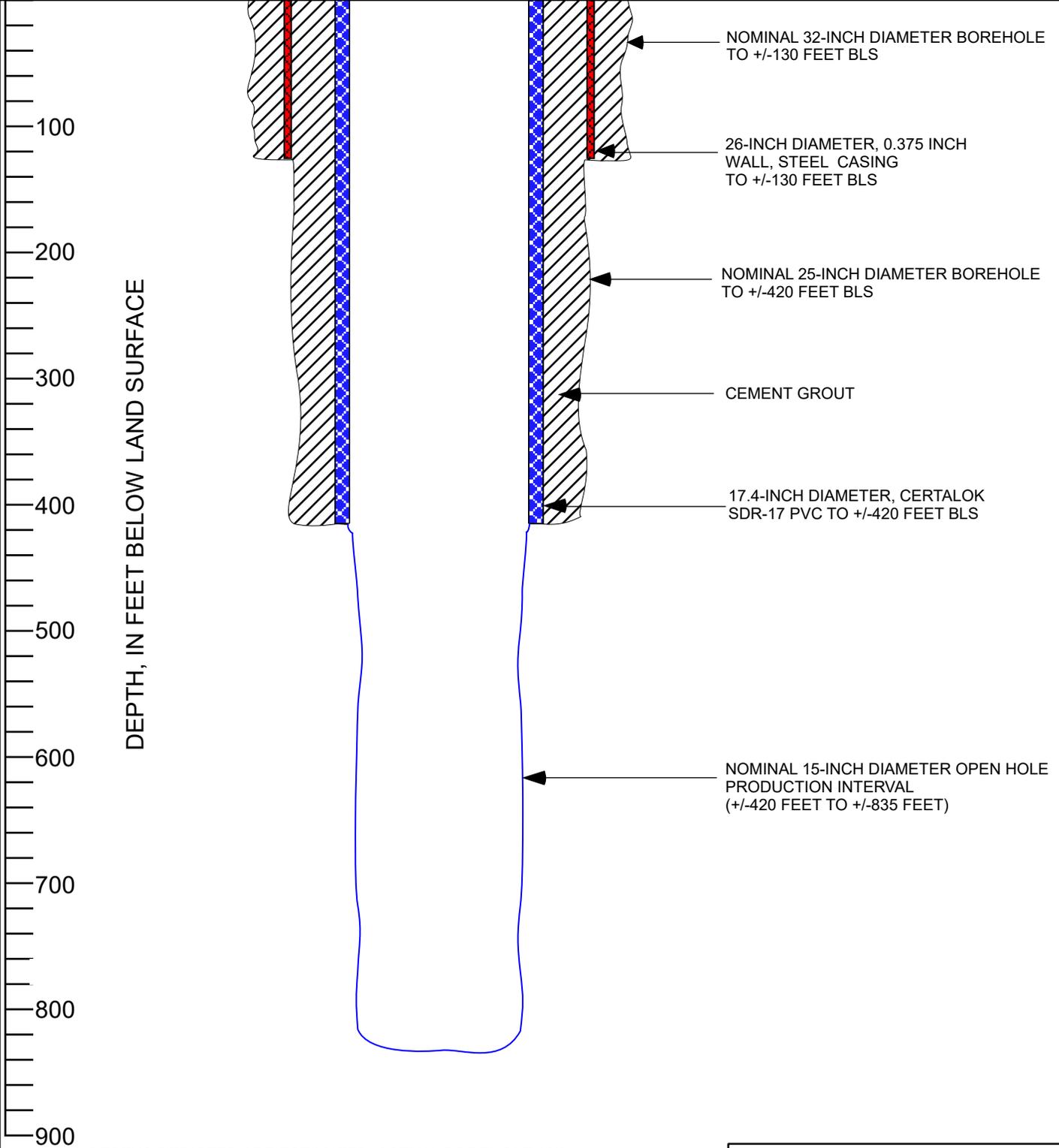
SHEET NUMBER
FIG 2

■ *Attachment 3*

Well S-1R Construction Diagram



EXISTING GRADE



ALL DEPTHS DEPICTED ARE ESTIMATED; ACTUAL BOREHOLE AND CASED DEPTHS SHALL BE DETERMINED BASED ON INDIVIDUAL WELL SITE CONDITIONS AND AS DIRECTED BY THE HYDROGEOLOGIST.

JLA Geosciences, Inc.
HYDROGEOLOGIC CONSULTANTS

LEGEND:

-  CEMENT GROUT
-  STEEL WELL CASING
-  PVC WELL CASING
-  OPEN HOLE

SCALE:

AS SHOWN

DATE:

03/06/22

DRAWN BY:

JF

PROJECT NO:

22-018

PROJECT SITE:

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES
SOUTH COUNTY WATER TREATMENT PLANT

FIGURE NO:

2

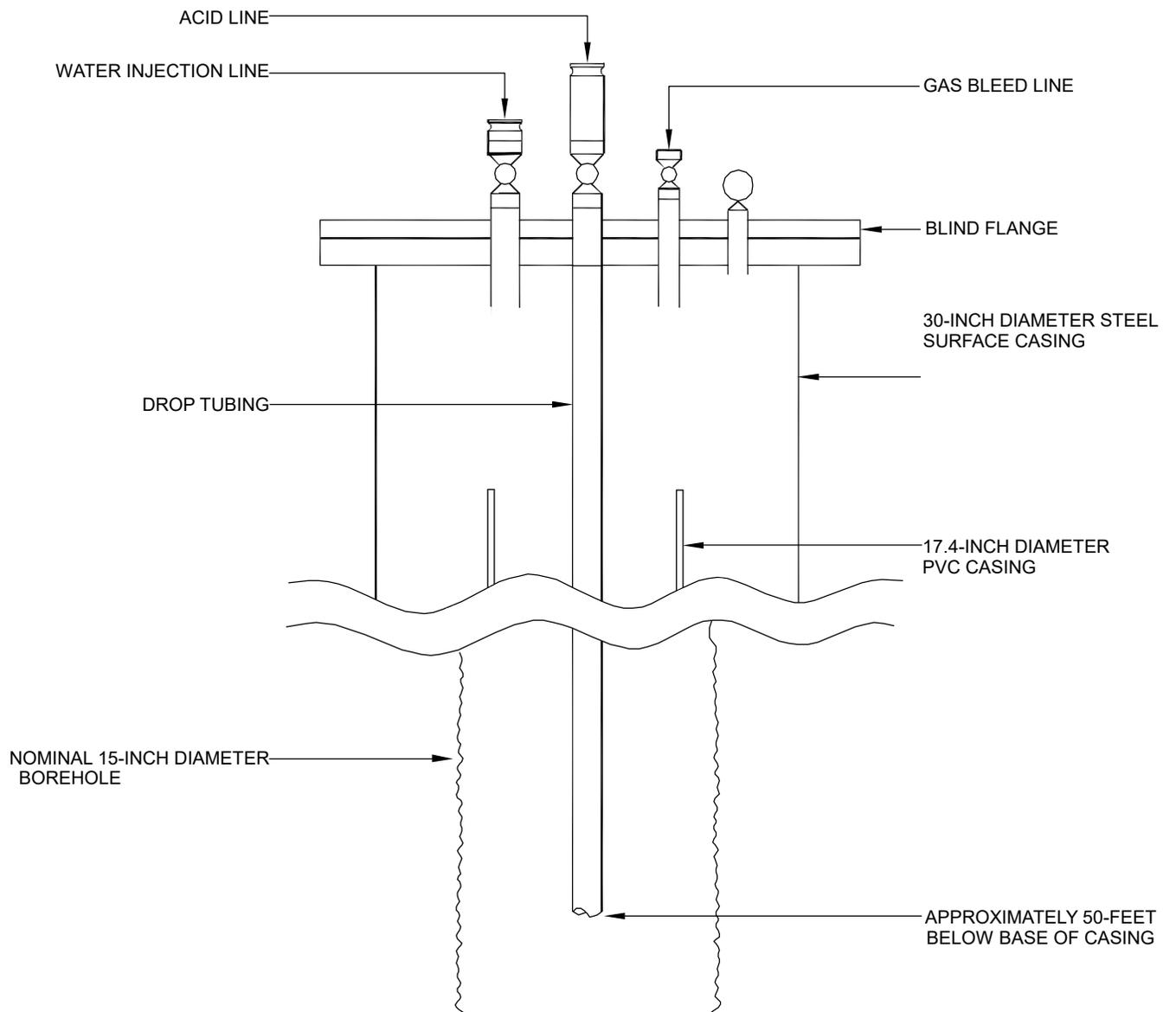
FIGURE TITLE:

REPLACEMENT WELL S-1R WELL CONSTRUCTION DIAGRAM

■ *Attachment 4*

Well S-1R Acidization Header





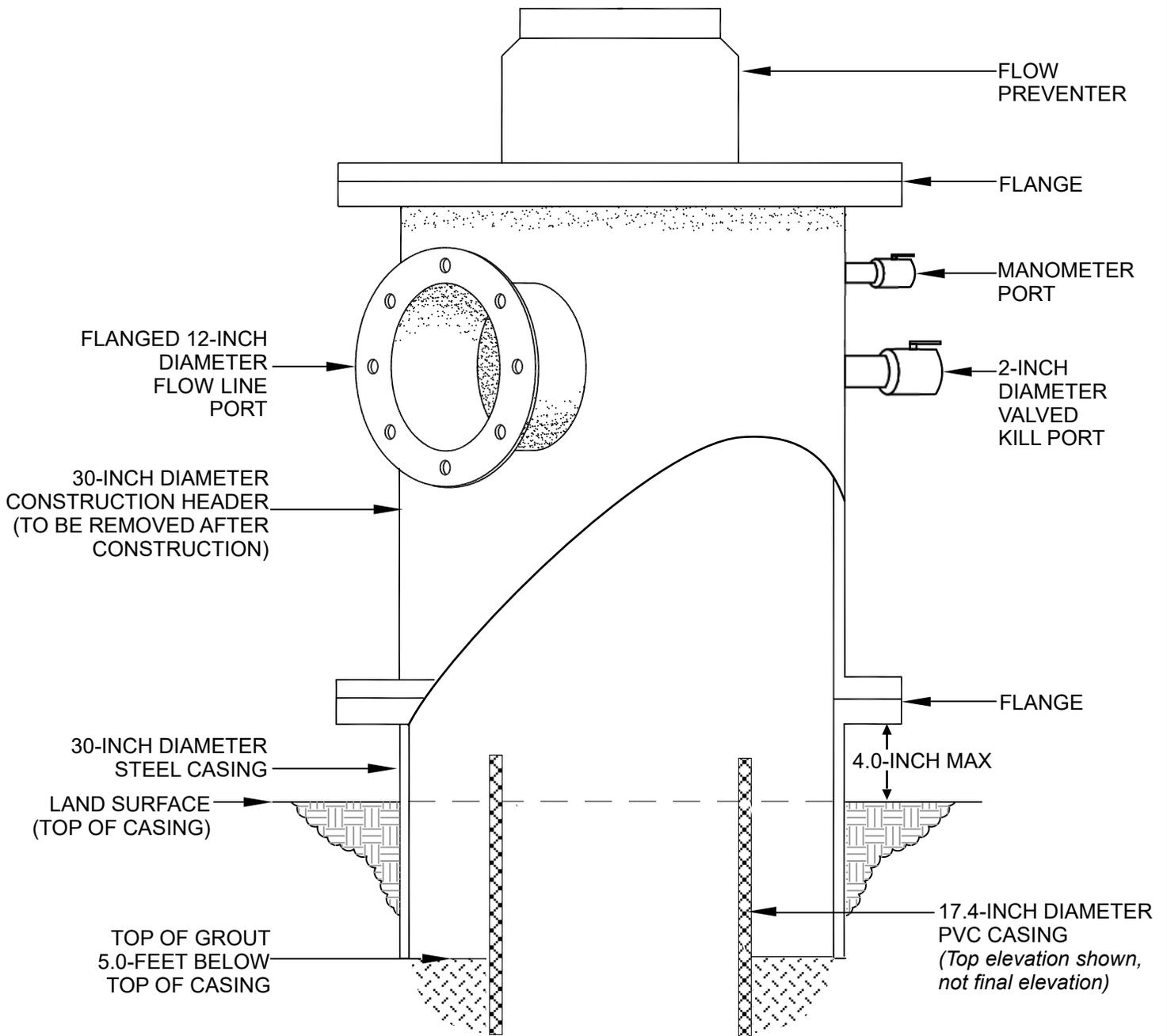
NOTE: CONTRACTOR SHALL PROVIDE OTHER ACCESS PORTS TO THE ACID HEADER AS NEEDED TO COMPLETE THE SCOPE OF WORK.

SCALE:	AS SHOWN	JLA Geosciences, Inc.		
LEGEND:	 VALVE	DRAWN BY:	JWF	
		DATE:	5/24/2022	
PROJECT SITE:	INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES SOUTH COUNTY WATER TREATMENT PLANT		PROJECT NO:	22-018
PROJECT TITLE:	TEMPORARY ACIDIZATION HEADER		FIGURE NO:	

■ *Attachment 5*

Well S-1R Temporary Construction Header





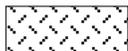
NOTE: CONTRACTOR SHALL PROVIDE OTHER ACCESS PORTS TO THE CONSTRUCTION HEADER AS NEEDED TO COMPLETE THE SCOPE OF WORK.

SCALE:

AS SHOWN

JLA Geosciences, Inc.

LEGEND:



CEMENT GROUT

DRAWN BY:

JWF

DATE:

05/24/22

PROJECT SITE:

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES
SOUTH COUNTY WATER TREATMENT PLANT

PROJECT NO:

22-018

PROJECT TITLE:

TEMPORARY CONSTRUCTION HEADER

FIGURE NO:

■ *Attachment 6*

SJRWMD Consumptive Use Permit #10524-10 Letter Modification



St. Johns River

Water Management District

Michael A. Register, P.E., Executive Director

4049 Reid Street • P.O. Box 1429 • Palatka, FL 32178-1429 • 386-329-4500 • www.sjrwmd.com

April 22, 2022

Sean Lieske – *Sent via email:* slieske@ircgov.com
Indian River County
1801 27th St
Vero Beach, FL 32960-3388

SUBJECT: Indian River County - Hobart Park and Oslo WTP, Consumptive Use Permit
Number 10524-10
Indian River County, Florida

Dear Mr. Lieske:

Enclosed is the permit authorized by the District on April 22, 2022. The enclosed permit is a legal document and should be kept with other important records. Please read the permit and conditions carefully because the referenced conditions may require submittal of additional information. Where possible, please submit all information required to comply with permit conditions electronically at www.sjrwmd.com/permitting via the District's e-Permitting portal.

Please be advised that the District will not publish a notice in the newspaper advising the public that the permit has been issued. Enclosed is information on publishing notice of the permit. If a newspaper notice is not published to close the point of entry, the time to challenge the issuance of the permit will not expire. A potential petitioner has 26 days from the date on which the actual notice is deposited in the mail, or 21 days from publication of this notice when actual notice is not provided, within which to file a petition for an administrative hearing pursuant to Sections 120.569 and 120.57, *Florida Statutes*. Receipt of such a petition by the District may result in this permit becoming null and void. Also, enclosed is a copy of the Notice of Rights.

If you have any questions concerning the permit, please contact Patricia Renish in the Palm Bay Service Center at (321) 984-4939 or Callie Register in the Palm Bay Service Center at (321) 473-1328

Sincerely,

A handwritten signature in black ink that reads 'Rich Burklew'.

Richard Burklew, Bureau Chief
Water Use Regulation

CC: Agent: Jill Grimaldi – *Sent via email:* jill.grimaldi@kimley-horn.com

Kimley-Horn and Associates

Agent: Jon Friedrichs – *Sent via email:* jfriedrichs@ilageosciences.com

JLA Geosciences, Inc.

GOVERNING BOARD

Rob Bradley, CHAIR
FLEMING ISLAND

Maryam H. Ghyabi-White, VICE CHAIR
ORMOND BEACH

J. Chris Peterson, SECRETARY
WINTER PARK

Ron Howse, TREASURER
COCOA

Ryan Atwood
MOUNT DORA

Doug Bourmique
VERO BEACH

Douglas Burnett
ST. AUGUSTINE

Cole Oliver
MERRITT ISLAND

Janet Price
FERNANDINA BEACH

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
Post Office Box 1429
Palatka, Florida 32178-1429

PERMIT NO: 10524-10

DATE ISSUED: April 22, 2022

PROJECT NAME: Indian River County - Hobart Park and Oslo WTP

A PERMIT AUTHORIZING:

By letter modification, the District authorizes, as limited by the attached permit conditions, the replacement of well S1 South WTP (District ID 7309) and the continued use of up to 4,687 million gallons per year (12.84 million gallons per day average) of groundwater from the Upper Floridan aquifer for public supply use to serve a projected population of 110,071 through 2031.

LOCATION:

Site: Indian River Co. N Wellfield - Hobart Park WTP
Indian River County

Site: Indian River County S Wellfield - Oslo WTP
Indian River County

SECTION(S):	TOWNSHIP(S):	RANGE(S):
32, 33	31S	39E
4	32S	39E
23	33S	39E

ISSUED TO:

Indian River County
1801 27th St
Vero Beach, FL 32960-3388

The permittee agrees to hold and save the St. Johns River Water Management District and its successors harmless from any and all damages, claims, or liabilities which may arise from permit issuance. Said application, including all plans and specifications attached thereto, is by reference made a part hereof.

This permit does not convey to the permittee any property rights nor any rights or privileges other than those specified herein, nor relieve the permittee from complying with any applicable local government, state, or federal, rule, or ordinance.

This permit may be revoked, modified, or transferred at any time pursuant to the appropriate provisions of Chapter 373, Florida Statutes and 40C-1, Florida Administrative Code.

PERMIT IS CONDITIONED UPON:

See conditions on attached "Exhibit A", dated April 22, 2022

AUTHORIZED BY: St. Johns River Water Management District
Division of Water Supply Planning and Assessment

By: 

Richard Burklew
Bureau Chief

"EXHIBIT A"
CONDITIONS FOR ISSUANCE OF PERMIT NUMBER 10524-10
Indian River County - Hobart Park and Oslo WTP
DATE ISSUED: April 22, 2022

1. With advance notice to the permittee, District staff with proper identification shall have permission to enter, inspect, observe, collect samples, and take measurements of permitted facilities to determine compliance with the permit conditions and permitted plans and specifications. The permittee shall either accompany District staff onto the property or make provision for access onto the property.
2. Nothing in this permit should be construed to limit the authority of the St. Johns River Water Management District to declare a water shortage and issue orders pursuant to Section 373.175, Florida Statutes, or to formulate a plan for implementation during periods of water shortage, pursuant to Section 373.246, Florida Statutes. In the event a water shortage is declared by the District Governing Board, the permittee must adhere to the water shortage restrictions as specified by the District, even though the specified water shortage restrictions may be inconsistent with the terms and conditions of this permit.
3. Prior to the construction, modification, or abandonment of a well, the permittee must obtain a Water Well Construction Permit from the St. Johns River Water Management District, or the appropriate local government pursuant to Chapter 40C-3, Florida Administrative Code. Construction, modification, or abandonment of a well will require modification of the consumptive use permit when such construction, modification, or abandonment is other than that specified and described on the consumptive use permit application form.
4. Leaking or inoperative well casings, valves, or controls must be repaired or replaced as required to eliminate the leak or make the system fully operational.
5. Legal uses of water existing at the time of permit application may not be significantly adversely impacted by the consumptive use. If unanticipated significant adverse impacts occur, the District shall revoke the permit in whole or in part to curtail or abate the adverse impacts, unless the impacts can be mitigated by the permittee.
6. Off-site land uses existing at the time of permit application may not be significantly adversely impacted as a result of the consumptive use. If unanticipated significant adverse impacts occur, the District shall revoke the permit in whole or in part to curtail or abate the adverse impacts, unless the impacts can be mitigated by the permittee.
7. The District must be notified, in writing, within 30 days of any sale, conveyance, or other transfer of a well or facility from which the permitted consumptive use is made or within 30 days of any transfer of ownership or control of the real property at which the permitted consumptive use is located. All transfers of ownership or transfers of permits are subject to the provisions of section 40C-1.612.
8. A District issued identification tag shall be prominently displayed at each withdrawal site by permanently affixing such tag to the pump, headgate, valve, or other withdrawal facility as provided by Section 40C-2.401, Florida Administrative Code. Permittee shall notify the District in the event that a replacement tag is needed.
9. The permittee shall meter all service connections.
10. All irrigation shall be in conformity with the requirements set forth in subsection 40C-2.042(2), F.A.C.

11. All submittals to the District for demonstrating compliance with the conditions issued under this permit must include the CUP Number 10524-10 plainly labeled.
12. This permit will expire on October 11, 2031.
13. The maximum annual groundwater withdrawals from the Floridan aquifer must not exceed:

3,956 million gallons (10.838 mgd average) in 2011,
 4,022 million gallons (11.019 mgd average) in 2012,
 4,087 million gallons (11.197 mgd average) in 2013,
 4,155 million gallons (11.384 mgd average) in 2014,
 4,222 million gallons (11.567 mgd average) in 2015,
 4,293 million gallons (11.762 mgd average) in 2016,
 4,385 million gallons (12.014 mgd average) in 2017,
 4,457 million gallons (12.211 mgd average) in 2018,
 4,532 million gallons (12.416 mgd average) in 2019,
 4,607 million gallons (12.622 mgd average) in 2020, and
 4,687 million gallons (12.838 mgd average) in 2021 through 2031.

14. The average daily groundwater withdrawals from the Floridan aquifer (in million gallons) at each wellfield for each year indicated below must not exceed:

Year	Oslo (South) WTP Wellfield	Hobart Park (North) WTP Wellfield
2011	6.40	4.438
2012	6.40	4.619
2013	6.40	4.797
2014	6.40	4.984
2015	6.40	5.167
2016	6.40	5.362
2017	6.40	5.614
2018	6.40	5.811
2019	6.40	6.016
2020	6.40	6.222
2021 to 2031	6.40	6.438

15. Water quality samples must be obtained quarterly (i.e., March, June, September, & December) from all production and deep monitor wells at both the Oslo (South) WTP and Hobart Park (North) WTP in accordance with a District-approved QA/QC program. The samples must be analyzed for chlorides and total dissolved solids, and the laboratory results submitted within 30 days of sampling using the appropriate District template.
16. The permittee must implement the Well Field Management Plan received by the District on April 29, 2009. This plan is titled "Indian River County Well Field Management Plan". If the permittee is not able to operate under the conditions proposed in this plan then the permittee will be required to modify this Well Field Management Plan and address potential impacts that may result from plan modifications.
17. The permittee must have groundwater samples collected and analyzed annually in May from permitted Well S2 (District ID 7319) and Well N1 (District ID 7316) for the permit duration.

Sample Collection

All groundwater samples must be collected in accordance with the standard operating procedures (SOP) of the Florida Department of Environmental Protection (DEP) in DEP-SOP-001/01, DEP Quality Assurance Rule, as set forth in chapter 62-160, F.A.C.

Wells must be purged in accordance with the appropriate procedure in DEP-SOP-001/01 as necessary to evacuate water from the well column and induce groundwater representative of the hydrogeologic formation into the well before sampling. Purged water must be sampled and analyzed in the field for the following parameters:

Water Temperature (°C)
pH (SU)
Specific Conductance (umhos/cm or uS/cm)
Turbidity (NTU)

Purging must be documented using the Groundwater Sampling Log form referenced in the DEP SOP or equivalent.

Water samples must be stored on ice immediately after collection, and remain on ice until received by the laboratory. It is recommended that sample duplicates be taken to allow for laboratory errors or data loss, and that these samples be stored by the laboratory for a minimum of 60 days to ensure backup sample availability should re-analyses be required.

Laboratory Analyses

Water samples must be analyzed in the laboratory for the following major ion suite:

Calcium (mg/L)
Magnesium (mg/L)
Potassium (mg/L)
Sodium (mg/L)
Total iron (mg/L)
Chloride (mg/L)
Sulfate (mg/L)
Bicarbonate Alkalinity (as mg/L CaCO₃)
Carbonate Alkalinity (as mg/L CaCO₃)
Total Dissolved Solids (mg/L)
Specific Conductance (umhos/cm or uS/cm)

Quality Assurance

The permittee must provide documentation that field instruments were properly calibrated before obtaining field measurements during purging and sampling.

All water quality analyses must be performed by a laboratory certified by the Florida Department of Health (FDOH) and the National Environmental Laboratory Accreditation Program (NELAP). All laboratory analyses must be by methods for which the laboratory has FDOH certification. All laboratory analyses must be completed within EPA holding times. If data is lost or a laboratory error occurs and the EPA holding time for an analysis has expired, the permittee must have the well re-sampled within 15 days of notification from the laboratory that a loss or laboratory error has occurred. The resample shall be collected according to the procedures described above, and analyzed for the field parameters and the major ion suite listed above.

With the exception of pH, laboratory analyses using selective ion electrodes are not acceptable, based on the inadequate sensitivity of these methods. For the same reason,

analyses using test kits typically used for field screening (e.g., Hatch and LaMotte) are not acceptable.

All major ion analyses must be checked for anion-cation balance (equivalent concentration in meq/L), and must not exceed 10% difference. If the ion balance exceeds 10% difference, the permittee must review the data and include in the report submitted to the District a discussion of the cause or explanation of the imbalance. The permittee may also be required to have the sample re-analyzed if it is within acceptable holding times or have the well resampled. The resample shall be collected according to the procedures described above, and analyzed for the four field parameters and the major ion suite.

Reports

A report must be submitted to the District no later than the last day of the month after the sampling (for example, the report for samples collected in May must be submitted to the District no later than June 30). The report must include the following:

Table summarizing results for field measurements and laboratory chemical analyses
Well sampling log
Field instrument calibration verification
Chain of custody forms (if outsourced)
Laboratory analytical report (if outsourced)

All data must be submitted to the District in a District-approved electronic format readable by the District's computerized database.

18. If water quality data collected by the permittee or the District indicates that significant saline water intrusion is occurring in any of the permitted wells as a result of the withdrawals authorized by this permit, the permittee must submit a plan for District approval to abate the impact caused by the saline water intrusion. The plan must contain a schedule for implementation of corrective action which may include modification of the well construction, well rehabilitation, and reduction in well withdrawal rates or other measures identified by the permittee to abate the impact. The permittee must implement the District-approved plan within the schedule set forth in the plan.
19. Groundwater level measurements must be made and submitted to the District on a quarterly basis as follows:
 - a) Weekly records on the deep monitor wells at both wellfields and the shallow monitor well at Hobart Park North Plant;
 - b) Measurements on all production wells to include both pumping and static water levels;
 - c) The results must be reported to the District semi-annually with the water use submittals.
20. All available reclaimed water must be distributed or used by the permittee in place of higher quality water sources, when deemed feasible under District rules and applicable state law.
21. The permittee shall use the lowest quality water source, such as reclaimed water, surface or storm water, or an alternative water supply to supply the needs of the project, when deemed feasible under District rules and applicable state law.
22. Before use, all wells must be equipped with totalizing flow meters. All flowmeters must maintain 95% accuracy, be verifiable, and be installed according to the manufacturer's specifications.
23. Total withdrawals of groundwater from the Floridan aquifer using Wells S1R (District ID 524853), S2 (District ID 7310), S3R (District ID 35333), S4R (District ID

464849), S5 (District ID 7313), S6 (District ID 7314), S7 (District ID 7315), N1 (District ID 7316), N2 (District ID 7317), N3 (District ID 7318), N4 (District ID 40141), N5 (District ID 40142), N6 (District ID 40143), N7 (District ID 40144), N8 (District ID 40145), and N9 (District ID 40146) for public supply use must be recorded continuously, totaled monthly, and reported to the District at least every six months from the initiation of the monitoring using Form No. EN-50. The reporting dates each year will be as follows for the duration of the permit:

Reporting Period	Report Due Date
January-June	July 31
July – December	January 31

24. The permittee must maintain all flowmeters. In case of failure or breakdown of any meter, the District must be notified in writing within 5 days of its discovery. A defective meter must be repaired or replaced within 30 days of its discovery.
25. The permittee must have all flow meters checked for accuracy at least once every 10 years within 30 days of the anniversary date of permit issuance, and recalibrated if the difference between the actual flow and the meter reading is greater than 5%. District Form No. EN-51 must be submitted to the District within 10 days of the inspection or calibration.
26. By March 31 each year, the permittee must send an annual report to the District describing the implementation of water conservation and reclaimed water within County's service area that has occurred during the previous calendar year.
27. The permittee shall not withdraw any additional groundwater for desalination unless the permittee has obtained all authorizations required by DEP for discharge of all additional desalination reject brine.
28. The permittee's consumptive use shall not adversely impact wetlands, lakes, and spring flows or contribute to a violation of minimum flows and levels adopted in rule chapter 40C-8, F.A.C., except as authorized by a District-approved minimum flow or level (MFL) recovery strategy. If unanticipated significant adverse impacts occur, the District shall revoke the permit in whole or in part to curtail or abate the adverse impacts, unless the permittee mitigates the impacts under a District-approved plan.
29. The permittee's use of water as authorized by this permit shall not cause an interference with an existing legal use of water as defined in District rules. If interference occurs, the District may revoke the permit in whole or in part to abate the adverse impact unless otherwise mitigated by the permittee.

The permittee has submitted to the District a detailed mitigation plan to address the potential for interference as the permittee's authorized withdrawals increase over the term of the permit. The permittee shall implement the plan (titled "Indian River County Consumptive Use Permit Avoidance Plan" and received by the District on July 11, 2011) in accordance with the schedule set forth in the plan. Any modification to the plan must be submitted to the District for review and must obtain District approval before it may be implemented. Existing legal users that may potentially be impacted by the withdrawals of groundwater at the Hobart Park (North) WTP were identified in the plan; however, the permittee must also provide mitigation for any interference to existing legal users that have inadvertently not been identified in the plan.

30. The permittee must mitigate if an adverse impact to existing users has occurred. Mitigation may include installation of a new pump or motor, providing

new electrical wiring, connection with the existing water supply system, or other appropriate measures. However, the mitigation cannot result in an increased cost to an impacted user.

31. The permittee must submit a compliance report to the District under subsection 373.236(4), of the Florida Statutes. The permittee must submit the report by October 11 of 2021. The report shall contain sufficient information to demonstrate that the permittee's use of water will continue, for the remaining duration of the permit, to meet the conditions for permit issuance set forth in the District rules that existed at the time the permit was issued for 20 years by the District. In providing such assurance, the compliance report must meet the submittal requirements of section 6.5.5 of the Applicant's Handbook: Consumptive Uses of Water, December 27, 2010.

Notice of Rights

1. A person whose substantial interests are or may be affected has the right to request an administrative hearing by filing a written petition with the St. Johns River Water Management District (District). Pursuant to Chapter 28-106 and Rule 40C-1.1007, Florida Administrative Code, the petition must be filed (received) either by delivery at the office of the District Clerk at District Headquarters, P. O. Box 1429, Palatka Florida 32178-1429 (4049 Reid St., Palatka, FL 32177) or by e-mail with the District Clerk at Clerk@sjrwmd.com, within twenty-six (26) days of the District depositing the notice of District decision in the mail (for those persons to whom the District mails actual notice), within twenty-one (21) days of the District emailing the notice of District decision (for those persons to whom the District emails actual notice), or within twenty-one (21) days of newspaper publication of the notice of District decision (for those persons to whom the District does not mail or email actual notice). A petition must comply with Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes, and Chapter 28-106, Florida Administrative Code. The District will not accept a petition sent by facsimile (fax), as explained in paragraph no. 4 below.
2. Please be advised that if you wish to dispute this District decision, mediation may be available and that choosing mediation does not affect your right to an administrative hearing. If you wish to request mediation, you must do so in a timely-filed petition. If all parties, including the District, agree to the details of the mediation procedure, in writing, within 10 days after the time period stated in the announcement for election of an administrative remedy under Sections 120.569 and 120.57, Florida Statutes, the time limitations imposed by Sections 120.569 and 120.57, Florida Statutes, shall be tolled to allow mediation of the disputed District decision. The mediation must be concluded within 60 days of the date of the parties' written agreement, or such other timeframe agreed to by the parties in writing. Any mediation agreement must include provisions for selecting a mediator, a statement that each party shall be responsible for paying its pro-rata share of the costs and fees associated with mediation, and the mediating parties' understanding regarding the confidentiality of discussions and documents introduced during mediation. If mediation results in settlement of the administrative dispute, the District will enter a final order consistent with the settlement agreement. If mediation terminates without settlement of the dispute, the District will notify all the parties in writing that the administrative hearing process under Sections 120.569 and 120.57, Florida Statutes, is resumed. Even if a party chooses not to engage in formal mediation, or if formal mediation does not result in a settlement agreement, the District will remain willing to engage in informal settlement discussions.
3. A person whose substantial interests are or may be affected has the right to an informal administrative hearing pursuant to Sections 120.569 and 120.57(2), Florida Statutes, where no material facts are in dispute. A petition for an informal hearing must also comply with the requirements set forth in Rule 28-106.301, Florida Administrative Code.

Notice of Rights

4. A petition for an administrative hearing is deemed filed upon receipt of the complete petition by the District Clerk at the District Headquarters in Palatka, Florida during the District's regular business hours. The District's regular business hours are 8:00 a.m. – 5:00 p.m., excluding weekends and District holidays. Petitions received by the District Clerk after the District's regular business hours shall be deemed filed as of 8:00 a.m. on the District's next regular business day. The District's acceptance of petitions filed by e-mail is subject to certain conditions set forth in the District's Statement of Agency Organization and Operation (issued pursuant to Rule 28-101.001, Florida Administrative Code), which is available for viewing at www.sjrwmf.com. These conditions include, but are not limited to, the petition being in the form of a PDF or TIFF file and being capable of being stored and printed by the District. Further, pursuant to the District's Statement of Agency Organization and Operation, attempting to file a petition by facsimile is prohibited and shall not constitute filing.
5. Failure to file a petition for an administrative hearing within the requisite timeframe shall constitute a waiver of the right to an administrative hearing. (Rule 28-106.111, Florida Administrative Code).
6. The right to an administrative hearing and the relevant procedures to be followed are governed by Chapter 120, Florida Statutes, Chapter 28-106, Florida Administrative Code, and Rule 40C-1.1007, Florida Administrative Code. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means the District's final action may be different from the position taken by it in this notice. A person whose substantial interests are or may be affected by the District's final action has the right to become a party to the proceeding, in accordance with the requirements set forth above.
7. Pursuant to Section 120.68, Florida Statutes, a party to the proceeding before the District who is adversely affected by final District action may seek review of the action in the District Court of Appeal by filing a notice of appeal pursuant to Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, within 30 days of the rendering of the final District action.
8. A District action is considered rendered, as referred to in paragraph no. 7 above, after it is signed on behalf of the District and filed by the District Clerk.
9. Failure to observe the relevant timeframes for filing a petition for judicial review as described in paragraph no. 7 above will result in waiver of that right to review.

Notice of Rights

Certificate of Service

I HEREBY CERTIFY that a copy of the foregoing Notice of Rights has been sent to the permittee:

Indian River County
1801 27th St
Vero Beach, FL 32960-3388

This 22nd day of April 2022.

A handwritten signature in black ink that reads "Rich Burklew". The signature is written in a cursive style with a long horizontal flourish extending to the right.

Richard Burklew, Bureau Chief

Permit Number: 10524-10

NOTICING INFORMATION

Please be advised that the St. Johns River Water Management District will not publish a notice in the newspaper advising the public that it has issued a permit for this project.

Newspaper publication, using the District's notice form, notifies members of the public of their right to challenge the issuance of the permit. If proper notice is given by newspaper publication, then there is a 21-day time limit for someone to file a petition for an administrative hearing to challenge the issuance of the permit.

To close the point of entry for filing a petition, you may publish (at your own expense) a one-time notice of the District's decision in a newspaper of general circulation within the affected area as defined in Section 50.011 of the Florida Statutes. If you do not publish a newspaper notice to close the point of entry, the time to challenge the issuance of your permit will not expire and someone could file a petition even after your project is constructed.

A copy of the notice form and a partial list of newspapers of general circulation are attached for your convenience. However, you are not limited to those listed newspapers. If you choose to close the point of entry and the notice is published, the newspaper will return to you an affidavit of publication. In that event, it is important that you either submit a scanned copy of the affidavit by emailing it to compliancesupport@sjrwmd.com (preferred method) or send a copy of the original affidavit to:

Office of Business and Administrative Services
4049 Reid Street
Palatka, FL 32177

If you have any questions, please contact the Office of Business and Administrative Services at (386) 329-4570.

NOTICE OF AGENCY ACTION TAKEN BY THE
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

Notice is given that on _____ the District issued Permit No. _____ for a Consumptive Use Permit to serve (type of project) _____ activities. The total allocation authorized is _____ mgd of (groundwater/surface water). The project is located in _____ County, Section(s) _____, Township _____ South, Range _____ East. The permit applicant is _____.

If you wish to receive a copy of a Technical Staff Report (TSR) that provides the St. Johns River Water Management District (District) staffs' analysis on the above-listed compliance report(s) and associated permit(s), please submit your request to Office Director, Office of Business and Administrative Services, PO Box 1429, Palatka, FL 32178-1429. You may view the TSR by going to the Permitting section of the District's website at www.sjrwmd.com/permitting/index.html. To obtain information on how to find and view a TSR, visit https://permitting.sjrwmd.com/epermitting/html/EP_FAQs.html, and then follow the directions provided under "How to find a Technical Staff Report (TSR) or other application file documents."

A person whose substantial interests are or may be affected has the right to request an administrative hearing by filing a written petition with the District. Pursuant to Chapter 28-106 and Rule 40C-1.1007, Florida Administrative Code (F.A.C.), the petition must be filed (received) either by delivery at the office of the District Clerk at District Headquarters, P. O. Box 1429, Palatka Florida 32178-1429 (4049 Reid St., Palatka, FL 32177) or by e-mail with the District Clerk at Clerk@sjrwmd.com, within twenty-one (21) days of newspaper publication of the notice of District decision (for those persons to whom the District does not mail or email actual notice). A petition for an administrative hearing is deemed filed upon receipt of the complete petition by the District Clerk at the District Headquarters in Palatka, Florida during the District's regular business hours. The District's regular business hours are 8 a.m. – 5 p.m., excluding weekends and District holidays. Petitions received by the District Clerk after the District's regular business hours shall be deemed filed as of 8 a.m. on the next regular District business day. A petition must comply with Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes (F.S.), and Chapter 28-106, F.A.C. The District's acceptance of petitions filed by e-mail is subject to certain conditions set forth in the District's Statement of Agency Organization and Operation (issued pursuant to Rule 28-101.001, F.A.C.), which is available for viewing at www.sjrwmd.com. The District will not accept a petition sent by facsimile (fax). Mediation may be available if you meet the conditions stated in the full Notice of Rights (see last paragraph).

The right to an administrative hearing and the relevant procedures to be followed are governed by Chapter 120, F.S., Chapter 28-106, F.A.C., and Rule 40C-1.1007, F.A.C. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means the District's final action may be different from the position taken by it in this notice. **Failure to file a petition for an administrative hearing within the requisite time frame shall constitute a waiver of the right to an administrative hearing. (Rule 28-106.111, F.A.C.).**

If you wish to do so, please visit http://www.sjrwmd.com/nor_dec/ to read the complete Notice of Rights to determine any legal rights you may have concerning the District's decision(s) on the Consumptive Use Permit Application(s) described above. You can also request the Notice of Rights by contacting the Office Director, Office of Business and Administrative Services, P. O. Box 1429, Palatka, FL 32178, phone (386)329-4570.

NEWSPAPER ADVERTISING

ALACHUA

The Alachua County Record, Legal Advertising
P. O. Box 806
Gainesville, FL 32602
352-377-2444/ fax 352-338-1986

BRADFORD

Bradford County Telegraph, Legal Advertising
P. O. Drawer A
Starke, FL 32901
904-964-6305/ fax 904-964-8628

CLAY

Clay Today, Legal Advertising
1560 Kinsley Ave., Suite 1
Orange Park, FL 32073
904-264-3200/ fax 904-264-3285

FLAGLER

Flagler Tribune, c/o News Journal
P. O. Box 2831
Daytona Beach, FL 32120-2831
386-681-2322

LAKE

Daily Commercial, Legal Advertising
P. O. Drawer 490007
Leesburg, FL 34749
352-365-8235/fax 352-365-1951

NASSAU

News-Leader, Legal Advertising
P. O. Box 766
Fernandina Beach, FL 32035
904-261-3696/fax 904-261-3698

ORANGE

Sentinel Communications, Legal Advertising
633 N. Orange Avenue
Orlando, FL 32801
407-420-5160/ fax 407-420-5011

PUTNAM

Palatka Daily News, Legal Advertising
P. O. Box 777
Palatka, FL 32178
386-312-5200/ fax 386-312-5209

SEMINOLE

Seminole Herald, Legal Advertising
300 North French Avenue
Sanford, FL 32771
407-323-9408

BAKER

Baker County Press, Legal Advertising
P. O. Box 598
Macclenny, FL 32063
904-259-2400/ fax 904-259-6502

BREVARD

Florida Today, Legal Advertising
P. O. Box 419000
Melbourne, FL 32941-9000
321-242-3832/ fax 321-242-6618

DUVAL

Daily Record, Legal Advertising
P. O. Box 1769
Jacksonville, FL 32201
904-356-2466 / fax 904-353-2628

INDIAN RIVER

Treasure Coast News, Legal Advertising
760 NW Enterprise Dr.
Port St. Lucie, FL 34986
772-283-5252

MARION

Ocala Star Banner, Legal Advertising
2121 SW 19th Avenue Road
Ocala, FL 34474
352-867-4010/fax 352-867-4126

OKEECHOBEE

Okeechobee News, Legal Advertising
P. O. Box 639
Okeechobee, FL 34973-0639
863-763-3134/fax 863-763-5901

OSCEOLA

Little Sentinel, Legal Advertising
633 N. Orange Avenue
Orlando, FL 32801
407-420-5160/ fax 407-420-5011

ST. JOHNS

St. Augustine Record, Legal Advertising
P. O. Box 1630
St. Augustine, FL 32085
904-819-3439

VOLUSIA

News Journal Corporation, Legal Advertising
P. O. Box 2831
Daytona Beach, FL 32120-2831
(386) 681-2322