



**BID SET**

**CONTRACT DOCUMENTS AND  
SPECIFICATIONS  
FOR  
SR 60 AND 43<sup>rd</sup> AVENUE  
INTERSECTION IMPROVMENTS**

**BID NO. 2019073**

**PROJECT NO. IRC-0853**

**F.M. NO. 431759-2-54-01**



PREPARED FOR  
THE BOARD OF COUNTY COMMISSIONERS  
INDIAN RIVER COUNTY, FLORIDA  
BOB SOLARI, CHAIRMAN  
SUSAN ADAMS, VICE-CHAIRMAN  
COMMISSIONER JOSEPH E. FLESCHER  
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DYLAN REINGOLD., COUNTY ATTORNEY  
RICHARD B. SZPYRKA, P.E., PUBLIC WORKS DIRECTOR  
JAMES W. ENNIS, P.E., PMP, ASSISTANT PUBLIC WORKS DIRECTOR  
WILLIAM JOHNSON, P.E., ROADWAY PRODUCTION ENGINEER

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SECTION 00100 - Advertisement for Bids

**BOARD OF COUNTY COMMISSIONERS**

1801 27<sup>th</sup> 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 **Wednesday, October 2, 2019**. 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 "**SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS** and **Bid No. 2019073**". 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.

**INDIAN RIVER COUNTY PROJECT NO. IRC-0853  
INDIAN RIVER COUNTY BID NO. 2019073**

**PROJECT DESCRIPTION:** *The project will consist of the reconstruction and widening of the intersection of SR 60 and 43<sup>rd</sup> Avenue and the widening of the existing bridge over the Main Relief Canal. Drainage improvements will consist of structures, piping and retention areas. Concrete sidewalks, 5' wide and 6' wide, will be constructed, utility relocations will be performed, landscaping, traffic and pedestrian signals, lighting and pavement markings will be installed. Earthwork, erosion control and maintenance of traffic will also be performed. This is an F.D.O.T. County Incentive Grant Program (CIGP) funded project FM No. 431759-2-54-01.*

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](http://www.demandstar.com) or by selecting "Current Solicitations" at <http://www.ircgov.com/Departments/Budget/Purchasing>. All communications concerning this bid shall be directed to IRC Purchasing Division at [purchasing@ircgov.com](mailto:purchasing@ircgov.com).

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**

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**(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 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 awarding 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 **MANDATORY** Pre-Bid Conference will be held on **Thursday, September 5, 2019 at 10:00 A.M.** in the first-floor conference room **A1-303** of the Indian River County Administration Building located at 1801 27<sup>th</sup> Street, Vero Beach, Florida, 32960. **ATTENDANCE AT THIS CONFERENCE IS REQUIRED. No bidder arriving after the meeting has begun will be allowed to sign in.**

INDIAN RIVER COUNTY

By: Jennifer Hyde  
Purchasing Manager

For Publication in the Indian River Press Journal  
Dates: **August 18, 2019 and August 25, 2019**

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 00101 – Statement of No Bid**

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**Statement of No Bid**

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Should you elect not to bid, please complete and send this page by email ([purchasing@ircgov.com](mailto:purchasing@ircgov.com)), fax (772-770-5140) or by mail to Indian River County Purchasing, 1800 27<sup>th</sup> Street, Vero Beach, FL 32960.

Please select all of the following that apply. Our decision not to bid on the subject project was based on:

- Project is located too far from our base of operations
- Project value too low
- Project specifications unclear (please explain below)
- Material availability may be a challenge
- Our current schedule will not allow us to perform
- Unable to meet insurance requirements
- Other:
- Other:

General comments regarding the bid and/or plans and specifications:

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**SECTION 00200 - Instructions to Bidders**  
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# SECTION 00200 - Instructions to Bidders

## ARTICLE 1 - DEFINED TERMS

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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 Indian River County Public Works Director or their designee.

## ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

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2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement or Invitation to Bid may be obtained from the Issuing Office.

2.02 Complete sets of Bidding Documents 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

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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.

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

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##### 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.

**C. The CONTRACTOR shall not commence any work at the northwest corner of SR 60 and 43rd Avenue, between SR 60 and the Indian River Farms Water Control District Main Relief Canal, within the property limits known to be Marks Mobil Service Station until written authorization is given by the Indian River County Public Works Director. The contractor shall ensure that the project schedule reflects a 20 week work restriction from commencement of work in this area.**

##### 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](mailto: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 AFTER CONTACTING THE PURCHASING DIVISION ([purchasing@ircgov.com](mailto:purchasing@ircgov.com) or (772) 226-1416) TO MAKE ARRANGEMENTS IN ADVANCE, 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

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5.01 The date, time, and location for a **MANDATORY** Pre-Bid conference is specified in the Advertisement for Bids. Representatives of OWNER and ENGINEER will be present to discuss the Project. Bidders are **REQUIRED** to attend and participate in the conference. 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

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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

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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](mailto: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

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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

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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

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

## ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS

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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

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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

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13.01 The Bid form is included with the Bidding Documents.

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.

## ARTICLE 14 - BASIS OF BID; EVALUATION OF BIDS

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### 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.

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

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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 27<sup>th</sup> Street, Vero Beach, Florida, 32960.

#### ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

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

#### ARTICLE 17 - OPENING OF BIDS

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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

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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

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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-responsive. OWNER may also reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder. OWNER also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder. 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.

00200 - Instructions to Bidders REV 04-07

00200 - 9

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. It is the OWNER's intent to accept alternates (if any are accepted) in the order in which they are listed on the Bid form, but OWNER may accept them in any order or combination.

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 defined 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 seven (7) 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

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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 such Bond, unless the Bond has been waived due to the total contract being less than \$100,000.

## ARTICLE 21 - SIGNING OF AGREEMENT

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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 COMPLETE PACKAGE WITH YOUR BID**

**\* \* END OF SECTION \* \***



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.

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**ITEMIZED BID SCHEDULE**

**PROJECT NAME: SR 60 AND 43RD AVENUE INTERSECTION IMPROVEMENTS**

**IRC PROJECT NO: IRC-0853, FM NO. 431759-2-54-01, BID NO. 2019073**

**BIDDER'S NAME:** \_\_\_\_\_

Item No.	Description	Unit	Unit Price	Quantity	Total
<b>ROADWAY CONSTRUCTION</b>					
0101 1	MOBILIZATION	LS		1	
0102 1	MAINTENANCE OF TRAFFIC (INCLUDES PEDESTRIAN MOT)	LS		1	
0102 14	TRAFFIC CONTROL OFFICER (OFF DUTY LAW ENFORCEMENT)	MH		300	
0102 99	PORTABLE CHANGEABLE MESSAGE SIGN, TEMPORARY (18)	ED		7,520	
0104	N.P.D.E.S. COMPLIANCE	LS		1	
0104 10 3	SEDIMENT BARRIER	LF		16,456	
0104 11	FLOATING TURBIDITY BARRIER	LF		560	
0104 18	INLET PROTECTION SYSTEM	EA		69	
0110 1 1	CLEARING & GRUBBING	LS		1	
0120 1	REGULAR EXCAVATION	CY		12,656	
0120 6	EMBANKMENT (COMPACTED IN PLACE)	CY		5,781	
0160 4	TYPE B STABILIZATION (12" SUBGRADE, LBR 40)	SY		44,072	
0285 707	OPTIONAL BASE, BASE GROUP 07 (9" CEMENTED COQUINA)	SY		40,580	
0286 1	TURNOUT CONSTRUCTION/DRIVEWAY BASE (CONCRETE)	SY		1,526	
0286 2	TURNOUT CONSTRUCTION-ASPHALT/DRIVEWAY BASE-ASPHALT MATERIAL	TN		98	
0327 70 1	MILL EXIST ASPH PAVT, 2.5" AVG DEPTH	SY		2,944	
0334 1 13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C (OVERBUILD)	TN		7,200	
0334 1 13A	SUPERPAVE ASPHALTIC CONC, TRAFFIC C, PG 76-22, (SP-12.5, 1/2" THICK) (WITH POLYMER)	1-TN		3,348	
0337 7 82	ASPHALT CONCRETE FRICTION COURSE, FC-9.5, TRAFFIC C, PG 76-22, (WITH POLYMER) 1" THICK	TN		3,355	
0400 0 11	CONCRETE, CLASS NS, GRAVITY WALL	CY		81.9	

**ITEMIZED BID SCHEDULE**

PROJECT NAME: SR 60 AND 43RD AVENUE INTERSECTION IMPROVEMENTS

IRC PROJECT NO: IRC-0853, FM NO. 431759-2-54-01, BID NO. 2019073

BIDDER'S NAME: \_\_\_\_\_

Item No.	Description	Unit	Unit Price	Quantity	Total
0400 1 2	CONCRETE CLASS I, ENDWALLS	CY		6.33	
0425 1311	INLETS, CURB, TYPE P-1, <10'	EA		5	
0425 1321	INLETS, CURB, TYPE P-2, <10'	EA		4	
0425 1341	INLETS, CURB, TYPE P-4, <10'	EA		1	
0425 1351	INLETS, CURB, TYPE P-5, <10'	EA		16	
0425 1352	INLETS, CURB, TYPE P-5, >10'	EA		2	
0425 1361	INLETS, CURB, TYPE P-6, <10'	EA		12	
0425 1421	INLETS, CURB, TYPE J-2, <10'	EA		2	
0425 1451	INLETS, CURB, TYPE J-5, <10'	EA		1	
0425 1452	INLETS, CURB, TYPE J-5, >10'	EA		1	
0425 1461	INLETS, CURB, TYPE J-6, <10'	EA		2	
0425 1521	INLETS, DT BOT, TYPE C, <10'	EA		27	
0425 1521A	INLETS, DT BOT, TYPE C, <10' (MODIFIED)	EA		2	
0425 1559	INLETS, DT BOT, TYPE E, <10'	EA		2	
0425 1715	INLETS, GUTTER, TYPE V, <10'	EA		2	
0425 2 41	MANHOLES, P-7, <10'	EA		4	
0425 2 43	MANHOLES, P-7, PARTIAL	EA		1	
0425 2 61	MANHOLES, P-8, <10'	EA		3	
0425 2 71	MANHOLES, J-7, <10'	EA		3	
0425 2 91	MANHOLES, J-8, >10'	EA		11	
0425 4	INLETS, ADJUST	EA		7	

**ITEMIZED BID SCHEDULE**

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**IRC PROJECT NO: IRC-0853, FM NO. 431759-2-54-01, BID NO. 2019073**

**BIDDER'S NAME:** \_\_\_\_\_

Item No.	Description	Unit	Unit Price	Quantity	Total
0425 5	MANHOLE, ADJUST	EA		7	
0425 6	VALVE BOXES, ADJUST	EA		38	
0430 174 115	PIPE CULVERT, ROUND, 15" SD (RCP)	LF		30	
0430 174 118	PIPE CULVERT, ROUND, 18" SD (RCP)	LF		4,054	
0430 174 124	PIPE CULVERT, ROUND, 24" SD (RCP)	LF		1,143	
0430 174 130	PIPE CULVERT, ROUND, 30" SD (RCP)	LF		198	
0430 174 136	PIPE CULVERT, ROUND, 36" SD (RCP)	LF		2,231	
0430 174 142	PIPE CULVERT, ROUND, 42" SD (RCP)	LF		853	
0430 175 148	PIPE CULVERT, ROUND, 48" SD (RCP)	LF		85	
0430 982 140	MITERED END SECTION, 42" SD	EA		1	
0430 984 125	MITERED END SECTION, 18" SD	EA		1	
0430 984 138	MITERED END SECTION, 36" SIDE DRAIN	EA		1	
0430 984 141	MITERED END SECTION, 48" SD	EA		1	
0443 70 3	FRENCH DRAIN, 18"	LF		1,616	
0515 1 2	PIPE HANDRAIL - GUIDERAIL, ALUMINUM	LF		1,187	
0520 1 10	CONCRETE CURB & GUTTER, TYPE F	LF		21,539	
0520 5 41	TRAFFIC SEPARATOR CONCRETE - TYPE IV, 4' WIDE	LF		457	
0520 70	CONCRETE TRAFFIC SEPARATOR, SPECIAL-VARIABLE WIDTH (COLOR TREATED AND STAMPED CONCRETE)	SY		575	
0522 2	CONCRETE SIDEWALK AND DRIVEWAYS, 6" THICK	SY		6,242	
0524 1 2	CONCRETE DITCH PAVEMENT, NON REINFORCED, 4"	SY		49	



**ITEMIZED BID SCHEDULE**

**PROJECT NAME: SR 60 AND 43RD AVENUE INTERSECTION IMPROVEMENTS**

**IRC PROJECT NO: IRC-0853, FM NO. 431759-2-54-01, BID NO. 2019073**

**BIDDER'S NAME:** \_\_\_\_\_

Item No.	Description	Unit	Unit Price	Quantity	Total
0527 2	DETECTABLE WARNINGS	SF		480	
0530 3 4	RIPRAP, RUBBLE, F&I, DITCH LINING	TN		146	
0550 10 222	FENCING, TYPE B, 5.1-6.0, W/ VINYL COATING	LF		1,040	
0570 1 2	PERFORMANCE TURF, SOD	SY		16,393	
0630 2 11A	CONDUIT, (F&I), (2-2" PVC)	LF		20	
0635 2 12	PULL & SPLICE BOX, F & I (30"x48"x24")	EA		2	
0999-1	RECORD DRAWINGS/AS-BUILTS	LS		1	
1050 31206	UTILITY PIPE - POLYVINYLCHLORIDE, F&I, 6"	LF		845	
1050 4126	6" HDPE FORCE MAIN CASING	LF		85	
<b>SUB-TOTAL OF ROADWAY CONSTRUCTION</b>					
<b>SIGNING &amp; PAVEMENT MARKINGS</b>					
0700 1 11	SINGLE POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	AS		73	
0700 1 13	SINGLE POST SIGN, F&I GROUND MOUNT, 21-30 SF	AS		1	
0700 1 50	SINGLE POST SIGN, RELOCATE	AS		15	
0705 11 1	DELINEATOR, FLEXIBLE TUBULAR	EA		18	
0706 3	RETRO-REFLECTIVE RAISED PAVEMENT MARKER	EA		796	
0710 11 290	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, ISLAND NOSE	SF		67	
0711 11 122	THERMOPLASTIC, STANDARD, WHITE, SOLID, 8"	GM		0.40	
0711 11 123	THERMOPLASTIC, STANDARD, WHITE, SOLID, 12" FOR CROSSWALK AND ROUNDABOUT	LF		2,611	
0711 11 124	THERMOPLASTIC, STANDARD, WHITE, SOLID, 18" FOR DIAGONALS AND CHEVRONS	LF		455	
0711 11 125	THERMOPLASTIC, STANDARD, WHITE, SOLID, 24" FOR STOP LINE AND CROSSWALK	LF		585	

**ITEMIZED BID SCHEDULE**

**PROJECT NAME: SR 60 AND 43RD AVENUE INTERSECTION IMPROVEMENTS  
IRC PROJECT NO: IRC-0853, FM NO. 431759-2-54-01, BID NO. 2019073**

**BIDDER'S NAME:** \_\_\_\_\_

Item No.	Description	Unit	Unit Price	Quantity	Total
0711 11 160	THERMOPLASTIC, STANDARD, WHITE, MESSAGE OR SYMBOL	EA		20	
0711 11 170	THERMOPLASTIC, STANDARD, WHITE, ARROW	EA		86	
0711 11 222	THERMOPLASTIC, STANDARD, YELLOW, SOLID, 18" FOR DIAGONAL OR CHEVRON	LF		77	
0711 16 101	THERMOPLASTIC, STANDARD - OTHER SURFACES, WHITE, SOLID, 6"	GM		3.10	
0711 16 131	THERMOPLASTIC, STANDARD - OTHER SURFACES, WHITE, 6", 10-30 SKIP OR 3-9 LANE DROP	GM		3.59	
0711 16 201	THERMOPLASTIC, STANDARD-OTHER SURFACES, YELLOW, SOLID, 6"	GM		2.37	
0711 16 231	THERMOPLASTIC, STANDARD - OTHER SURFACES, YELLOW, SKIP, 6"	GM		0.44	
<b>SUB-TOTAL OF SIGNING &amp; PAVEMENT MARKING IMPROVEMENTS</b>					
<b>SIGNALIZATION</b>					
0630 2 11B	CONDUIT (F&I) (UNDERGROUND)	LF		12,072	
0630 2 12	CONDUIT (F&I) (UNDER PAVEMENT) (DIRECTIONAL BORE)	LF		1,083	
0630 2 15	CONDUITS (F&I) (BRIDGE MOUNTED)	LF		1,620	
0632 7 1	CABLE (SIGNAL) (F&I)	PI		1	
0633 1 123	FIBER OPTIC CABLE (F&I) (UNDERGROUND) (96 SINGLE MODE)	LF		7,296	
0633 3 15	FIBER OPTIC CONNECTION HARDWARE (F&I) (PRETERMINATED PATCH PANEL)	EA		1	
0635 2 11A	PULL & SPLICE BOXES (F&I)	EA		23	
0635 2 13	PULL & SPLICE BOXES (F&I) (FIBER OPTICS)	EA		26	
0639 1 123	ELECTRICAL POWER SERVICE (F&I) (UNDERGROUND)	AS		1	
0639 2 1	ELECTRICAL SERVICE WIRE (F&I) (POLE)	LF		200	
0639 3 11	ELECTRICAL SERVICE DISCONNECT (F&I) (POLE)	EA		1	

**ITEMIZED BID SCHEDULE**

**PROJECT NAME: SR 60 AND 43RD AVENUE INTERSECTION IMPROVEMENTS  
IRC PROJECT NO: IRC-0853, FM NO. 431759-2-54-01, BID NO. 2019073**

**BIDDER'S NAME:** \_\_\_\_\_

Item No.	Description	Unit	Unit Price	Quantity	Total
0641 2 12	PRE-STRESSED CONCRETE POLE (F&I) (p-11)	EA		1	
0641 2 80	CONCRETE POLE REMOVAL (COMPLETE/DEEP)	EA		4	
0646 1 11	ALUMINUM SIGNAL POLES (F&I) (PEDESTAL)	EA		8	
0649 31 105	MAST ARM (F&I) (SINGLE ARM W/O LUM) (78')	EA		1	
0649 31 109	MAST ARM (F&I) (SINGLE ARM W/ LUM) (70.5')	EA		2	
0649 31 118	MAST ARM (F&I) (DOUBLE ARM W/O LUM) (70.5'-60')	EA		1	
0650 1 24	TRAFFIC SIGNAL (F&I) (3-SECT) (1 WAY) (ALUM)	AS		16	
0650 1 29	TRAFFIC SIGNAL (F&I) (5-SECT) (1 WAY) (ALUM)	AS		4	
0653 1 11	PEDESTRIAN SIGNAL (F&I) (LED, 1 WAY)	AS		8	
0660 4 11	VEHICLE DETECTION (F&I) (VIDEO) (CABINET EQUIPMENT)	EA		4	
0660 4 12	VEHICLE DETECTION (F&I) (VIDEO) (ABOVE GROUND)	EA		4	
0665 1 11	PEDESTRIAN DETECTOR (F&I) (STD)	EA		8	
0670 5 110	TRAFFIC CONTROLLER ASSEMBLY (F&I) (NEMA)	AS		1	
0670 5 600	CONTROLLER ASSEMBLY (REMOVE)	AS		1	
0682 1 133	CCTV CAMERA (F&I) (NON-PRESSURIZED) (IP, HIGH DEF)	EA		1	
0684 1 1	MANAGED FIELD ETHERNET SWITCH (F&I)	EA		1	
0685 106	SYSTEMS AUXILIARIES (UNINTERRUPTABLE POWER SOURCE) (F&I)	EA		1	
0700 3 201	SIGN PANEL (F&I) (OVERHEAD) (12 SF)	EA		4	
0700 5 21	INTERNALLY ILLUMINATED SIGN (F&I) (NAME) (OVERHEAD) (12 SF)	EA		4	
<b>SUB-TOTAL OF SIGNALIZATION IMPROVEMENTS</b>					

**ITEMIZED BID SCHEDULE**

**PROJECT NAME: SR 60 AND 43RD AVENUE INTERSECTION IMPROVEMENTS**

**IRC PROJECT NO: IRC-0853, FM NO. 431759-2-54-01, BID NO. 2019073**

**BIDDER'S NAME:** \_\_\_\_\_

Item No.	Description	Unit	Unit Price	Quantity	Total
<b>HIGHWAY LIGHTING SYSTEM</b>					
0635 2 11	PULL BOX (F&I) (ROADSIDE), MOULDED	EA		71	
0715 1 13	LIGHTING CONDUCTOR, F & I, INSULATED, NO. 4	LF		36,765	
0715 4 13	STANDARD LIGHT POLE COMPLETE W/ CONCRETE BASE, F&I, WIND SPEED 160	EA		30	
0715 4 33	CONFLICT LIGHT POLE COMPLETE W/ CONCRETE BASE, F&I, WIND SPEED 160	EA		36	
0715 5 30	LUMINAIRE AND BRACKET ARM MOUNTED ON SIGNAL POLE, F&I	EA		4	
0715 7 11	LOAD CENTER (INCLUDES ALL COMPONENTS LISTED ON SERVICE POINT DETAILS DRAWING)	EA		3	
0715 500 1	POLE CABLE DISTRIBUTION SYSTEM, IP-68	EA		70	
1050 31102	LIGHTING CONDUCTOR, F & I, UNDERGROUND, 2" PVC SCH. 40	LF		11,094	
<b>SUB-TOTAL OF LIGHTING IMPROVEMENTS</b>					
<b>LANDSCAPE, HARDSCAPE AND IRRIGATION</b>					
0520 2 13	HEADER CURB	LF		632	
0523 1	PATTERNED PAVEMENT, VEHICULAR AREAS (DURATHERM, INTEGRATED PAVING CONCEPTS, CINNAMON, WAGON WHEEL)	SY		800	
0526 1 2	PAVERS, ARCHITECTURAL, SIDEWALK (BELGARD, HOLLAND 4"x8" 80mm, RED/CHESTNUT/CHARCOAL, 45° HERRINGBONE)	SY		290	
0580 4 235	PHOENIX SYLVESTRIS (SYLVESTER DATE PALM) (16' CT)	EA		3	
0580 4 345	SABAL PALMETTO (SABAL PALM) (16-20' CT)	EA		5	
0580 5 5532	GORDONIA IASIANTHUS (LOBLOLLY BAY) (8-10'x4-5' 2.75 CAL.)	EA		9	
0580 5 572	LIGUSTRUM JAPONICUM (JAPANESE PRIVET) (8-10' OA MULTISTEM)	EA		14	
0580 7 177	ILEX BOMITORIA "SHILLINGS" (DWARF YAUPON HOLLY) (#7 FULL) (24" OC)	EA		48	
0580 7 337	MYRCIANTHES FRAGRANS (SIMPSON'S STOPPER) (#7) (24" O.C.)	EA		59	
E575 1	BAHIA SOD (PASPALUM NOTATUM)	SY		5,450	

**ITEMIZED BID SCHEDULE**

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**BIDDER'S NAME:** \_\_\_\_\_

Item No.	Description	Unit	Unit Price	Quantity	Total
E575 1 4	ST. AUGUSTINE SOD	SY		3,400	
E580326 4	MULCH WOOD CHIPS	SY		16	
E580337 5	HERBICIDE, ROOT CONTROL FABRIC- 20" WIDE	LF		145	
0590 1	IRRIGATION SYSTEM	LS		1	
<b>SUB-TOTAL OF LANDSCAPE, HARDSCAPE AND IRRIGATION IMPROVEMENTS</b>					
<b>STRUCTURAL</b>					
<b>BRIDGE</b>					
0110 3	REMOVAL OF EXISTING STRUCTURE/BRIDGES	LS		1	
<b>SUPERSTRUCTURE</b>					
0400 2 4A	CONC CLASS II, BRIDGE SUPERSTRUCTURE	CY		138	
0400 2 4B	CONC CLASS II, BRIDGE SUPERSTRUCTURE (LIGHTWEIGHT)	CY		153.7	
0400 7	BRIDGE DECK GROOVING, LESS THAN 8.5"	SY		523	
0400 147	COMPOSITE NEOPRENE PADS	CF		1.64	
0415 1 4	REINFORCING STEEL-BRIDGE SUPERSTRUCTURE	LB		63,459.30	
0450 1 2	PRESTRESSED BEAMS TYPE III	LF		778.13	
0458 1 11	CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD	LF		80.00	
0458 1 21	BRIDGE DECK EXPANSION JOINT, REHABILITATION, POURED JOINT WITH BACKER ROD	LF		180.00	
0515 4 2	BULLET ALUMINUM RAIL, DOUBLE RAIL	LF		348.67	
0521 5 4	CONCRETE TRAFFIC RAILING- BRIDGE, 32" VERTICAL FACE	LF		348.67	
<b>SUBSTRUCTURE</b>					
0400 2 5	CONCRETE CLASS II, BRIDGE SUBSTRUCTURE	CY		60	
0400 2 10	CONCRETE CLASS II, APPROACH SLABS	CY		62	

**ITEMIZED BID SCHEDULE**

**PROJECT NAME: SR 60 AND 43RD AVENUE INTERSECTION IMPROVEMENTS**

**IRC PROJECT NO: IRC-0853, FM NO. 431759-2-54-01, BID NO. 2019073**

**BIDDER'S NAME:** \_\_\_\_\_

Item No.	Description	Unit	Unit Price	Quantity	Total
0415 1 5	REINFORCING STEEL- BRIDGE SUBSTRUCTURE	LB		16,156	
0415 1 9	REINFORCING STEEL-APPROACH SLABS	LB		12,170	
0455 34 3A	PRESTRESSED CONCRETE PILING, 18" SQ (END BENTS)	LF		550	
0455 34 3B	PRESTRESSED CONCRETE PILING, 18" SQ (WING BENTS)	LF		100	
0455 34 3C	PRESTRESSED CONCRETE PILING, 18" SQ (INTERMEDIATE BENTS, DEBRIS PILES)	LF		650	
0455 137 1	LOAD TEST (DYNAMIC), INTERNAL GAUGES	EA		2	
0455 143 3A	TEST PILES-PRESTRESSED CONCRETE,18" SQ	LF		130	
0530 4 9	ARTICULATING CONCRETE BLOCK REVETMENT SYSTEM, THICKNESS 6"	SF		2,934	
1050 31204D	UTILITY PIPE- POLY VINYL CHLORIDE, FURNISH & INSTALL, WATER/SEWER, 4"	LF		1,400	
<b>SUB-TOTAL OF STRUCTURAL IMPROVEMENTS</b>					
0999-25	FORCE ACCOUNT				<b>\$ 1,300,000.00</b>
<b>TOTAL ROADWAY IMPROVEMENTS (INCLUDING FORCE ACCOUNT)</b>					
<b>UTILITY WORK BY HIGHWAY CONTRACTOR (UWHC)</b>					
0104 10 3A	EROSION CONTROL - SEDIMENT BARRIER	LS		1	
0110 1 1A	CLEARING AND GRUBBING	LS		1	
0160 4A	TYPE B STABILIZATION (DRIVEWAYS)	SY		1,085	
0334 1 13A	SUPERPAVE ASPHALTIC CONCRETE (SP-12.5) TRAFFIC "C" (1-1/2")	SY		1,085	
0425 2 71A	MANHOLE, J-7, LESS THAN 10'	EA		1	
0522 2A	R & R, 6" CONCRETE SIDEWALK	SY		1,255	
0570 1 1	INSTALL SEED & MULCH	SY		9,320	
0570 1 2A	INSTALL SOD - BAHIA	SY		1,860	
0570 1 2B	INSTALL SOD - FLORATAM	SY		200	

**ITEMIZED BID SCHEDULE**

**PROJECT NAME: SR 60 AND 43RD AVENUE INTERSECTION IMPROVEMENTS**

**IRC PROJECT NO: IRC-0853, FM NO. 431759-2-54-01, BID NO. 2019073**

**BIDDER'S NAME:** \_\_\_\_\_

Item No.	Description	Unit	Unit Price	Quantity	Total
0999 2	AS-BUILT SURVEYING	LS		1	
1050 16001	REMOVE & DISPOSE EXISTING 1" WATER MAIN AND APPURTENANCES (0-1.9")	LF		265	
1050 16002	REMOVE & DISPOSE EXISTING 2"-3" WATER MAIN AND APPURTENANCES (2-4.9")	LF		305	
1050 16002A	REMOVE & DISPOSE EXISTING 3" FORCE MAIN AND APPURTENANCES (2-4.9")	LF		560	
1050 16003	REMOVE & DISPOSE EXISTING 6" FORCE MAIN AND APPURTENANCES (5-7.9")	LF		2,120	
1050 16003A	REMOVE & DISPOSE EXISTING 6" WATER MAIN AND APPURTENANCES (5-7.9")	LF		790	
1050 16004	REMOVE & DISPOSE EXISTING 8" WATER MAIN AND APPURTENANCES (8-19.9")	LF		5,560	
1050 16004A	REMOVE & DISPOSE EXISTING 8" FORCE MAIN AND APPURTENANCES (8-19.9")	LF		2,330	
1050 16004B	REMOVE & DISPOSE EXISTING 6" SANITARY SEWER SERVICE PIPE	LF		100	
1050 18002	GROUT FILL AND ABANDON EXISTING 2" WATER MAIN (2-4.9")	LF		190	
1050 18002A	GROUT FILL AND ABANDON EXISTING 3" FORCE MAIN (2-4.9")	LF		795	
1050 18003	GROUT FILL AND ABANDON EXISTING 6" WATER MAIN (5-7.9")	LF		400	
1050 18003A	GROUT FILL AND ABANDON EXISTING 6" SANITARY MAIN (5-7.9")	LF		170	
1050 18004	GROUT FILL AND ABANDON EXISTING 8" WATER MAIN (8-19.9")	LF		990	
1050 18004A	GROUT FILL AND ABANDON EXISTING 8" SANITARY MAIN (8-19.9")	LF		55	
1050 31202	F & I, 2" PVC SDR21 (BLUE) WATER MAIN PRESSURE PIPE (ITEM TO INCLUDE ALL NECESSARY PVC OR BRASS FITTINGS PER PLANS AND SPECIFICATIONS) (SEE APPENDIX E)	LF		20	
1050 31202A	F & I, 2" PVC SDR21 (GREEN) FORCE MAIN PRESSURE PIPE (ITEM TO INCLUDE ALL NECESSARY PVC OR BRASS FITTINGS PER PLANS AND SPECIFICATIONS) (SEE APPENDIX E)	LF		20	
1050 31202B	F & I, 2 1/2" PVC SDR21 (BLUE) WATER MAIN PRESSURE PIPE (ITEM TO INCLUDE ALL NECESSARY PVC OR BRASS FITTINGS PER PLANS AND SPECIFICATIONS) (SEE APPENDIX E)	LF		40	



**ITEMIZED BID SCHEDULE**

**PROJECT NAME: SR 60 AND 43RD AVENUE INTERSECTION IMPROVEMENTS  
IRC PROJECT NO: IRC-0853, FM NO. 431759-2-54-01, BID NO. 2019073**

**BIDDER'S NAME:** \_\_\_\_\_

Item No.	Description	Unit	Unit Price	Quantity	Total
1050 31203	F & I, 3" PVC C-900 DR-18 (GREEN) FORCE MAIN PRESSURE PIPE. (ITEM TO INCLUDE ALL NECESSARY M.J. D.I. FITTINGS AND PIPE RESTRAINTS PER PLANS AND SPECIFICATIONS) (SEE APPENDIX E)	LF		20	
1050 31204	F & I, 4" PVC C-900 DR-18 (GREEN) FORCE MAIN PRESSURE PIPE (ITEM TO INCLUDE ALL NECESSARY M.J. D.I. FITTINGS AND PIPE RESTRAINTS PER PLANS AND SPECIFICATIONS) (SEE APPENDIX E)	LF		200	
1050 31206	F & I, 6" PVC C-900 DR-18 (BLUE) WATER MAIN PRESSURE PIPE (ITEM TO INCLUDE ALL NECESSARY M.J. D.I. FITTINGS AND PIPE RESTRAINTS PER PLANS AND SPECIFICATIONS) (SEE APPENDIX E)	LF		180	
1050 31206A	F & I, 6" PVC C-900 DR-18 (GREEN) FORCE MAIN PRESSURE PIPE (ITEM TO INCLUDE ALL NECESSARY M.J. D.I. FITTINGS AND PIPE RESTRAINTS PER PLANS AND SPECIFICATIONS) (SEE APPENDIX E)	LF		140	
1050 31206B	F & I, 6" PVC C-900 DR-18 (GREEN) PRESSURE PIPE WITH SEWER FITTINGS (SEWER SERVICES)	LF		100	
1050 31208	F & I, 8" PVC C-900 DR-18 (BLUE) WATER MAIN PRESSURE PIPE	LF		3,380	
1050 31208A	F & I, 8" PVC SDR-35 (GREEN) SANITARY SEWER PIPE	LF		40	
1050 31208B	F & I, 8" PVC C-900 DR 18 CL150 (GREEN) FORCE MAIN PRESSURE PIPE	LF		2,480	
1050 31210	F & I, 10" PVC C-900 DR 18 CL150 (GREEN) FORCE MAIN PRESSURE PIPE	LF		20	
1050 31212	F & I, 12" PVC C-900 DR-18 (BLUE) WATER MAIN PRESSURE PIPE	LF		2,340	
1050 41201	F & I, 1" PE3408 SDR-9 PE (BLUE) WATER MAIN PRESSURE PIPE	LF		400	
1050 41202	F, I, & R 2" PE3408 SDR-9 PE (BLUE) WATER MAIN PRESSURE PIPE (REMOVE AFTER NEW W.M. IS IN SERVICE)	LF		1,040	
1050 42202A	F & I, 2" PE3408 SDR-9 PE (BLUE) WATER MAIN PRESSURE PIPE	LF		530	
1050 42202B	F & I, 2" PE3408 SDR-9 PE (GREEN) FORCE MAIN PRESSURE PIPE	LF		400	
1050 42208	F & I, 8" PE3408 SDR-11 PE (BLUE) WATER MAIN PRESSURE PIPE	LF		160	
1050 42208A	F & I, 8" PE3408 SDR-11 PE (GREEN) FORCE MAIN PRESSURE PIPE	LF		120	
1050 42212	F & I, 12" PE3408 SDR-11 PE (BLUE) WATER MAIN PRESSURE PIPE	LF		760	

**ITEMIZED BID SCHEDULE**

**PROJECT NAME: SR 60 AND 43RD AVENUE INTERSECTION IMPROVEMENTS**

**IRC PROJECT NO: IRC-0853, FM NO. 431759-2-54-01, BID NO. 2019073**

**BIDDER'S NAME:** \_\_\_\_\_

Item No.	Description	Unit	Unit Price	Quantity	Total
1055 51108	F & I, 8" MJ C-153 11.25° BEND (WATER) WITH MEGA-LUG RESTRAINTS	EA		4	
1055 51108A	F & I, 8" MJ C-153 11.25° BEND (SEWER-LINED) WITH MEGA-LUG RESTRAINTS	EA		4	
1055 51108B	F & I, 8" MJ C-153 22.5° BEND (SEWER-LINED) WITH MEGA-LUG RESTRAINTS	EA		7	
1055 51108C	F & I, 8" MJ C-153 45° BEND (WATER) WITH MEGA-LUG RESTRAINTS	EA		34	
1055 51108D	F & I, 8" MJ C-153 45° BEND (SEWER-LINED) WITH MEGA-LUG RESTRAINTS	EA		36	
1055 51108E	F & I, 8" MJ C-153 90° BEND (WATER) WITH MEGA-LUG RESTRAINTS	EA		3	
1055 51108F	F & I, 8" MJ C-153 90° BEND (SEWER-LINED) WITH MEGA-LUG RESTRAINTS	EA		1	
1055 51112	F & I, 12" MJ C-153 11.25° BEND (WATER) WITH MEGA-LUG RESTRAINTS	EA		4	
1055 51112A	F & I, 12" MJ C-153 22.5° BEND (WATER) WITH MEGA-LUG RESTRAINTS	EA		1	
1055 51112B	F & I, 12" MJ C-153 45° BEND (WATER) WITH MEGA-LUG RESTRAINTS	EA		10	
1055 51112C	F & I, 12" MJ C-153 90° BEND (WATER) WITH MEGA-LUG RESTRAINTS	EA		4	
1055 51208	F & I, 8X8X6 MJ C-153 TEE (WATER) WITH MEGA-LUG RESTRAINTS	EA		7	
1055 51208A	F & I, 8X8X4 MJ C-153 TEE (SEWER-LINED) WITH MEGA-LUG RESTRAINTS	EA		2	
1055 51208B	F & I, 8X8X6 MJ C-153 TEE (SEWER-LINED) WITH MEGA-LUG RESTRAINTS	EA		1	
1055 51208C	F & I, 8X8X8 MJ C-153 TEE (SEWER-LINED) WITH MEGA-LUG RESTRAINTS	EA		2	
1055 51212	F & I, 12X12X6 MJ C-153 TEE (WATER) WITH MEGA-LUG RESTRAINTS	EA		5	
1055 51212A	F & I, 12X12X12 MJ C-153 TEE (WATER) WITH MEGA-LUG RESTRAINTS	EA		1	
1055 51310	F & I, 10X8 MJ C-153 REDUCER (SEWER-LINED) WITH MEGA-LUG RESTRAINTS	EA		1	
1055 51312	F & I, 12X8 MJ C-153 REDUCER (WATER) WITH MEGA-LUG RESTRAINTS	EA		2	
1055 51408	F & I, 8" MJ C-153 L.B. SLEEVE (WATER) WITH MEGA-LUG RESTRAINTS	EA		3	

**ITEMIZED BID SCHEDULE**

**PROJECT NAME: SR 60 AND 43RD AVENUE INTERSECTION IMPROVEMENTS**

**IRC PROJECT NO: IRC-0853, FM NO. 431759-2-54-01, BID NO. 2019073**

**BIDDER'S NAME:** \_\_\_\_\_

Item No.	Description	Unit	Unit Price	Quantity	Total
1055 51408A	F & I, 8" MJ C-153 L.B. SLEEVE (SEWER-LINED) WITH MEGA-LUG RESTRAINTS	EA		6	
1055 51410	F & I, 10" MJ C-153 L.B. SLEEVE (SEWER-LINED) WITH MEGA-LUG RESTRAINTS	EA		1	
1055 51412	F & I, 12" MJ C-153 L.B. SLEEVE (WATER) WITH MEGA-LUG RESTRAINTS	EA		1	
1055 51506	F & I, 6" MJ C-153 PLUG TAPPED 2" (WATER) WITH MEGA-LUG RESTRAINTS	EA		2	
1055 51508	F & I, 8" MJ C-153 PLUG TAPPED 2" (WATER) WITH MEGA-LUG RESTRAINTS	EA		2	
1055 51508A	F & I, 8" MJ C-153 PLUG TAPPED 2" (SEWER-LINED) WITH MEGA-LUG RESTRAINTS	EA		1	
1055 51608	F & I, 8X8X4 MJ C-153 TEE WYE (SEWER-LINED) WITH MEGA-LUG RESTRAINTS	EA		1	
1055 51608A	F & I, 8X8X6 MJ C-153 TEE WYE (WATER) WITH MEGA-LUG RESTRAINTS	EA		1	
1055 51608B	F & I, 8X8X8 MJ C-153 TEE WYE (WATER) WITH MEGA-LUG RESTRAINTS	EA		1	
1060 15	ADJUST EXISTING SANITARY SEWER MANHOLE RING & COVER	EA		2	
1060 16	REMOVE EXISTING SANITARY SEWER MANHOLE AND APPURTENANCES	EA		1	
1080 21101	F & I, 1" SINGLE SHORT (<20FT) WATER SERVICE	EA		28	
1080 21101A	F & I, 1" SINGLE LONG (>20FT) WATER SERVICE	EA		1	
1080 21102	F & I, 2" SINGLE LONG (>20FT) WATER SERVICE	EA		1	
1080 21102A	F & I, 2" DOUBLE SHORT (<20FT)WATER SERVICE	EA		2	
1080 23102	F & I, 8" X 2" MAIN TAP WITH 2" TAPPING VALVE (CORP.) BRANCH CONNECTION WATER MAIN	EA		8	
1080 23102A	F & I, 8" X 2" MAIN TAP WITH 2" TAPPING VALVE (CORP.) BRANCH CONNECTION FORCE MAIN	EA		1	
1080 23108	F & I, 8" X 8" MAIN TAP WITH 8" TAPPING VALVE, AND VALVE BOX WATER MAIN	EA		1	
1080 23108A	F & I, 8" X 8" TAPPING SLEEVE, 8" TAPPING VALVE, 8" MAIN TAP AND VALVE BOX FORCE MAIN	EA		1	
1080 23108B	F & I, 8"X 2" SERVICE TAPPING SADDLE WITH CORPORATION VALVE WITH FDEP JUMPER ASSEMBLY WATER MAIN	EA		3	

**ITEMIZED BID SCHEDULE**

**PROJECT NAME: SR 60 AND 43RD AVENUE INTERSECTION IMPROVEMENTS**

**IRC PROJECT NO: IRC-0853, FM NO. 431759-2-54-01, BID NO. 2019073**

**BIDDER'S NAME:** \_\_\_\_\_

Item No.	Description	Unit	Unit Price	Quantity	Total
1080 23112	F & I, 12"X 2" SERVICE TAPPING SADDLE WITH CORPORATION VALVE WITH FDEP JUMPER ASSEMBLY WATER MAIN	EA		1	
1080 23118	F & I, 18" X 12" TAPPING SLEEVE, 12" TAPPING VALVE, 12" MAIN TAP, AND VALVE BOX WATER MAIN	EA		1	
1080 23118A	F & I, 18"X 2" SERVICE TAPPING SADDLE WITH CORPORATION VALVE WITH FDEP JUMPER ASSEMBLY WATER MAIN	EA		1	
1080 24102	F & I, 2" RESILIENT SEATED GATE VALVE AND VALVE BOX WATER MAIN	EA		2	
1080 24102A	F & I, 2" RESILIENT SEATED GATE VALVE AND VALVE BOX FORCE MAIN	EA		1	
1080 24102B	F & I, 2 1/2" RESILIENT SEATED GATE VALVE AND VALVE BOX WATER MAIN	EA		1	
1080 24103	F & I, 3" RESILIENT SEATED GATE VALVE WITH MEGA-LUG RESTRAINTS AND VALVE BOX FORCE MAIN	EA		2	
1080 24104	F & I, 4" RESILIENT SEATED GATE VALVE WITH MEGA-LUG RESTRAINTS AND VALVE BOX FORCE MAIN	EA		5	
1080 24106	F & I, 6" RESILIENT SEATED GATE VALVE WITH MEGA-LUG RESTRAINTS AND VALVE BOX WATER MAIN	EA		4	
1080 24106A	F & I, 6" RESILIENT SEATED GATE VALVE WITH MEGA-LUG RESTRAINTS AND VALVE BOX	EA		2	
1080 24108	F & I, 8" RESILIENT SEATED GATE VALVE WITH MEGA-LUG RESTRAINTS AND VALVE BOX WATER MAIN	EA		14	
1080 24108A	F & I, 8" RESILIENT SEATED GATE VALVE WITH MEGA-LUG RESTRAINTS AND VALVE BOX FORCE MAIN	EA		7	
1080 24108B	F & I, 8" CHECK VALVE WITH MEGA-LUG RESTRAINTS FORCE MAIN	EA		1	
1080 24112	F & I, 12" RESILIENT SEATED GATE VALVE WITH MEGA-LUG RESTRAINTS AND VALVE BOX WATER MAIN	EA		5	
1080 24500	ADJUST EXISTING VALVE BOX WATER MAIN	EA		3	
1080 24500A	ADJUST EXISTING VALVE BOX FORCE MAIN	EA		3	
1080 26102	F & I, 2" AUTOMATIC AIR RELEASE VALVE ASSEMBLY FORCE MAIN	EA		4	
1080 26112	2" AUTOMATIC AIR RELEASE VALVE ASSEMBLY WATER MAIN	EA		1	
1080 26400	F & I, RELOCATE 2" MANUAL AIR RELEASE VALVE ASSEMBLY FORCE MAIN	EA		2	

**ITEMIZED BID SCHEDULE**

**PROJECT NAME: SR 60 AND 43RD AVENUE INTERSECTION IMPROVEMENTS  
IRC PROJECT NO: IRC-0853, FM NO. 431759-2-54-01, BID NO. 2019073**

**BIDDER'S NAME:** \_\_\_\_\_

Item No.	Description	Unit	Unit Price	Quantity	Total
1080 27106	F & I, 6" LINE STOP WATER MAIN	EA		1	
1080 27108	F & I, 8" LINE STOP WATER MAIN	EA		1	
1080 29104	F & I, 4" MEGA-LUG BELL RESTRAINTS WATER MAIN	EA		1	
1080 29106	F & I, 6" MEGA-LUG BELL RESTRAINTS ON EXIST. C.I.P. WATER MAIN	EA		5	
1080 29106A	F & I, 6" MEGA-LUG BELL RESTRAINTS FORCE MAIN	EA		4	
1080 29108	F & I, 8" MEGA-LUG BELL RESTRAINTS ON EXIST. C.I.P. WATER MAIN	EA		5	
1080 29108A	F & I, 8" MEGA-LUG BELL RESTRAINTS FORCE MAIN	EA		33	
1080 29112	F & I, 12" MEGA-LUG BELL RESTRAINTS WATER MAIN	EA		34	
1080 32108	F & I & R, TEMPORARY SAMPLE POINT AND BLOWOFF ASSEMBLY (8") WATER MAIN	EA		4	
1080 32112	F & I & R, TEMPORARY SAMPLE POINT AND BLOWOFF ASSEMBLY (12") WATER MAIN	EA		12	
1644 11308	F & I, FIRE HYDRANT ASSEMBLY, 6"GV, 2-6" ANCHOR COUPLINGS, WITH MAIN CONNECTION AND 42" RISER	EA		10	
<b>SUB-TOTAL OF UTILITY WORK BY HIGHWAY CONTRACTOR (UWHC)</b>					
0999-25A	FORCE ACCOUNT				\$ 200,000.00
<b>TOTAL BID AMOUNT UTILITY WORK BY HIGHWAY CONTRACTOR (INCLUDING FORCE ACCOUNT)</b>					
<b>TOTAL BID AMOUNT (INCLUDING FORCE ACCOUNT) SR 60 AND 43RD AVENUE ROADWAY IMPROVEMENTS WITHOUT UWHC (PAGE 00310-11)</b>					
<b>TOTAL BID AMOUNT SR 60 AND 43RD AVENUE ROADWAY IMPROVEMENTS AND UTILITY WORK BY HIGHWAY CONTRACTOR (PAGE 00310-11)</b>					

LS=Lump Sum    MH=Man Hour    ED=Each Day    LF=Linear Foot    EA=Each    SY=Square Yard    Cy=Cubic Yard  
TN=Ton    LB=Pound    AS=Assembly    GM=Gross Mile    PI=Per Intersection    CF=Cubic Foot  
SF=Square Foot    NM=Net Mile

**NOTE: IF THERE IS A DISCREPANCY BETWEEN THE PLANS (SUMMARY OF PAY ITEMS) AND THE ITEMIZED BID SCHEDULE, THE BID SCHEDULE WILL BE UTILIZED FOR BIDDING PURPOSES.**

**TOTAL PROJECT BID AMOUNT IN WORDS** \_\_\_\_\_

**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**

**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 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. **2019073**  
for **SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS - IRC-0853**

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 \_\_\_\_\_

The foregoing instrument was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by \_\_\_\_\_, who is personally known to me or who has produced \_\_\_\_\_ as identification.

NOTARY PUBLIC

SIGN: \_\_\_\_\_

PRINT: \_\_\_\_\_

Notary Public, State at large  
My Commission Expires:

(Seal)

**SECTION 00454 - Sworn Statement Under the Florida Trench Safety Act**

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

1. This Sworn Statement is submitted with Project No. IRC-0853 for SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS. 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 \_\_\_\_\_

Personally appeared before me, the undersigned authority, \_\_\_\_\_  
who after first being sworn by me, affixed his/her signature in the space provided above on this  
\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary Public, State at large  
My Commission Expires:

**\* \* END OF SECTION \* \***

## **SECTION 00456 – QUALIFICATIONS QUESTIONNAIRE**

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

**Documentation Submitted with Project No: IRC-0853**

**Project Name: SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS**

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 SIMILAR projects:

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



[NOTE: If requested by the County, the Bidder shall furnish references, and other information, sufficiently comprehensive to permit an appraisal of its abilities as a contractor.]

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Position or Title)

\_\_\_\_\_  
(Date)

**\* \* END OF SECTION \* \***

**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 Project No. IRC-0853 for SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS.

	<b>Work to be Performed</b>	<b>Subcontractor's Name/Address</b>	<b>Portion of Work (%)</b>
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 Day, 20\_\_

VIA EMAIL

Persons Name  
Vendor name  
Vendor address  
City/State, Zip

**NOTICE OF AWARD**

Reference: Indian River County Bid # **2019073**  
Project Name: **SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS**

Dear Mr. \_\_\_\_\_,

I am pleased to inform you that on XXX, 20\_\_, 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 in the amount of **100%** of the contract amount. (\$XXXXX.00)
2. Certificate of Insurance, **must** name Indian River County as an additional insured and **must** provide for a 30 day Notice of Cancellation.
3. Agreement, execute the enclosed **two (2)** copies.

In accordance with section 255.05(1)(a), Florida Statutes, you are required to execute a Public Construction Bond for the above referenced project. Please submit the Bond and the Certificate of Insurance to this office at the address provided below no later than Date XX, 20\_\_. Failure to comply with the established deadline for submittal of required documents may be grounds for cancellation of the award.

Enclosed are two copies of the Agreement. Please execute both copies and return them together with the required bonds and Certificate of Insurance to the Purchasing Office.

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

Sincerely,

\_\_\_\_\_  
Jennifer Hyde, Purchasing Manager

cc: James W. Ennis, P.E., PMP, Assistant Public Works Director  
William Johnson, P.E., Roadway Production Engineer

**Office of Management & Budget • Purchasing Division**  
1800 27<sup>th</sup> Street, Vero Beach, Florida 32960 • (772) 567-8000 Ext. 1416 • Fax: (772) 770-5140  
E-mail: [purchasing@ircgov.com](mailto:purchasing@ircgov.com)

**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 project will consist of the reconstruction and widening of the intersection of SR 60 and 43<sup>rd</sup> Avenue and the widening of the existing bridge over the Main Relief Canal. Drainage improvements will consist of structures, piping and retention areas. Concrete sidewalks, 5' wide and 6' wide, will be constructed, utility relocations will be performed, landscaping, traffic and pedestrian signals, lighting and pavement markings will be installed. Earthwork, erosion control and maintenance of traffic will also be performed. This is an F.D.O.T. County Incentive Grant Program (CIGP) funded project FM No. 431759-2-54-01.***

### **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: **SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS**  
County Project Number: **IRC-0853**  
F.M. No. **431759-2-54-01**  
Bid Number: **2019073**  
Project Address: **Intersection of SR 60 and 43<sup>rd</sup> Avenue**  
**Vero Beach, Florida 32960 & 32966**

### **ARTICLE 3 – ENGINEER**

3.01 The Indian River County Public Works Department 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*

00520 - Agreement (Public Works) REV 06-14

- A. The Work will be substantially completed on or before the **690th** 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 **720th** 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 **\$4,698.00** 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 **\$4,698.00** 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 ten percent (10%) of the payment amounts due to the CONTRACTOR until fifty percent (50%) completion of the work. After fifty percent (50%) completion of the work is attained as certified to OWNER by ENGINEER in writing, OWNER shall retain five percent (5%) of the payment amount due to CONTRACTOR until final completion and acceptance of all work to be performed by CONTRACTOR under the Contract Documents. Pursuant to Florida Statutes section 218.735(8)(b), fifty percent (50%) completion means the point at which the County as OWNER has expended fifty percent (50%) of the total cost of the construction services work purchased under the Contract Documents, together with all costs associated with existing change orders and other additions or modifications to the construction services work provided under the Contract Documents.

#### 6.03 *Pay Requests.*

A. Each request for a progress payment shall be submitted on the application for payment form supplied by OWNER and the application for payment shall contain the CONTRACTOR'S certification. All progress payments will be on the basis of progress of the work measured by the schedule of values established, or in the case of unit price work based on the number of units completed. After fifty percent (50%) completion, and pursuant to Florida Statutes section 218.735(8)(d), the CONTRACTOR may submit a pay request to the County as OWNER for up to one half (1/2) of the retainage held by the County as OWNER, and the County as OWNER shall promptly make payment to the CONTRACTOR unless such amounts are the subject of a good faith dispute; the subject of a claim pursuant to Florida Statutes section 255.05(2005); or otherwise the subject of a claim or demand by the County as OWNER or the CONTRACTOR. The CONTRACTOR acknowledges that where such retainage is attributable to the labor, services, or materials supplied by one or more subcontractors or suppliers, the Contractor shall timely remit payment of such retainage to those subcontractors and suppliers. Pursuant to Florida Statutes section 218.735(8)(c)(2005), CONTRACTOR further acknowledges and agrees that: 1) the County as OWNER shall receive immediate written notice of all decisions made by CONTRACTOR to withhold retainage on any subcontractor at greater than five percent (5%) after fifty percent (50%) completion; and 2) CONTRACTOR will not seek release from the County as OWNER of the withheld retainage until the final pay request.

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.
- 7.02 “To the fullest extent permitted by law, the Recipient’s contractor/consultant shall indemnify and hold harmless the Recipient and the State of Florida, Department of Transportation, including the Department’s officers and employees, from liabilities, damages, losses and costs, including, but not limited to, reasonable attorney’s fees, to the extent caused by the negligence, recklessness or intentional wrongful misconduct of the contractor or consultant and persons employed or utilized by the contractor or consultant in the performance of this Agreement.”

## **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.

## **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 00700-45, inclusive);
  - 10. Supplementary Conditions (pages 00800-i to 00800-12, inclusive);
  - 11. Specifications as listed in Division 1 (General Requirements) and Division 2 (Technical Provisions);
  - 12. Drawings consisting of Contract Plans Components, Roadway Plans, Signing and Pavement Marking Plans, Signalization Plans, Lighting Plans, Landscape and Irrigation Plans and Structural Plans with sheets totaling 260, inclusive, and each sheet bearing the following general title: SR 60 & 43 RD AVENUE;
  - 13. Addenda (if applicable \_\_\_\_\_);

14. Appendices to this Agreement (enumerated as follows):

Appendix A – Permits

Appendix B – Indian River County Fertilizer Ordinances

Appendix C – Indian River County Traffic Engineering Special Conditions for Right of Way Construction

Appendix D – Soil Borings

Appendix E – City of Vero Beach Water and Sewer Department Standard Construction Specifications and Details for Water and Sanitary Systems

15. CONTRACTOR'S BID (pages 00310-1 to 00310-20, 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 00456-4, 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](mailto:publicrecords@ircgov.com)**

**Indian River County Office of the County Attorney**

**1801 27<sup>th</sup> 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 \_\_\_\_\_, 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: \_\_\_\_\_  
Bob Solari, Chairman

By: \_\_\_\_\_  
(Contractor)

By: \_\_\_\_\_  
Jason E. Brown, County Administrator

(CORPORATE SEAL)

Attest \_\_\_\_\_

APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

By: \_\_\_\_\_  
Dylan Reingold, County Attorney

Address for giving notices:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Jeffrey R. Smith, Clerk of Court and Comptroller

License No. \_\_\_\_\_  
(Where applicable)

Attest: \_\_\_\_\_  
Deputy Clerk

Agent for service of process: \_\_\_\_\_

(SEAL)

Designated Representative:  
Name: James W. Ennis, P.E., PMP  
Title: Assistant Public Works Director  
1801 27th Street  
Vero Beach, Florida 32960  
(772) 226-1221  
Facsimile: (772) 778-9391

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: **SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS**

Project No: **IRC-0853**  
FM No. **431759-2-54-01**  
IRC Bid No. **2019073**

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 **690** calendar days for Substantial Completion of this project and **720** 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)

## 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 00620 - Sample Certificate of Liability Insurance

<b>CERTIFICATE OF LIABILITY INSURANCE</b>	
<b>PRODUCER</b>	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
<b>INSURED</b>	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 <sup>TH</sup> 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

### SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS

Application for Payment No. \_\_\_\_\_

For Work Accomplished through the period of \_\_\_\_\_ through \_\_\_\_\_

To: Indian River County (OWNER)

From: \_\_\_\_\_ (CONTRACTOR)

Project No.: **IRC-0853**

Bid No.: **2019073**

FM No.: **431759-2-54-01**

**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):	
	_____ % 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:	\$ _____
<b>8.</b>	<b>DUE THIS APPLICATION (6 MINUS 7):</b>	<b>\$ _____</b>

**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 FLORIDA  
COUNTY OF INDIAN RIVER

Before me, a Notary Public, duly commissioned, qualified, and acting, personally appeared \_\_\_\_\_, who being by me first duly sworn upon oath, says that he/she is the \_\_\_\_\_ of the CONTRACTOR mentioned above and that he/she has been duly authorized to act on behalf of it, and that he/she executed the above Contractor's Application for Payment and Contractor's Certification statement on behalf of said CONTRACTOR; and that all of the statements contained herein are true, correct, and complete. Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_ is personally known to me or has produced \_\_\_\_\_ as identification.

NOTARY PUBLIC: \_\_\_\_\_

(SEAL)

Printed name: \_\_\_\_\_

Commission No.: \_\_\_\_\_

Commission Expiration: \_\_\_\_\_

**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 ENGINEER:**

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):**

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- 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):**

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**SECTION 00630 - Certificate of Substantial Completion**

Date of Issuance: \_\_\_\_\_, 20\_\_\_\_

OWNER: Indian River County

CONTRACTOR: \_\_\_\_\_

CONTRACT FOR: **SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS**

Project No.: **IRC-0853**

OWNER's Bid No. **2019073**

Project Description: **The project will consist of the reconstruction and widening of the intersection of SR 60 and 43<sup>rd</sup> Avenue and the widening of the existing bridge over the Main Relief Canal. Drainage improvements will consist of structures, piping and retention areas. Concrete sidewalks will be constructed, utility relocations will be performed, landscaping, traffic and pedestrian signals, lighting and pavement markings will be installed. Earthwork, erosion control and maintenance of traffic will also be performed. This is an F.D.O.T. County Incentive Grant Program (CIGP) funded project FM No. 431759-2-54-01.**

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 \_\_\_\_\_ 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:

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CONTRACTOR:

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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.]*

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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.

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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: **SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS**

PROJECT NO: **IRC-0853**

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:

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.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

00632-1

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: \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary Public State of Florida at Large

My Commission expires: \_\_\_\_\_

+ + END OF SECTION + +

00632-2

**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: SR 60 and 43<sup>rd</sup> AVENUE  
INTERSECTION IMPROVEMENTS**

**PROJECT # IRC-0853**

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

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## GENERAL CONDITIONS

### ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

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#### 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

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### 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 CONTRACTOR pursuant to paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be correcting, removing, or replacing defective Work in accordance with paragraph 13.07; and

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

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### 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 indemnified 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' compen-



sation 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

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### 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

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### 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

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### 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

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#### 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

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### 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 temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but

not consumed which remain the property of CONTRACTOR.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, 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

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#### 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 ENGINEER 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

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#### 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 ENGI-

NEER, 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

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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 cov-

ered 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 Completion 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

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#### 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 economic loss arising out of or resulting from such termination.

### 15.04 CONTRACTOR May Stop Work or Terminate

A. If, through no act or fault of CONTRACTOR, 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

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### 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 CONDITIONS**  
**TO THE GENERAL CONDITIONS**

<b><u>Article Title</u></b>	<b><u>Article Number</u></b>
Introduction	SC – 1.00
Defined Terms	SC – 1.01
Terminology	SC – 1.02
Before Starting Construction	SC – 2.05
Preconstruction Conference	SC – 2.06
Coordination of Plans, Specifications, and Special Provisions	SC – 3.06
Subsurface and Physical Conditions	SC – 4.02
Performance, Payment and Other Bonds	SC – 5.01
Certificates of Insurance	SC – 5.03
CONTRACTOR's Liability Insurance	SC – 5.04
OWNER's Liability Insurance	SC – 5.05
Property Insurance	SC – 5.06
Waiver of Rights	SC – 5.07
Receipt and Application of Insurance Proceeds	SC – 5.08
Acceptance of Bonds and Insurance; Option to Replace	SC – 5.09
Labor; Working Hours	SC – 6.02
Concerning Subcontractors, Suppliers and Others	SC – 6.06
Permits	SC – 6.08
Coordination	SC – 7.02
Cost of the Work	SC – 11.01
Test and Inspections	SC – 13.03
OWNER May Stop the Work	SC – 13.05
Correction Period	SC – 13.07
Progress Payments	SC – 14.02

Substantial Completion	SC – 14.04
Final Payment	SC – 14.07
OWNER May Suspend Work	SC – 15.01
OWNER May Terminate for Cause	SC – 15.02
CONTRACTOR May Stop Work or Terminate	SC – 15.04
Mediation	SC –16.02
Liens	SC – 17.06

+++ 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.*

ENGINEER's Consultant:     ARCADIS US, Inc.  
  1500 Gateway Blvd. Suite 200  
  Boynton Beach, Florida 33426  
  Phone: 561-697-7000  
  Fax: 561-369-4731

### **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, 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:  
Tierra, Inc. Roadway Soil Survey Report dated May 25, 2007
- D. Reports and drawings itemized in SC-4.02.C are included with the Bidding Documents.

#### **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

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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
  - b. Hired Autos
  - c. Non-Owned Autos.
4. Longshoreman's Insurance: Contractor shall secure and maintain Longshoreman Insurance to the extent required by law.
5. 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.

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 liability insurance policies:
  - a. Indian River Farms Water Control District
  - b. City of Vero Beach
  - c. Florida Department of Transportation (FDOT)

**SC-5.05 OWNER's Liability Insurance**

SC-5.05 *Delete paragraph GC-5.05.A in its entirety.*

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## SC-5.06 Property Insurance

SC-5.06 *Delete paragraphs GC-5.06.A, B, and C in their entirety and insert the following paragraphs in their place:*

- A. CONTRACTOR shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof. This insurance shall:
  1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
  2. be written on a Builder's Risk "All Risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, falsework, and materials and equipment in transit and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
  3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
  4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER; and
  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. CONTRACTOR shall be responsible for any deductible or self-insured retention.
- C. The policies of insurance required to be purchased and maintained by CONTRACTOR in accordance with this paragraph SC-5.06 shall comply with the requirements of paragraph 5.06.C of the General Conditions.

SC-5.06.E *Delete paragraph GC-5.06.E in its entirety and insert the following in its place:*

- E. Additional Insureds:
  1. The following individuals or entities shall be listed as "additional insureds" on the CONTRACTOR's property insurance policies:
    - a. Indian River County, Florida
    - b. Indian River Farms Water Control District
    - c. City of Vero Beach
    - d. Florida Department of Transportation (FDOT)

**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. 122949-2
  - B. Indian River Farms Water Control District – Permit No. 18-05
  - C. Indian River Farms Water Control District – Permit No. U-18-08
  - D. Indian River Farms Water Control District – Permit No. U-18-09
  - E. Florida Department of Environmental Protection – Permit No. 0039141-058-DWC-CG
  - F. Florida Department of Environmental Protection – Permit No. 0080446-266-DSGP
  - G. U.S. Department of the Army Corps of Engineers - Permit No. SAJ-2008-01260 (NWP-CMM)
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-7.02 Coordination**

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

- C. The CONTRACTOR shall not commence any work at the northwest corner of SR 60 and 43rd Avenue, between SR 60 and the Indian River Farms Water Control District Main Relief Canal, within the property limits known to be Marks Mobil Service Station and County Tenant Mark and Winona Hall until express consent is given by the Florida Department of Transportation.

#### **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*  
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*its place:*

- B. OWNER shall employ and pay for the services of an independent testing laboratory to perform all verification 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 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

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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 19<sup>th</sup> 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

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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 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++

**SECTION 00942 - Change Order Form**

No. \_\_\_\_\_

DATE OF ISSUANCE: \_\_\_\_\_

EFFECTIVE DATE: \_\_\_\_\_

OWNER: Indian River County

CONTRACTOR \_\_\_\_\_

Project: **SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS**

OWNER's Project No. **IRC-0853**

OWNER'S Bid No. **2019073**

FM No.: **431759-2-54-01**

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

Description:

Reason for Change Order:

Attachments: (List documents supporting change)

CHANGE IN CONTRACT PRICE:	
Description	Amount
Original Contract Price	\$ _____
Net Increase (Decrease) from previous Change Orders No. _____ to _____:	\$ _____
Contract Price prior to this Change Order:	\$ _____
Net increase (decrease) of this Change Order:	\$ _____
Contract Price with all approved Change Orders:	\$ _____

CHANGE IN CONTRACT TIMES	
Description	Time
Original Contract Time:	(days or dates) _____
Substantial Completion:	_____
Final Completion:	_____
Net change from previous Change Orders No. _____ to _____:	(days) _____
Substantial Completion:	_____
Final Completion:	_____
Contract Time prior to this Change Order:	(days or dates) _____
Substantial Completion:	_____
Final Completion:	_____
Net increase (decrease) this Change Order:	(days or dates) _____
Substantial Completion:	_____
Final Completion:	_____
Contract Time with all approved Change Orders:	(days or dates) _____
Substantial Completion:	_____
Final Completion:	_____

<b>ACCEPTED:</b>
By:
CONTRACTOR (Signature)
Date:

<b>RECOMMENDED:</b>
By:
ENGINEER (Signature)
Date:

<b>APPROVED:</b>
By:
OWNER (Signature)
Date:

**SECTION 00946 - Field Order Form**

Field Change No.: \_\_\_\_\_

DATE OF ISSUANCE: \_\_\_\_\_

EFFECTIVE DATE: \_\_\_\_\_

OWNER: Indian River County

CONTRACTOR \_\_\_\_\_

Project: **SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS**

OWNER's Project No. **IRC-0853**

OWNER'S Bid No. **2019073**

FM No.: **431759-2-54-01**

Field Activity Description:

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Reason for Change:

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Recommended Disposition:

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\_\_\_\_\_  
Field Operations Officer / Engineer (Signature)

\_\_\_\_\_  
Date

Disposition:

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\_\_\_\_\_  
Contractor's Onsite Supervisor (Signature)

\_\_\_\_\_  
Date

Distribution: Field Operations Officer      Others as Required: \_\_\_\_\_

On-site Supervisor \_\_\_\_\_

Project File \_\_\_\_\_

**\* \* END OF SECTION \* \***

**SECTION 00948 - Work Change Directive**

No. \_\_\_\_\_

DATE OF ISSUANCE: \_\_\_\_\_

EFFECTIVE DATE: \_\_\_\_\_

OWNER: Indian River County \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

Project: **SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS**

OWNER's Project No.: **IRC-0853**

OWNER's Bid No.: **2019073**

FM No.: **431759-2-54-01**

You are directed to proceed promptly with the following changes:

Description:

Purpose of Work Change Directive:

Attachments: (List documents supporting change)

If OWNER or CONTRACTOR believe that the above change has affected Contract Price any Claim for a Change Order based thereon will involve one or more of the following methods as defined in the Contract Documents.

Method of determining change in Contract Prices

Method of determining change in Contract Times

- Unit Prices
- Lump Sum
- Other: \_\_\_\_\_
- By Change Order:

- Contractor's Records
- Engineer's Records
- Other: \_\_\_\_\_
- By Change Order:

Estimated increase (decrease) of this Work Change Directive  
\$ \_\_\_\_\_

Estimated increase (decrease) in Contract Times:

Substantial Completion: \_\_\_\_\_ days;  
Ready for Final Completion: \_\_\_\_\_ days.

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

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

ACCEPTED:
By:
CONTRACTOR (Signature)
Date:

RECOMMENDED:
By:
ENGINEER (Signature)
Date:

APPROVED:
By:
OWNER (Signature)
Date:

**\*\* END OF SECTION \*\***

## DIVISION 1 GENERAL REQUIREMENTS

<u>TITLE</u>	<u>SECTION NO.</u>
SPECIAL PROVISIONS	01009
FORCE ACCOUNT	01024
FIELD ENGINEERING AND LAYOUT	01050
REFERENCE STANDARDS	01091
GENERAL QUALITY CONTROL	01215
PROGRESS MEETINGS	01220
CONSTRUCTION SCHEDULES	01310
SUBMITTAL OF SHOP DRAWINGS, PRODUCT DATA AND SAMPLES	01340
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS	01520
PROTECTION OF THE WORK AND PROPERTY	01541
ACCESS ROADS, PARKINGS AREAS AND USE OF PUBLIC STREETS	01550
TRANSPORTATION AND HANDLING OF MATERIALS AND EQUIPMENT	01610
STORAGE OF MATERIAL AND EQUIPMENT	01611
SUBSTITUTIONS	01630
SITE CLEANUP AND RESTORATION	01710
POST FINAL INSPECTION	01820

## SECTION 01009

### SPECIAL PROVISIONS

#### 1.1 GENERAL

- A. Visits to the construction site may be made by representatives of permitting or governing bodies. Submit details of all instructions from the above to the ENGINEER immediately. The Work will not be accepted by the OWNER until final acceptance has been received from the various Regulatory Agencies having jurisdiction.
- B. Furnish sufficient labor, construction equipment and materials, and work such hours, including night shifts and overtime operations, as may be necessary to insure the prosecution of the work in accordance with the approved progress schedule. If, in the opinion of the ENGINEER, the CONTRACTOR falls behind the progress schedule, take such steps as may be necessary to improve progress, all without additional cost to the OWNER. The ENGINEER shall be compensated for his overtime services in accordance with the Supplementary Conditions, SC-6.02.
- C. All salvageable material and equipment for which specific use, relocation or other disposal is not specifically noted, shall remain the property of the OWNER and shall be delivered to the OWNER at the following location: 4550 41<sup>st</sup> Street, at the CONTRACTOR's expense. All material and equipment not in salvageable condition, as determined by the ENGINEER and the OWNER, shall be disposed of by the CONTRACTOR, at the CONTRACTOR's expense.
- D. In addition to these Specifications all work must comply with the requirements of the local governing agency, St. Johns River Water Management District, Department of Environmental Protection, Army Corps of Engineers, Indian River Farms Water Control District, and all other applicable State or Federal agencies' specifications and permits. In the event of a conflict, the more stringent specification or requirement shall govern.
- E. Before performing any work outside the designated limits of the work site, secure any necessary permits and authorization from the applicable owner, or verify in writing that such has been previously obtained. Follow all requirements of any said permits or authorization. Give the ENGINEER and appropriate owner ten (10) days minimum notice before commencing construction operations outside the designated limits of the work site.

## **SECTION 01024**

### **FORCE ACCOUNT**

#### 1.1 General

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

#### 1.1 PAYMENT

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

+ + END OF SECTION + +

## SECTION 01050

### FIELD ENGINEERING AND LAYOUT

#### 1.1 GENERAL

- A. The CONTRACTOR will furnish all construction staking for the project. All staking from control will be under the supervision of a Florida Registered Land Surveyor.
- B. Develop and make all detail surveys and measurements needed for construction including but not limited to, slope stakes, batter boards, piling layouts and all other working lines, elevations and cut sheets.
- C. Keep a transit and leveling instrument on the site at all times and a skilled instrument man available whenever necessary for layout of the Work.
- D. Provide all material required for benchmarks, control points, batter boards, grade stakes, and other items.
- E. Be solely responsible for all locations, dimensions and levels. No data other than written orders of the ENGINEER shall justify departure from the dimensions and levels required by the Drawings.
- F. Safeguard all points, stakes, grademarks, monuments and benchmarks made or established on the Work, and reestablish same, if disturbed. Rectify all Work improperly installed because of not maintaining, not protecting or removing without authorization such established points, stakes, marks and monuments.
- G. When requested by the ENGINEER, provide such facilities and assistance as may be necessary for the ENGINEER to check line and grade points placed by the CONTRACTOR. Do no excavation or embankment work until all cross-sectioning necessary for determining pay quantities has been completed and checked by the ENGINEER.
- H. The cost of performing engineering and layout work described above shall be included in the contract unit prices for the various items of work to which it is incidental. No separate payment will be made for surveying or engineering.

#### 1.2 SURVEY WORK AND QUALIFICATIONS OF SURVEYOR

- A. Prior to commencing work, the CONTRACTOR shall satisfy himself as to the accuracy of all survey and existing site information as indicated in the Contract Documents. Immediately notify the ENGINEER upon discovery of any errors, inaccuracies or omissions in the survey data. The commencing of any of the work by the CONTRACTOR shall be held as the CONTRACTOR's acceptance that all survey or existing site information is correct and accurate, without any reasonably inferable errors, inaccuracies or omissions.
- B. The CONTRACTOR shall carefully preserve all control stakes, benchmarks, reference points and property corners and will be responsible for any mistake or loss of time caused by their unnecessary loss or disturbance. If the loss or disturbance of the stakes or marks cause a delay in the Work, the



CONTRACTOR shall have no claim for damages or extension of time. Control stakes, benchmarks, reference points and property corners disturbed by the CONTRACTOR's work shall be replaced by a Florida Registered Land Surveyor and Mapper, at the CONTRACTOR's expense. In the event the Owner must provide the services of the Florida Registered Surveyor and Mapper to perform this replacement work, the cost of the surveying services will be deducted from any sums due the CONTRACTOR for the work performed under this Contract.

- C. All survey work shall be performed under the guidance and direction of a Florida Registered Surveyor and Mapper.
- D. All survey work for Record Drawings shall be performed by a Florida Registered Surveyor and Mapper.

### 1.3 STATION BOARDS

- A. CONTRACTOR shall erect and maintain white/black standard FDOT station markers every 100 feet.

### 1.4 LAYOUT OF STRIPING

Establish by instrument, and mark the finished surface, the points necessary for striping finished roadway in conformance with Section 5-7 of FDOT Standard Specifications.

+ + END OF SECTION + +

## SECTION 01091

### REFERENCE STANDARDS

#### 1.1 GENERAL

- A. Whenever reference is made to the furnishing of materials or testing thereof to conform to the standards of any technical society, organization or body, it shall be construed to mean the latest standard, code, specification or tentative specification adopted and published at the date of advertisement for bids, unless noted otherwise in the Technical Specifications or on the Drawings. When a reference standard is specified, comply with requirements and recommendations stated in that standard, except when they are modified by the Contract Documents, or when applicable laws, ordinances, rules, regulations or codes establish stricter standards. The list of specifications presented in Paragraph B is hereby made a part of the Contract, the same as if repeated herein in full.
- B. Reference to a technical society, organization, or body may be made in the Specifications by abbreviations, in accordance with the following list:

AASHTO	The American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AGA	American Gas Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWWA	American Water Works Association
AWS	American Welding Society
FED.SPEC.	Federal Specifications

CRSI	Concrete Reinforcing Steel Institute
FDEP/DEP	Florida Department of Environmental Protection
DNR	Department of Natural Resources
NCPI	National Clay Pipe Institute
NEMA	National Electrical Manufacturers Association
NEC	National Electric Code
NSPE	National Society of Professional Engineers
OSHA	Occupational Safety and Health Administration
PCI	Prestressed Concrete Institute
FDOT/DOT	Florida Department of Transportation
U. L., Inc.	Underwriter's Laboratories, Inc.
SSPC	Steel Structures Painting Council
SJRWMD	St. Johns River Water Management District

- C. When no reference is made to a code, standard or specification, the standard specifications of ASTM, FDOT, or ANSI shall govern.
- D. In the event of a conflict between the specifications prepared by the ENGINEER and the above referenced specifications and standards, or any other regulatory specification or standard, the more stringent requirement prevails.

+ + END OF SECTION + +

## SECTION 01215

### GENERAL QUALITY CONTROL

#### 1.1 DESCRIPTION OF REQUIREMENTS

- A. Definitions: Specific quality control requirements for the work are indicated throughout the Contract Documents. The requirements of this section are primarily related to the performance of the work beyond the furnishing of manufactured products. The term "Quality Control" includes, but is not necessarily limited to, inspection and testing and associated requirements. This section does not specify or modify the OWNER and ENGINEER duties relating to quality review and Contract surveillance.

#### 1.2 RESPONSIBILITY FOR INSPECTIONS AND TESTS

- A. Residual OWNER Responsibility: The OWNER will employ and pay for the services of independent testing laboratories to perform those required inspections and tests.
- B. CONTRACTORS General Responsibility: No failure of test agencies, whether engaged by the OWNER or CONTRACTOR, to perform adequate inspections of tests or to properly analyze or report results, shall relieve the CONTRACTOR of responsibility for the fulfillment of the requirements of the Contract Documents. It is recognized that the required inspection and testing program is intended to assist the CONTRACTOR, OWNER, ENGINEER, and governing authorities in the nominal determination of probable compliance with requirements for certain crucial elements of work. The program is not intended to limit the CONTRACTOR in his regular quality control program, as needed for general assurance of compliance.

#### 1.3 QUALITY ASSURANCE

- A. General Workmanship Standards: It is a requirement that each category of tradesman or installer performing the work be pre-qualified, to the extent of being familiar with the applicable and recognized quality standards for his category of work, and being capable of workmanship complying with those standards.

#### 1.4 PRODUCT DELIVERY-STORAGE-HANDLING

Handle, store and protect materials and products, including fabricated components, by methods and means which will prevent damage, deterioration and losses (and resulting delays), thereby ensuring highest quality results as the performance of the work progresses. Control delivery schedules so as to minimize unnecessary long-term storage at the project site prior to installation.

## SECTION 01215

### GENERAL QUALITY CONTROL

#### 1.5 PROJECT PHOTOGRAPHS/VIDEOS

- A. The CONTRACTOR shall make provisions, at his expense, for photographs and video tapes of all work areas just prior to construction, and for unusual conditions during construction. The photographs and videos shall show pertinent physical features along the line of construction. The purpose of the videos is to determine any damage to private or public property during construction. The video must be performed by a professional videographer.
- B. Pre-Construction Photographs and Video:
1. Contractor shall provide the Owner with photographs and video record and one copy of the existing conditions prior to construction. These photographs and videos shall be a standard DVD format and shall be narrated.
  2. The photographs and video shall include, but not be limited to, the following items shown in a clear manner:
    - 1) All existing features within the right-of-way.
    - 2) All existing features within the temporary construction easement.
    - 3) All existing features within permanent easements.
    - 4) All existing features adjacent to any construction.
  3. Detail of the photographs and video shall be such that the following examples shall be clear and visible:
    - 1) Cracks in walls.
    - 2) Condition of fencing.
    - 3) Condition of planted areas and types of vegetation.
    - 4) Condition of sodded areas.
    - 5) Conditions of sprinkler systems and associated controls and wiring.
    - 6) Condition of signs.
    - 7) Conditions of lighting and associated wiring.
    - 8) Significant detail of any pre-existing damages physical features shall be shown. The coverage of the photographs and video should include the limits of effects of the use of vibratory rollers.
    - 9) These photographs and video record shall be presented and approved by the Owner prior to the Notice to Proceed. A copy shall be kept in the Contractor's field office.
    - 10) Payment – No additional payment will be made for this work.

+ + END OF SECTION + +

## SECTION 01220

### PROGRESS MEETINGS

#### 1.1 SCOPE

- A. Date and Time:
  - 1. Regular Meetings: As mutually agreed upon by ENGINEER and CONTRACTOR.
  - 2. Other Meetings: On call.
- B. Place: CONTRACTOR'S office at Project site or other mutually agreed upon location.
- C. ENGINEER shall prepare agenda, preside at meetings, and prepare and distribute a transcript of proceedings to all parties.
- D. CONTRACTOR shall provide data required and be prepared to discuss all items on agenda.

#### 1.2 MINIMUM ATTENDANCE

- A. CONTRACTOR
- B. SUBCONTRACTOR:  
When needed for the discussion of a particular agenda item, CONTRACTOR shall require representatives of Subcontractors or suppliers to attend a meeting.
- C. CONSTRUCTION COORDINATION MANAGER
- D. OWNER'S representative, if required.
- E. Utility Representatives
- F. Others as appropriate.
- G. Representatives present for each party shall be authorized to act on their behalf.

#### 1.3 AGENDA

Agenda will include, but will not necessarily be limited to, the following:

- 1. Transcript of previous meeting.
- 2. Progress since last meeting.
- 3. Planned progress for next period.
- 4. Problems, conflicts and observations.
- 5. Change Orders.
- 6. Status of Shop Drawings.
- 7. Quality standards and control.
- 8. Schedules, including off-site fabrication and delivery schedules. Corrective measures, if required.
- 9. Coordination between parties.
- 10. Safety concerns.
- 11. Other business.

+ + END OF SECTION + +

## SECTION 01310

### CONSTRUCTION SCHEDULES

#### 1.1 GENERAL REQUIREMENTS

- A. No partial payments shall be approved by the ENGINEER until there is an approved construction progress schedule on hand.
- B. Designate an authorized representative who shall be responsible for development and maintenance of the schedule and of all progress and payment reports. This representative shall have direct project control and complete authority to act on behalf of the CONTRACTOR in fulfilling the commitments of the CONTRACTOR's schedules.

#### 1.2 REVISIONS TO THE CONSTRUCTION SCHEDULES

When the ENGINEER requires the CONTRACTOR to submit revised (updated) progress schedules on a monthly basis the CONTRACTOR shall:

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

#### 1.3 SUBMISSION OF THE CONSTRUCTION SCHEDULES

On or before the tenth day after the effective date of the Agreement, submit the initial schedules to the ENGINEER. The ENGINEER will review the schedules and return a review copy to the CONTRACTOR within 21 days after receipt. If required by the ENGINEER, resubmit revised schedules on or before the seventh day after receipt of the review copy. If required by the ENGINEER, submit revised monthly progress schedules with that month's application for payment.

## SECTION 01310

### CONSTRUCTION SCHEDULES

#### 1.4 DISTRIBUTION OF THE CONSTRUCTION SCHEDULES

- A. After receiving approval by the ENGINEER, distribute copies of the approved initial schedule and all reviewed revisions (updated) to:
  - 1. Job site file.
  - 2. Subcontractors.
  - 3. Other concerned parties.
  - 4. OWNER (two copies).
  - 5. ENGINEER
  
- B. In the cover letter, instruct recipients to report promptly to the CONTRACTOR, in writing, any problems anticipated by the projections shown in the schedules.

+ + END OF SECTION + +



## **SECTION 01340 SUBMITTAL OF SHOP DRAWINGS**

### 1.1 SCOPE

- A. Submit shop drawings, product data and samples as required by or inferred by the Drawings and Specifications. Submittals shall conform to the requirements of Article 6.17 of the General Conditions, Section 00700, and as described in this Section.

### 1.2 SHOP DRAWINGS

- A. Shop drawings are original drawings, prepared by the CONTRACTOR, a subcontractor, supplier, or distributor, which illustrate some portion of the work; showing fabrication, layout, setting, or erection details. Shop drawings are further defined in Article 6.17, Section 00700.
- B. Shop drawings shall be prepared by a qualified detailer and shall be identified by reference to sheet and detail numbers on the Contract Drawings.

### 1.3 PRODUCT DATA

- A. Product data are manufacturer's standard schematic drawings and manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data. Product data are further defined in Article 6.17, Section 00700.
- B. Modify standard drawings to delete information which is not applicable to the project and supplement them to provide additional information applicable to the project.
- C. Clearly mark catalog sheets, brochures, etc., to identify pertinent materials, products, or models.

### 1.4 SAMPLES

Samples are physical examples to illustrate materials, equipment, or workmanship and to establish standards by which work is to be evaluated. Samples are further defined in Article 6.17, Section 00700.

**SECTION 01340**  
**SUBMITTAL OF SHOP DRAWINGS**

1.5 CONTRACTOR'S RESPONSIBILITIES FOR SUBMITTAL OF SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. The CONTRACTOR's responsibilities for submittal of shop drawings, product data, and samples are set forth in paragraph 6.17 of the General Conditions and as further explained herein.
  
- B. Prior to submission, thoroughly check shop drawings, product data, and samples for completeness and for compliance with the Contract Documents, verify all dimensions and field conditions, and coordinate the shop drawings with the requirements for other related work. Also review each shop drawing before submitting it to the ENGINEER to determine that it is acceptable in terms of the means, methods, techniques, sequences and operations of construction, safety precautions and programs incidental thereto, all of which are the CONTRACTOR's responsibility.
  - 1. It is CONTRACTOR'S responsibility to review submittals made by his suppliers and Subcontractors before transmitting them to ENGINEER to assure proper coordination of the Work and to determine that each submittal is in accordance with its desires and that there is sufficient information about materials and equipment for ENGINEER to determine compliance with the Contract Documents.
  - 2. Incomplete or inadequate submittals will be returned for revision without review.
  
- C. The CONTRACTOR's responsibility for errors and omissions in submittals is not relieved by the ENGINEER's review of submittals. The CONTRACTOR shall approve the shop drawings based on his in-the-field measurements, prior to submittal to the ENGINEER for his review.
  
- D. Notify the ENGINEER, in writing at the time of submission, of deviations in submittals from the requirements of the Contract Documents. The CONTRACTOR's responsibility for deviations in submittals from the requirements of the Contract Documents is not relieved by the ENGINEER's review of submittals, unless the ENGINEER gives written acceptance of specific deviations.
  
- E. Begin no work, which requires submittals until return of submittals with the ENGINEER's stamp and initials or signature indicating the submittal has been reviewed.

**SECTION 01340**  
**SUBMITTAL OF SHOP DRAWINGS**

1.6 SUBMITTAL REQUIREMENTS AND ENGINEER'S REVIEW FOR SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A.                    Submit to:  
                         Indian River County  
                         Representative via electronic software (e-Builder)  
                         1801 27th Street  
                         Vero Beach, FL 32960
- B.                    A letter of transmittal shall accompany each submittal. If data for more than one Section of the Specifications is submitted, a separate transmittal letter shall accompany the data submitted for each Section.
- C.                    At the beginning of each letter of transmittal, provide a reference heading indicating the following:
- 1.                    OWNER'S Name
  - 2.                    Project Name
  - 3.                    Project Number
  - 4.                    Transmittal Number
  - 5.                    Section Number
- D.                    All submittals shall have a title block with complete identifying information satisfactory to the ENGINEER. The following is a sample Submittal Form that the CONTRACTOR may use:

[The remainder of this page has been left blank intentionally]

**SECTION 01340  
SUBMITTAL OF SHOP DRAWINGS**

**CONTRACTOR SUBMITTALS**

**SUBMITTAL NO.** \_\_\_\_\_

**Contractor:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date Sent to County \_\_\_\_\_

No. Copies Sent to County \_\_\_\_\_

Original Submittal     Re-Submittal

**Project Name: SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS**

**Project No.: IRC-0853**

Shop Drawing                       Cut Sheet                       Other \_\_\_\_\_

Description: \_\_\_\_\_

Sub-Contractor: \_\_\_\_\_

Remarks: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

\*\*\*\*\*

**Reviewing Agency:** (As checked below)

	<u>Date Received</u>	<u>Date Returned</u>	<u>No. Copies Ret'd</u>
<input type="checkbox"/> I R C Engineering Div.	_____	_____	_____
<input type="checkbox"/> I R C Utilities Services	_____	_____	_____

Remarks: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

\*\*\*\*\*

**IRC Engineering Division**

Date Rec'd from Contractor \_\_\_\_\_

Date Ret'd to Contractor \_\_\_\_\_

1801 27<sup>th</sup> Street

No. Copies Ret'd \_\_\_\_\_

Vero Beach, Fl. 32960

Remarks: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Distribution of Copies:  
IRC Engineering Division  
Office File  
Field Office File

**SECTION 01340**  
**SUBMITTAL OF SHOP DRAWINGS**

- E. All submittals shall bear the stamp of approval and signature of CONTRACTOR as evidence that they have been reviewed by CONTRACTOR. Submittals without this stamp of approval will not be reviewed by the ENGINEER and will be returned to CONTRACTOR.
- F. Assign a number to each submittal starting with No. 1 and thence numbered consecutively. Identify resubmittals by the original submittal number followed by the suffix "A" for the first resubmittal, the suffix "B" for the second resubmittal, etc.
- G. Initially submit to ENGINEER a minimum of two (2) copies of all submittals that are on 11-inch by 17-inch or smaller sheets (no less than 8 1/2-inch x 11-inch).
- H. After ENGINEER completes his review, Shop Drawings will be marked with one of the following notations:
  - 1. Approved
  - 2. Approved as Noted
  - 3. NOT Approved - Resubmit
- I. If a submittal is acceptable, it will be marked "Approved" or "Approved as Noted". One (1) electronic copy of the submittal will be returned to CONTRACTOR.
- J. Upon return of a submittal marked "Approved" or "Approved as Noted", CONTRACTOR may order, ship or fabricate the materials included on the submittal, provided it is in accordance with the corrections indicated.
- K. If a submittal is unacceptable, one (1) copy will be returned to CONTRACTOR with following notation, "NOT Approved - Resubmit".
- L. Upon return of a submittal marked "NOT Approved - Resubmit", make the corrections indicated and repeat the initial approval procedure. Upon return of a submittal so marked, repeat the initial approval procedure utilizing acceptable material or equipment.
- M. Work shall not be performed nor equipment installed without an ENGINEER "Approved" or "Approved as Noted" Shop Drawing.
- N. Submit Shop Drawings well in advance of the need for the material or equipment for construction and with ample allowance for the time required to make delivery of material or equipment after data covering such is approved. CONTRACTOR shall assume the risk for all materials or

01340 - Submittal of Shop Drawings

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## SECTION 01340

### SUBMITTAL OF SHOP DRAWINGS

equipment which is fabricated or delivered prior to the approval of Shop Drawings. Materials or equipment requiring Shop Drawings which have not yet received approval by the ENGINEER shall not be installed on the project. Materials or equipment will not be included in periodic progress payments until approval thereof has been obtained in the specified manner.

- O. ENGINEER will review and process all submittals promptly, but a reasonable time should be allowed for this, for the Shop Drawings being revised and resubmitted, and for time required to return the approved Shop Drawings to CONTRACTOR.
  
- P. Furnish required submittals with complete information and accuracy in order to achieve required approval of an item within three submittals. All costs to ENGINEER involved with subsequent submittals of Shop Drawings, Samples or other items requiring approval, will be back-charged to CONTRACTOR in accordance with the General Conditions and the Supplementary Conditions. If the CONTRACTOR requests a substitution for a previously approved item, all of ENGINEER'S costs in the reviewing and approval of the substitution will be back-charged to CONTRACTOR unless the need for such substitution is beyond the control of CONTRACTOR.

+ + END OF SECTION + +

## SECTION 01520

### CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

#### 1.1 SCOPE

- A. Provide all construction equipment and facilities and temporary controls required to satisfactorily complete the work represented on the Drawings and described in the Specifications.

#### 1.2 RESPONSIBILITY

- A. All construction facilities and temporary controls remain the property of the Contractor establishing them and shall be maintained in a safe and useful condition until removed from the construction site.
- B. All false work, scaffolding, ladders, hoistways, braces, pumps, roadways, sheeting, forms, barricades, drains, flumes, and the like, any of which may be needed in construction of any part of the work and which are not herein described or specified in detail, must be furnished, maintained and removed by the CONTRACTOR, who is responsible for the safety and efficiency of such work and for any damage that may result from their failure or from their improper construction, maintenance or operation.
- C. In accepting the Contract, the CONTRACTOR assumes full responsibility for the sufficiency and safety of all hoists, cranes, temporary structures or work and for any damage which may result from their failure or their improper construction, maintenance or operation and will indemnify and save harmless the OWNER and ENGINEER from all claims, suits or actions and damages or costs of every description arising by reason of failure to comply with the above provision.

#### 1.3 TEMPORARY UTILITIES AND SERVICES

- A. TEMPORARY WATER
  - 1. Provide a temporary water service as required for all construction purposes and pay for all water used.
  - 2. Furnish potable drinking water in suitable dispensers and with cups for use of all employees at the job.
  - 3. Provide all temporary piping, hoses, etc., required to transport water to the point of usage by all trades.
  - 4. When temporary water service is no longer required, remove all temporary water lines.

## SECTION 01520

### CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

#### B. TEMPORARY SANITARY FACILITIES

1. Provide temporary toilet facilities separate from the job office. Maintain these during the entire period of construction under this Contract for the use of all construction personnel on the job. Provide enough chemical toilets to conveniently serve the needs of all personnel. Properly seclude toilet facilities from public observation.
2. Chemical toilets and their maintenance shall meet the requirements of State and local health regulations and ordinances. Immediately correct any facilities or maintenance methods failing to meet these requirements. Upon completion of work, remove the facilities from the premises.

#### 1.4 SECURITY

Full time watchmen will not be specifically required as a part of the Contract, but the CONTRACTOR shall provide inspection of work area daily and shall take whatever measures are necessary to protect the safety of the public, workmen, and materials, and provide for the security of the site, both day and night.

#### 1.5 TEMPORARY CONTROLS

Take all necessary precautions to control dust and mud associated with the work of this Contract. In dry weather, spray dusty areas daily with water in order to control dust. Take necessary steps to prevent the tracking of mud onto adjacent streets and highways.

#### 1.6 REMOVAL OF TEMPORARY CONSTRUCTION FACILITIES

Remove the various temporary facilities, services, and controls and legally dispose of them as soon as the work is complete. The areas of the site used for temporary facilities shall be properly reconditioned and restored to a condition acceptable to the OWNER.

+ + END OF SECTION + +

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## SECTION 01541

### PROTECTION OF THE WORK AND PROPERTY

#### 1.1 GENERAL

- A. CONTRACTOR shall be responsible for taking all precautions, providing all programs, and taking all actions necessary to protect the Work and all public and private property and facilities from damage as specified in the General Conditions and herein.
- B. In order to prevent damage, injury or loss, CONTRACTOR'S actions shall include, but not be limited to, the following:
  - 1. Store apparatus, materials, supplies, and equipment in an orderly, safe manner that will not unduly interfere with the progress of the Work or the Work of any other Contractor or utility service company.
  - 2. Provide suitable storage facilities for all materials, which are subject to injury by exposure to weather, theft, breakage, or otherwise.
  - 3. Place upon the Work or any part thereof, only such loads as are consistent with the safety of that portion of the Work.
  - 4. Clean up frequently all refuse, rubbish, scrap materials, and debris caused by construction operations, so that at all times, the site of the Work presents a safe, orderly, and workmanlike appearance.
  - 5. Provide barricades and guard rails around openings, for scaffolding, for temporary stairs and ramps, around excavations, elevated walkways and other hazardous areas.
- C. Except after written consent from proper parties, do not enter or occupy privately-owned land with men, tools, materials or equipment, except on easements provided herein.
- D. Assume full responsibility for the preservation of all public and private property or facility on or adjacent to the site. If any direct or indirect damage is done by or on account of any act, omission, neglect or misconduct in the execution of the Work by the CONTRACTOR, it shall be restored by the CONTRACTOR, at its expense, to a condition equal to or better than that existing before the damage was done.

#### 1.2 BARRICADES AND WARNING SIGNALS

CONTRACTOR's responsibility for the maintenance of barricades, signs, lights, and for providing watchmen shall continue until OWNER accepts the Project.

#### 1.3 TREE AND PLANT PROTECTION

- A. Protect existing trees, shrubs and plants on or adjacent to the site that are shown or designated to remain in place against unnecessary cutting, breaking or skinning of trunk, branches, bark or roots.

## SECTION 01541

### PROTECTION OF THE WORK AND PROPERTY

- B. Do not store or park materials or equipment within the drip line of trees that are to remain.
- C. Install temporary fences or barricades to protect trees and plants in areas subject to traffic.
- D. Fires shall not be permitted under or adjacent to trees and plants.
- E. Within the limits of the Work, water trees and plants that are to remain, in order to maintain their health during construction operations.
- F. Cover all exposed roots with burlap and keep it continuously wet. Cover all exposed roots with earth as soon as possible. Protect root systems from mechanical damage and damage by erosion, flooding, run-off or noxious materials in solution.
- G. If branches or trunks are damaged, prune branches immediately and protect the cut or damaged areas with emulsified asphalt compounded specifically for horticultural use.
- H. Remove all damaged trees and plants that die or suffer permanent injury and replace them with a specimen of equal or better quality.
- I. Coordinate Work in this Section with requirements of other sections herein.

#### 1.4 PROTECTION OF IRRIGATION

The CONTRACTOR shall be responsible for maintaining in good condition all irrigation systems within the easements, which could be damaged by construction activities. The CONTRACTOR shall repair any irrigation systems damaged by construction activities within two (2) days. Irrigation systems partially within the right-of-way of 43<sup>rd</sup> Avenue, SR 60 and all intersecting side streets within project limits may be cut off and capped or connected to same system to maintain functionality. The CONTRACTOR shall not be responsible for maintaining the functionality of the remaining portion of the system if it should fall outside of the right-of-way.

#### 1.5 PROTECTION OF EXISTING STRUCTURES

- A. Underground Structures:
  - 1. Underground structures are defined to include, but not be limited to, all sewer, water, gas, and other piping, and manholes, chambers, electrical

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conduits, tunnels and other existing subsurface work located within or adjacent to the limits of the Work.

2. All underground structures known to ENGINEER except service connections for water, sewer, electric, and telephone are shown. This information is shown for the assistance of CONTRACTOR in accordance with the best information available, but is not guaranteed to be correct or complete. The existing utilities shown on the Contract Drawings are located according to the information available to the ENGINEER at the time the Drawings were prepared and have not been independently verified by the OWNER or the ENGINEER. Guarantee is not made that all existing underground utilities are shown or that the locations of those shown are accurate. The locations shown are for bidding purposes only. Finding the actual location of any existing utilities is the CONTRACTOR's responsibility and shall be done before it commences any work in the vicinity. Furthermore, the CONTRACTOR shall be fully responsible for any and all damages, which might be occasioned by the CONTRACTOR's failure to exactly locate and preserve any and all underground utilities. The OWNER or ENGINEER will assume no liability for any damages sustained or costs incurred because of the CONTRACTOR's operations in the vicinity of existing utilities or structures, nor for temporary bracing and shoring of same. If it is necessary to shore, brace, or swing a utility, contact the utility company or department affected and obtain their permission regarding the method to use for such work.
3. Contact the various utility companies which may have buried or aerial utilities within or near the construction area before commencing work. Provide 48 hours minimum notice to all utility companies prior to beginning construction.
4. Schedule and execute all work involving existing utilities in order to minimize necessary interruption of services. Whenever such interruption is necessary for completion of the work, notify the ENGINEER and the appropriate utility at least 48 hours in advance. Perform all work to repair/restore utility service to the satisfaction of the appropriate utility. Include all costs related to service maintenance, interruption, and restoration in the appropriate line item in the Contract.
5. Where it is necessary to temporarily interrupt house or business services, the CONTRACTOR shall notify the owner or occupant, both before the interruption (24-hour minimum), and again immediately before service is resumed. Before disconnecting and pipes or cables, the CONTRACTOR shall obtain permission from their owner, or shall make suitable arrangement for their disconnection by their owner.
6. Explore ahead of trenching and excavation work and uncover all obstructing underground structures sufficiently to determine their location, to prevent damage to them and to prevent interruption of the services which such

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structures provide. If CONTRACTOR damages an underground structure, restore it to original condition at CONTRACTOR's expense.

7. Necessary changes in the location of the Work may be made by ENGINEER, to avoid unanticipated underground structures.
8. If permanent relocation of an underground structure or other subsurface facility is required and is not otherwise provided for in the Contract Documents, ENGINEER will direct CONTRACTOR in writing to perform the Work, which shall be paid for under the provisions of Article 11 of the General Conditions.

#### B. Surface Structures:

1. Surface structures are defined as structures or facilities above the ground surface. Included with such structures are their foundations and any extension below the surface. Surface structures include, but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage, piping, poles, wires, posts, signs, markers, curbs, walks and all other facilities that are visible above the ground surface.

#### C. Protection of Underground and Surface Structures:

1. Sustain in their places and protect from direct or indirect injury, all underground and surface structures located within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully, and as required by the party owning or controlling such structure. Before proceeding with the work of sustaining and supporting such structure, satisfy the ENGINEER that the methods and procedures to be used have been approved by the party owning same.
2. Assume all risks attending the presence or proximity of all underground and surface structures within or adjacent to the limits of the Work. CONTRACTOR shall be responsible for all damage and expense for direct or indirect injury caused by its Work to any structure. CONTRACTOR shall repair immediately all damage caused by his work, to the satisfaction of the OWNER of the damaged structure.

- D. All other existing surface facilities, including but not limited to, guard rails, posts, guard cables, signs, poles, markers, and curbs which are temporarily removed to facilitate installation of the Work shall be replaced and restored to their original condition at CONTRACTOR'S expense.

### 1.6 DAMAGE TO EXISTING STRUCTURES AND UTILITIES

- A. The CONTRACTOR shall be responsible for and make good all damage to pavement beyond the limits of this Contract, buildings, telephone or other

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### PROTECTION OF THE WORK AND PROPERTY

cables, water pipes, sanitary pipes, or other structures which may be encountered, whether or not shown on the Drawings.

- B. Information shown on the Drawings as to the location of existing utilities has been prepared from the most reliable data available to the Engineer. This information is not guaranteed, however, and it shall be this CONTRACTOR's responsibility to determine the location, character and depth of any existing utilities. He shall assist the utility companies, by every means possible to determine said locations. Extreme caution shall be exercised to eliminate any possibility of any damage to utilities resulting from his activities.

#### 1.7 ADJUSTMENTS OF UTILITY CASTINGS, COVERS AND BOXES

- A. All existing utility castings, including valve boxes, junction boxes, manholes, pull boxes, inlets and similar structures in the areas of construction that are to remain in service shall be adjusted by the CONTRACTOR to bring them flush with the surface of the finished work.
- B. The CONTRACTOR shall coordinate the utilities to ensure proper construction sequencing. CONTRACTOR shall make available survey reference markers to the various utility companies.

+ + END OF SECTION + +

## SECTION 01550

### ACCESS ROADS, PARKING AREAS AND USE OF PUBLIC STREETS

#### 1.1 GENERAL

- A. Provide all temporary construction roads, walks and parking areas required during construction and for use of emergency vehicles. Design and maintain temporary roads and parking areas so they are fully usable in all weather conditions.
- B. Prevent interference with traffic and the OWNER's operations on existing roads. Indemnify and save harmless the OWNER from any expenses caused by CONTRACTOR's operations over these roads.
- C. Roadways damaged by CONTRACTOR shall be restored to their original condition by the CONTRACTOR subject to approval of the OWNER or ENGINEER.
- D. Remove temporary roads, walks and parking areas prior to final acceptance and return the ground to its original condition, unless otherwise required by the Contract Documents.

#### 1.2 USE OF PUBLIC STREETS

The use of public streets and alleys shall be such as to provide a minimum of inconvenience to the public and to other traffic. Any earth or other excavated material spilled from trucks shall be removed immediately by the CONTRACTOR and the streets cleaned to the satisfaction of the Owner.

#### 1.3 USE OF PUBLIC STREETS FOR HAUL ROADS

- A. Prior to construction, the CONTRACTOR shall designate all proposed haul roads to be used during the life of the project. Any earth or other materials spilled from trucks shall be removed by the CONTRACTOR and streets cleaned to the satisfaction of the Owner. He further shall be responsible for repairs to any damages caused by his operations, prior to final payment.
- B. All trucks carrying earth shall be covered while moving with an appropriate tarpaulin. Should trucks hauling earth fail to cover their loads, the CONTRACTOR will be given two (2) written warnings, after which the CONTRACTOR shall pay a fine of \$50 per uncovered truck to the Owner when invoked by the Owner to Owner's Engineer. All cleanup shall be the responsibility of the CONTRACTOR.

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**ACCESS ROADS, PARKING AREAS  
AND USE OF PUBLIC STREETS**

- C. All trucks/moving equipment shall have backup warning horns in proper working order while on the job site.

+ + END OF SECTION + +

## SECTION 01610

### TRANSPORTATION AND HANDLING OF MATERIALS AND EQUIPMENT

#### 1.1 GENERAL

- A. Make all arrangements for transportation, delivery and handling of equipment and materials required for prosecution and completion of the Work.
- B. Shipments of materials to CONTRACTOR or Subcontractors shall be delivered to the site only during regular working hours. Shipments shall be addressed and consigned to the proper party giving name of Project, street number and city. Shipments shall not be delivered to OWNER except where otherwise directed.
- C. If necessary to move stored materials and equipment during construction, CONTRACTOR shall move or cause to be moved materials and equipment without any additional compensation.

#### 1.2 DELIVERY

- A. Arrange deliveries of products in accord with construction schedules and in ample time to facilitate inspection prior to installation.
- B. Coordinate deliveries to avoid conflict with Work and conditions at site and to accommodate the following:
  - 1. Work of other contractors, or OWNER.
  - 2. Limitations of storage space.
  - 3. Availability of equipment and personnel for handling products.
  - 4. OWNER'S use of premises.
- C. Do not have products delivered to project site until related Shop Drawings have been approved by the ENGINEER.
- D. Do not have products delivered to site until required storage facilities have been provided.
- E. Have products delivered to site in manufacturer's original, unopened, labeled containers. Keep ENGINEER informed of delivery of all equipment to be incorporated in the Work.
- F. Partial deliveries of component parts of equipment shall be clearly marked to identify the equipment, to permit easy accumulation of parts, and to facilitate assembly.



## SECTION 01610

### TRANSPORTATION AND HANDLING OF MATERIALS AND EQUIPMENT

- G. Immediately on delivery, Contractor shall inspect shipment to assure:
  - 1. Product complies with requirements of Contract Documents and reviewed submittals.
  - 2. Quantities are correct.
  - 3. Containers and packages are intact, labels are legible.
  - 4. Products are properly protected and undamaged.

#### 1.3 PRODUCT HANDLING

- A. Provide equipment and personnel necessary to handle products, including those provided by OWNER, by methods to prevent soiling or damage to products or packaging.
- B. Provide additional protection during handling as necessary to prevent scraping, marring or otherwise damaging products or surrounding surfaces.
- C. Handle products by methods to prevent bending or overstressing.
- D. Lift heavy components only at designated lifting points.
- E. Materials and equipment shall at all times be handled in a safe manner and as recommended by manufacturer or supplier so that no damage will occur to them. Do not drop, roll or skid products off delivery vehicles. Hand carry or use suitable materials handling equipment.

+ + END OF SECTION + +

## SECTION 01611

### STORAGE OF MATERIAL AND EQUIPMENT

#### 1.1 GENERAL

- A. Store and protect materials and equipment in accordance with manufacturer's recommendations and requirements of Specifications.
- B. Make all arrangements and provisions necessary for the storage of materials and equipment. Place all excavated materials, construction equipment, and materials and equipment to be incorporated into the Work, so as not to injure any part of the Work or existing facilities, and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work. Keep materials and equipment neatly and compactly stored in locations that will cause a minimum of inconvenience to other contractors, public travel, adjoining owners, tenants and occupants. Arrange storage in a manner to provide easy access for inspection.
- C. Areas available on the construction site for storage of material and equipment shall be as shown or approved by the ENGINEER.
- D. Store materials and equipment which are to become the property of the OWNER to facilitate their inspection and insure preservation of the quality and fitness of the Work, including proper protection against damage by extreme temperatures and moisture.
- E. Do not use lawns, grass plots or other private property for storage purposes without written permission of the OWNER or other person in possession or control of such premises.
- F. CONTRACTOR shall be fully responsible for loss or damage to stored materials and equipment.
- G. Do not open manufacturers containers until time of installation unless recommended by the manufacturer or otherwise specified.
- H. When appropriate store materials on wood blocking so there is no contact with the ground.

+ + END OF SECTION + +

## SECTION 01630

### SUBSTITUTIONS

#### 1.1 GENERAL

- A. Requests for review of a substitution shall conform to the requirements of Article 6.05, "Substitutes and Or-Equals," of the General Conditions, and shall contain complete data substantiating compliance of the proposed substitution with the Contract Documents.

#### 1.2 CONTRACTOR'S OPTIONS

- A. For materials or equipment (hereinafter products) specified only by reference standard, select product meeting that standard by any manufacturer, fabricator, supplier or distributor (hereinafter manufacturer). To the maximum extent possible, provide products of the same generic kind from a single source.
- B. For products specified by naming several products or manufacturers, select any one of the products or manufacturers named which complies with Specifications.
- C. For products specified by naming one or more products or manufacturers and stating "or equivalent," submit a request for a substitution for any product or manufacturer which is not specifically named.
- D. For products specified by naming only one product or manufacturer and followed by words indicating that no substitution is permitted, there is no option and no substitution will be allowed.
- E. Where more than one choice is available as a CONTRACTOR's option, select product which is compatible with other products already selected or specified.

#### 1.3 SUBSTITUTIONS

- A. During a period of 15 days after date of commencement of Contract Time, ENGINEER will consider written requests from CONTRACTOR for substitution of products or manufacturers, and construction methods (if specified).
  - 1. After end of specified period, requests will be considered only in case of unavailability of product or other conditions beyond control of CONTRACTOR.
- B. Submit 5 copies of Request for Substitution. Submit a separate request for each substitution. In addition to requirements set forth in Article 6.05 of General Conditions, include in the request the following:
  - 1. For products or manufacturers:
    - a. Product identification, including manufacturer's name and address.
    - b. Manufacturer's literature with product description, performance and test data, and reference standards.
    - c. Samples, if appropriate.

## SECTION 01630

### SUBSTITUTIONS

- d. Name and address of similar projects on which product was used, and date of installation.
  2. For construction methods (if specified):
    - a. Detailed description of proposed method.
    - b. Drawings illustrating method.
  3. Such other data as the ENGINEER may require to establish that the proposed substitution is equal to the product, manufacturer or method specified.
- C. In making Request for Substitution, CONTRACTOR represents that:
1. CONTRACTOR has investigated proposed substitution, and determined that it is equal to or superior in all respects to the product, manufacturer or method specified.
  2. CONTRACTOR will provide the same or better guarantees or warranties for proposed substitution as for product, manufacturer, or method specified.
  3. CONTRACTOR waives all claims for additional costs or extension of time related to a proposed substitution that subsequently may become apparent.
- D. A proposed substitution will not be accepted if:
1. Acceptance will require changes in the design concept or a substantial revision of the Contract Documents.
  2. It will delay completion of the Work, or the work of other contractors.
  3. It is indicated or implied on a Shop Drawing and is not accompanied by a formal Request for Substitution from CONTRACTOR.
- E. If the ENGINEER determines that a proposed substitute is not equal to that specified, furnish the product, manufacturer, or method specified at no additional cost to OWNER.
- F. Approval of a substitution will not relieve CONTRACTOR from the requirement for submission of Shop Drawings as set forth in the Contract Documents.
- G. The procedure for review by Engineer will include the following:
1. Requests for review of substitute items of material and equipment will not be accepted by Engineer from anyone other than CONTRACTOR.
  2. Upon receipt of an application for review of a substitution, Engineer will determine whether the review will be more extensive than a normal shop drawing review for the specified item.
  3. If the substitution will not require a more extensive review, Engineer will proceed with the review without additional cost to CONTRACTOR.

## SECTION 01630

### SUBSTITUTIONS

4. If the substitution requires a more extensive review, Engineer will proceed with the review only after CONTRACTOR has agreed to reimburse Owner for the review cost.
  5. Engineer may require CONTRACTOR to furnish at CONTRACTOR's expense additional data about the proposed substitute.
- H. Any redesign of structural members shall be performed by, and the plans signed and sealed by, a Professional Engineer registered in the State of Florida. The redesign shall be at the CONTRACTOR's expense. Any redesign will require an extensive review by the Engineer. The CONTRACTOR must agree to reimburse the Owner for the review cost prior to the Owner's Engineer proceeding with the design review. The ENGINEER's estimated cost of review shall be provided to the CONTRACTOR prior to proceeding with the review to allow the CONTRACTOR the opportunity to rescind the request.
- I. Engineer will be allowed a reasonable time within which to evaluate each proposed substitution. Engineer will be the sole judge of acceptability and shall have the right to deny use of any proposed substitution. The CONTRACTOR shall not order, install, or utilize any substitution without either an executed Change Order or Engineer's notation on the reviewed shop drawing. Owner may require CONTRACTOR to furnish at CONTRACTOR's expense a special manufacturer's performance guarantee(s) or other surety with respect to any substitute and an indemnification by the CONTRACTOR. ENGINEER will record time required by Engineer and Engineer's consultants in evaluating substitutions proposed by CONTRACTOR and in making changes in the Contract Documents occasioned thereby. Whether or not a proposed substitute is used, CONTRACTOR shall reimburse Owner for the charges of Engineer and Engineer's consultants for evaluating each proposed substitute.
- J. Substitute materials or equipment may be proposed for acceptance in accordance with this Section. In the event that substitute materials or equipment are used and are less costly than the originally specified material or equipment, than the net difference in cost shall benefit the Owner and CONTRACTOR in equal proportions. This cost difference shall not be reduced by any failure of the CONTRACTOR to base his bid on the named materials or equipment.

+ + END OF SECTION + +

## SECTION 01710

### SITE CLEANUP AND RESTORATION

#### 1.1 SCOPE

Furnish all labor, equipment, appliances, and materials required or necessary to clean up and restore the site after the construction is completed.

#### 1.2 REQUIREMENTS

- A. During the progress of the project, keep the work and the adjacent areas affected thereby in a neat and orderly condition. Remove all rubbish, surplus materials, and unused construction equipment. Repair all damage so that the public and property owners will be inconvenienced as little as possible.
- B. Provide onsite containers for the collection of waste materials, debris, and rubbish and empty such containers in a legal manner when they become full.
- C. Where material or debris has been deposited in watercourses, ditches, gutters, drains, or catch-basins as a result of the CONTRACTOR's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the work, and the ditches, channels, drains, etc., shall be kept clean and open at all times.
- D. Before the completion of the project, unless otherwise especially directed or permitted in writing:
  - 1. Tear down and remove all temporary buildings and structures;
  - 2. Remove all temporary works, tools, and machinery, or other construction equipment furnished;
  - 3. Remove all rubbish from any grounds occupied; and
  - 4. Leave the roads, all parts of the premises, and adjacent property affected by construction operations, in a neat and satisfactory condition.
- E. Restore or replace any public or private property damaged by construction work, equipment, or employees, to a condition at least equal to that existing immediately prior to the beginning of the operations. To this end, the CONTRACTOR shall restore all highway, roadside, and landscaping work within any right-of-way, platted or prescriptive. Acceptable materials, equipment, and methods shall be used for such restoration.
- F. Thoroughly clean all materials and equipment installed and on completion of the work, deliver the facilities undamaged and in fresh and new-appearing condition.

- G. It is the intent of the Specifications to place the responsibility on the CONTRACTOR to restore to their original condition all items disturbed, destroyed, or damaged during construction. Particular attention will be placed on restoration of canals to equal or better condition than prior to construction.
- H. When finished surfaces require cleaning with cleaning materials, use only those cleaning materials which will not create hazards to health or property and which will not damage the surfaces. Use cleaning materials only on those surfaces recommended by the manufacturer. Follow the manufacturer's directions and recommendations at all times.
- I. Keep the amount of dust produced during construction activities to a minimum. At CONTRACTOR's expense, spray water or other dust control agents over the areas, which are producing the dust. Schedule construction operations so that dust and other contaminants will not fall on wet or newly coated surfaces.

### 1.3 SITE CLEANUP AND RESTORATION

Prior to final completion, the OWNER, ENGINEER, INDIAN RIVER FARMS WATER CONTROL DISTRICT, CITY OF VERO BEACH, FLORIDA DEPARTMENT OF TRANSPORTATION and CONTRACTOR shall review the site with regards to site cleanup and restoration. Clean and/or restore all items determined to be unsatisfactory by the OWNER or ENGINEER, at no additional expense.

+ + END OF SECTION + +

## **SECTION 01820**

### **Post Final Inspection**

#### **1.1 GENERAL**

- A. Approximately one year after Final Completion, the OWNER will make arrangements with the Construction Coordination Manager and the CONTRACTOR for a post final inspection and will send a written notice to said parties to inform them of the date and time of the inspection.
  
- B. Corrections of defective work noted by OWNER and Construction Coordination Manager shall comply with the applicable sections of Article 13, General Conditions.
  
- C. After the inspection, the OWNER will inform the CONTRACTOR of any corrections required to release the performance and payment bonds.

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## **DIVISION 2 TECHNICAL PROVISIONS**

SECTION NO. 001	Technical Specifications
SECTION NO. 004	Scope of Work
SECTION NO. 101	Mobilization
SECTION NO. 102	Maintenance of Traffic
SECTION NO. 104	Prevention, Control, and Abatement of Erosion and Water Pollution
SECTION NO. 110	Clearing and Grubbing
SECTION NO. 120	Excavation and Embankment
SECTION NO. 160	Stabilizing
SECTION NO. 285	Optional Base Course
SECTION NO. 286	Turnout Construction
SECTION NO. 327	Milling of Existing Asphalt Pavement
SECTION NO. 334	Superpave Asphalt Concrete
SECTION NO. 337	Asphalt Concrete Friction Courses
SECTION NO. 400	Concrete Structures
SECTION NO. 415	Reinforcing for Concrete
SECTION NO. 425	Inlets, Manholes, and Junction Boxes
SECTION NO. 430	Pipe Culverts
SECTION NO. 443	French Drains
SECTION NO. 450	Precast Prestressed Concrete Construction
SECTION NO. 455	Structures Foundations
SECTION NO. 515	Metal Pedestrian/Bicycle Railings, Guiderails, and Handrails
SECTION NO. 520	Concrete Gutter, Curb Elements and Traffic Separator
SECTION NO. 521	Concrete Barriers, Traffic Railing Barriers, and Parapets
SECTION NO. 522	Concrete Sidewalk and Driveways
SECTION NO. 523	Patterned Pavement
SECTION NO. 524	Concrete Ditch and Slope Pavement
SECTION NO. 526	Architectural Pavers
SECTION NO. 527	Detectable Warnings
SECTION NO. 530	Revetment Systems
SECTION NO. 550	Fencing
SECTION NO. 570	Performance Turf

SECTION NO. 580	Landscaping
SECTION NO. 590	Irrigation
SECTION NO. 630	Conduit
SECTION NO. 632	Signal Cable
SECTION NO. 633	Communication Cable
SECTION NO. 635	Pull, Splice, and Junction Boxes
SECTION NO. 639	Electrical Power Service Assemblies
SECTION NO. 641	Prestressed Concrete Poles
SECTION NO. 646	Aluminum Poles, Pedestals, and Posts
SECTION NO. 649	Galvanized Steel Poles, Mast Arms and Monotube Assemblies
SECTION NO. 650	Vehicular Traffic Signal Assemblies
SECTION NO. 653	Pedestrian Signal Assemblies
SECTION NO. 660	Vehicle Detection System
SECTION NO. 665	Pedestrian Detection System
SECTION NO. 670	Traffic Controller Assemblies
SECTION NO. 682	Video Equipment
SECTION NO. 684	Network Devices
SECTION NO. 685	Traffic Control System Auxiliaries
SECTION NO. 700	Highway Signing
SECTION NO. 705	Object Markers and Delineators
SECTION NO. 706	Retroreflective Pavement Markers and Bituminous Adhesive
SECTION NO. 711	Thermoplastic Pavement Markings
SECTION NO. 715	Highway Lighting System
SECTION NO. 999	Record Drawings/As-Builts
SECTION NO. 1000	Water and Sewer Utilities
SECTION NO. 02670	Flushing, Testing and Disinfecting

## **SECTION 001 - Technical Specifications**

### **STANDARD SPECIFICATIONS**

- A. All work of this Contract shall conform to the applicable technical specifications of Florida Department of Transportation Standard Specifications for Road and Bridge Construction, July 2017 Edition (except for Bridge Plans which are 2004 Edition), and Supplemental Specification, Special Provisions and addenda thereto, except as modified and supplemented hereinafter. Reference to Article numbers herein-after apply to the FDOT Standard Specifications, and reference in FDOT Standard Specifications to Department shall be taken as the Owner or its appointed Representative. Wherever the Specifications, Supplementals, etc. may refer to the "Owner", "Department", "State of Florida Department of Transportation", or words relating to offices of State Government, such words shall be taken as meaning Owner or Indian River County, Florida. Wherever the word "Owner's Engineer", "District Engineer", "Engineer", "Project Engineer", etc., appears, it shall be taken to mean the Registered Professional Project Engineer of the Indian River County Public Works Department, Engineering Division acting directly or through duly authorized representatives. Wherever the word "Resident Engineer" appears, it shall be taken to mean an authorized representative of the Owner's Engineer on the Project (Resident Construction Inspector) who will act as an agent for Indian River County, assigned to observe the progress quantity and quality of the work.

The work to be performed for utility work (if any) shall conform to the applicable technical specifications of the "Indian River County Department of Utility Services, Water, Wastewater, and Reclaimed Water Utility Construction Standards" March, 2018 or the current version, and The City of Vero Beach Water and Sewer Department.

The work to be performed per line items 700 through 711 shall conform to the applicable Florida Department of Transportation Design Standards (2017-2018).

### **SECTION 004 - SCOPE OF WORK**

Section 4-3.9 Value Engineering Incentive is deleted in its entirety.

### **SECTION 101 - MOBILIZATION**

The work specified in this item shall conform to Section 101 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

#### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0101 1 – Mobilization – Per Lump Sum

## **SECTION 102 - MAINTENANCE OF TRAFFIC**

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

- A. **GENERAL PROVISIONS-DESCRIPTION:** The work specified in this Section consists of maintaining traffic within the limits of the project for the duration of the construction period, including any temporary suspensions of the work. It shall include the construction and maintenance of any necessary detour facilities; the providing of necessary facilities for access to residences, businesses, etc., along the project; the furnishing, installing and maintaining of traffic control and safety devices during construction, the control of dust through the use of calcium chloride if necessary, and any other special requirements for safe and expeditious movement of traffic as may be called for on the plans. The term, Maintenance of Traffic, as used herein, shall include all of such facilities, devices and operations as are required for the safety and convenience of the public as well as for minimizing public nuisance; all as specified in this Itemized Section 14 of these provisions and Paragraph 24 in General Conditions Section.
- B. **BEGINNING DATE OF CONTRACTOR'S RESPONSIBILITY:** The Contractor shall present his Maintenance of Traffic Plan at the pre-construction conference. The Maintenance of Traffic Plan shall indicate the type and location of all signs, lights, barricades, striping and barriers to be used for the safe passage of pedestrians and vehicular traffic through the project and for the protection of the workmen. The plan will indicate conditions and setups for each phase of the Contractor's activities.

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

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

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

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

- C. **TRAFFIC CONTROL - STANDARDS:** The FDOT Design Standards For Design, Construction, Maintenance and Utility Operations On The State Highway System, Edition as dated on the plans set forth the basic principles and prescribes minimum

standards to be followed in the design, application, installation, maintenance and removal of all traffic control devices and all warning devices and barriers which are necessary to protect the public and workmen from hazards within the project limits. The standards established in the aforementioned manual constitute the minimum requirements for normal conditions, and additional traffic control devices warning devices, barriers or other safety devices will be required where unusual, complex or particularly hazardous conditions exist.

The above referenced standards were developed using F.H.W.A., U.S.D.O.T. Manual on Uniform Traffic Control Devices (MUTCD).

- D. TRAFFIC CONTROL DEVICES, WARNING DEVICES AND BARRIERS - INSTALLATION: The responsibility for installation and maintenance of adequate traffic control devices, warning devices and barriers, for the protection of the travel in public and workmen, as well as to safeguard the work area in general shall rest with the Contractor. Consideration shall be given to recommendations of the Engineer. The required traffic control devices, warning devices and barriers shall be erected by the Contractor prior to creation of any hazardous condition and in conjunction with any necessary re-routing of traffic. The Contractor shall immediately remove, turn or cover any devices or barriers which do not apply to existing conditions. All traffic control devices shall conform to MUTCD standards and shall be clean and relatively undamaged. Damaged devices diminishing legibility and recognition, during either night or day conditions, are not acceptable for use.
- E. NO WAIVER OF LIABILITY: The Contractor shall conduct his operations in such a manner that no undue hazard will result due to the requirements of this article, and the procedures and policies described therein shall in no way act as a waiver of any of the terms of the liability of the Contractor or his surety.
- F. Contractor's Maintenance of Traffic Plan shall maintain continuous vehicular traffic on SR 60 and 43<sup>rd</sup> Avenue at all times. The Contractor shall maintain one lane of traffic at all times during 43<sup>rd</sup> Avenue cross drain culvert constructions.
- G. The Changeable Variable Message Sign shall be used as necessary. The location, message, and duration shall be as directed by Engineer.
- H. In addition to above, the Contractor shall comply with INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION SPECIAL CONDITIONS FOR RIGHT-OF-WAY CONSTRUCTION in Appendix C.

#### Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 0102 1 – Maintenance of Traffic (Includes Pedestrian MOT) – Per Lump Sum

Bid Item No. 0102 14 – Traffic Control Officer (Off Duty Law Enforcement) – Per Man Hour

Bid Item No. 0102 99 – Portable Changeable Message Sign (18) – Per Each Day

## **SECTION 104 - PREVENTION, CONTROL, AND ABATEMENT OF EROSION AND WATER POLLUTION**

### **PART 1 – GENERAL**

#### **1.1 SCOPE**

- A. This Section covers erosion control and the treatment of dewatering water and stormwater runoff from the construction site and work area. Pollution control measures shall prevent polluted or turbid waters from being discharged from the construction site or work area to undeveloped portions of the site or offsite, including but not limited to Multiple Separate Storm Sewer Systems (MS4s) and Waters of the State.
- B. The OWNER considers pollution from dewatering water and stormwater runoff from a construction site or work area to be a very serious offense. The CONTRACTOR is solely responsible for preventing pollution caused by dewatering water and stormwater runoff from the construction site or work area. Note that state regulations do not allow mixing stormwater and dewatering groundwater in the same release – separate and independent discharges are required.
- C. Pollution control measures specified herein represent minimum standards to be adhered to by the CONTRACTOR throughout the Project's construction. The OWNER reserves the right to require the CONTRACTOR to employ additional pollution control measures, when in the sole opinion of the OWNER, they are warranted. If site specific conditions require additional erosion and stormwater pollution control measures during any phase of construction or operation to prevent erosion or to control sediment or other pollution, beyond those specified in the Drawings, the Project's approved Stormwater Pollution Prevention Plan (SWPPP), or herein, implement additional best management practices as necessary, in accordance with [Chapter 4, "Best Management Practices for Erosion and Sedimentation Control" of the Florida Erosion and Sediment Control Inspector's Manual](#) and other references as may be applicable or required by regulatory permits.
- D. The OWNER may terminate this Contract if the CONTRACTOR fails to comply with this Section. Alternatively, the OWNER may halt the CONTRACTOR's operations until the CONTRACTOR is in full compliance with this Section. If the OWNER halts the CONTRACTOR's Work as a result of failure to comply with this Section, the Contract time clock will continue to run.
- E. In addition to these Specifications, comply with [Chapter 4 - "Best Management Practices for Erosion and Sedimentation Control"](#) and [Chapter 5 – "Best Management Practices for Dewatering"](#) of the [Florida Erosion and Sediment Control Inspector's Manual](#). In the event of a conflict between the referenced chapters and these Specifications, the more stringent requirement shall prevail.

- F. Submit to SJRWMD a “Notice to District of Dewatering Activity” (SJRWMD Form No. 40C-2.900(12)) prior to commencement of dewatering in accordance with F.A.C. 40C-2.042(9). Provide a copy of the Notice to Indian River County.

## 1.2 PERMITS

- A. The OWNER has obtained certain permits for this project and they are listed in [paragraph 6.08.B of the EJCDC Standard General Conditions of the Construction Contract \(General Conditions\)](#). Per [paragraph 6.08.C of the General Conditions](#), apply for and obtain all other required federal, state, and local permits, licenses, sampling, and tests.
- B. Provide copies of all approved permits to the OWNER and ENGINEER and comply with all conditions contained in all permits at no extra cost to the OWNER. If there is a conflict between any permit requirement and these Specifications or requirements between permits, the more stringent specification or requirement shall govern.
- C. Pay for all required water quality sampling and laboratory tests.

## 1.3 GENERAL

- A. Do not begin any other construction work until the pollution control and treatment system has been constructed in accordance with approved plans, permits, and these Specifications; and the installed system has been examined by the OWNER for compliance.
- B. From time to time, the OWNER or ENGINEER will inspect the pollution control and treatment system and may take effluent samples for analysis by a testing laboratory selected and paid for by the OWNER. If at any time, the OWNER or ENGINEER determines that the pollution control and treatment system is not in compliance with the approved system, the OWNER or ENGINEER will shut the portion of the project down that is not in compliance, and it shall remain shut-down until the pollution control and treatment system is properly constructed or repaired, and complies with the approved pollution control and treatment system plans, specifications, contract documents, and permits.
- C. Schedule construction to minimize erosion and stormwater runoff from the construction site. Implement erosion control measures on disturbed areas as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 7 days after the construction activity in that portion of the site has temporarily or permanently ceased. In addition to other temporary erosion control measures that may be implemented, application of polyacrylamide is required on all such disturbed areas within 7 days after the construction activity in that portion of the site has temporarily or permanently ceased, unless final landscaping has been installed. Polyacrylamide application shall be as specified herein. Include polyacrylamide application in the Project’s SWPPP.

- D. Inspect each pollution control system at least once per day and after each rainfall event. Clean and maintain each pollution control system as required until the system is no longer needed. If a water quality violation occurs, immediately cease all work contributing to the water quality violation and correct the problem. Immediately report all water quality violations to the OWNER. Immediately report the discharge of any hazardous substance to the State Warning Point at 800-320-0519 or 850-413-9911.
- E. Discharge shall not violate State or local water quality standards in receiving waters, nor cause injury to the public health or to public or private property, nor to the Work completed or in progress. The receiving point for water from construction operations shall be approved by the applicable owner, regulatory agency, and the ENGINEER. The receiving point shall be shown on the Project SWPPP.
- F. Promptly repair all damage at no cost to the OWNER.

#### 1.4 SUBMITTALS

- A. Shop Drawings: Submit shop drawings of the proposed pollution control and treatment systems in accordance with [Section 1340](#).
- B. Approved Stormwater Pollution Prevention Plan.
- C. “Contractor’s Affidavit Regarding Erosion Control and Treatment of Dewatering Water and Stormwater from Construction Activities”

#### 1.5 STORMWATER TREATMENT AND EROSION CONTROL SYSTEM RESPONSIBILITY

- A. Prepare a site-specific design of the erosion and stormwater pollution control system. Install and maintain all erosion and stormwater pollution control devices under the supervision of a State Certified Stormwater, Erosion, and Sedimentation Control Inspector. Maintain the erosion and stormwater pollution control devices until in the ENGINEER’s sole opinion, the devices are no longer necessary (such time not to extend past the date the OWNER formally accepts the project as complete). Before beginning construction, submit to Indian River County, Florida Department of Environmental Protection (FDEP) and other applicable regulatory agencies for review and approval, a Stormwater Pollution Prevention Plan (SWPPP), prepared by the certified erosion control subcontractor. Construction shall not begin until the SWPPP has been approved by Indian River County, FDEP, and all applicable regulatory agencies. Submit the approved SWPPP to the ENGINEER before beginning construction. Include in the SWPPP, the “Contractor’s Affidavit Regarding Erosion Control and Treatment of Dewatering Water and Stormwater From Construction Activities” (located at the end of this Section).

#### 1.6 “POLLUTION” AND CERTAIN UNCONTESTABLE POLLUTION EVENTS DEFINED

- A. With respect to this Section and as may be further defined in paragraphs [1.6.B](#), [1.6.C](#), and [1.6.D](#), “pollution” is the presence in off-site waters of any substances,



contaminants, or manmade or human-induced impairment of off-site waters or alteration of the chemical, physical, biological, or radiological integrity of off-site water in quantities or at levels which are or may be potentially harmful or injurious to human health or welfare, animal or plant life, or property. Pollutants to be removed include but are not limited to, sediment and suspended solids, solid and sanitary wastes, phosphorus, nitrogen, pesticides, oil and grease, concrete truck washout, stucco mixer washout, curb machine washout, washout from other construction equipment, construction chemicals, and construction debris.

- B. When the Discharge is Directly Into an Existing Water Body An existing water body (including ditches and canals) is defined to be polluted by the CONTRACTOR's operations when at any time, the turbidity of the water immediately downstream of the CONTRACTOR's discharge point(s) is at least 29 nephelometric turbidity units (NTUs) higher than the turbidity of the background water upstream of the discharge point(s). [See Fla. Administrative Code 62-302.530] Exception: When the discharge is directly into or through an outfall discharging into "Outstanding Florida Waters," designated by Florida Statute 403.061(27), the turbidity of the discharged water cannot exceed the turbidity of the immediate receiving water. The ENGINEER or OWNER shall determine the locations where the turbidity is measured.
- C. When the Discharge is not Directly Into an Existing Water Body In some instances, dewatering water or stormwater runoff from the construction site or work area may reach a water body indirectly, such as by overland flow. If the discharge water's TSS and turbidity measurements exceed pre-construction background values by 20 percent for TSS and 29 NTUs for turbidity, then the discharge is defined to be polluted.
- D. When Pollution Always Occurs The discharge from a construction site or work area is defined to be polluted whenever the pH of the discharge is less than 6.5 or greater than 8.5, or whenever any of the following is present in the discharge water:
- (1) Hazardous waste or hazardous materials in any quantity,
  - (2) Any petroleum product or by-product in any quantity,
  - (3) Any chemical in any quantity, or
  - (4) Concentrated pollutants.
- E. Above paragraphs 1.6.B, 1.6.C, and 1.6.D do not in any way, limit the types of conditions in which pollution may be determined to occur.

## 1.7 PENALTIES FOR NONCOMPLIANCE WITH THIS SECTION

- A. In addition to the OWNER's specific remedies, if erosion or pollution is caused by dewatering water or stormwater runoff from the construction site, the OWNER may report the violations to Indian River County Stormwater Enforcement, SJRWMD, FDEP, Indian River Farms Water Control District (or other F. S. Chapter 298 Drainage District, as appropriate), and other pertinent regulatory or enforcement agencies.

## PART 2 - MATERIALS AND INSTALLATION

### 2.1 GENERAL

- A. Polyacrylamide: As required in Paragraph 1.3.C, place polyacrylamide (PAM) on bare ground to reduce the potential for erosion and cover it with hay, jute, or mulch. PAM may also be used in water bodies to remove turbidity. In all cases, use the anionic form of polyacrylamide that does not stick to fish gills. For PAM information and its proper application, a contact is Applied Polymer Systems, Inc., (678) 494-5998, [www.siltstop.com](http://www.siltstop.com).
- B. Staked Silt Fences:
1. General: Use silt fences to control runoff from the construction site where the soil has been disturbed.
  2. Installation: Install per the manufacture's recommendations and as specified herein. In general, install the silt fence in a manner that allows it to stop the water long enough for the sediment to settle while the water passes through the silt fence fabric. All supporting posts shall be on the down-slope side of the fencing. Place the bottom of the fabric 6-inches minimum, under compacted soil to prevent the flow of sediment underneath the fence. Place silt fences away from the toe of slopes. Otherwise, work shall conform to Section 104 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.
  3. Product: All material shall be new and unused. Use FDOT Types III through IV silt fences where large sediment loads are anticipated, where slopes are 1:2 (vertical: horizontal) or steeper, or as directed by the ENGINEER; otherwise use FDOT Type II silt fence.
- C. Turbidity Barriers:
1. General: Use turbidity barriers to control sediment contamination of rivers, lakes, ponds, canals, etc.
  2. Installation: Install per the manufacturer's recommendations and per Section 104 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction unless directed otherwise by the ENGINEER.
  3. Product: All material shall be new and unused. The turbidity barrier shall be a pervious barrier and the fabric color shall be yellow. Use staked turbidity barriers in water less than one-foot deep. Use floating turbidity barriers in water one-foot or deeper.
- D. Sedimentation Control from Dewatering or Pumping Operations Using Filter Bags:
1. Filter bags shall be manufactured using a polypropylene non-woven geotextile and sewn by a double-needle machine, using a high strength nylon thread. The bag shall have a fill spout large enough to accommodate a 4-inch pump discharge hose. Straps shall be attached to the bag to secure the hose and prevent pumped water from escaping without being filtered.
  2. Installation: Install in accordance with the manufacturer's specifications. Use as many filter bags as required, at no additional cost to the OWNER. Legally dispose of the bags offsite, at no cost to the OWNER. If the bags are placed

on aggregate to facilitate filtration efficiency, do not use limerock aggregate – use non-calcareous rock.

3. Product: The filter bag shall be supplied with lifting straps.
  - a. “DIRTBAG 53 or 55 as applicable,” supplied by ACF Environmental, Inc. (1-800-448-3636).
  - b. “DANDY DEWATERING BAG” supplied by Dandy Products, Inc. (1-800-591-2284).
  - c. Or equivalent.

E. Curb Inlet Protection:

1. Filter stormwater before it enters curb inlets.
2. Installation: Install in accordance with the manufacturer’s specifications. Use as many of the specified filtration devices as required, at no additional cost to the OWNER.
3. Product: All materials shall be new and unused. The length of the curb inlet filtration device shall be at least 2-feet longer than the curb inlet opening.
  - a. “GUTTERBUDDY,” supplied by ACF Environmental, Inc. (1-800-448-3636).
  - b. Or equivalent.

F. Catch Basin Protection:

1. Filter stormwater before it enters catch basins (drop inlets). The filter “sack” shall be manufactured from woven polypropylene geotextile and sewn by a double-needle machine, using a high strength nylon thread. The sack shall be manufactured to fit the opening of the catch basin or drop inlet and it shall have the following features: two dump straps attached at the bottom to facilitate emptying; lifting loops as an integral part of the system to be used to lift the sack from the basin; and a colored restraint chord approximately halfway up the sack to keep the sides away from the catch basin walls. The colored restraint chord shall also serve as a visual means of indicating when the sack should be emptied.
2. Installation: Install in each catch basin in accordance with the manufacturer’s specifications. Use as many of the specified filtration devices as required, at no additional cost to the OWNER.
3. Product: All materials shall be new and unused.
  - a. “SILTSACK” (regular flow), supplied by ACF Environmental, Inc. (1-800-448-3636).
  - b. “FloGuard+PLUS,” supplied by Kristar Enterprises, Inc. (1-800-579-8819).
  - c. Or equivalent.

- G. Construction Site Egress Driveways: Minimize the transport of sediment and soil from the construction site or work area by vehicle wheels. Construct a crushed rock driving surface at the vehicle exit point(s). Locate the site egress driveways a minimum of 25 feet from all drainage inlets or pipes. Provide an area large enough to remove the sediment and soil from vehicle wheels before the vehicle leaves the construction site or work area. Provide wash-down stations as required to wash vehicle tires and retain all washwater on-site. Do not use limerock.

- H. Rock and Stone for Erosion Control and Pollution Control and Treatment:
1. Crushed Limerock: Limerock shall not be used under any circumstance.
  2. Acceptable Material: FDOT #4 non-calcareous aggregate, washed and meeting the requirements of FDOT Standard Specifications for Road and Bridge Construction, Section 901.
- I. Hay Bales: Hay bales shall not be used.

### PART 3 - EXECUTION

- A. Design, construct, and maintain the pollution control and treatment system to minimize erosion and capture and remove pollutants from the construction site and from all other areas disturbed by construction activities.
- B. Apply polyacrylamide in strict accordance with the polyacrylamide manufacturer/supplier's recommendations and specifications.
- C. REPAIR ALL EROSION DAMAGE – At no additional cost to the OWNER and regardless of the state of completion of the Work, immediately clean all dirt and debris from all pipes and drainage structures; and repair all flooding, washouts, and all other erosion damage to the Work. This responsibility shall not end until Final Acceptance of the Work by the OWNER. Included is damage caused by erosion of any kind (e.g. wind, waves, stormwater runoff, hurricanes, etc.) including Acts of God. Restore all erosion damaged areas to design grades and elevations. Also, refer to [General Conditions 6.13.B](#).

### Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 0104 – N.P.D.E.S. Compliance - Per Lump Sum

Bid Item No. 0104 10 3 – Sediment Barrier – Per Linear Foot

Bid Item No. 0104 10 3A – Erosion Control - Sediment Barrier – Per Lump Sum  
(UWHC)

Bid Item No. 0104 11 – Floating Turbidity Barrier – Per Linear Foot

Bid Item No. 0104 18 – Inlet Protection System – Per Each



enjoyment of life or property, including outdoor recreation unless authorized by applicable law.”

5. Permittee understands and agrees that in addition to the definition set forth in Item 4 above, “pollution” is also defined by Florida Administrative Code 62-302.530 and as may be further defined in the Indian River County permit(s).
6. Permittee understands that Indian River County requires the design, installation, and maintenance of proper erosion control measures at all times during construction until complete stabilization is achieved at the project site. Permittee understands that this requirement is for this project regardless of the project size.
7. Permittee understands that there are civil and criminal penalties for pollution listed in Florida Statutes Ch. 403.141 and Ch. 403.161 and that there are other penalties listed in Indian River County’s permits, including but not limited to, Indian River County issuing a Cease and Desist Order for the project. Permittee understands that it may be liable for these and other penalties if offsite pollution occurs as a result of activities associated with the Project.
8. Transfer of Ownership or County Issued Permits:
  - (a) Transfer of Interest in Real Property: Within twenty-one (21) days of any transfer of ownership or control of the real property at which the permitted activity, facility, or system is located or authorized, the Permittee shall notify in writing, both the Indian River County Engineering Division and the Indian River County Stormwater Division of the transfer. Permittee shall provide the name, mailing address, and telephone number of the transferee and a copy of the instrument effectuating the transfer. Said notification is in addition to notifying the County Attorney’s Office as required by County Code.
  - (b) Transfer of a County Permit. To transfer a County issued permit, Permittee must provide (1) the information required in Item 8(a); (2) a written statement from the proposed transferee that it will be bound by all terms and conditions of the permit; and (3) a new “Permittee’s Affidavit” form properly executed by the transferee. Upon proper receipt of these items the County shall transfer the permit to the transferee.
  - (c) Permittee is encouraged to request a permit transfer prior to the sale or legal transfer of the real property at which a permitted facility, system, or activity is located or authorized. However, the transfer shall not be effective prior to the sale or legal transfer.
  - (d) An “Illicit Discharge Sign” must be present at the site at the time of transfer. Replacement or additional signs may be obtained from the Indian River County Public Works Department at a cost of \$30.00 per sign.

Under penalty of perjury, Permittee declares that it has read the foregoing affidavit and the facts stated in it are true.

FURTHER AFFIANT SAYETH NAUGHT

Permittee: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_  
*(If signing as Owner's Agent, attach Letter of Authorization to Sign from Owner)*

Printed Name: \_\_\_\_\_

Date: \_\_\_\_\_

Work Telephone: \_\_\_\_\_

Mobile Telephone: \_\_\_\_\_

Email Address: \_\_\_\_\_

\*\*\*\*\*

The foregoing instrument was subscribed and sworn to before me this \_\_\_ day of \_\_\_\_\_, 20\_\_ by \_\_\_\_\_, who is personally known to me or has produced \_\_\_\_\_ as identification and who did take oath.

\_\_\_\_\_  
Notary Public State of Florida at Large

My Commission expires: \_\_\_\_\_

+++END OF SECTION+++

## **SECTION 110 - CLEARING AND GRUBBING**

The work specified in this item shall conform to Section 110 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction with the following modifications:

- A. Prior to any clearing and grubbing, the contractor will stake the right-of-way. Unimproved areas shall be cleared of trees, logs, stumps, brush, vegetation, rubbish and other perishable or objectionable matter within limits shown on the plans excepting for certain trees and shrubs shown on the plans or as directed by the Engineer which are to remain undisturbed and protected. Stumps and roots between slope stakes in cuts and in embankments 3 feet or less in depth shall be removed to a depth of 18 inches below subgrade. No stumps, roots, or perishable matter of any description shall remain under concrete slabs or footing, including pavement and sidewalks.
- B. No trees shall be removed or relocated until the Engineer or his representative has marked all trees to be saved, after a review of the project site with the Contractor's representative.
- C. Where the final pavement or structural work will be close to existing trees, the Contractor shall exercise care in the vicinity of the trees. Further, the Contractor shall saw cut along the edge of the outside limits of the stabilization, structure subgrade or sidewalk to a minimum depth of 4 feet below the finish grade and paint with a commercial grade pruning paint the ends of all sawn roots. If directed by the Engineer or where shown on the drawings, work shall be done by hand in order to protect the trees.
- D. The Contractor shall exercise care when working in the vicinity of all trees to remain so as to not damage or remove major root structures. The Contractor shall not pull hair or major root structures. All severed roots shall be sawn clean and paint with pruning paint. Stumps, roots, etc., shall be completely removed and disposed of by the Contractor. Undesirable, dead, and/or damaged trees (as so designated by the Engineer) shall be removed.
- E. All trees to be removed shall be disposed off site; burning will be strictly prohibited.
- F. All trees or shrubs which are to remain shall be preserved and protected by the Contractor. Where the removal of valuable trees or shrubs specifically for transplanting is required, this work shall be done in cooperation with the Owner and at no additional expense to the Owner.
- G. All items to be removed shall be excavated to their full depth. All culverts removed from residential driveway entrances within the right-of-way shall become the property of the respective homeowner. Those homeowners not desiring the culverts may donate them to the County free of charge. (See Paragraph C, Special Provisions) The Contractor shall transport the culverts to the County's storage yard. All metal castings for catch basins, manholes, or other structures shall be carefully removed and stored in the County's Storage Yard if they are deemed salvageable by the Engineer. The excavated materials shall be removed from the job site and



disposed in a location designated or approved by the Owner. Any culverts, structures or any material excavated or removed from the project site under clearing and grubbing deemed unsalvageable by the Engineer shall be disposed of in a legal manner by the Contractor. Where required, suitable material as approved by the Engineer shall then be backfilled and compacted to restore the original contour of the ground. The fill material shall be backfilled and compacted in accordance with Section 120 of these specifications.

- H. No additional payment will be made, nor will additional work, or change orders be authorized for work needed to remove, relocate, protect, or otherwise account for in the construction of the work depicted in the plans, for any feature, or item that would be apparent from a careful inspection of the site and review of the plans, even though such feature or item is not specifically called out in the plans. It is therefore essential the contractor make such inspection and review.
- I. The unit price bid for this item shall include the cost of all labor, tools, and equipment necessary to excavate, remove, and dispose of those items as directed by the Engineer and where designated on the Drawings. The cost of restoration and backfill and compaction for the specific area of removal shall also be included under this item.

#### Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 0110 1 1 – Clearing and Grubbing – Per Lump Sum

Bid Item No. 0110 1 1A – Clearing and Grubbing – Per Lump Sum (UWHC)

Bid Item No. 0110 3 – Removal of Existing Structures/Bridges – Per Lump Sum

#### **SECTION 120 - EXCAVATION AND EMBANKMENT**

- A. Earthwork, including earthwork for drives outside the right-of-way limits, shall be paid for as embankment. Cost shall include all work specified in this section and Section 120 of the FDOT Standard Specifications for Road and Bridge Construction. Such price and payment shall specifically include all cost of any roadway, lateral ditch or canal, and final dressing operations.
- B. Earthwork quantities shall be considered as in-place material with no shrinkage or expansion factors.
- C. Subsoil Excavation - Any excavation below the proposed bottom elevation of the select fill, isolated swale bottom locations, isolated locations for pipe installations and as approved by the engineer shall be paid for as subsoil excavation. Approximately 2.0 ft of subsoil excavation is required in sublateral canals. Cost of replacement embankment shall be included in cost of subsoil excavation. Contractor shall coordinate with county representative prior to any subsoil excavation.
- D. Embankment - General Requirements for Embankment Materials: The following is added after the first paragraph of Subarticle 120-7.2:  
  
Roadway Design Standard Index No. 505, Embankment Utilization Details is modified by the addition of the following:

Any stratum or stockpile or soil which contains obvious pockets of highly organic material may be designated as muck or unsuitable for construction of subgrade by the Owner.

Backfill material containing more than 2.0% by weight of organic material, as determined by FM 1-T 267 and by averaging the test results for three randomly selected samples from each stratum or stockpile of a particular material, shall not be used in construction of the reinforced volume. If an individual test value of the three samples exceeds 3.0%, the stratum or stockpile will not be suitable for construction of the reinforced volume.

No A-8 material permitted in embankment.

#### Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 0120 1 – Regular Excavation – Per Cubic Yard

Bid Item No. 0120 6 – Embankment (Compacted in Place) - Per Cubic Yard

### **SECTION 160 - STABILIZING**

A. Section 160 is modified by the addition of the following:

"The stabilization thickness indicated on plans shall be considered a minimum thickness. Thickness will vary to conform to the lines, and grades shown in the plans." Minimum L.B.R. = 40 - No under-tolerance.

#### Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 0160 4 – Type B Stabilization (12" Subgrade LBR40) - Per Square Yard

Bid Item No. 0160 4A – Type B Stabilization (Driveways) – Per Square Yard (UWHC)

### **SECTION 285 - OPTIONAL BASE COURSE**

A. Sub Article 0285 4 is modified by the addition of the following:

Base material, thickness and requirements are described in the construction plans. Only one type of alternate base material shall be used. No additional payment will be made for base thickness in excess of the specified thickness.

#### Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 0285 707 – Optional Base, Base Group 07 (9" Cemented Coquina)  
– Per Square Yard

## **SECTION 286 – TURNOUT CONSTRUCTION**

The work specified in this item shall conform to Section 286 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:

Bid Item No. 0286 1 – Turnout Construction/Driveway Base (Concrete) – Per Square Yard

Bid Item No. 0286 2 – Turnout Construction-Asphalt/Driveway Base-Asphalt Material – Per Ton

## **SECTION 327 - MILLING OF EXISTING ASPHALT PAVEMENT**

The work specified in this item shall conform to Section 327 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:

Bid Item No. 0327 70 1 – Mill Exist Asph Pavt, 2.5” Avg Depth – Per Square Yard

## **SECTION 334 - SUPERPAVE ASPHALT CONCRETE**

The work specified in this item shall conform to Section 334 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction. No thickness adjustments are to be made unless directed by the Engineer.

Sub article 0334 8.1 through 0334 8.3 – Basis of Payment shall be deleted in its entirety.

Sub article 0334 8.4 – Payment shall be amended as follows:

### **Item of Payment**

Payment for the work specified in this item shall be made under:

Bid Item No. 0334 1 13 – Superpave Asphaltic Conc, Traffic C (Overbuild) – Per Ton

Bid Item No. 0334 1 13A – Superpave Asphaltic Conc, Traffic C, PG 76-22, with Polymer (SP-12.5, 1-1/2” Thick) – Per Ton

Bid Item No. 0334 1 13A – Superpave Asphaltic Conc, Traffic C, PG 76-22, with Polymer (SP-12.5, 1-1/2” Thick) – Per Square Yards (UWHC)

## **SECTION 337 - ASPHALT CONCRETE FRICTION COURSE**

The work specified in this item shall conform to Section 337 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction. No thickness adjustments are to be made unless directed by the Engineer.

Sub article 0337 12.1 through 0337 12.3 – Basis of Payment shall be deleted in its entirety.

Sub article 0337 12.4 – Payment shall be amended as follows:

### **Item of Payment**

Payment for the work specified in this item shall be made under:

Bid Item No. 0337 7 82 – Asphalt Concrete Friction Course, FC-9.5, Traffic C, PG 76-22, with Polymer, 1" Thick – Per Ton

## **SECTION 400 – CONCRETE STRUCTURES**

The work specified in this item shall conform to Section 400 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:

Bid Item No. 0400 0 11 – Concrete, Class NS, Gravity Wall – Per Cubic Yard

Bid Item No. 0400 1 2 – Concrete Class I, Endwalls – Per Cubic Yard

Bid Item No. 0400 2 4A – Conc Class II, Bridge Superstructure – Per Cubic Yard

Bid Item No. 0400 2 4B – Conc Class II, Bridge Superstructure (Lightweight) – Per Cubic Yard

Bid Item No. 0400 2 5 – Concrete Class II, Bridge Substructure – Per Cubic Yard

Bid Item No. 0400 7 – Bridge Deck Grooving, Less than 8.5" – Per Square Yard

Bid Item No. 0400 2 10 – Concrete Class II, Approach Slabs – Per Cubic Yard

Bid Item No. 0400 147 – Composite Neoprene Pads – Per Cubic Feet

## **SECTION 415 – REINFORCING FOR CONCRETE**

The work specified in this item shall conform to Section 415 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:

Bid Item No. 0415 1 4 – Reinforcing Steel-Bridge Superstructure – Per Pound

Bid Item No. 0415 1 5 – Reinforcing Steel-Bridge Substructure – Per Pound

Bid Item No. 0415 1 9 – Reinforcing Steel-Approach Slabs – Per Pound

## **SECTION 425 – INLETS, MANHOLES, AND JUNCTION BOXES**

The work specified in this item shall conform to Section 425 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:

- Bid Item No. 0425 1311 – Inlets, Curb, Type P-1, <10' – Per Each
- Bid Item No. 0425 1321 – Inlets, Curb, Type P-2, <10' – Per Each
- Bid Item No. 0425 1341 – Inlets, Curb, Type P-4, <10' – Per Each
- Bid Item No. 0425 1351 – Inlets, Curb, Type P-5, <10' – Per Each
- Bid Item No. 0425 1352 – Inlets, Curb, Type P-5, >10' – Per Each
- Bid Item No. 0425 1361 – Inlets, Curb, Type P-6, <10' – Per Each
- Bid Item No. 0425 1421 – Inlets, Curb, Type J-2, <10' – Per Each
- Bid Item No. 0425 1451 – Inlets, Curb, Type J-5, <10' – Per Each
- Bid Item No. 0425 1452 – Inlets, Curb, Type J-5, >10' – Per Each
- Bid Item No. 0425 1461 – Inlets, Curb, Type J-6, <10' – Per Each
- Bid Item No. 0425 1521 – Inlets, DT BOT, Type C, <10' – Per Each
- Bid Item No. 0425 1521A – Inlets, DT BOT, Type C, <10' (Modified) – Per Each
- Bid Item No. 0425 1559 – Inlets, DT BOT, Type E, <10' – Per Each
- Bid Item No. 0425 1715 – Inlets, Gutter, Type V, <10' – Per Each
- Bid Item No. 0425 2 41 – Manholes, P-7, <10 – Per Each
- Bid Item No. 0425 2 43 – Manholes, P-7, Partial – Per Each
- Bid Item No. 0425 2 61 – Manholes, P-8, <10' – Per Each
- Bid Item No. 0425 2 71 – Manholes, J-7, <10' – Per Each
- Bid Item No. 0425 2 71A – Manholes, J-7, <10' – Per Each (UWHC)
- Bid Item No. 0425 2 91 – Manholes, J-8, >10' – Per Each
- Bid Item No. 0425 4 – Inlets, Adjust – Per Each
- Bid Item No. 0425 5 – Manholes, Adjust – Per Each
- Bid Item No. 0425 6 – Valve Boxes, Adjust – Per Each

## **SECTION 430 – PIPE CULVERTS**

The work specified in this item shall conform to Section 430 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:

- Bid Item No. 0430 174 115 – Pipe Culvert, Round, 15" SD (RCP) – Per Linear Foot
- Bid Item No. 0430 174 118 – Pipe Culvert, Round, 18" SD RCP) – Per Linear Foot
- Bid Item No. 0430 174 124 – Pipe Culvert, Round, 24" SD (RCP) – Per Linear Foot
- Bid Item No. 0430 174 130 – Pipe Culvert, Round, 30" SD (RCP) – Per Linear Foot
- Bid Item No. 0430 174 136 – Pipe Culvert, Round, 36" SD (RCP) – Per Linear Foot
- Bid Item No. 0430 174 142 – Pipe Culvert, Round, 42" SD (RCP) – Per Linear Foot
- Bid Item No. 0430 175 148 – Pipe Culvert, Round, 48" SD (RCP) – Per Linear Foot
- Bid Item No. 0430 982 140 – Mitered End Section, 42" SD – Per Each
- Bid Item No. 0430 984 125 – Mitered End Section, 18" SD – Per Each
- Bid Item No. 0430 984 138 – Mitered End Section, 36" Side Drain – Per Each

Bid Item No. 0430 984 141 – Mitered End Section, 48” SD – Per Each

### **SECTION 443 – FRENCH DRAINS**

The work specified in this item shall conform to Section 443 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

#### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0443 70 3 – French Drain, 18” – Per Linear Foot

### **SECTION 450 – PRECAST PRESTRESSED CONCRETE CONSTRUCTION**

The work specified in this item shall conform to Section 450 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

#### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0450 1 2 – Prestressed Beams Type III – Per Linear Foot

### **SECTION 455 – STRUCTURES FOUNDATIONS**

The work specified in this item shall conform to Section 455 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

#### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0455 34 3A – Prestressed Concrete Piling, 18” SQ (End Bents) –  
Per Linear Foot  
Bid Item No. 0455 34 3B – Prestressed Concrete Piling, 18” SQ (Wing Bents) –  
Per Linear Foot  
Bid Item No. 0455 34 3C – Prestressed Concrete Piling, 18” SQ (Intermediate  
Bents, Debris Piles) – Per Linear Foot  
Bid Item No. 0455 137 1 – Load Test (Dynamic), Internal Gauges – Per Each  
Bid Item No. 0455 143 3A – Test Piles-Prestressed Concrete, 18” SQ –  
Per Linear Foot  
Bid Item No. 0458 1 11 – Construction, F&I Poured Joint with Backer Rod –  
Per Linear Foot  
Bid Item No. 0458 1 21 – Bridge Deck Expansion Joint, Rehabilitation, Poured  
Joint with Backer Rod – Per Linear Foot

## **SECTION 515 – METAL PEDESTRIAN/BICYCLE RAILINGS, GUIDERAILS, AND HANDRAILS**

The work specified in this item shall conform to Section 515 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0515 1 2 – Pipe Handrail – Guiderail, Aluminum – Per Linear Foot  
Bid Item No. 0515 4 2 – Bullet Aluminum Rail, Double Rail – Per Linear Foot

## **SECTION 520 - CONCRETE GUTTER, CURB ELEMENTS AND TRAFFIC SEPARATOR**

The work specified in this item shall conform to Section 520 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0520 1 10 – Concrete Curb & Gutter, Type F – Per Linear Foot  
Bid Item No. 0520 5 41 – Traffic Separator Concrete – Type IV, 4' Wide – Per Linear Foot  
Bid Item No. 0520 70 – Concrete Traffic Separator, Special-Variable Width (Color Treated and Stamped Concrete) – Per Square Yard  
Bid Item No. 0520 2 13 – Header Curb – Per Linear Foot

## **SECTION 521 - CONCRETE BARRIERS, TRAFFIC RAILING BARRIERS AND PARAPETS**

The work specified in this item shall conform to Section 521 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0521 5 4 – Concrete Traffic Railing-Bridge 32" Vertical Face – Per Linear Foot

## **SECTION 522 – CONCRETE SIDEWALK AND DRIVEWAYS**

The work specified in this item shall conform to Section 522 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0522 2 – Concrete Sidewalk and Driveways, 6" Thick – Per Square Yard  
Bid Item No. 0522 2A – R & R, 6" Concrete Sidewalk – Per Square Yard (UWHC)

### **SECTION 523 – PATTERNED PAVEMENT**

The work specified in this item shall conform to Section 523 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

#### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0523 1 – Patterned Pavement, Vehicular Areas (Duratherm, Integrated Paving Concepts, Cinnamon, Wagon Wheel) – Per Square Yard

### **SECTION 524 – CONCRETE DITCH AND SLOPE PAVEMENT**

The work specified in this item shall conform to Section 524 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

#### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0524 1 2 – Concrete Ditch Pavement, Non Reinforced, 4” – Per Square Yard

### **SECTION 526 – ARCHITECTURAL PAVERS**

The work specified in this item shall conform to Section 526 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

#### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0526 1 2 – Pavers, Architectural, Sidewalk (Belgard, Holland 4”x8” 80mm, Red/Chestnut/Charcoal, 45° Herringbone) – Per Square Yard

### **SECTION 527 – DETECTABLE WARNINGS**

The work specified in this item shall conform to Section 527 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

#### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0527 2 – Detectable Warnings – Per Square Foot

### **SECTION 530 – REVETMENT SYSTEMS**

The work specified in this item shall conform to Section 530 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.



### Item of Payment

Payment for the work specified in this item shall be made under:  
Bid Item No. 0530 3 4 – Riprap Rubble, F&I, Ditch Lining – Per Ton  
Bid Item No. 530 4 9 – Articulating Concrete Block Revetment System, Thickness 6”  
– Per Square Foot

### **SECTION 550 – FENCING**

The work specified in this item shall conform to Section 550 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### Item of Payment

Payment for the work specified in this item shall be made under:  
Bid Item No. 0550 10 222 – Fencing, Type B, 5.1-6.0, W/ Vinyl Coating – Per Linear  
Foot

### **SECTION 570 – PERFORMANCE TURF**

The work specified in this item shall conform to Section 570 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

- A. Description: Sod for the project shall be of the variety that is common to the area and of a variety approved by the Engineer. This work shall also include mowing, to be mowed at maximum 6" height with a mulching mower.
- B. Work Included: Scope of Work: The work specified in this section consists of the establishing of a stand of grass, within the project, right-of-way, easements, and other areas indicated on the Drawings, by furnishing and placing grass sod. Also included are fertilizing, watering and maintenance as required to assure a healthy stand of grass. Two applications of fertilizer will be required with the initial application being fertilizer and the second application being “weed and feed”.
- C. Guarantee: All sodded areas shall be guaranteed for one year after date of final acceptance.

Replacement of Defective Sod: Any dead sod or sod showing (less than 95% of a square) indication of probable non survival or lack of health and vigor, or which do not exhibit the characteristics to meet specifications, shall be replaced within two weeks of notice from Owner or Engineer. All replacement sod shall be furnished/installed at no additional cost to the Owner and shall be guaranteed for three months. All replacement shall meet original specifications.

The Contractor shall notify the Owner and Engineer ten days prior to the end of the guarantee period and such guarantee shall be extended until notification is received.

At the end of the guarantee period, all sod that is dead or in unsatisfactory growth shall be replaced within two weeks.

- D. Fertilizer: Commercial fertilizers shall comply with the Indian River County Fertilizer Ordinance 2013-012 and Supplement Ordinance 2013-014 (see Appendix B).
- E. Water for Grassing: Contractor shall provide the water used in the sodding

operations as necessary to meet the requirements of Article 570-3.6.

F. Preparation of Ground: The area over which the sod is to be placed shall be scarified or loosened to a depth and then raked smooth and free from debris. Where the soil is sufficiently loose and clean, the Owner, at his discretion, may authorize the elimination of ground preparation.

G. Application of Fertilizer: Before applying fertilizer, the soil pH shall be brought to a range of 6.0 - 7.0.

Contractor shall apply two (2) applications. The initial shall be fertilizer and the second application shall be "weed and feed".

The fertilizer shall be spread uniformly over the sodded area at the rate of 436 pounds per acre, or 10 pounds per 1,000 square feet, by a spreading device capable of uniformly distributing the material at the specified rate.

Contractor shall apply applications as per manufacturer's specification. All tickets from bags shall be handed over to the County Inspector.

On steep slopes, where the use of a machine for spreading or mixing is not practicable, the fertilizer shall be spread by hand and raked in and thoroughly mixed with the soil to a depth of approximately 2 inches.

H. Placing Sod: The sod shall be placed on the prepared surface, with edges in close contact and shall be firmly and smoothly embedded by light tamping with appropriate tools.

Where sodding is used in drainage ditches, the setting of the pieces shall be staggered so as to avoid a continuous seam along the line of flow. Along the edges of such staggered areas, the offsets of individual strips shall not exceed 6 inches. In order to prevent erosion caused by vertical edges at the outer limits, the outer pieces of sod shall be tamped so as to produce a featheredge effect.

Where sodding is placed abutting paved shoulder, the contractor is to ensure that the finished sod elevation is 1½" below paved shoulder.

On slopes greater than 3:1, the Contractor shall prevent the sod from sliding by means of wooden pegs driven through the sod blocks into firm earth, at suitable intervals.

Sodding shall not be performed when weather and soil conditions are, in the Engineer's opinion, unsuitable for proper results.

Sod shall be placed around all structures, equipment pads, etc.

I. Watering: The areas on which the sod is to be placed shall contain sufficient moisture, as determined by the Engineer, for optimum results. After being placed, the sod shall be kept in a moist condition to the full depth of the rooting zone for at least 2 weeks. Thereafter, the Contractor shall apply water as needed until the sod roots and starts to grow for a minimum of 60 days (or until final acceptance, whichever is latest).

J. Maintenance: The Contractor shall, at his expense, maintain the sodded areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include repairing of any damaged areas and replacing areas in which the establishment of the grass stand does not appear to be developing satisfactorily.

Replanting or repair necessary due to the Contractor's negligence, carelessness or failure to provide routine maintenance shall be at the Contractor's expense.

The Contractor shall maintain the sodded area up to the final acceptance date as directed by the Engineer. Grass height shall not exceed 6" without mowing. Clippings shall be removed from sidewalk.

- K. Article 570-9. The first two paragraphs under this Article are deleted and the following is added:

The contract unit price for performance turf shall include the costs of sod, fertilizer (2 applications), sidewalk sweeping after mowing, mowing, pegging disposal of clippings, water, tools, equipment, labor and all other incidentals necessary.

#### Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 0570 1 1 – Install Seed & Mulch – Per Square Yard (UWHC)

Bid Item No. 0570 1 2 – Performance Turf, Sod - Per Square Yard

Bid Item No. 0570 1 2A – Install Sod - Bahia - Per Square Yard (UWHC)

Bid Item No. 0570 1 2B – Install Sod – Floratam – Per Square Yard (UWHC)

### **SECTION 580 - LANDSCAPING**

The work specified in this item shall conform to the specifications as shown on plan sheet "LP-7 of LP-8", titled, "100% Landscape Plan for State Route 60 & 43<sup>rd</sup> Avenue".

#### Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. E575 1 – Bahia Sod (Paspalum Notatum) – Per Square Yard

Bid Item No. E575 1 4 – St. Augustine Sod – Per Square Yard

Bid Item No. 0580 4 235 – Phoenix Sylvestris (Sylvester Date Palm) (16' CT) – Per Each

Bid Item No. 0580 4 345 – Sabal Palmetto (Sabal Palm) (16-20' CT) – Per Each

Bid Item No. 0580 5 5532 – Gordonia lasianthus (Loblolly Bay) (8-10'x4-5' 2.75 cal.) – Per Each

Bid Item No. 0580 5 572 – Ligustrum Japonicum (Japanese Privet) (8-10' OA Multistem) – Per Each

Bid Item No. 0580 7 177 – Ilex Bomitoria "Schillings" (Dwarf Yaupon Holly) (#7 Full) (24" OC) – Per Each

Bid Item No. 0580 7 337 – Myrcianthes Fragrans (Simpson's Stopper) (#7) (24" OC) – Per Each

Bid Item No. E580326 4 – Mulch Wood Chips – Per Square Yard

Bid Item No. E580337 5 – Herbicide, Root Control Fabric-20" Wide – Per Linear Foot

### **SECTION 590 - IRRIGATION**

The work specified in this item shall conform to the specifications as shown on plan sheet "IR-8 of IR-8", titled, "100% Irrigation Legend & Details for State Route 60 & 43<sup>rd</sup> Avenue".

Item of Payment

Payment for the work specified in this item shall be made under:  
Bid Item No. 0590 1 – Irrigation System – Per Lump Sum

**SECTION 630 – CONDUIT**

The work specified in this item shall conform to Section 630 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:  
Bid Item No. 0630 2 11A – Conduit, (F&I), (2-2” PVC) – Per Linear Foot  
Bid Item No. 0630 2 11B – Conduit (F&I) (Underground) – Per Linear Foot  
Bid Item No. 0630 2 12 – Conduit (F&I) (Under Pavement) (Directional Bore) –  
Per Linear Foot  
Bid Item No. 0630 2 15 – Conduits (F&I) (Bridge Mounted) – Per Linear Foot

**SECTION 632 – SIGNAL CABLE**

The work specified in this item shall conform to Section 632 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:  
Bid Item No. 0632 7 1 – Cable (Signal) (F&I) – Per Intersection

**SECTION 633 – COMMUNICATION CABLE**

The work specified in this item shall conform to Section 633 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:  
Bid Item No. 0633 1 123 – Fiber Optic Cable (F&I) (Underground) (96 Single  
Mode) – Per Linear Foot  
Bid Item No. 0633 3 15 – Fiber Optic Connection Hardware (F&I) (Preterminated  
Patch Panel) – Per Each

**SECTION 635 – PULL, SPLICE, AND JUNCTION BOXES**

The work specified in this item shall conform to Section 635 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### Item of Payment

Payment for the work specified in this item shall be made under:  
Bid Item No. 0635 2 11 – Pull Box (F&I) (Roadside), Moulded – Per Each  
Bid Item No. 0635 2 11A – Pull & Splice Boxes (F&I) – Per Each  
Bid Item No. 0635 2 12 – Pull & Splice Box, F&I (30"x48"x24") – Per Each  
Bid Item No. 0635 2 13 – Pull & Splice Boxes (F&I) (Fiber Optics) – Per Each

### **SECTION 639 – ELECTRICAL POWER SERVICE ASSEMBLIES**

The work specified in this item shall conform to Section 639 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### Item of Payment

Payment for the work specified in this item shall be made under:  
Bid Item No. 0639 1 123 – Electrical Power Service (F&I) (Underground) – Per Assembly  
Bid Item No. 0639 2 1 – Electrical Service Wire (F&I) (Pole) – Per Linear Foot  
Bid Item No. 0639 3 11 – Electrical Service Disconnect (F&I) (Pole) – Per Each

### **SECTION 641 – PRESTRESSED CONCRETE POLES**

The work specified in this item shall conform to Section 641 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### Item of Payment

Payment for the work specified in this item shall be made under:  
Bid Item No. 0641 2 12 – Pre-Stressed Concrete Pole (F&I) (p-11) – Per Each  
Bid Item No. 0641 2 80 – Concrete Pole Removal (Complete/Deep) – Per Each

### **SECTION 646 – ALUMINUM POLES, PEDESTALS, AND POSTS**

The work specified in this item shall conform to Section 646 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### Item of Payment

Payment for the work specified in this item shall be made under:  
Bid Item No. 0646 1 11 – Aluminum Signal Poles (F&I) (Pedestal) – Per Each

## **SECTION 649 – GALVANIZED STEEL POLES, MAST ARMS AND MONOTUBE ASSEMBLIES**

The work specified in this item shall conform to Section 649 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:

Bid Item No. 0649 31 105 – Mast Arm (F&I) (Single Arm W/O Lum) (78') – Per Each

Bid Item No. 0649 31 109 – Mast Arm (F&I) (Single Arm W/ Lum) (70.5') – Per Each

Bid Item No. 0649 31 118 – Mast Arm (F&I) (Double Arm W/O Lum) (70.5'-60') – Per Each

## **SECTION 650 – VEHICULAR TRAFFIC SIGNAL ASSEMBLIES**

The work specified in this item shall conform to Section 650 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:

Bid Item No. 0650 1 24 – Traffic Signal (F&I) (3-Sect) (1 Way) (Alum) – Per Assembly

Bid Item No. 0650 1 29 – Traffic Signal (F&I) (5-Sect) (1 Way) (Alum) – Per Assembly

## **SECTION 653 – PEDESTRIAN SIGNAL ASSEMBLIES**

The work specified in this item shall conform to Section 653 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:

Bid Item No. 0653 1 11 – Pedestrian Signal (F&I) (Led, 1 Way) – Per Assembly

## **SECTION 660 – VEHICLE DETECTION SYSTEM**

The work specified in this item shall conform to Section 660 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:

Bid Item No. 0660 4 11 – Vehicle Detection (F&I) (Video) (Cabinet Equipment) – Per Each

Bid Item No. 0660 4 12 – Vehicle Detection (F&I) (Video) (Above Ground) – Per Each

## **SECTION 665 – PEDESTRIAN DETECTION SYSTEM**

The work specified in this item shall conform to Section 665 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0665 1 11 – Pedestrian Detector (F&I) (Std) – Per Each

## **SECTION 670 – TRAFFIC CONTROLLER ASSEMBLIES**

The work specified in this item shall conform to Section 670 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0670 5 110 – Traffic Controller Assembly (F&I) (NEMA) – Per Assembly  
Bid Item No. 0670 5 600 – Controller Assembly (Remove) – Per Assembly

## **SECTION 682 – VIDEO EQUIPMENT**

The work specified in this item shall conform to Section 682 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0682 1 133 – CCTV Camera (F&I) (Non-Pressurized) (IP, High Definition) – Per Each

## **SECTION 684 – NETWORK DEVICES**

The work specified in this item shall conform to Section 684 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0684 1 1 – Managed Field Ethernet Switch (F&I) – Per Each

## **SECTION 685 – TRAFFIC CONTROL SYSTEM AUXILIARIES**

The work specified in this item shall conform to Section 685 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0685 106 – Systems Auxiliaries (Uninterruptable Power Source)  
(F&I) – Per Each

## **SECTION 700 – HIGHWAY SIGNING**

A. Signing for traffic control shall conform to the requirements of the Standard Specifications, Manual on Uniform Traffic Control Devices, Supplemental Specifications, Roadway and Traffic Design Standards, manufacturer's specifications.

B. Traffic Signs: All existing signs which are the property of the Owner shall be transported to the Indian River County Road and Bridge Maintenance Yard by the Contractor during construction if they are within the construction limits. Care shall be exercised by the Contractor during removal, storage and relocation so as not to damage the signs. If any damage occurs, as determined by the Owner's Engineer or Resident Construction Inspector, the sign shall be replaced by the Contractor with no compensation.

### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0700 1 11 – Single Post Sign, F&I, Ground Mount, up to 12 SF –  
Per Assembly  
Bid Item No. 0700 1 13 - Single Post Sign, F&I, Ground Mount, 21-30 SF – Per  
Assembly  
Bid Item No. 0700 1 50 – Single Post Sign, Relocate – Per Assembly  
Bid Item No. 0700 3 201 – Sign Panel (F&I) (Overhead) (12 SF) – Per Each  
Bid Item No. 0700 5 21 – Internally Illuminated Sign (F&I) (Name) (Overhead) (12  
SF) – Per Each

## **SECTION 705 – OBJECT MARKERS AND DELINEATORS**

The work specified in this item shall conform to Section 705 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0705 11 1 – Delineator, Flexible Tubular – Per Each

## **SECTION 706 – RAISED RETROREFLECTIVE PAVEMENT MARKERS AND BITUMINOUS ADHESIVE**

The work specified in this item shall conform to Section 706 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**



Payment for the work specified in this item shall be made under:  
Bid Item No. 0706 3 – Retro-Reflective Raised Pavement Marker – Per Each

### **SECTION 711 – THERMOPLASTIC PAVEMENT MARKINGS**

The work specified in this item shall conform to Section 711 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

#### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0710 11 290 – Painted Pavement Markings, Standard, Yellow, Island Nose – Per Square Foot  
Bid Item No. 0711 11 122 – Thermoplastic, Standard, White, Solid, 8” – Per Gross Mile  
Bid Item No. 0711 11 123 – Thermoplastic, Standard, White, Solid, 12” For Crosswalk and Roundabout – Per Linear Foot  
Bid Item No. 0711 11 124 – Thermoplastic, Standard, White, Solid, 18” For Diagonals and Chevrons – Per Linear Foot  
Bid Item No. 0711 11 125 – Thermoplastic, Standard, White, Solid, 24” For Stop Line and Crosswalk – Per Linear Foot  
Bid Item No. 0711 11 160 – Thermoplastic, Standard, White, Message or Symbol – Per Each  
Bid Item No. 0711 11 170 – Thermoplastic, Standard, White, Arrow – Per Each  
Bid Item No. 0711 11 222 – Thermoplastic, Standard, Yellow, Solid, 18” For Diagonal or Chevron – Per Linear Foot  
Bid Item No. 0711 16 101 – Thermoplastic, Standard-Other Surfaces, White, Solid, 6” – Per Gross Mile  
Bid Item No. 0711 16 131 – Thermoplastic, Standard-Other Surfaces, White, 6”, 10-30 Skip or 3-9 Lane Drop – Per Gross Mile  
Bid Item No. 0711 15 201 – Thermoplastic, Standard-Other Surfaces, Yellow, Solid, 6” – Per Gross Mile  
Bid Item No. 0711 15 231 – Thermoplastic, Standard-Other Surfaces, Yellow, Skip, 6” – Per Gross Mile

### **SECTION 715 – HIGHWAY LIGHTING SYSTEM**

The work specified in this item shall conform to Section 715 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

#### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0715 1 13 – Lighting Conductor, F & I, Insulated, No. 4 – Per Linear Foot  
Bid Item No. 0715 4 13 – Standard Light Pole Complete w/ Concrete Base, F&I, Wind Speed 160 – Per Each

- Bid Item No. 0715 4 33 – Conflict Light Pole Complete w/ Concrete Base, F&I, Wind Speed 160 – Per Each
- Bid Item No. 0715 5 30 – Luminaire and Bracket Arm Mounted on Signal Pole, F&I – Per Each
- Bid Item No. 0715 7 11 – Load Center (Includes All Components Listed on Service Point Details Drawing) – Per Each
- Bid Item No. 0715 500 1 – Pole Cable Distribution System, IP-68 – Per Each

## **SECTION 999 – Record Drawings/As-Builts**

### **GENERAL**

Maintain, prepare and provide the ENGINEER with record documents as specified below, except where otherwise specified or modified within the scope of work provided in the specific project contract documents. The Contractor and/or Developer shall be responsible for, and required to provide, Record Drawings as outlined in this section.

### **MAINTENANCE OF RECORD DOCUMENTS:**

1. Maintain in CONTRACTOR's field office in clean, dry, legible condition complete sets of the following project documents: Drawings, Specifications, Addenda, approved Shop Drawings, samples, photographs, Change Orders, other modifications of Contract Documents, test records, survey data, Field Orders, and all other documents pertinent to CONTRACTOR'S Work.
2. Provide files and racks for proper storage and easy access.
3. Make documents available at all times for inspection by ENGINEER and OWNER.
4. Do not use record documents for any other purpose and do not remove them from the field office.
5. Label each document "RECORD DRAWING" in 2-inch high printed letters.
6. Keep record documents current at all times.
7. No work shall be permanently concealed until the required record data has been obtained.

### **RECORD / AS-BUILT DRAWINGS**

- A. During the construction operation, the CONTRACTOR shall maintain records of all deviations from the approved Project Plans and Specifications and shall prepare therefrom "RECORD" drawings showing correctly and accurately all changes and deviations from the work made during construction to reflect the work as it was actually constructed.
- B. The Record/As-Built survey shall be performed and subsequent plans prepared by a Professional Surveyor and Mapper, registered in the state of Florida and certified to the standards set forth in Chapter 472, Florida Statutes and Chapter 5J-17.050 Florida Administrative Code (Florida Minimum Technical Standards).

- C. Field measurements of vertical or horizontal dimensions of constructed improvements shall be obtained so that the constructed facility can be delineated in such a way that the location of the construction may be compared with the construction plans. Clearly shown by symbols, notations, or delineations, those constructed improvements located by the survey.
- D. All vertical information (elevations) provided on the Record Drawings shall be referenced to the North American Vertical Datum of 1988 (NAVD 88) unless otherwise specified by the Project Engineer.
- E. The horizontal information provided on the Record Drawings shall be referenced to the State of Florida, State Plane Coordinate System, Florida East Zone as established by Global Positioning System (GPS) which meets or exceeds Third Order Class I Accuracy Standards according to current publication of the Federal Geodetic Control Committee (FGCC) procedures.
- F. All Record/As-Built drawings shall be prepared in digital format (ACAD Civil 3D 2013) and shall utilize the digital design drawings as prepared by the Project Engineer as a base for the Record/As-Built drawings. It is the responsibility of the Surveyor to request these files from the Contractor or Project Owner in order to produce the Record/As-Built drawing set.
- G. ALL improvements proposed to be constructed as shown on the approved construction plans shall be field measured upon completion and shown on the Record/As-Built survey. Any improvements that appear in both plan and profile views shall show the Record/As-Built information in both views.
- H. The following items are required to be shown on all Indian River County project Record/As-Built drawings submitted to the County:

### **DRAINAGE:**

1. Right-of-way Swale/Drainage – All culvert inverts, elevations and station offsets; inlet grate and bottom elevations; swale beginning and end bottom elevations; and highs and lows along top of bank. Size of swale.
2. Pipe Culvert/PVC Sleeves – All inverts, pipe size, stations and offsets.
3. Outfalls – All pipe inverts, pipe size, elevations and station offsets, weir box elevations, weir elevation, bleeder elevation and sizes.
4. Roadway/Off Site Drainage – All inverts, elevations and station offsets; manhole top elevation; grate top elevations.
5. Retention Ponds – Provide perimeter elevations, grade breaks, depths and calculated pond areas at control elevation and grade breaks above and below water surface. Show as-built of typical cross section as shown on design plan.

### **ROADWAY:**

1. Stations and offsets related to controlling baseline and elevations of all structures, side street and major driveway radius returns (edge of pavement), bends and/or change in direction of roadway alignment, minimum of 1000' intervals along roadway alignment.

2. Elevations along Profile Grade Line (PGL), of all edge of pavements on each side of Profile Grade Line (PGL), at medians at the high/low and PVI points along Profile Grade Line (PGL).
3. All final Elevations to be plotted on PGL AND Plan & Profile sheets as applicable.
4. Elevations of edge of pavement and flow line at curb inlets and on the adjacent edge of pavement at curb inlets.

### **WATER, FORCE, AND RECLAIMED WATER MAINS:**

1. Show size and type of material used to construct mains.
2. Show horizontal location and elevation of all tees, crosses, bends, terminal ends, valves, fire hydrants, air release valves, and sampling points, etc., by distances from known reference points.
3. Show location, size and type of material of all sleeves and casing pipes.
4. Elevation and horizontal location of all storm sewers, gravity sewers including laterals, force mains, water mains, etc. which are crossed; including clearance dimension at all conflicts or crossings.
5. Top of pipe elevation and horizontal location of all water and force main stub-outs.
6. Horizontal location of all services at the property lines.
7. Horizontal and vertical location of pipe including size of all mains and ground elevation shall be obtained at one-hundred (100) foot intervals. Contractor shall place temporary PVC stand pipes (tell-tales) at each of the one-hundred (100) foot intervals and at all fittings and conflicts/crossings to facilitate the record drawing survey. The tell-tale pipes shall be constructed of 2-inch PVC pipe, shall be placed on the top of the pipes to be surveyed, and shall be removed by the Contractor after completion of the field survey by the "As-Built" Professional Surveyor.
8. Location of fire lines.
9. Dedicated easement locations, identified by O.R. Book and Page Number.

### **GRAVITY SEWER:**

1. Manholes: Elevation of top rim, bottom elevation and invert of each influent and effluent line.
2. Show distance between manholes center-to-center and horizontal location by baseline station and offset.
3. Show material size and type used to construct sewer mains.
4. Show length (center of manhole to end of stub) distances from known reference points or baseline offsets, and elevation of stub-outs.
5. Show which services have twenty (20) foot length of DIP at water main crossings.
6. Show station and offset location of sanitary services at property line. Particular care in dimensioning needed in special situations, i.e., cul-de-sacs and locations where services are not perpendicular to wye.
7. Show invert elevation of sanitary service at property line.
8. Any and all necessary dedicated easement locations, identified by O.R. Book and Page Number.

## **PUMP / LIFT STATION:**

Record Drawings shall show elevations for the top and bottom and diameter of wet well along with invert of effluent line. Record Drawings should also indicate the make, model number, horsepower, impeller and condition point of pumps selected and installed, shape of wet well, location of control panel, location of pump out connection, float level settings, any deviation from the plans, and serial number(s) of the pump(s).

## **SURVEY CONTROL**

1. Install/re-establish: It shall be the contractor's responsibility to hire a Professional Surveyor and Mapper as defined per Chapter 472, Florida Statutes, to replace any horizontal and vertical control shown on the engineering plans that was destroyed during construction.
2. New roadway alignment control points (survey baseline or controlling line and all points as indicated on the plans or control sheet) upon final roadway completion. Include all intersections and side streets. State plane coordinates and elevations for all control points.
3. If shown on plans or not: Any Public Land Corner or Governmental Survey Control point(s), vertical control (bench marks), property corners destroyed and/or disturbed during the scope of the project shall be properly re-established as per standards as set forth within Florida Statutes, Administrative code and Minimum Technical Standards for that type of survey. All said surveying mentioned above shall be performed under the direct supervision of a registered Professional Surveyor and Mapper in the state of Florida and certified accordingly. Said Governmental agency(s) shall be notified in writing of disturbance and re-establishments.

## **RECORD/AS-BUILTS DRAWINGS FORMAT - SUBMITTAL**

- A. ENGINEER will supply the CONTRACTOR with the electronic file of the approved construction plans for the input of the As-Built (record) information.
- B. CONTRACTOR shall deliver seven (7) certified sets of Record/As-Builts with Electronic Drawing files prepared in AutoCAD Civil 3D 2013 AND PDF format or in current version as agreed by the ENGINEER.
- C. CONTRACTOR's surveyor shall review, sign and seal As-Builts or Record drawing(s). Said drawing(s) shall clearly state type of survey, positional tolerances, adhere and be certified to by a registered Professional Surveyor and Mapper in the state of Florida, any standards set forth by Florida Statutes, Administrative code and Minimum Technical Standards for As-Built/Record surveys.
- D. All Record/As-Built drawings are subject to review and approval by County Surveyor.

## **ACCURACY**

The CONTRACTOR will be held responsible for the accuracy and completeness of Record Drawings and Electronic As-Builts and shall bear any costs incurred in finding utilities as a result of incorrect data furnished by the CONTRACTOR.

## **COMPLETION OF WORK**

Upon Substantial Completion of the Work, deliver Record Drawings/As-Built Drawings to ENGINEER. Final payment will not be made until satisfactory record documents are received and approved by ENGINEER.

### **Item of Payment**

Payment for the work specified in this item shall be made under:  
Bid Item No. 0999-1 – Record Drawings/As-Builts – Per Lump Sum  
Bid Item No. 0999-2 – As-Built Surveying – Per Lump Sum (UWHC)

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**Board of Professional Surveyors and Mappers**

**Record As-Built Survey Checklist**

Lic. Name \_\_\_\_\_ Date: \_\_\_\_\_

Project Name: **SR 60 and 43<sup>rd</sup> AVENUE INTERSECTION IMPROVEMENTS**

Project No.: **IRC-0853**

**Chapter 61G17-6 Minimum Technical Standards F.A.C.**

**61G17-6.003 General Survey, Map, and Report Content Requirements**

**(1) REGULATORY OBJECTIVE: The public must be able to rely on the accuracy of measurements and maps produced by a surveyor and mapper. In meeting this objective, surveyors and mappers must achieve the following minimum standards of accuracy, completeness, and quality:**

**(a) Accuracy of survey measurements based on the type of survey and expected use.**

**(b) Measurements made in accordance with the United States standard, feet or meters.**

**(c) Records of measurements maintained for each survey (check field notes.)**

**(d) Measurement and computation records dated.**

**(e) Measurement and computation records substantiate the survey map.**

**(f) Measurement and computation records support accuracy statement (closure calculations or redundant measurements, if applicable.)**

**(2) Other More Stringent Requirements:**

**(a) Met more stringent requirements set by federal, state, or local governmental agencies.**

**(3) Other Standards and/or Requirements that Apply to All Surveys, Maps, and/or Survey Products:**

**(a) REGULATORY OBJECTIVE: In order to avoid misuse of a survey and map, the surveyor and mapper must adequately communicate the survey results to the public through a map, report, or report with an attached map.**

**(b) Survey map or report identified the responsible surveyor and mapper and contain standard content. In meeting this objective, surveyors and mappers must meet the following minimum standards of accuracy, completeness, and quality:**

**(c) Type survey stated on map and report:**

**As-Built Survey**

**Boundary Survey**

**Condominium Survey**

**Construction Layout Survey**

**Control Survey**

**Hydrographic Survey**

**Mean High Water Line Survey**

**Quantity Survey**

**Record Survey**

**Specific or Special Purpose Survey**

**Topographic Survey**

- (d) Name, certificate of authorization number, and street and mailing address of the business entity on the map and report.
- (e) Name and license number of the surveyor and mapper in responsible charge.
- (f) Name, license number, and street and mailing address of a surveyor and mapper practicing independent of any business entity on the map and report.
- (g) Survey date (date of data acquisition.)
- (h) Revision date for any graphic revisions (when survey date does not change.)
- (i) Map and report statement “Survey map and report or the copies thereof are not valid without the signature and the original raised seal of a Florida licensed surveyor and mapper.”
- (j) Insurance statement in ¼” high letters “The survey depicted here is not covered by professional liability insurance” if there is no professional liability insurance.
- (k) Additions or deletions to survey maps or reports by other than the signing party or parties is prohibited without written consent of the signing party or parties.
- (l) All computed data or plotted features shown on survey maps supported by accurate survey measurements unless clearly stated otherwise.
- (m) Bearings, distances, coordinates, and elevations shown on a survey map shall be substantiated by survey measurements unless clearly stated otherwise.
- (n) Bearing reference (well established and monumented line)
- (o) A designated “north arrow”
- (p) Stated scale or graphic scale
- (q) Abbreviations in legend or notes.
- (r) Special conditions and any necessary deviation from the standards noted upon the map or report.
- (s) Responsibility for all mapped features stated on the map or report
- (t) Map or report clearly states the individual primarily responsible for the map or report when mapped features have been integrated with others.
- (u) Map Accuracy.
  - (1) Vertical Feature Accuracy:
    - (a) Vertical Control: Field-measured control for elevation information shown upon survey maps or reports shall be based on a level loop or closure to a second benchmark.
    - (b) Closure in feet must be accurate to a standard of plus or minus .05 ft. times the square root of the distance in miles.
    - (c) All surveys and maps or reports with elevation data shall indicate the datum and a description of the benchmark(s) upon which the survey is based.



- (d) Minor elevation data may be obtained on an assumed datum provided the base elevation of the datum is obviously different than the established datum.
- (2) Horizontal Feature Accuracy:
  - (a) Horizontal Control: All surveys and maps or reports expressing or displaying features in a publicly published coordinate system shall indicate the coordinate datum and a description of the control points upon which the survey is based.
  - (b) Minor coordinate data may be obtained and used on an assumed datum provided the numerical basis of the datum is obviously different than a publicly published datum.
  - (c) The accuracy of control survey data shall be verified by redundant measurements or traverse closures. All control measurements shall achieve the following closures:
    - Commercial/High Risk Linear: 1 foot in 10,000 feet;
    - Suburban: Linear: 1 foot in 7,500 feet;
    - Rural: Linear: 1 foot in 5,000 feet;
  - (d) When statistical procedures are used to calculate survey accuracies, the maximum acceptable positional tolerance, based on the 95% confidence level, should meet the same equivalent relative distance standards as set forth in 61G17- 6.003(3)(p)(2.) (c) F.A.C.
  - (e) Intended Display Scale: All maps or reports of surveys produced and delivered with digital coordinate files must contain a statement to the effect of: "This map is intended to be displayed at a scale of 1/\_\_\_ or smaller".

#### **61G17-6.004 Specific Survey, Map, and Report Requirements**

- (1) As-Built/Record Survey:
  - (a) Obtained field measurements of vertical or horizontal dimensions of constructed improvements so that the constructed facility can be delineated in such a way that the location of the construction may be compared with the construction plans.
  - (b) Clearly shows by symbols, notations, or delineations, those constructed improvements located by the survey.
  - (c) All maps prepared shall meet applicable minimum technical standards.
  - (d) Vertical and horizontal accuracy of the measurements made shall be such that it may be determined whether the improvements were constructed consistent with planned locations.

**(END OF SECTION)**

## **SECTION 1000 - WATER AND SEWER UTILITIES**

### **A. Water Utilities**

The work to be performed for utility work shall conform to the applicable technical specifications of the "Indian River County Department of Utility Services, Water, Wastewater, and Reclaimed Water Utility Construction Standards" March, 2018 or the current version.

Relocation of existing fire hydrants shall include the cost of all pipe, fittings, thrust blocks, retaining rods, trenching grading, and incidental items associated with relocation.

1. The work to be performed for City of Vero Beach utility work shall conform to the applicable technical specifications of the "City of Vero Beach Water and Sewer Department. (See Appendix E)

### **B. Sewer Utilities**

The work to be performed for utility work shall conform to the applicable technical specifications of the "Indian River County Department of Utility Services, Water, Wastewater, and Reclaimed Water Utility Construction Standards" March, 2018 or the current version.

1. The work to be performed for City of Vero Beach utility work shall conform to the applicable technical specifications of the "City of Vero Beach Water and Sewer Department. (See Appendix E)

### **Item of Payment**

Payment for the work specified in this item shall be made under:

- Bid Item No. 1050 16001 - Remove & Dispose Existing 1" Water Main and Appurtenances (0-1.9") – Per Linear Foot
- Bid Item No. 1050 16002 - Remove & Dispose Existing 2"-3" Water Main and Appurtenances (2-4.9") – Per Linear Foot
- Bid Item No. 1050 16002A - Remove & Dispose Existing 3" Force Main and Appurtenances (2-4.9") – Per Linear Foot
- Bid Item No. 1050 16003 - Remove & Dispose Existing 6" Force Main and Appurtenances (5-7.9") – Per Linear Foot
- Bid Item No. 1050 16003A - Remove & Dispose Existing 6" Water Main and Appurtenances (5-7.9") – Per Linear Foot
- Bid Item No. 1050 16004 - Remove & Dispose Existing 8" Water Main and Appurtenances (8-19.9") – Per Linear Foot
- Bid Item No. 1050 16004A - Remove & Dispose Existing 8" Force Main and Appurtenances (8-19.9") – Per Linear Foot
- Bid Item No. 1050 16004B - Remove & Dispose Existing 6" Sanitary Sewer Service Pipe – Per Linear Foot
- Bid Item No. 1050 18002 - Grout Fill and Abandon Existing 2" Water Main (2-4.9") – Per Linear Foot
- Bid Item No. 1050 18002A - Grout Fill and Abandon Existing 3" Force Main (2-4.9")

- Per Linear Foot
- Bid Item No. 1050 18003 - Grout Fill and Abandon Existing 6" Water Main (5-7.9") – Per Linear Foot
- Bid Item No. 1050 18003A - Grout Fill and Abandon Existing 6" Sanitary Main (5-7.9") – Per Linear Foot
- Bid Item No. 1050 18004 - Grout Fill and Abandon Existing 8" Water Main (8-19.9") – Per Linear Foot
- Bid Item No. 1050 18004A - Grout Fill and Abandon Existing 8" Sanitary Main (8-19.9") – Per Linear Foot
- Bid Item No. 1050 31102 – Lighting Conductor, F&I, Underground, 2" PVC, SCH 40 – Per Linear Foot
- Bid Item No. 1050 31202 - F & I, 2" PVC SDR21(BLUE) Water Main Pressure Pipe (Item to include all necessary PVC or Brass fittings per plans and specifications) (See Appendix E) – Per Linear Foot
- Bid Item No. 1050 31202A - F & I, 2" PVC SDR21 (GREEN) Force Main Pressure Pipe (Item to include all necessary PVC or Brass fittings per plans and specifications) (See Appendix E) – Per Linear Foot
- Bid Item No. 1050 31202B - F & I, 2 1/2" PVC SDR21 (BLUE) Water Main Pressure Pipe (Item to include all necessary PVC or Brass fittings per plans and specifications) (See Appendix E) – Linear Foot
- Bid Item No. 1050 31203 - F & I, 3" PVC C-900 DR-18 (GREEN) Force Main Pressure Pipe (Item to include all necessary M.J. D.I. fittings and pipe restraints per plans and specifications) (See Appendix E) – Per Linear Foot
- Bid Item No. 1050 31204 - F & I, 4" PVC C-900 DR-18 (GREEN) Force Main Pressure Pipe (Item to include all necessary M.J. D.I. fittings and pipe restraints per plans and specifications) (See Appendix E) - Per Linear Foot
- Bid Item No. 1050 31204D – Utility Pipe – Poly Vinyl Chloride, (F&I), Water/Sewer 4" – per Linear Foot (STRUCTURAL IMPROVEMENTS)
- Bid Item No. 1050 31206 - Utility Pipe – Polyvinylchloride, F&I, 6" Per Linear Foot (Roadway Construction)
- Bid Item No. 1050 31206 - F & I, 6" PVC C-900 DR-18 (BLUE) Water Main Pressure Pipe (Item to include all necessary M.J. D.I. fittings and pipe restraints per plans and specifications) (See Appendix E) – Per Linear Foot
- Bid Item No. 1050 31206A - F & I, 6" PVC C-900 DR-1 (GREEN) Force Main 8 Pressure Pipe (Item to include all necessary M.J. D.I. fittings and pipe restraints per plans and specifications) (See Appendix E) – Per Linear Foot
- Bid Item No. 1050 31206B - F & I, 6" PVC C-900 DR-18 (GREEN) Pressure Pipe with sewer fittings (Sewer Services) - Per Linear Foot
- Bid Item No. 1050 31208 - F & I, 8" PVC C-900 DR-18 (BLUE) Water Main Pressure Pipe – Per Linear Foot
- Bid Item No. 1050 31208A - F & I, 8" PVC SDR-35 (GREEN) Sanitary Sewer Pipe – Per Linear Foot
- Bid Item No. 1050 31208B - F & I, 8" PVC C-900 DR 18 CL150 (Green) Force Main Pressure Pipe – Per Linear Foot
- Bid Item No. 1050 31210 - F & I, 10" PVC C-900 DR 18 CL150 (Green) Force Main Pressure Pipe – Per Linear Foot

- Bid Item No. 1050 31212 - F & I, 12" PVC C-900 DR-18 (BLUE) Water Main Pressure Pipe – Per Linear Foot
- Bid Item No. 1050 4126 – 6" HDPE Force Main Casing – Per Linear Foot (Roadway Construction)
- Bid Item No. 1050 41201 - F & I, 1" PE3408 SDR-9 PE (BLUE) Water Main Pressure Pipe – Per Linear Foot
- Bid Item No. 1050 41202 - F, I, & R. 2" PE3408 SDR-9 PE (BLUE) Water Main Pressure Pipe (Remove after new W.M. is in service) – Per Linear Foot
- Bid Item No. 1050 42202A - F & I, 2" PE3408 SDR-9 PE (BLUE) Water Main Pressure Pipe – Per Linear Foot
- Bid Item No. 1050 42202B - F & I, 2" PE3408 SDR-9 PE (GREEN) Force Main Pressure Pipe – Per Linear Foot
- Bid Item No. 1050 42208 - F & I, 8" PE3408 SDR-11 PE (BLUE) Water Main Pressure Pipe – Per Linear Foot
- Bid Item No. 1050 42208A - F & I, 8" PE3408 SDR-11 PE (GREEN) Force Main Pressure Pipe – Per Linear Foot
- Bid Item No. 1050 42212 - F & I, 12" PE3408 SDR-11 PE (BLUE) Water Main Pressure Pipe – Per Linear Foot
- Bid Item No. 1055 51108 - F & I, 8" MJ C-153 11.25° Bend (WATER) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51108A - F & I, 8" MJ C-153 11.25° Bend (SEWER-LINED) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51108B - F & I, 8" MJ C-153 22.5° Bend (SEWER-LINED) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51108C - F & I, 8" MJ C-153 45° Bend (WATER) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51108D - F & I, 8" MJ C-153 45° Bend (SEWER-LINED) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51108E - F & I, 8" MJ C-153 90° Bend (WATER) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51108F - F & I, 8" MJ C-153 90° Bend (SEWER-LINED) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51112 - F & I, 12" MJ C-153 11.25° Bend (WATER) With Mega-lug Restraints - Per Each
- Bid Item No. 1055 51112A - F & I, 12" MJ C-153 22.5° Bend (WATER) With Mega-lug Restraints - Per Each
- Bid Item No. 1055 51112B - F & I, 12" MJ C-153 45° Bend (WATER) With Mega-lug Restraints - Per Each
- Bid Item No. 1055 51112C - F & I, 12" MJ C-153 90° Bend (WATER) With Mega-lug Restraints - Per Each
- Bid Item No. 1055 51208 - F & I, 8x8x6 MJ C-153 Tee (WATER) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51208A - F & I, 8x8x4" MJ C-153 Tee (SEWER-LINED) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51208B - F & I, 8x8x6 MJ C-153 Tee (SEWER-LINED) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51208C - F & I, 8x8x8 MJ C-153 Tee (SEWER-LINED) With Mega-lug Restraints – Per Each

- Bid Item No. 1055 51212 - F & I, 12x12x6 MJ C-153 Tee (WATER) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51212A - F & I, 12x12x12 MJ C-153 Tee (WATER) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51310 - F & I, 10x8 MJ C-153 Reducer (SEWER-LINED) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51312 - F & I, 12x8 MJ C-153 Reducer (WATER) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51408 - F & I, 8" MJ C-153 L.B. Sleeve (WATER)With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51408A - F & I, 8" MJ C-153 L.B. Sleeve (SEWER-LINED) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51410 - F & I, 10" MJ C-153 L.B. Sleeve (SEWER-LINED) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51412 - F & I, 12" MJ C-153 L.B. Sleeve (WATER) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51506 - F & I, 6" MJ C-153 Plug Tapped 2" (WATER) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51508 - F & I, 8" MJ C-153 Plug Tapped 2" (WATER) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51508A - F & I, 8" MJ C-153 Plug Tapped 2" (SEWER-LINED) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51608 - F & I, 8x8x4 MJ C-153 Tee Wye (WATER) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51608A - F & I, 8x8x6 MJ C-153 Tee Wye (WATER) With Mega-lug Restraints – Per Each
- Bid Item No. 1055 51608B - F & I, 8x8x8 MJ C-153 Tee Wye (WATER) With Mega-lug Restraints – Per Each
- Bid Item No. 1060 15 - Adjust Existing Sanitary Sewer Manhole Ring & Cover – Per Each
- Bid Item No. 1060 16 - Remove Existing Sanitary Sewer Manhole and Appurtenances – Per Each
- Bid Item No. 1080 21101 - F & I, 1" Single Short (<20ft) Water Service–Per Each
- Bid Item No. 1080 21101A - F & I, 1" Single Long (>20ft) Water Service – Per Each
- Bid Item No. 1080 21102 - F & I, 2" Single Long (>20ft) Water Service – Per Each
- Bid Item No. 1080 21102A - F & I, 2" Double Short (<20ft) Water Service – Per Each
- Bid Item No. 1080 23102 - F & I, 8" x 2" Main Tap with 2" Tapping Valve (CORP.) Branch Connection Water Main – Per Each
- Bid Item No. 1080 23102A - F & I, 8" x 2" Main Tap with 2" Tapping Valve (CORP.) Branch Connection Force Main – Per Each
- Bid Item No. 1080 23108 - F & I, 8" x 8" Main Tap with 8" Tapping Valve, and Valve Box Water Main – Per Each
- Bid Item No. 1080 23108A - F & I, 8" x 8" Tapping Sleeve, 8" Tapping Valve, 8" Main Tap and Valve Box Force Main – Per Each
- Bid Item No. 1080 23108B - F & I, 8"X 2" Service Tapping Saddle with Corporation Valve with FDEP Jumper Assembly Water Main – Per Each
- Bid Item No. 1080 23112 - F & I, 12"X 2" Service Tapping Saddle with Corporation Valve with FDEP Jumper Assembly Water Main – Per Each

- Bid Item No. 1080 23118 - F & I, 18" x 12" Tapping Sleeve, 12" Tapping Valve, 12" Main Tap, and Valve Box Water Main – Per Each
- Bid Item No. 1080 23118A - F & I, 18" X 2" Service Tapping Saddle with Corporation Valve with FDEP Jumper Assembly Water Main – Per Each
- Bid Item No. 1080 24102 - F & I, 2" Resilient Seated Gate Valve and Valve Box Water Main – Per Each
- Bid Item No. 1080 24102A - F & I, 2" Resilient Seated Gate Valve and Valve Box Force Main – Per Each
- Bid Item No. 1080 24102B - F & I, 2 1/2" Resilient Seated Gate Valve and Valve Box Water Main – Per Each
- Bid Item No. 1080 24103 - F & I, 3" Resilient Seated Gate Valve With Mega-lug Restraints and Valve Box Force Main – Per Each
- Bid Item No. 1080 24104 - F & I, 4" Resilient Seated Gate Valve With Mega-lug Restraints and Valve Box Force Main – Per Each
- Bid Item No. 1080 24106 - F & I, 6" Resilient Seated Gate Valve With Mega-lug Restraints and Valve Box Water Main – Per Each
- Bid Item No. 1080 24106A - F & I, 6" Resilient Seated Gate Valve With Mega-lug Restraints and Valve Box – Per Each
- Bid Item No. 1080 24108 - F & I, 8" Resilient Seated Gate Valve With Mega-lug Restraints and Valve Box Water Main – Per Each
- Bid Item No. 1080 24108A - F & I, 8" Check Valve With Mega-lug Restraints Force Main – Per Each
- Bid Item No. 1080 24112 - F & I, 12" Resilient Seated Gate Valve With Mega-lug Restraints and Valve Box Force Main – Per Each
- Bid Item No. 1080 24500 - Adjust Existing Valve Box Water Main – Per Each
- Bid Item No. 1080 24500A – Adjust Existing Valve Box Force Main – Per Each
- Bid Item No. 1080 26102 - F & I, 2" Automatic Air Release Valve Assembly Force Main – Per Each
- Bid Item No. 1080 26112 - 2" Automatic Air Release Valve Assembly Water Main – Per Each
- Bid Item No. 1080 26400 - F & I, Relocate 2" Manual Air Release Valve Assembly Force Main – Per Each
- Bid Item No. 1080 27106 - F & I, 6" Line Stop Water Main – Per Each
- Bid Item No. 1080 27108 - F & I, 8" Line Stop Water Main – Per Each
- Bid Item No. 1080 29104 - F & I, 4" Mega-lug Bell Restraints Water Main – Per Each
- Bid Item No. 1080 29106 - F & I, 6" Mega-lug Bell Restraints On Exist. C.I.P. Water Main – Per Each
- Bid Item No. 1080 29106A - F & I, 6" Mega-lug Bell Restraints Force Main – Per Each
- Bid Item No. 1080 29108 - F & I, 8" Mega-lug Bell Restraints On Exist. C.I.P. Water Main – Per Each
- Bid Item No. 1080 29108A - F & I, 8" Mega-lug Bell Restraints Force Main – Per Each
- Bid Item No. 1080 29112 - F & I, 12" Mega-lug Bell Restraints Water Main – Per Each
- Bid item No. 1080 32108 - F & I & R, Temporary Sample Point and Blowoff Assembly (8") Water Main – Per Each
- Bid Item No. 1080 32112 - F & I & R, Temporary Sample Point and Blowoff Assembly (12") Water Main – Per Each

Bid Item No. 1644 11308 - F & I, Fire Hydrant Assembly, 6"GV, 2-6" Anchor Couplings, with Main Connection and 42" Riser – Per Each

C. Earthwork and Backfill

Compaction - All fill must be compacted by hand tamping from under the pipe up to the center line. Backfill shall be compacted in 6" lifts up to the surface to achieve a minimum compaction of 98 percent of maximum density in roadways and shoulders and 95 percent in easements, in accordance with AASHTO T-180.

D. Ductile Iron Pipe and Fittings

1. General:

All ductile iron pipe shall be manufactured in accordance with AWWA Specifications C-150 & C-151. All buried ductile iron pipe shall be manufactured in accordance with AWWA Specification C-151 and shall be Class 52 minimum. All exposed ductile iron pipe shall be Class 53 minimum.

2. Fittings:

All underground fittings shall be either bell and spigot, or mechanical joint. Mechanical joints shall conform to AWWA specification C110 (ANSI 21.10-87), or latest revision. All exposed aboveground fittings shall be flanged joint.

3. Bell and Spigot Connections:

Joints in bell and spigot pipe shall be push-on, mechanical, or restrained joints in accordance with AWWA Standard C-111 (ANSI 21.11-85), or latest revision. Mechanical joint pipe set-screw type retainer glands will not be permitted.

4. Flanged Connections:

Flanged pipe with screwed-on flanges shall be furnished with long hubs, and the flanges shall be screwed on the threaded end of the pipe in the shop, and the face of the flange and end of pipe refaced together. There shall be no leakage through the pipe threads and the flanges shall be designed to prevent corrosion of the threads from outside. The back of the hub shall be caulked where the hub threads joint with the pipe.

5. Valve Box Adjustments:

Cost of valve nut extenders shall be included in cost of valve box adjustments where needed.

E. Disinfecting Potable Water Pipelines

Before being placed in service, all potable water pipelines shall be chlorinated in accordance with the latest edition of AWWA C-651, "Standard Procedure for Disinfecting Water Mains", except that the use of tablets is strictly prohibited. The procedure shall be approved by the Engineer. The location of the chlorination and sampling points will be as specified by the Florida Department

of Environmental Protection, Water Distribution System Permit. Taps for chlorination and sampling shall be uncovered and backfilled by the Contractor, as required.

## **SECTION 02670 – FLUSHING, TESTING AND DISINFECTING**

### **PART 1 - GENERAL**

#### **1.01 WORK INCLUDED**

- A. Flushing, Pressure Testing, and Disinfection of all piping systems.
- B. Contractor shall furnish all necessary pumps, hoses, piping, fittings, meters, gauges, chemicals and labor to conduct specified testing.
- C. Testing shall be repeated at the Contractor's expense until satisfactory results are achieved.
- D. Refer the specific chemical system specification section for additional flushing and testing procedures.

#### **1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**

- A. Section 1000 – Water and Sewer Utilities

#### **1.03 REFERENCES**

- A. ANSI/AWWA C651 - Standard for Disinfecting Water Mains.

#### **1.04 SUBMITTALS**

- A. Test Reports: Indicate results comparative to specified requirements. Submit two (2) copies of test results to Engineer in accordance with Submittal specifications.

#### **1.05 QUALITY ASSURANCE**

- A. Perform Work in accordance with ANSI/AWWA C651.

#### **1.06 REGULATORY REQUIREMENTS**

- A. Conform to applicable Florida DEP requirements for performing the work of this Section.
- B. Work shall conform to Indian River County Standards.

### **PART 2 - PRODUCTS**

#### **2.01 DISINFECTION CHEMICALS**

- A. Chemicals: The disinfecting agent shall be sodium hypochlorite solution ANSI/AWWA B303 or liquid chlorine ANSI/AWWA B301. Dry hypochlorite, similar to "HTH" or equal may also be used as the disinfecting agent. Bleach or Clorox is not acceptable.

### **PART 3 - EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that piping systems have been cleaned, inspected, and tested.
- B. Coordinate scheduling of flushing, pressure testing, and disinfection activities with tie-ins, certifications, and sequence of construction.

#### **3.02 FLUSHING AND PRESSURE TESTING – PIPING**

- A. The Contractor shall furnish and install suitable temporary testing plugs or caps for the water lines, all necessary pressure pumps, hose, pipe



connections, meters, gauges and other similar equipment, and all labor required, all without additional compensation for conducting pressure and leakage tests and flushing of the piping. Flushing and pressure testing shall be conducted in the following order.

- B. After all piping lines have been installed and before pressure testing, each run of pipe shall be thoroughly flushed so as to remove all debris and foreign matter from the piping and equipment. Clean and flush all piping using potable water. Sufficient flushing water and pigging shall be introduced into the piping to produce a discharge that is clear with no evidence of silt or foreign matter is visible. Contractor to provide means of discharging and disposing of water at Contractor's expense.
- C. Pressure testing ductile iron piping systems:
  - 1. The test pressure for the water piping, irrigation quality water piping, and force main piping systems constructed of ductile iron shall be 150 psi and this pressure shall be maintained for a period of not less than two hours. Tests shall be made between valves and as far as practicable and as approved by the Engineer. Potable water from the distribution system shall be used. Pressure shall not vary more than five (5) psi for piping during the test periods or as approved by the Engineer. Allowable leakage shall be computed on the basis of AWWA C-600.
  - 2. All leaks evident at the surface shall be uncovered and repaired regardless of the total leakage as indicated by the test, and all pipes, valves and fittings and other materials found defective under the test shall be removed and replaced at the Contractor's expense. Tests shall be repeated until leakage has been reduced below the allowable amount.
  - 3. In the judgment of the Engineer, should it not be practical to follow the foregoing procedures exactly for any reason, modifications in the procedure shall be made as approved by the Engineer. In any event, the Contractor shall be responsible for the ultimate water tightness of the piping within the preceding requirements.

### 3.03 DISINFECTION

- A. The Contractor shall furnish and install suitable temporary connections to the piping, all necessary pressure pumps, hose, pipe connections, meters, gauges and other similar equipment, and all labor required, all without additional compensation for the disinfection of all required piping systems. Disinfection shall be conducted on the following systems:
  - 1. Water main piping and valves.
- B. Conform to AWWA Standards and as modified herein.
- C. Maintain disinfectant for a minimum of 8 hours in such a manner that the entire system will be filled with water containing a minimum chlorine concentration of 50 ppm at any point.
- D. After the disinfecting agents have been permitted to remain for the

specified contact periods, the water lines, and valves shall be thoroughly flushed with water until the residual chlorine tests are less than 2 PPM in each instance. The determination of the amount of residual chlorine in the system shall be made at such points and in accord with standard tests by means of a standard orthotolodine test set.

### 3.04 BACTERIOLOGICAL SAMPLING

- A. It shall be the responsibility of the Contractor under this contract to perform the bacteriological testing required by the Florida Department of Environmental Protection and Indian River County to obtain clearance of the water main piping. The Contractor shall be responsible to disinfect and repeat testing as needed until clearance is obtained for all required plant systems. The Contractor shall be responsible to pay for additional water needed if the bacteriological testing must be repeated for the clearance of the ground storage tank.
- B. The piping systems require two (2) consecutive daily samples taken from the locations called out on the plans or as determined by the Engineer. The samples shall be taken at all the respective sample point locations.
- C. Sampling must be coordinated with Engineer and other construction activities so as to minimize re-sampling.
- D. Contractor shall submit schedule for bacteriological testing and pressure tests.
- E. The Contractor shall incur all costs needed to provide bacteriological clearance of the piping systems.

### 3.11 QUALITY CONTROL

- a. The laboratory and personnel collecting bacteriological samples shall be Florida State certified in accordance with FDEP requirements.

**(END OF SECTION)**

# APPENDIX A

## PERMITS

St. Johns River Water Management District - Permit No. 122949-2

Indian River Farms Water Control District – Permit No. 18-05

Indian River Farms Water Control District – Permit No. U-18-08

Indian River Farms Water Control District – Permit No. U-18-09

Florida Department of Environmental Protection – Permit No. 0039141-058-DWC-CG

Florida Department of Environmental Protection – Permit No. 0080446-266-DSGP

U.S. Department of the Army Corps of Engineers - Permit No. SAJ-2008-01260  
(NWP-CMM)



# St. Johns River

## Water Management District

Ann B. Shortelle, Ph.D., Executive Director

4049 Reid Street • P.O. Box 1429 • Palatka, FL 32178-1429 • 386-329-4500  
On the internet at [www.sjrwmd.com](http://www.sjrwmd.com).

January 17, 2018

**BID SET**

Richard Szpyrka  
Indian River County  
1801 27th St  
Vero Beach, FL 32960-3388

SUBJECT: Permit Number: 122949-2  
Project Name: SR 60 & 43rd Avenue

Dear Mr. Szpyrka:

Enclosed is your individual permit issued by the St. Johns River Water Management District on January 17, 2018. This permit is a legal document and should be kept with your other important documents. Permit issuance does not relieve you from the responsibility of obtaining any necessary permits from any federal, state, or local agencies for your project.

### **Technical Staff Report:**

If you wish to review a copy of the Technical Staff Report (TSR) that provides the District's staff analysis of your permit application, you may view the TSR by going to the Permitting section of the District's website at [www.sjrwmd.com/permitting](http://www.sjrwmd.com/permitting). Using the "search applications and permits" feature, you can use your permit number or project name to find information about the permit. When you see the results of your search, click on the permit number and then on the TSR folder.

### **Noticing Your Permit:**

For noticing instructions, please refer to the noticing materials in this package regarding closing the point of entry for someone to challenge the issuance of your permit. Please note that if a timely petition for administrative hearing is filed, your permit will become non-final and any activities that you choose to undertake pursuant to your permit will be at your own risk.

### **Compliance with Permit Conditions:**

To submit your required permit compliance information, go to the District's website at [www.sjrwmd.com/permitting](http://www.sjrwmd.com/permitting). Under the "Apply for a permit or submit compliance data" section, click to sign-in to your existing account or to create a new account. Select the "Compliance Submittal" tab, enter your permit number, and select "No Specific Date" for the Compliance Due Date Range. You will then be able to view all the compliance submittal requirements for your project. Select the compliance item that you are ready to submit and then attach the appropriate information or form. The forms to comply with your permit conditions are available at [www.sjrwmd.com/permitting](http://www.sjrwmd.com/permitting) under the section "Handbooks, forms, fees, final orders". Click on forms to view all permit compliance forms, then scroll to the ERP application forms section and select the applicable compliance forms. Alternatively, if you have difficulty finding forms or need copies of the appropriate forms, please contact the Bureau of Regulatory Support at (386) 329-4570.

#### **GOVERNING BOARD**

John A. Miklos, CHAIRMAN  
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Fred N. Roberts Jr., VICE CHAIRMAN  
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Chuck Drake, SECRETARY  
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Ron Howse, TREASURER  
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VERO BEACH

Douglas Burnett  
ST. AUGUSTINE

Susan Dolan  
SANFORD

Janet Price  
FERNANDINA BEACH

**Transferring Your Permit:**

Your permit requires you to notify the District within 30 days of any change in ownership or control of the project or activity covered by the permit, or within 30 days of any change in ownership or control of the real property on which the permitted project or activity is located or occurs. You will need to provide the District with the information specified in rule 62-330.340, Florida Administrative Code (F.A.C.). Generally, this will require you to complete and submit Form 62-330.340(1), "Request to Transfer Permit," available at <http://www.sjrwmd.com/permitting/permitforms.html>.

Please note that a permittee is liable for compliance with the permit before the permit is transferred. The District, therefore, recommends that you request a permit transfer in advance in accordance with the applicable rules. You are encouraged to contact District staff for assistance with this process.

Thank you and please let us know if you have additional questions. For general questions contact [e-permit@sjrwmd.com](mailto:e-permit@sjrwmd.com) or (386) 329-4570.

Sincerely,



Margaret Daniels, Office Director  
Office of Business and Administrative Services  
St. Johns River Water Management District  
4049 Reid Street  
Palatka, FL 32177-2529  
(386) 329-4570

Enclosures: Permit

cc: District Permit File

Engineering Consultant: Henry W Deibel  
Arcadis  
1500 Gateway Blvd  
Boynton Beach, FL 33426-7219

**ST. JOHNS RIVER WATER MANAGEMENT DISTRICT**  
**Post Office Box 1429**  
**Palatka, Florida 32178-1429**

**PERMIT NO:** 122949-2

**DATE ISSUED:** January 17, 2018

**PROJECT NAME:** SR 60 & 43rd Avenue

**A PERMIT AUTHORIZING:**

Authorization of a Stormwater Management System for SR 60 & 43rd Avenue, a 16.96 - acre project to be constructed and operated as per plans received by the District on December 22, 2017.

**LOCATION:**

Section(s): 3, 4                      Township(s): 33S                      Range(s): 39E  
Indian River County

**Receiving Water Body:**

Name	Class
Indian River Lagoon	III Marine, IW

**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 law, regulation or requirement affecting the rights of other bodies or agencies. All structures and works installed by permittee hereunder shall remain the property of the permittee.

This permit may be revoked, modified or transferred at any time pursuant to the appropriate provisions of Chapter 373, Florida Statutes.

**PERMIT IS CONDITIONED UPON:**

See conditions on attached "Exhibit A", dated January 17, 2018

**AUTHORIZED BY:** St. Johns River Water Management District  
Division of Regulatory Services

By:



\_\_\_\_\_  
Marc vonCanal  
Regulatory Coordinator

**"EXHIBIT A"**  
**CONDITIONS FOR ISSUANCE OF PERMIT NUMBER 122949-2**  
**SR 60 & 43rd Avenue**  
**DATED: January 17, 2018**

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, F.A.C. Any deviations that are not so authorized may subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S.
2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the District staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.
3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation June 2007), and the Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008), which are both incorporated by reference in subparagraph 62-330.050(9)(b)5, F.A.C., unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.
4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the District a fully executed Form 62-330.350(1), "Construction Commencement Notice,"[10-1-13], incorporated by reference herein (<http://www.flrules.org/Gateway/reference.asp?No=Ref-02505>), indicating the expected start and completion dates. A copy of this form may be obtained from the District, as described in subsection 62-330.010(5), F.A.C. If available, a District website that fulfills this notification requirement may be used in lieu of the form.
5. Unless the permit is transferred under Rule 62-330.340, F.A.C., or transferred to an operating entity under Rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms and conditions of the permit for the life of the project or activity.
6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:
  - a. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex — "Construction Completion and Inspection Certification for Activities Associated With a Private Single-Family Dwelling Unit" [Form 62-330.310(3)]; or
  - b. For all other activities — "As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)].
  - c. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

7. If the final operation and maintenance entity is a third party:
  - a. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as-built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.3 of Volume I) as filed with the Department of State, Division of Corporations and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.
  - b. Within 30 days of submittal of the as- built certification, the permittee shall submit "Request for Transfer of Environmental Resource Permit to the Perpetual Operation Entity" [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.
8. The permittee shall notify the District in writing of changes required by any other regulatory District that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.
9. This permit does not:
  - a. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;
  - b. Convey to the permittee or create in the permittee any interest in real property;
  - c. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or
  - d. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.
10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.
11. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.
12. The permittee shall notify the District in writing:
  - a. Immediately if any previously submitted information is discovered to be inaccurate; and
  - b. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.



13. Upon reasonable notice to the permittee, District staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.
14. If any prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, work involving subsurface disturbance in the immediate vicinity of such discoveries shall cease. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section, at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Such subsurface work shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and notification shall be provided in accordance with Section 872.05, F.S.
15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.
16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.
17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the District will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.
18. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with Rule 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.
19. This permit for construction will expire five years from the date of issuance.
20. At a minimum, all retention and detention storage areas must be excavated to rough grade prior to building construction or placement of impervious surface within the area to be served by those facilities. To prevent reduction in storage volume and percolation rates, all accumulated sediment must be removed from the storage area prior to final grading and stabilization.
21. All wetland areas or water bodies that are outside the specific limits of construction authorized by this permit must be protected from erosion, siltation, scouring or excess turbidity, and dewatering.
22. The operation and maintenance entity shall inspect the stormwater or surface water management system once within two years after the completion of construction and every two years thereafter to determine if the system is functioning as designed and permitted. The operation and maintenance entity must maintain a record of each required inspection, including the date of the inspection, the name and contact information of the inspector, and whether the system was functioning as designed and permitted, and make such record available for inspection upon request by the District during normal business hours. If at any time the system is not functioning as designed and permitted, then within 30 days the entity

shall submit a report electronically or in writing to the District using Form 62-330.311(1), "Operation and Maintenance Inspection Certification," describing the remedial actions taken to resolve the failure or deviation.

23. The proposed project must be constructed and operated as per plans and calculations received by the District on December 22, 2017.

## 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](mailto: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 [sjrwmd.com](http://sjrwmd.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:

Richard Szyrka  
Indian River County  
1801 27th St  
Vero Beach, FL 32960-3388

This 17th day of January 2018.



Margaret Daniels, Office Director  
Office of Business and Administrative Services  
St. Johns River Water Management District  
4049 Reid Street  
Palatka, FL 32177-2529  
(386) 329-4570

Permit Number: 122949-2

## NOTICING INFORMATION

Dear Permittee:

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](mailto:compliancesupport@sjrwmd.com) (preferred method) or send a copy of the original affidavit to:

Margaret Daniels, Office Director  
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.

Sincerely,



Margaret Daniels, Office Director  
Office of Business and Administrative Services

NOTICE OF AGENCY ACTION TAKEN BY THE  
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

Notice is given that the following permit was issued on \_\_\_\_\_:

(Name and address of applicant) \_\_\_\_\_  
permit#\_\_\_\_\_. The project is located in \_\_\_\_\_ County, Section  
\_\_\_\_\_, Township \_\_\_\_\_ South, Range \_\_\_\_\_ East. The permit authorizes a surface  
water management system on \_\_\_\_\_ acres for \_\_\_\_\_ known as  
\_\_\_\_\_. The receiving water body is \_\_\_\_\_.

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 (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 FL 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 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 will not accept a petition sent by facsimile (fax). Mediation pursuant to Section 120.573, F.S., may be available and choosing mediation does not affect your right to an administrative hearing.

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 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.sjrwmd.com](http://www.sjrwmd.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 (fax) is prohibited and shall not constitute filing.

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. **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/](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 permit application(s) described above. You can also request the Notice of Rights by contacting the Director of Regulatory Support, 4049 Reid St., Palatka, FL 32177-2529, tele. no. (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

### **BRAFORD**

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**

Vero Beach Press Journal, Legal Advertising  
P. O. Box 1268  
Vero Beach, FL 32961-1268  
772-221-4282/ fax 772-978-2340

### **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  
904-819-3436

### **VOLUSIA**

News Journal Corporation, Legal Advertising  
P. O. Box 2831  
Daytona Beach, FL 32120-2831  
(386) 681-2322



INDIAN RIVER FARMS WATER CONTROL DISTRICT

7305 4th Street  
Vero Beach, Florida 32968  
(772) 562-2141

APPLICATION FOR CONNECTION TO OR USE OF DISTRICT FACILITIES

Date: 5/4/17

No. 18-05

A. Applicant Information:

Name: Indian River County  
Address: 1801 27th Street  
Vero Beach, FL 32960

Authorized Agent and Title: \_\_\_\_\_  
Telephone Number: \_\_\_\_\_

B. Proposed Connection or Use: (check appropriate box or boxes) NON-REFUNDABLE

- Culvert connection to District canal for irrigation or drainage \$100.00
- Pump connection to District canal for irrigation or drainage \$300.00
- Culvert and/or control structure in District canal for crossing and/or water storage \$200.00
- Other (specify) Bridge Widening \$100.00

RECEIVED  
JAN 25 2018  
INDIAN RIVER COUNTY  
ENGINEERING DIVISION

C. Location: Tract \_\_\_\_\_, Section \_\_\_\_\_, Township \_\_\_\_\_, Range \_\_\_\_\_, Canal No. Main Canal, A-3 Canal  
Other appropriate description: SR 60 and 43rd Avenue Intersection  
Property I.D. Parcel No.: \_\_\_\_\_

Attach drawing to show details (include acreage to be served).

D. Details of proposed Construction: (Give diameter and length of culvert; diameter and rated capacity of pump; height and width of riser or other details on water control structure.)  
Existing outfalls at main canal to remain. Widening of 43rd Avenue Bridge over the main canal. Extend the 48" x 76" culvert at the A-3 canal and construct endwalls

E. Special Conditions: (for District use only)

SEE ATTACHED LIST OF SPECIAL CONDITIONS.

F. Estimated Date of Construction Commencement: 2018  
Estimated Date of Construction Completion: 2020

G. As the Applicant for permit, I do understand and agree that:

1. The use of, or construction within, the right-of-way of the Indian River Farms Water Control District will be in accordance with the details of the approved sketch and/or permit conditions shown hereon, supporting this application; and if any changes are required, same will be cleared with the District.

(Continued on Reverse hereof)

Signed: [Signature] Date 6/2/2017  
Applicant

Application approved by: [Signature]  
for the Indian River Farms Water Control District

Application approved by: [Signature]  
for Carter Associates, Inc., Engineer for District

Date of approval: 1-18-18  
Expiration Date of this approved application: 1-18-21

PERMISSION, WHEN GRANTED, WILL BE SUBJECT TO THE STANDARD PROVISOS.  
SET FORTH ON THE REVERSE HEREOF.

## G. (continued)

2. I accept full responsibility for any erosion to or shoaling in the District's canal or levee due to my work and I shall remove or repair same promptly and at no expense to the District; and I will prevent the discharge of any hyacinths or aquatic growth into the District's canal through my connection.
3. I will neither plant trees or shrubs or erect any structure that will prohibit or limit the existing access of District equipment or vehicles without securing proper authorization thereof.
4. It is further understood and agreed that any other requirements of the District are binding upon me, the application, and I do hereby indicate acceptance of this notice thereof.
5. It is further understood and agreed that the lands to be benefited by this request are, or may be, subject to flooding during periods of high water due to heavy rains or other acts of God, and that the permit will be accepted subject to this possibility which is recognized not to be within the control of the District.

## STANDARD PROVISOS

1. Permittee assumes full responsibility for any construction, operation or maintenance of District property or right-of-way subject to this Permit and shall save and hold harmless District from any expense, loss, damage or claim in regard thereto, and the District assumes and shall have no liability in connection therewith.
2. This Permit may not be assigned or sub-let to a third party and any transfer of Permittee's property abutting District's property or right-of-way shall ipso facto and without move, cancel, nullify and revoke this Permit.
3. This Permit is subject always to the paramount right of the District to keep and maintain its drainage district functions and operations, and is subject to revocation and cancellation upon thirty days' notice from District to Permittee.
4. In no event shall the District be liable for any damages done or caused by the District to the Public, to Permittee or any other person using the right-of-way or property subject to this Permit, and Permittee shall save the District, its officers, agents, supervisors and employees harmless from any costs, charge or expense of claim or demand of any person against the District arising from or pertaining to any use made of the property or right-of-way subject to this permit. Permittee shall, at any time upon request of District, provide to District evidence, satisfactory to District, of liability insurance coverage, in amounts and with companies as may be required by District, protecting the interests of District and naming District as an additional insured.
5. The District may, on thirty days' written notice to Permittee, require removal and/or alteration of any installation or construction on District right-of-way.
6. Any construction on District right-of-way or property and clean up shall be completed promptly by Permittee and in a workmanlike manner with minimum disturbance to existing berm, channel slopes and grade with proper restoration and planting of any disturbed areas to prevent erosion within ten days after completion of construction or installation.
7. Permittee shall advise District's office prior to commencement and upon completion of all construction. (772-562-2141)
8. Permittee shall not discharge any pollutants, contaminants or deleterious materials into water or structures owned or maintained by, or subject to the jurisdiction of District, nor permit anything to obstruct the flow of water, and shall save and hold District harmless from any expense, loss or damage to District or others by any such discharge or obstruction, remedying or removing the same immediately upon request of District.



9. Permittee, as a condition to the continuance of this Permit, shall reimburse District immediately upon demand, for any testing or other costs or expenses to District associated with or arising from Permittee's use of District facilities.
10. Applicant is cautioned that electrical, water and sewer, or other installations or utilities may be located within the construction area, and applicant shall use diligent efforts to first detect and locate all such installations and shall coordinate construction with all other lawful users of said right-of-way. Applicant shall be liable for all damages proximately resulting from its interference with or interruption of services provided by other lawful right-of-way users.
11. This permit shall be considered to be a license only, for the limited purpose of installation, placement and maintenance of the improvements specified on the face hereof, and does not convey any other right, title or interest of the District in the subject right-of-way property.
12. An as-built/location certification of all culvert/structure installations within the District's canals/right-of-way shall be performed by a Florida Registered Professional Surveyor and Mapper on form provided by the District, and submitted to the District within thirty (30) days following completion of installation. If as-built certification is not received within thirty days of installation, the District will either have certification completed at owner/applicants expense or order removal of the installation.

By initialing and dating this page I am agreeing to all standard and special provisos:

Initial: 

Date: 6/2/17

**SPECIAL CONDITIONS FOR PERMIT NO. 18-05**  
**FOR**  
**STATE ROAD 60 AND 43<sup>RD</sup> AVENUE ROADWAY**  
**INTERSECTION IMPROVEMENTS INCLUDING WIDENING**  
**OF 43<sup>RD</sup> AVENUE BRIDGE ACROSS MAIN CANAL**

- 1) This permit is issued based on roadway improvement plans prepared by Arcadis U.S., Inc., designed by Henry W. Deible, Jr., P.E., dated May, 2010, and bridge plans for widening of existing 43<sup>rd</sup> Avenue bridge over Main Canal prepared by Bridge Design Associates, Inc., signed and sealed by Brian C. Reault, P.E., dated May 4, 2017.
- 2) No blockage of flow within the Main Canal is permitted during bridge widening construction.
- 3) Armoring of canal banks shall extend completely beneath the new bridge expansion and extend upstream (westerly) a minimum of 25 feet or through transition from design trapezoidal section to existing non-disturbed canal bank, whichever is greater.
- 4) All final grading in vicinity of roadway and bridge improvements within the Main Canal right-of-way shall be away from top of bank and sufficient drainage provided to prevent ponding of surface water and overbank discharge of stormwater into canal.
- 5) Access for canal maintenance equipment from 43<sup>rd</sup> Avenue shall be provided at all four corners of bridge within the Main Canal right-of-way limits.
- 6) All perspective bidders of this project shall be made aware of the applicable standard provisos and special conditions of this permit. Indian River Farms Water Control District Superintendent, David E. Gunter, should be a participant in all pre-bid and pre-construction meetings associated with this project.
- 7) A copy of "As-built" (record) drawings of the completed improvements with the right-of-way of the Main Canal shall be provided to the Indian River Farms Water Control District upon completion of project construction.

INDIAN RIVER FARMS WATER CONTROL DISTRICT

7305 4th Street
Vero Beach, Florida 32968
(772) 562-2141

APPLICATION FOR UTILITY CONSTRUCTION PERMIT

Date: 4/11/2018

No. U-18-08

A. Applicant Information:

Utility Owner: CITY OF VERO BEACH
Address: 17-17TH ST.
P.O. BOX 1389
VERO BEACH, FL. 32961-1389

Authorized Agent and Title: ROB BOLTON, P.E. DIRECTOR WATER & SEWER DEPT.
Telephone Number: 772-978-5220

B. Project Information:

Location: Tract \_\_\_\_\_, Section 3, Township 33S, Range 39E, Canal No. MAIN
Other appropriate description: \_\_\_\_\_

Attach drawing to show details.

Type of Utility: (Check appropriate box)

- Electric, Telephone, Other (specify) POTABLE WATER MAIN, Gas, Cable Television

Nature of Proposed Work: (Check appropriate box or boxes)

- Crossing of canal or right-of-way, Pole in right-of-way, Guy wire and anchor, Line within and parallel to canal or right-of-way, Above-ground facility

Description of Proposed Work: CONSTRUCT A 12" H.D.P.E. W.M. BY DIRECTIONAL BORE UNDER THE MAIN CANAL 224' EAST OF THE 43RD AVE. SPILLWAY, THIS IS A UTILITY RELOCATION FOR THE I.R.C. ROAD PROJECT
Date of Construction Commencement: 2019 DURING I.R.C. 43RD AVE PROJECT
Date of Construction Completion: 2019

C. Applications Fee and Use Fee: \$ 9-13-19 (submit fees with this application in accordance with the fee schedule outlined in the District's "Instructions and Regulations Governing Applications for Utility Construction Permits".) NON-REFUNDABLE

D. Special Conditions: (for District use only)
SEE ATTACHED LIST OF SPECIAL CONDITIONS.

It is understood that this application, if approved, is valid only until \_\_\_\_\_ and that the applicant agrees to abide by the conditions and provisions contained in the Permit to be issued by the District upon satisfactory completion and inspection of work.

Submitted by: [Signature] Signature

ROBERT J. BOLTON, P.E., DIRECTOR W&S, DEPT.
Typed Name and Title

Application approved by: [Signature] for the Indian River Farms Water Control District

Date of Approval: 9-13-18

PERMISSION, WHEN GRANTED, WILL BE SUBJECT TO THE STANDARD PROVISOS SET FORTH ON THE REVERSE HEREOF.

**SPECIAL CONDITIONS FOR PERMIT NO. U-18-08**  
**FOR**  
**PROPOSED DIRECTIONAL BORE INSTALLATION OF 12" WATER MAIN**  
**UNDER MAIN CANAL LOCATED 224' DOWNSTREAM OF**  
**RADIAL GATE SPILLWAY STRUCTURE IN MAIN CANAL**  
**EAST SIDE OF 43<sup>RD</sup> AVENUE**

- 1) This permit is issued based on plans prepared by City of Vero Beach Water and Sewer Department (Sheet 1 of 1, dated August 27, 2018; Sheet 24 of 58, dated September 18, 2018), signed and sealed by Robert J. Bolton, P.E.
- 2) Bore pits for proposed directional bore installation to be located outside of Main Canal right-of-way.
- 3) Proposed 12" water main to be installed by directional bore, a minimum of eight (8) feet below the bottom of Main Canal.
- 4) An "As-built" (record) certified drawing indicating the horizontal location and vertical depth (bore log section) of installed water main under District's right-of-way shall be provided to the Indian River Farms Water Control District within thirty (30) days of installation.



INDIAN RIVER FARMS WATER CONTROL DISTRICT

7305 4th Street
Vero Beach, Florida 32968
(772) 562-2141

APPLICATION FOR UTILITY CONSTRUCTION PERMIT

Date: 9/18/2018

No. U-18-09

A. Applicant Information:

Utility Owner: CITY OF VERO BEACH
Address: 17-17TH ST.
P.O. BOX 1389
VERO BEACH, FL. 32961-1389

Authorized Agent and Title: ROB BOLTON, P.E. DIRECTOR W.S. DEPT.
Telephone Number: 772-978-5220

B. Project Information:

Location: Tract \_\_\_\_\_, Section 364, Township 33S, Range 39E, Canal No. A-3
Other appropriate description: \_\_\_\_\_

Attach drawing to show details.

Type of Utility: (Check appropriate box)

- Electric, Telephone, Other (specify) POTABLE WATER MAIN & SANITARY SEWER FORCE MAIN, Gas, Cable Television

Nature of Proposed Work: (Check appropriate box or boxes)

- Crossing of canal or right-of-way, Pole in right-of-way, Guy wire and anchor, Line within and parallel to canal or right-of-way, Above-ground facility

Description of Proposed Work: CONSTRUCT A 12" HDPE W.M BY DIRECTIONAL BORE UNDER THE EXISTING A-3 DITCH, EAST OF 43RD AVE. CONSTRUCT (2) TWO 8" PVC SAN. SEWER FORCE MAINS OVER THE PROPOSED STORM DRAINAGE PIPES THAT ARE TO BE CONSTRUCTED IN THE A-3 DITCH. THIS IS A UTILITY RELOCATION PROJECT.
Date of Construction Commencement: 2019 DURING IRC 43RD AVE PROJECT
Date of Construction Completion: 2019

C. Applications Fee and Use Fee: \$ \_\_\_\_\_ (submit fees with this application in accordance with the fee schedule outlined in the District's "Instructions and Regulations Governing Applications for Utility Construction Permits".) NON-REFUNDABLE

D. Special Conditions: (for District use only)

SEE ATTACHED LIST OF SPECIAL CONDITIONS.

It is understood that this application, if approved, is valid only until 2-13-20 and that the applicant agrees to abide by the conditions and provisions contained in the Permit to be issued by the District upon satisfactory completion and inspection of work.

Submitted by: [Signature] Signature

ROBERT J. BOLTON, P.E. DIRECTOR W.S. DEPT.
Typed Name and Title

Application approved by: [Signature] for the Indian River Farms Water Control District

Date of Approval: 9-13-18

PERMISSION, WHEN GRANTED, WILL BE SUBJECT TO THE STANDARD PROVISOS SET FORTH ON THE REVERSE HEREOF.

**SPECIAL CONDITIONS FOR PERMIT NO. U-18-09**  
**FOR**  
**CITY OF VERO BEACH PROPOSED INSTALLATION OF**  
**TWO 8" PVC FORCE MAINS OVER TOP OF 43<sup>RD</sup> AVENUE CULVERT**  
**IN SUB-LATERAL A-3-E (26<sup>TH</sup> STREET) CANAL, AND PROPOSED**  
**DIRECTIONAL BORE OF 12" H.D.P.E. WATER MAIN UNDER SAID CULVERT**  
**IN CONJUNCTION WITH ROADWAY INTERSECTION IMPROVEMENTS**  
**AT 43<sup>RD</sup> AVENUE AND 26<sup>TH</sup> STREET**

- 1) This permit is issued based on plans prepared by City of Vero Beach Water and Sewer Department (Sheet 18 of 58), signed and sealed by Robert J. Bolton, P.E., dated September 17, 2018.
- 2) Proposed installation of two 8" force mains over top of proposed culvert extension, or replacement, shall follow the installation of said culvert.
- 3) The minimum clearance between bottom of proposed 8" force mains and top of proposed 78" x 48" E.R.C.P. culvert shall be one (1) foot.
- 4) The proposed 12" H.D.P.E. water main shall be installed by directional bore, a minimum of three (3) feet below bottom of said culvert.
- 5) An "As-built" (record) certified drawing indicating the horizontal and vertical location of force mains and water main within the District's right-of-way shall be provided to the Indian River Farms Water Control District within thirty (30) days of installation.



## INDIAN RIVER FARMS WATER CONTROL DISTRICT

7305 4th Street  
VERO BEACH, FLORIDA 32968  
Phone: (772) 562-2141  
Fax: (772) 562-2532

DAVID E. GUNTER  
Secretary-Treasurer

Board of Supervisors  
WILLIAM H. BARKER  
BOBBY LINDSEY  
MARK TRIPSON

August 1, 2019

Todd A. Young  
City of Vero Beach  
P.O. Box 1389  
Vero Beach, Fl 32961

Re: Permit #U-18-08 & U-18-09

Dear Todd,

Please accept this letter as an approval for an extension of the above named permits until September 13, 2020. Please attach this letter to each of the original permits.

If you have any questions or need any additional information, please do not hesitate to contact our office.

Sincerely,



Elaine Mercado  
Administrative Assistant

cc: Marvin Carter, Carter Associates, Inc



# FLORIDA DEPARTMENT OF Environmental Protection

Southeast District  
3301 Gun Club Road, MSC7210-1  
West Palm Beach, FL 33406  
561-681-6600

Rick Scott  
Governor

Carlos Lopez-Canera  
Lt. Governor

Noah Valenstein  
Secretary

October 2, 2018

## NOTIFICATION OF ACCEPTANCE OF USE OF GENERAL PERMIT

**PERMITTEE:**

Mr. Robert J. Bolton, P.E.  
Director Water & Sewer Dept.  
City of Vero Beach  
17 17<sup>th</sup> Street  
Vero Beach, FL 32961-1389  
[wmdir@covb.org](mailto:wmdir@covb.org)

**PERMIT NUMBER:** 0039141-058-DWC-CG

**ISSUE DATE:** October 2, 2018

**EXPIRATION DATE:** October 1, 2023

**COUNTY:** Indian River

**PROJECT NAME:** Force Main Relocation Replacement  
on S.R. 60 and 43<sup>rd</sup> Ave.

**WASTEWATER TREATMENT:**

City of Vero Beach Wastewater Treatment Facility

**FACILITY ID:** FLA021661

Dear Mr. Bolton:

Thank you for your Notification/Application for Constructing a Domestic Wastewater Collection/Transmission System for the subject project. Our office received the Notice on 9/19/2018.

This is to advise you that the Department does not object to your use of such General Permit.

Please note, the attached requirements apply to your use of this General Permit for constructing the proposed domestic wastewater collection/transmission system.

You are further advised that the construction activity must conform to the description contained in your Notification/Application for Constructing a Domestic Wastewater Collection/Transmission System and that any deviation will subject the permittee to enforcement action and possible penalties.

Should you have any questions, please contact Manuel P. Delosantos at telephone number 561/681-6628 or by e-mail at: [manuel.delosantos@floridadep.gov](mailto:manuel.delosantos@floridadep.gov)

Sincerely,

A handwritten signature in blue ink that reads "John Kent Edwards".

October 2, 2018

\_\_\_\_\_  
John Kent Edwards  
Environmental Administrator  
Southeast District

\_\_\_\_\_  
Date

JKE/MPD

ec: FDEP/SED, Diane M. Pupa, Kent Edwards, Jeff Christian, Manuel Delosantos

**REQUIREMENTS FOR USE OF THE GENERAL PERMIT FOR DOMESTIC WASTEWATER COLLECTION/TRANSMISSION SYSTEMS:**

1. This general permit is subject to the general permit conditions of Rule 62-4.540, F.A.C., as applicable. This rule is available at the Department's Internet site at:  
<https://www.flrules.org/gateway/ChapterHome.asp?Chapter=62-4>
2. This general permit does not relieve the permittee of the responsibility for obtaining a dredge and fill permit where it is required. [62-604.600(6)(b)]
3. This general permit cannot be revised, except to transfer the permit. [62-604.600(6)(b)2]
4. This general permit will expire five years from the date of issuance. If the project has been started and not completed by that time, a new permit must be obtained before the expiration date in order to continue work on the project. [62-4.030]
5. Upon completion of construction of the collection/transmission system project, and before placing the facilities into operation for any purpose other than testing for leaks or testing equipment operation, the permittee shall submit to the Department's Southeast District Office Form 62-604.300(8)(b), Request for Approval to Place a Domestic Wastewater Collection/Transmission System into Operation. This form is available at the Department's Internet site at:  
[https://floridadep.gov/sites/default/files/62-604.300\\_8b.pdf](https://floridadep.gov/sites/default/files/62-604.300_8b.pdf) [62-604.700(2)]
6. The new or modified collection/transmission facilities shall not be placed into service until the Department clears the project for use. [62-604.700(3)]
7. Abnormal events shall be reported to the Department's Southeast District Office in accordance with Rule 62-604.550, F.A.C. For unauthorized spills of wastewater in excess of 1000 gallons per incident, or where information indicates that public health or the environment may be endangered, oral reports shall be provided to the STATE WARNING POINT TOLL FREE NUMBER (800) 320-0519) as soon as practical, but no later than 24 hours from the time the permittee or other designee becomes aware of the circumstances. Unauthorized releases or spills less than 1000 gallons per incident are to be reported orally to the Department's Southeast District Office.) District Office within 24 hours from the time the permittee, or other designee becomes aware of the circumstances. [62-604.550]



# FLORIDA DEPARTMENT OF Environmental Protection

Southeast District  
3301 Gun Club Road, MSC7210-1  
West Palm Beach, FL 33406  
561-681-6600

Rick Scott  
Governor

Carlos Lopez-Cantera  
Lt. Governor

Noah Valenstein  
Secretary

September 28, 2018

## Notification of Acceptance of Use of a General Permit

Permittee:  
Mr. Robert J. Bolton, P.E.  
Director of Water & Sewer  
City of Vero Beach Water & Sewer Dept.  
17 – 17<sup>th</sup> St., P.O. Box 1389  
Vero Beach, FL 32961-1389

Sent by Email:  
[wmdir@covb.org](mailto:wmdir@covb.org)

**Permit Number:** 0080446-266-DSGP  
**Issue Date:** September 28, 2018  
**Expiration Date:** September 27, 2023  
**County:** Indian River  
**Project Name:** COVB Utility Relocation for IRC  
SR 60 & 43<sup>RD</sup> Ave. Road Widening Project  
**Water Supplier:** City of Vero Beach  
**PWS I.D.:** 3310206

Dear Mr. Bolton:

On September 27, 2018, the Florida Department of Environmental Protection received a “*Notice of Intent to Use the General Permit for Construction of Water Main Extensions for PWSs*” [DEP Form No. [62-555.900\(7\)](#)], under the provisions of Rule [62-4.530](#) and Chapter [62-555](#), Florida Administrative Code (F.A.C.).

### The proposed project includes construction of:

- 2,340 ± linear feet (lf) of 12-inch polyvinyl chloride (PVC) water main (WM).
- 760 ± lf of high density polyethylene (HDPE) WM.
- 3,380 ± lf of 8-inch PVC WM.
- 160 ± lf of 8-inch HDPE WM.
- 180 ± lf of 6-inch PVC WM.
- 40 ± lf of 2½-inch PVC WM.
- 20 ± lf of 2-inch PVC WM.
- 530 ± lf of 2-inch HDPE WM, and 1,040 ± lf of 2-inch HDPE temporary line.
- 400 ± lf of 1-inch HDPE water service line.
- Thirty two (32) water service connections.
- Ten (10) fire hydrant assemblies.
- Twenty (20) bacteriological sampling points.
- Five (5) temporary jumper connections.
- All other associated valves, fittings, and appurtenances

**The proposed project is located:** On 43<sup>rd</sup> Avenue from South of 18<sup>th</sup> St. north to 26<sup>th</sup> St. and on State Road 60 from Indian River Farms main canal east to 39<sup>th</sup> Avenue., Vero Beach, FL 32963.

**Permittee:**  
**Mr. Robert J. Bolton, P.E.**  
**City of Vero Beach Water & Sewer Dept.**  
**Page 2**

**DEP File No.:**  
**0080446-266-DSGP**

Based upon the submitted Notice and accompanying documentation, this correspondence is being sent to advise that the Department does not object to the use of such General Permit at this time. Please be advised that the permittee is required to abide by Rule [62-555.405, F.A.C.](#), all

applicable rules in Chapters [62-4](#), [62-550](#), [62-555](#), F.A.C., and the General Conditions for All General Drinking Water Permits (found in [62-4.540, F.A.C.](#)).

The permittee shall comply with all sampling requirements specific to this project. These requirements are attached for review and implementation.

Pursuant to Rule [62-555.345, F.A.C.](#), the permittee shall submit a certification of construction completion [DEP Form No. [62-555.900\(9\)](#)] to the Department and obtain approval, or clearance, from the Department before placing any water main extension constructed under this general permit into operation for any purpose other than disinfection or testing for leaks.

Within 30 days after the sale or legal transfer of ownership of the permitted project that has not been cleared for service in total by the Department, both the permittee and the proposed permittee shall sign and submit an application for transfer of the permit using Form [62-555.900\(8\), F.A.C.](#), with the appropriate fee. The permitted construction is not authorized past the 30-day period unless the permit has been transferred.

When any existing asbestos cement (AC) pipes are replaced under this permit, the permittee shall do so in accordance with the applicable rules of the Federal Asbestos Regulation and Florida DEP requirements. For specific requirements applicable to AC pipes, the permittee should contact the Air and Waste Management section managers prior to commencing any such activities at (561) 681-6672. Please be aware that a notification is required to be submitted to the Department for a regulated project.

This permit will expire five years from the date of issuance. If the project has been started and not completed by that time, a new permit must be obtained before the expiration date in order to continue work on the project, per Rule [62-4.030, F.A.C.](#)

Sincerely



September 28, 2018

John Kent Edwards  
Environmental Administrator

Date

DP/BMZ

Copies Furnished to:  
FDEP SED – Jocelyn Labbe, Bahman Zangeneh, Greg Kennedy  
Indian River County Health Department – [Cheryl.Dunn@flhealth.gov](mailto:Cheryl.Dunn@flhealth.gov)

**A Civil Penalty May Be Incurred**

**if this project is placed into operation before obtaining a clearance from this office.**

Requirements for clearance upon completion of projects are as follows:

**1) Clearance Form**

Submission of a fully completed Department of Environmental Protection (DEP) Form [62-555.900\(9\)](#) *Certification of Construction Completion and Request for Clearance to Place Permitted PWS Components into Operation*.

**2) Record Drawings, if deviations were made**

Submission of the portion of record drawings showing deviations from the DEP construction permit, including preliminary design report or drawings and specifications, if there are any deviations from said permit (Note that it is necessary to submit a copy of only the portion of record drawings showing deviations and not a complete set of record drawings.).

**3) Bacteriological Results**

Copies of satisfactory bacteriological analysis (a.k.a. Main Clearance), taken within sixty (60) days of completion of construction, from locations within the distribution system or water main extension to be cleared, in accordance with Rules [62-555.315\(6\)](#), [62-555.340](#), and [62-555.330](#), F.A.C. and American Water Works Association (AWWA) Standard C 651-92,99 as follows:

Connection to an existing system  
The end point of the proposed addition  
Any water lines branching off a main extension  
Every 1,200 feet on straight runs of pipe

Each location shall be sampled on two consecutive days, with sample points and chlorine residual readings clearly indicated on the report. A sketch or description of all bacteriological sampling locations must also be provided.

For further clarification contact:  
Bahman M. Zangeneh, ENG IV  
Water Facilities Section  
SED/DEP  
3301 Gun Club Rd, MSC 7210-1  
West Palm Beach, FL 33406  
Tel: 561-681-6749  
[Bahman.Zangeneh@dep.state.fl.us](mailto:Bahman.Zangeneh@dep.state.fl.us)



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
JACKSONVILLE DISTRICT CORPS OF ENGINEERS  
COCOA PERMITS OFFICE  
400 HIGH POINT DR, SUITE 600  
COCOA, FLORIDA 32926

**29 March 2018**

Regulatory Division  
North Permits Branch  
Cocoa Permits Section  
SAJ-2008-01260 NWP-CMM)

Indian River County  
James Ennis  
1801 27<sup>th</sup> Street  
Vero Beach, FL 32960

**NATIONWIDE PERMIT RE-VERIFICATION LETTER**

Dear Mr. Ennis:

You requested re-verification of a project that we previously verified on **22 February 2016**. Our file number is SAJ-2008-01260. The proposed bank stabilization is to be done in conjunction with a bridge widening project. The area of the revetment mat installation is 0.08 acres, which constitutes 0.08 acres of fill of waters of the United States. The existing articulated block revetment will remain. The limits of the revetment area are a requirement imposed by the Indian River Farms Water Control District (IRFWCD). The project is located in the IRFWCD Main Relief Canal, at 43<sup>rd</sup> Ave, Vero Beach, in Section 3, Township 33 S, Range 39 E, Indian River County, Florida. You stated in your request that there are no changes to that project.

Your project is authorized by Nationwide Permit (NWP) Number 13. This verification is valid until **March 18, 2022**. Some of the terms, conditions and regional conditions may have changed because our previous verification was based on the 2012 Federal Register and Regional Conditions. This letter is based on the project being performed in accordance with: the drawings attached to our previous letter; the terms and conditions found on pages 1983 to 2008, inclusive, of the Federal Register Vol. 82, dated January 6, 2017; the Regional Conditions dated March 14, 2017; and, the entirety of our previous letter, including the special conditions and attachments (except for the expiration date and the references to the 2012 Federal Register and Regional Conditions).

-2-

If you are unable to access the internet or require a hardcopy of any of the above-referenced documents, please contact me by telephone at 321-504-3771.

Sincerely,

Corey Maier  
Project Manager

Enclosures

Copy/ies Furnished:



GENERAL CONDITIONS  
33 CFR PART 320-330

1. The time limit for completing the work authorized ends on **March 18, 2022**.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow a representative from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

**DEPARTMENT OF THE ARMY PERMIT TRANSFER REQUEST**

**PERMIT NUMBER: SAJ-2008-01260 (NWP-CMM)**

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. Although the construction period for works authorized by Department of the Army permits is finite, the permit itself, with its limitations, does not expire.

To validate the transfer of this permit and the associated responsibilities associated with compliance with its terms and conditions, have the transferee sign and date below and mail to the U.S. Army Corps of Engineers, Enforcement Section, Post Office Box 4970, Jacksonville, FL 32232-0019.

\_\_\_\_\_  
**(TRANSFEREE-SIGNATURE)**

\_\_\_\_\_  
**(SUBDIVISION)**

\_\_\_\_\_  
**(DATE)**

\_\_\_\_\_  
**(LOT)**

\_\_\_\_\_  
**(BLOCK)**

\_\_\_\_\_  
**(NAME-PRINTED)**

\_\_\_\_\_  
**(STREET ADDRESS)**

\_\_\_\_\_  
**(MAILING ADDRESS)**

\_\_\_\_\_  
**(CITY, STATE, ZIP CODE)**

**SELF-CERTIFICATION STATEMENT OF COMPLIANCE**

**Permit Number: SAJ-2008-01260**

Permittee's Name & Address (please print or type): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone Number: \_\_\_\_\_

Location of the Work: \_\_\_\_\_

\_\_\_\_\_

Date Work Started: \_\_\_\_\_ Date Work Completed: \_\_\_\_\_

**PROPERTY IS INACCESSIBLE WITHOUT PRIOR NOTIFICATION: YES \_\_\_\_\_ NO \_\_\_\_\_**

**TO SCHEDULE AN INSPECTION PLEASE CONTACT \_\_\_\_\_  
AT \_\_\_\_\_**

Description of the Work (e.g. bank stabilization, residential or commercial filling, docks,  
dredging,  
etc.): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Acreage or Square Feet of Impacts to Waters of the United States: \_\_\_\_\_

Describe Mitigation completed (if applicable): \_\_\_\_\_

\_\_\_\_\_

Describe any Deviations from Permit (attach drawing(s) depicting the deviations):

\_\_\_\_\_

\_\_\_\_\_

\*\*\*\*\*

I certify that all work, and mitigation (if applicable) was done in accordance with the limitations and conditions as described in the permit. Any deviations as described above are depicted on the attached drawing(s).

\_\_\_\_\_  
Signature of Permittee

\_\_\_\_\_  
Date







# INDIAN RIVER COUNTY

## BOARD OF COUNTY COMMISSIONERS



STATE ROUTE 60  
WIDENING, MILL & RESURFACE  
FROM 44TH AVENUE TO 38TH AVENUE  
&  
43RD AVENUE  
RECONSTRUCTION  
FROM 19TH STREET TO 26TH STREET

PUBLIC WORKS DIRECTOR:  
RICHARD B. SZPYRKA, P.E.

COUNTY ENGINEER:  
JAMES W. ENNIS, P.E.

PROJECT MANAGER:  
WILLIAM JOHNSON, P.E.

### INDEX OF SHEETS

#### ROADWAY PLANS

#### BRIDGE PLANS

B-1	COVER SHEET, LOCATION MAP, & INDEX OF SHEETS
B-2	SUMMARY OF QUANTITIES
B-3	EXISTING AND PROPOSED BRIDGE CROSS SECTIONS
B-4	GENERAL NOTES & SURFACE FINISH DETAIL
B-5	EXISTING BRIDGE PLAN
B-6	PROPOSED BRIDGE PLAN
B-7	PROPOSED WEST BRIDGE ELEVATION
B-8	PROPOSED SUBSTRUCTURE PILES LAYOUT PLAN
B-9	PILE DATA TABLE AND SOIL BORINGS
B-10	EXISTING SOUTH END BENT PLAN AND ELEVATION
B-11	PROPOSED SOUTH END BENT PLAN AND ELEVATION
B-12	PARTIAL SOUTH END BENT ELEVATION AND ELEVATION TABLE
B-13	SOUTH END BENT DETAILS, REINFORCING BAR LIST, & ESTIMATED QUANTITIES
B-14	SOUTH WING WALL SECTION AND ELEVATION
B-15	EXISTING NORTH END BENT PLAN AND ELEVATION
B-16	PROPOSED NORTH END BENT PLAN AND ELEVATION
B-17	PARTIAL NORTH END BENT ELEVATION AND ELEVATION TABLE
B-18	NORTH END BENT DETAILS, REINFORCING BAR LIST, & ESTIMATED QUANTITIES
B-19	NORTH WING WALL SECTION AND ELEVATION
B-20	END BENT PEDESTAL DETAILS, REINFORCING BAR LIST, & ESTIMATED QUANTITIES
B-21	END BENT SEISMIC BLOCKS SECTION AND ELEVATION, REINFORCING BAR LIST, & ESTIMATED QUANTITIES
B-22	EXISTING INTERMEDIATE BENT PLAN AND ELEVATION
B-23	PROPOSED INTERMEDIATE BENT PLAN AND ELEVATION
B-24	PARTIAL INTERMEDIATE BENT ELEVATION AND ELEVATION TABLE
B-25	INTERMEDIATE BENT DETAILS, REINFORCING BAR LIST, & ESTIMATED QUANTITIES
B-26	INTERMEDIATE BENT PEDESTAL DETAILS, REINFORCING BAR LIST, & ESTIMATED QUANTITIES
B-27	INTERMEDIATE BENT SEISMIC BLOCKS SECTION AND ELEVATION, REINFORCING BAR LIST, & ESTIMATED QUANTITIES
B-28	PROPOSED FINISH GRADE PLAN AND BEAM PLACEMENT PLAN
B-29	BEAM BUILD-UP DETAILS AND NOTES AND BEAM CONSTRUCTION CONTROL SCHEDULE
B-30	AASHTO TYPE II BEAM TABLE OF BEAM VARIABLES - INDEX NO. S-121 AASHTO TYPE II BEAM - MISCELLANEOUS ORDER DETAILS BRIDGE ELEVATIONS CROSS SECTION AND FINISH GRADE ELEVATIONS TABLE
B-31	PARTIAL SLAB REINFORCING PLAN
B-32	PARTIAL DIAPHRAGM REINFORCING AND SLAB CROSS SECTION
B-33	END BENT AND INTERMEDIATE BENT DIAPHRAGM SECTIONS
B-34	V-GROOVE DETAIL, SIDEWALK DETAILS AND SCHEDULES
B-35	EXPANSION JOINT DETAILS AND MISCELLANEOUS DETAILS
B-36	SIDEWALK DETAILS
B-37	MISCELLANEOUS DETAILS
B-38	APPROACH SLAB REINFORCING PLAN AND SIDEWALK DETAILS
B-39	JACKING INFORMATION

FDOT FPN# 431759-2-54-01



VICINITY MAP



LOCATION MAP

#### F.D.O.T. INDEX NO.

423	TRAFFIC RAILING BARRIER - (32" VERTICAL SHAPE) INDEX NO. 423 (SHEETS 1 - 3)
821	ALUMINUM PEDESTRIAN/BICYCLE BULLET RAILING FOR TRAFFIC RAILING (32" V SHAPE) INDEX NO. 821 (SHEET 1)
822	ALUMINUM PEDESTRIAN/BICYCLE BULLET RAILING DETAILS INDEX NO. 822 (SHEETS 1 - 2)
20010	TYPICAL FLORIDA I BEAM DETAILS AND NOTES INDEX NO. 20010 (SHEETS 1 - 2)
20120	AASHTO TYPE II BEAM - INDEX NO. 20120 (SHEETS 1 - 4)
20510	COMPOSITE ELASTOMERIC BEARING PADS PRESTRESSED FLORIDA I AND AASHTO TYPE II BEAM INDEX NO. 20510 (SHEET 1)
20511	BEARING PLATES (TYPE I) PRESTRESSED FLORIDA I AND AASHTO TYPE II BEAM INDEX NO. 20511 (SHEET 1 - 2)
23600	NOTES AND DETAILS FOR SQUARE PRESTRESSED CONCRETE PILES - INDEX NO. 23600
20601	SQUARE PRESTRESSED CONCRETE PILE SPLICES - INDEX NO. 20601
20610	18" SQUARE PRESTRESSED CONCRETE PILE - INDEX NO. 20610
20910	APPROACH SLABS (RUGID PAVEMENT APPROACHES) INDEX NO. 20910 (DRAWING 1 OF 2)
20910	APPROACH SLABS (RUGID PAVEMENT APPROACHES) INDEX NO. 20910 (DRAWING 2 OF 2)

THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH AND ARE GOVERNED BY THE STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION, DESIGN STANDARDS, (BOOKLET DATED JANUARY, 2004)

GOVERNMENT SPECIFICATIONS: THE FLORIDA DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, DATED 2024, AND SPECIAL PROVISIONS THEREIN IF AS NOTED IN THE CONTRACT SPECIFICATIONS FOR THIS PROJECT.

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN ALTERED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

ENGINEER'S CERTIFICATION: I HEREBY CERTIFY THAT THE ATTACHED PLANS AND DESIGN ARE IN GENERAL CONFORMANCE WITH THE DESIGN STANDARDS AND OTHER PROVISIONS IN EFFECT ON THIS DATE FOR INDIAN RIVER COUNTY ENGINEERING DEPARTMENT AND THE STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION.  
DATE: 11/28/24  
PROFESSIONAL ENGINEER # 36719

DATE: Nov 08, 2017, 2:46pm, 113025-2401-05-028, 151, extent of work and cover/standard Dept:020101-050524

VERIFY SCALE

1" = 100'

BAR IS ONE INCH ON ORIGINAL DRAWINGS. ADJUST SCALES AS NECESSARY.

BRIDGE DESIGN ASSOCIATES, INC.

1647 West Coast Road, Suite 200, West Palm Beach, FL 33411

TEL: 561-833-8888 FAX: 561-833-8889

WWW.BRIDGEDESIGNASSOCIATES.COM

NO.	REVISION	DATE	BY

Department of Public Works  
Engineering Division

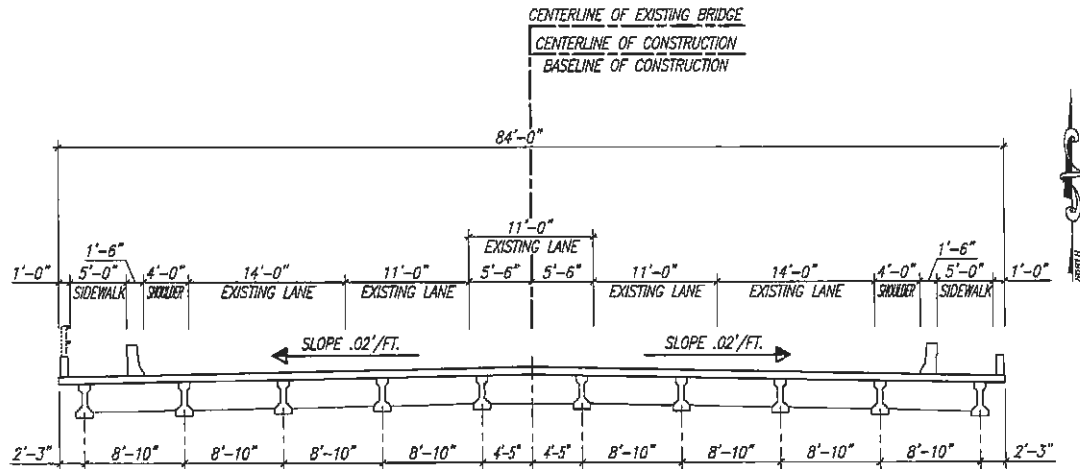
Scale: AS NOTED  
Approved:  
Drawn: C.A.B.  
Checked: B.C.R.  
Date: 07/15/15  
Field Book No:

PROJECT:  
Proposed Concrete Bridge for:  
43rd Avenue over Main Relief Canal  
Indian River County, Florida

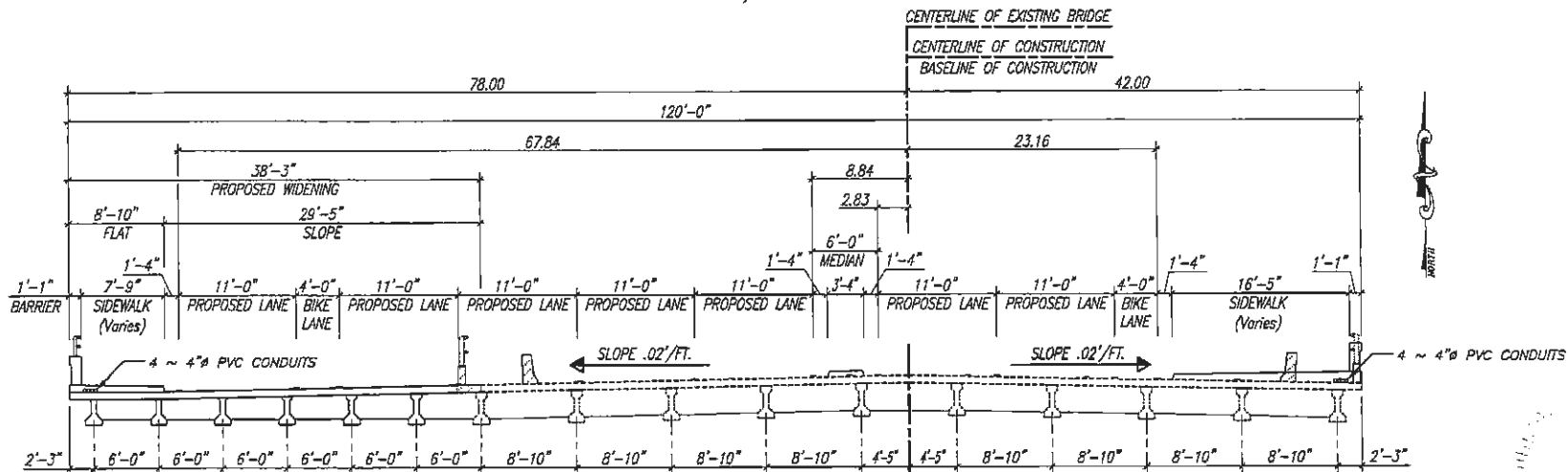
SEAL

SHEET  
B-1  
PROJECT NO.  
05-609B





**EXISTING BRIDGE CROSS SECTION @ BEGIN BRIDGE STA. 129+62.455**  
 $3/16" = 1'-0"$



**PROPOSED BRIDGE CROSS SECTION @ BEGIN BRIDGE STA. 129+62.455**  
 $3/16" = 1'-0"$

DATE: Nov. 05, 2017 - 1:10pm 51303-104105-009 43rd Avenue of Main Relief Canal (RFP) (2016) - PROPOSED BY

**VERIFY SCALE**

BAR IS ONE INCH ON ORIGINAL DRAWINGS. ADJUST SCALES AS NECESSARY.

**BRIDGE DESIGN ASSOCIATES, INC.**  
 11600 North Central Expressway, Suite 200  
 Dallas, Texas 75243  
 Phone: (972) 992-2100 Fax: (972) 992-2101  
 www.bridgedesign.com

NO.	REVISION	DATE	BY



**Department of Public Works**  
**Engineering Division**

Scale: AS NOTED  
 Approved:  
 Drawn: C.A.B.  
 Checked: B.C.R.  
 Date: 07/15/15  
 Field Book No:

PROJECT:  
**Proposed Concrete Bridge for:**  
**43rd Avenue over Main Relief Canal**  
 Indian River County, Florida

SEAL  
  
 Brian C. Broad - 38797  
 5000 N.W. 1st Ave. & 1st Street

SHEET  
**B-3a**  
 PROJECT NO.  
**05-609B**





**GENERAL NOTES**

**GENERAL SPECIFICATIONS:**

Florida Department of Transportation Standard Specification for Road and Bridge Construction (2015 Edition) and Supplements thereto.

**DESIGN SPECIFICATION:**

7th Edition of the AASHTO LRFD Bridge Design Specifications 2014 with current interims.  
2015 Edition of the F.D.O.T. Structure Design Manual with current interims.  
F.D.O.T. Plans and Preparation Manual January 2015.

**DESIGN LOADING:**

Live Load:  
HL-93 with Dynamic Load Allowance  
Dead Load:  
32" F Shape Traffic Railing 420 p.l.f.  
Reinforced Concrete 150 p.c.f.  
Lightweight Reinforced Concrete 110 p.c.f.  
Future Wearing Surface 15 p.s.f.  
Median 600 p.l.f.  
Sidewalk 570 p.l.f. (WEST)  
1220 p.l.f. (EAST)  
Stay in Place Metal Forms 20 p.s.f.

**CONCRETE:**

Note: Concrete to be in compliance with F.D.O.T. Specifications 346.

CONCRETE CLASS	MINIMUM 28 DAY COMPRESSIVE STRESS (ksi)	LOCATION OF CONCRETE IN STRUCTURE
Class II (Lightweight)	f'c = 3.4	Sidewalks and Median
Class II	f'c = 3.4	Traffic Barriers
Class IV	f'c = 5.5	Cast-in-place Pile Caps and Sheet Piles and Diaphragms
Class II (Bridge Deck)	f'c = 4.5	Cast-in-place Bridge Deck and Approach Slabs
Class IV	f'c = 5.5	Prestressed Concrete Beams
Class V (Special)	f'c = 6.0	Prestressed Concrete Piles

**CONCRETE:**

- Provide 3/4 inch chamfers on all exposed edges and corners except as otherwise noted.
- Construction joints will be permitted only at the locations indicated on the plans; additional construction joints or alterations to those shown will require approval by the engineer.

**REINFORCEMENT:**

- Reinforcement shall be ASTM A-615, Grade 60. Spiral ties for prestressed concrete piles shall be manufactured from cold drawn steel wire meeting the requirements of ASTM A82.
- All dimensions pertaining to location of reinforcing are to centerline of bars except where the clear dimension is shown to face of concrete.
- Reinforcement detail dimensions are out-to-out of bars.

**MINIMUM CONCRETE COVER:**

CIP Superstructure = 2 in. (Typical except as noted).  
CIP Substructure/Bent Cap = 4 in. for external surfaces cast against earth.  
CIP Substructure/Bent Cap = 3 in. for other external surfaces.  
CIP Substructure/Sheet Walls, Precast Facade = 3 in.  
Concrete covers shown in the plans do not include placement and fabrication tolerances unless shown as "minimum cover". See F.D.O.T. Standard Specifications for allowable tolerances.

**GENERAL NOTES (CONTINUED)**

**DESIGN METHOD:**

All elements were designed using the LRFD (Load and Resistance Factor Design).

**PILE LOAD:**

See Sheet B-9 for Pile Loads.

**PILES:**

18 inch square Prestressed Concrete Piles.

**SURFACE FINISH:**

All exposed surfaces of end bent wing walls and barriers shall receive a "Class 5 applied finish coating".

**ENVIRONMENT:**

Location: Inland  
Superstructure: Slightly Aggressive  
Substructure: Moderately Aggressive, controlling criteria:  
Water Resistivity = 2,000 (ohm-cm)

**DATUM:**

All Elevations shown are in N.G.V.D. 29. Unless Noted Otherwise.

**PRESTRESSED MEMBERS NOTES**

**FINISH:**

The top of prestressed units shall be finished smooth, dense surface with a steel trowel, then coarsely broomed or raked to provide a surface suitable for bonding to asphalt. All other surfaces of the unit shall receive a "Class 3" surface finish. The edge of the top of the surface of the units shall be finished by use of a small radius tool.

**CONCRETE STRENGTH:**

At transfer of the prestressing load, the cylinder strength of the concrete shall be 4000 psi.  
It shall be 6,000 psi at twenty-eight (28) days for slab units.

**HANDLING AND STORAGE:**

During handling and storage, the prestressed units must be picked up at the ends of the units to prevent damage. The prestressed units must be stored in an up-right position at all times.

**FORMS AND PALLETS:**

All prestressed units shall be cast on concrete based pallets and in metal forms. Keyway form may be wood.

**SHOP DRAWINGS:**

The contractor shall submit five (5) sets of shop drawings, showing complete details of the proposed prestressed units. The drawings shall include reinforcing steel, prestressing steel, prestressing bed layout, tensioning and detensioning schedules, and all computations required to control the work.

**MISCELLANEOUS NOTES**

- Floating Turbidity Barrier with fine mesh shall be used in accordance with F.D.O.T. Standard Specifications, Section 104.

**CONSTRUCTION NOTES**

**EQUIPMENT ON UNITS:**

Before heavy construction equipment is permitted on the structure during construction, sketches showing the axle spacing and anticipated loadings shall be submitted to and approved by the Engineer.

**VIBRATION MONITORING:**

The settlement of structures and vibration levels shall be monitored in accordance with F.D.O.T. Specifications 455-7.1. A pre-construction video recording of all structures within the distances specified in the Specifications shall be made.

**STAY IN PLACE METAL FORMS:**

Design includes allowance for 20 lb./ft. over the projected plan area of the metal forms for the unit weight of metal forms and concrete required to fill the forms flutes.

**SCREEDING DECK SLABS:**

The riding surface of the bridge deck shall be screeded to finish grade elevations which already include allowance for permanent camber.

**DESIGN SPEED:**

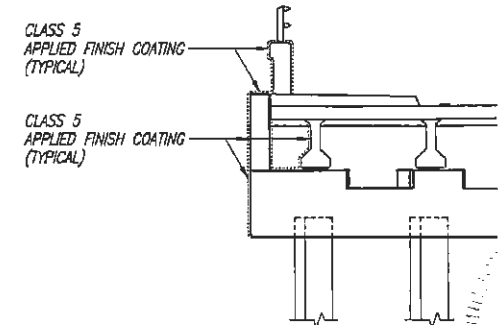
See Roadway Plans.

**UTILITIES:**

The underground utilities shown in the bridge plans are at approximate locations. For additional information refer to Roadway Plans. All involved utilities shall be verified by the contractor prior to starting work. The Contractor shall notify all involved utility companies prior to excavation, pile driving, or construction and shall be responsible for making its own determination to avoid damage. Any required relocation of existing utilities shall be done by others. Contractor shall assure that active utilities are properly maintained during construction.

**MAINTENANCE OF TRAFFIC:**

For Maintenance of Traffic, See Roadway Plans.



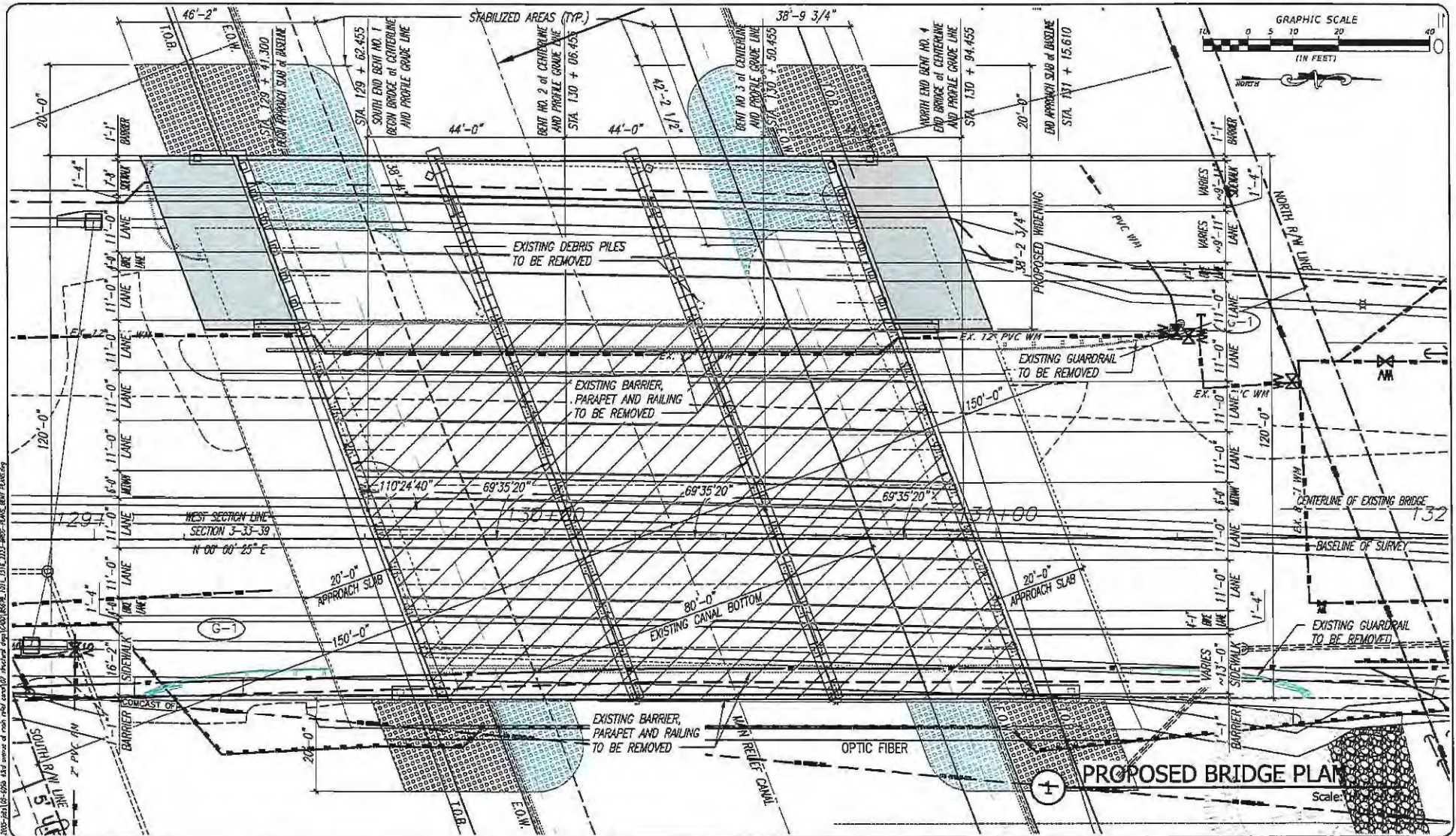
**END BENTS**  
**SURFACE FINISH DETAILS**

DATE: 06/05/2015 2:07pm 513025-10105-008-187 name of user: user107 filename: 10105-10105.dwg

<p>VERIFY SCALE</p> <p>1" = 10'</p> <p>BAR IS ONE INCH ON ORIGINAL DRAWINGS. ADJUST SCALES AS NECESSARY.</p>	<p><b>BRIDGE DESIGN ASSOCIATES, INC.</b> 1100 West Palm Beach Blvd., Suite 200, West Palm Beach, FL 33411 Tel: 561-840-0000 Fax: 561-840-0001 www.bridge-design.com</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>REVISION</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	REVISION	DATE	BY													<p><b>Department of Public Works</b> <b>Engineering Division</b></p>	<p>Scale: AS NOTED Approved: Drawn: C.A.B. Checked: B.C.R. Date: 07/15/15 Field Book No:</p>	<p>PROJECT: <b>Proposed Concrete Bridge for:</b> <b>43rd Avenue over Main Relief Canal</b> <b>Indian River County, Florida</b></p>	<p>SEAL </p>	<p>SHEET <b>B-4</b> PROJECT NO. <b>05-609B</b></p>
NO.	REVISION	DATE	BY																				







DATE: 07/15/15 2:00pm 5:13025-54(1)25-500 ASB revised 4 work sheet created: mcdonald.dan(200)@flwr.com, DILL, LYLE, JOLLY, 4902-BLANK, BRW, TRANE/SR

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 www.bridge-design.com

NO.	REVISION	DATE	BY

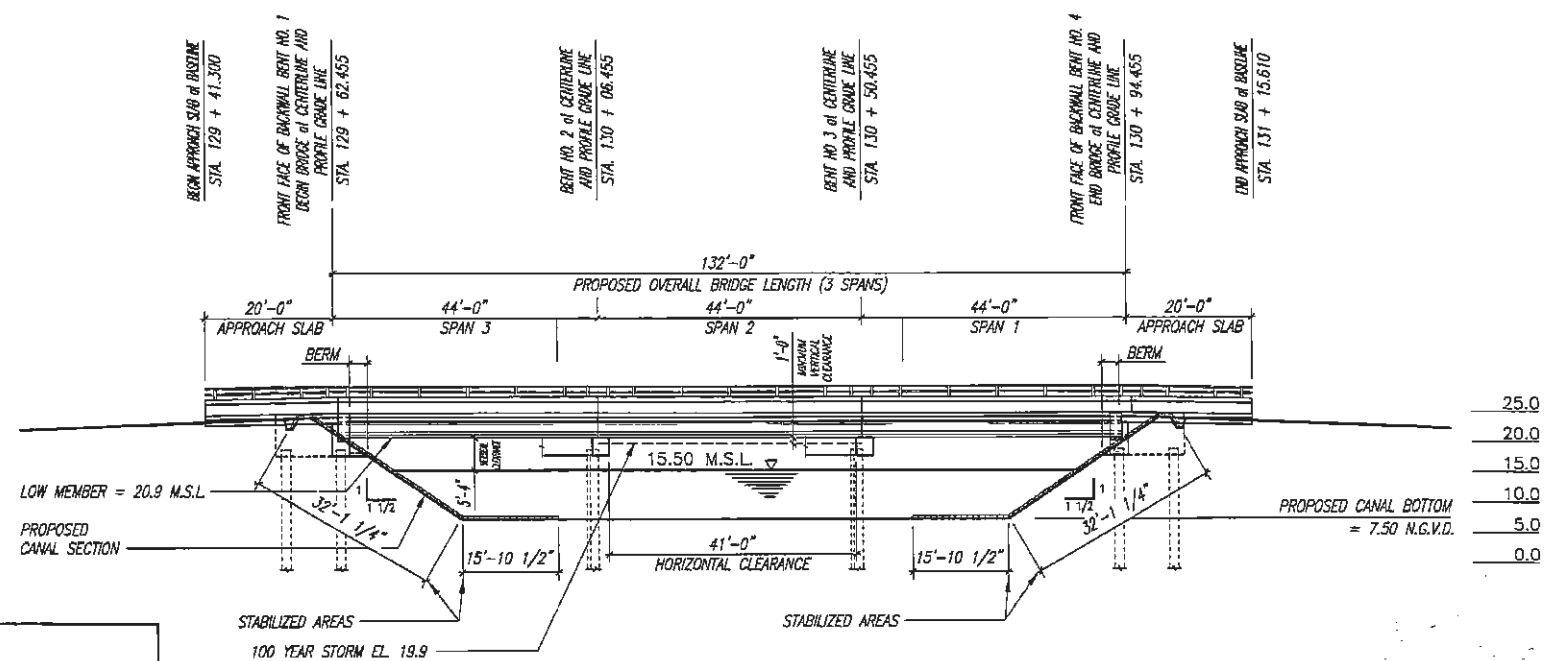
**Department of Public Works**  
**Engineering Division**

Scale: AS NOTED  
 Approved:  
 Drawn: C.A.B.  
 Checked: B.C.R.  
 Date: 07/15/15  
 Field Book No:

PROJECT:  
**Proposed Concrete Bridge for:**  
**43rd Avenue over Main Relief Canal**  
 Indian River County, Florida

SCALE  
  
 Brian C. Abbott - 38797  
 DATE: 07/15/15

SHEET  
**B-6**  
 PROJECT NO.  
**05-809B**



- NOTES:
1. ALLOWABLE LOW MEMBER ELEVATION = 20.9 M.S.L.
  2. 100 YEAR FLOW ELEVATION = 19.9 M.S.L.
  3. PROVIDE SILT BARRIER IN CANAL DURING CONSTRUCTION.

**1**  
**B-7** **PROPOSED WEST BRIDGE ELEVATION**

Scale: 1" = 10'-0"

0102, Rev. 05, 2017 - 2020, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

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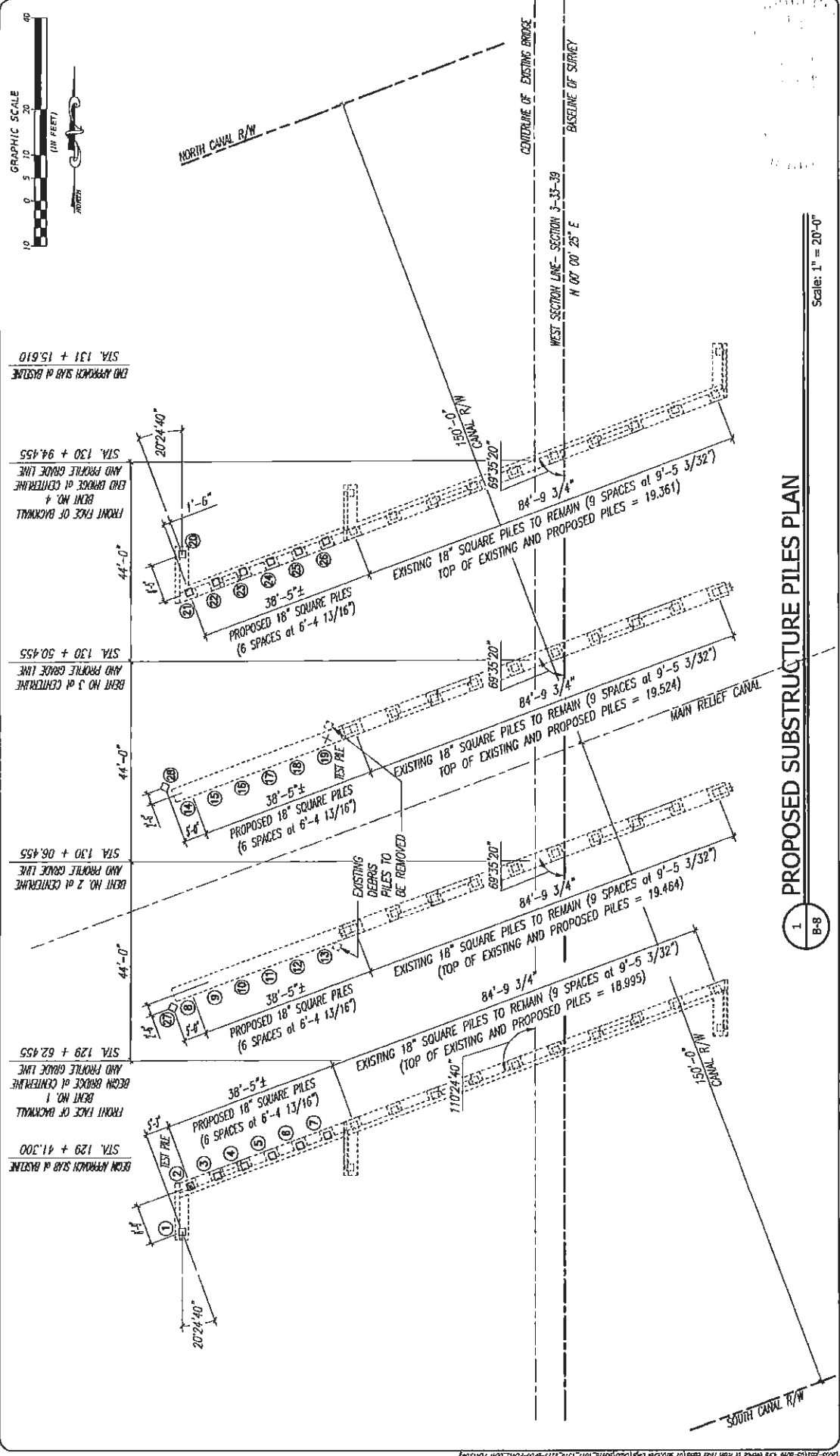
**Department of Public Works**  
**Engineering Division**

Scale: AS NOTED  
 Approved:  
 Drawn: C.A.B.  
 Checked: S.C.R.  
 Date: 07/15/15  
 Field Book No:

PROJECT:  
**Proposed Concrete Bridge for:**  
**43rd Avenue over Main Relief Canal**  
 Indian River County, Florida

SEAL  
  
 Brian C. Trout - 38737  
 STATE OF FLORIDA

SHEET  
**B-7**  
 PROJECT NO.  
**05-609B**



**PROPOSED SUBSTRUCTURE PILES PLAN**

Scale: 1" = 20'-0"

1  
B-8

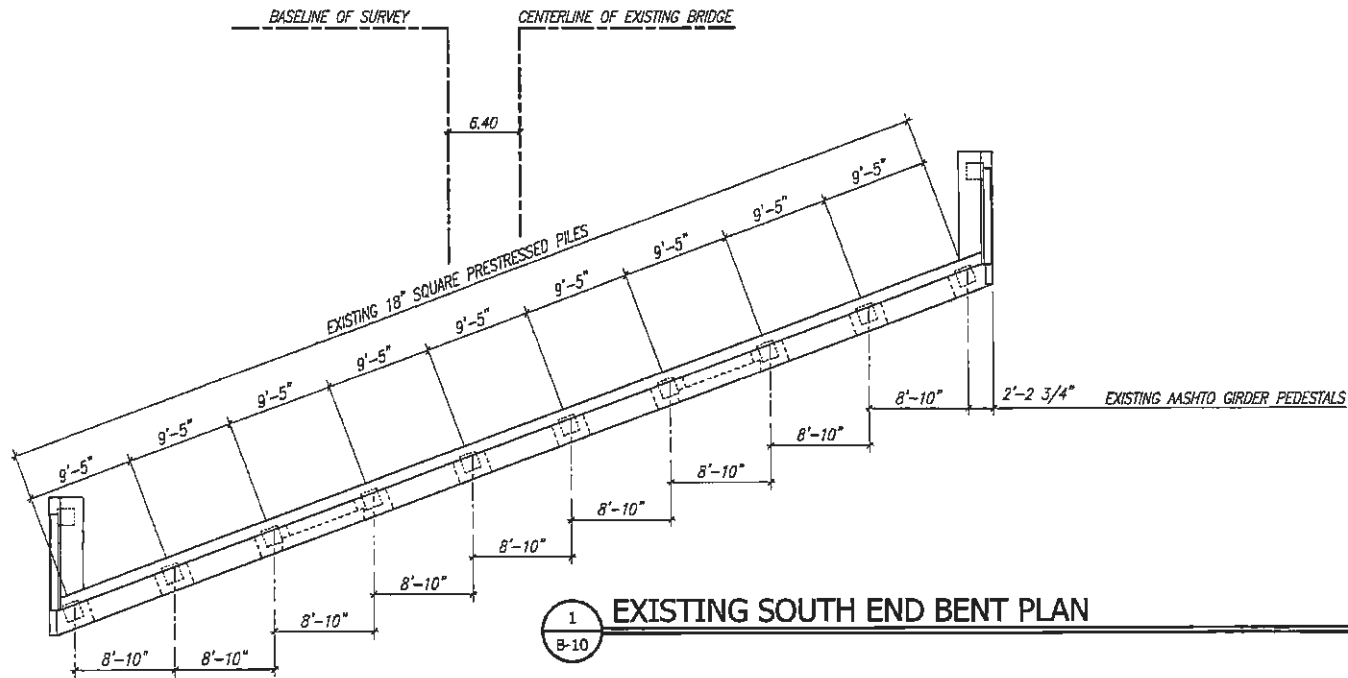
<p><b>VERIFY SCALE</b></p> <p>1" = 20'-0"</p> <p>ONE INCH ON THIS SCALE IS EQUAL TO 20 FEET ON THE GROUND UNLESS OTHERWISE NOTED.</p>	<p><b>BRIDGE DESIGN ASSOCIATES, INC.</b></p> <p>1000 WEST 10TH AVENUE, SUITE 100 DENVER, COLORADO 80202 TEL: 303.733.8888 FAX: 303.733.8889 WWW.BRIDGEDESIGNASSOCIATES.COM</p>	<table border="1"> <tr> <th>NO.</th> <th>REVISION</th> <th>DATE</th> <th>BY</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	NO.	REVISION	DATE	BY																	<p><b>SEAL</b></p> <p>Brian C. Rowell - 3877 State of Colorado</p>	<p><b>SHEET</b></p> <p>B-8</p> <p>PROJECT NO. 05-8093</p>
NO.	REVISION	DATE	BY																					
<p><b>PROJECT:</b></p> <p>Proposed Concrete Bridge for: 43rd Avenue over Main Relief Canal</p> <p>Indian River County, Florida</p>	<p><b>SEAL AS NOTED</b></p> <p>Approver: C.A.B. Drawn: B.C.R. Checked: 07/15/15 Field Book No:</p>	<p><b>Department of Public Works</b></p> <p><b>Engineering Division</b></p>	<p><b>Scale: 1" = 20'-0"</b></p>	<p><b>END APPROXIMATE SLAB &amp; BASELINE</b></p> <p>STA. 131 + 15.610</p> <p><b>END PROFILE GRADE LINE</b></p> <p>STA. 130 + 94.455</p> <p><b>FRONT FACE OF BACKWALL</b></p> <p>BENT NO. 4</p> <p><b>END PROFILE GRADE LINE</b></p> <p>STA. 130 + 80.455</p> <p><b>BENT NO. 3 @ CENTERLINE</b></p> <p>STA. 130 + 06.455</p> <p><b>BENT NO. 2 @ CENTERLINE</b></p> <p>STA. 129 + 06.455</p> <p><b>BENT NO. 1</b></p> <p><b>FRONT FACE OF BACKWALL</b></p> <p><b>BEGIN BRIDGE @ CENTERLINE</b></p> <p>STA. 129 + 41.300</p>																				

DATE: 04-04-2012 11:26:22 AM 2012-2015-05-08 11:26:22 AM 2012-2015-05-08 11:26:22 AM 2012-2015-05-08 11:26:22 AM 2012-2015-05-08 11:26:22 AM



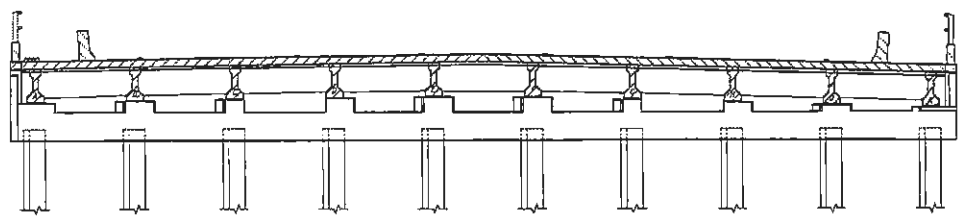


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**1** EXISTING SOUTH END BENT PLAN  
B-10

Scale: 3/16" = 1'-0"



**2** EXISTING SOUTH END BENT ELEVATION  
B-10

Scale: 3/16" = 1'-0"

**VERIFY SCALE**  
1" = 16'-0"  
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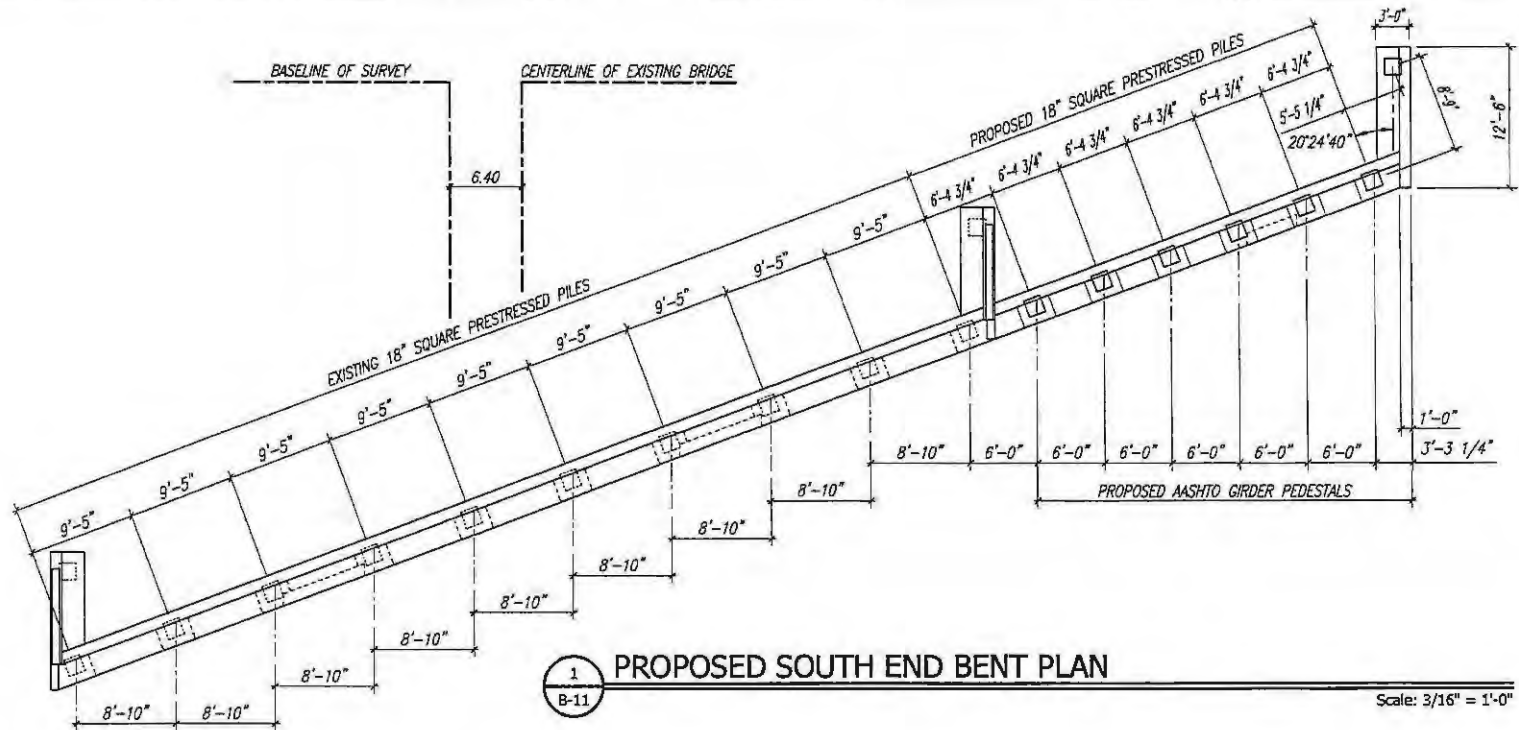
**INDIAN RIVER COUNTY**  
**Department of Public Works**  
**Engineering Division**

Scale: AS NOTED  
Approved: \_\_\_\_\_  
Drawn: C.A.B.  
Checked: B.C.R.  
Date: 07/15/15  
Field Book No: \_\_\_\_\_

**PROJECT:**  
Proposed Concrete Bridge for:  
43rd Avenue over Main Relief Canal  
Indian River County, Florida

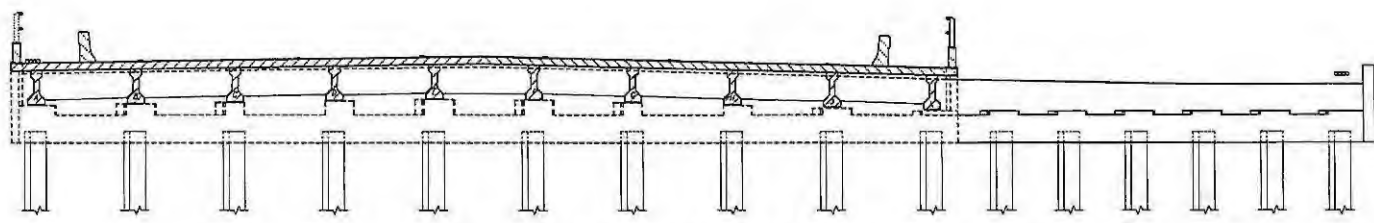
**SEAL**  
Brent C. Rosen - 38787  
Professional Engineer  
FL 00000000000000000000

**SHEET**  
B-10  
**PROJECT NO.**  
05-809B



1 PROPOSED SOUTH END BENT PLAN  
B-11

Scale: 3/16" = 1'-0"



2 PROPOSED SOUTH END BENT ELEVATION  
B-11

Scale: 3/16" = 1'-0"

DATE: Nov. 25, 2017 - 2:05pm S:\2017-2018\152-809-000\152-809-014\cadd\152-809-011.dwg (152-809-011.dwg) 2017-09-22 09:45:46 GWT 2017.57

VERIFY SCALE  
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Engineering Division

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Drawn: C.A.B.  
Checked: B.C.R.  
Date: 07/15/15  
Field Book No:

PROJECT:  
Proposed Concrete Bridge for:  
43rd Avenue over Main Relief Canal  
Indian River County, Florida

SEAL  
Bren C. Frazell - 36787  
Professional Engineer

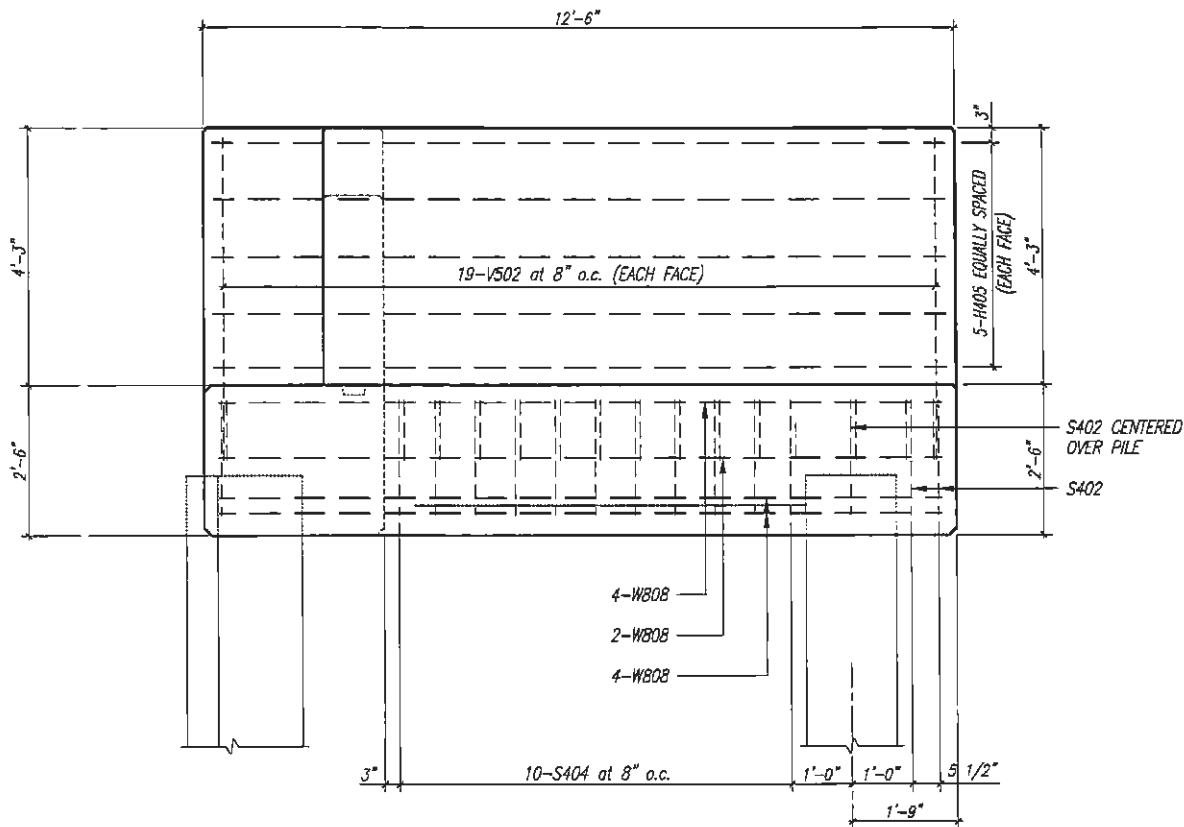
SHEET  
B-11  
PROJECT NO.  
05-809B



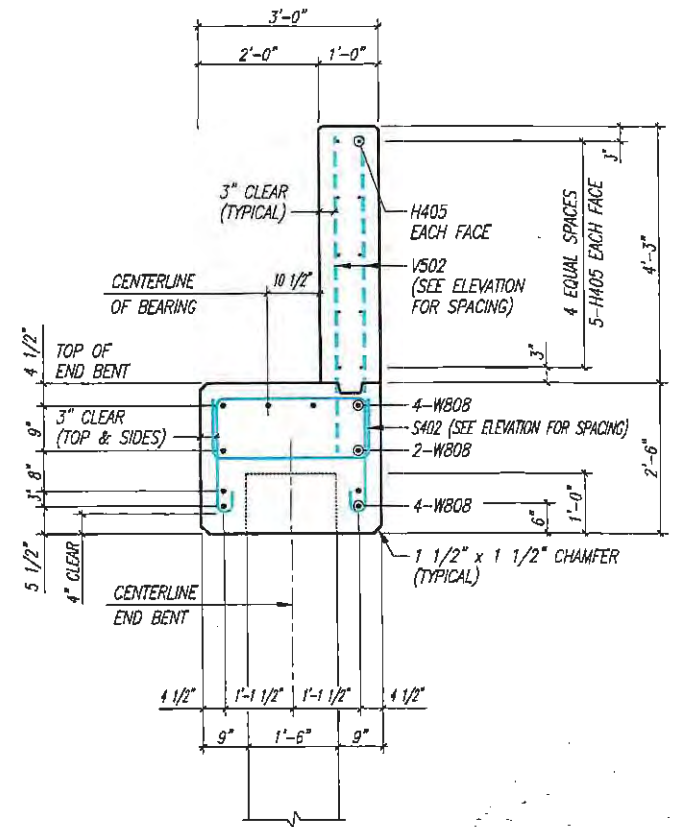








PROPOSED SOUTH WING WALL  
ELEVATION C - C



PROPOSED SOUTH WING WALL  
SECTION D - D

DATE: Nov. 08, 2017 - 2:28pm S:\2017\10-2017\43rd Avenue of South Relief Canal\Drawings\11-5000R.dwg 43rd Ave. 10/15/17

VERIFY SCALE

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FAX: 352.237.1101  
WWW.BRIDGEDESIGNASSOCIATES.COM

NO.	REVISION	DATE	BY

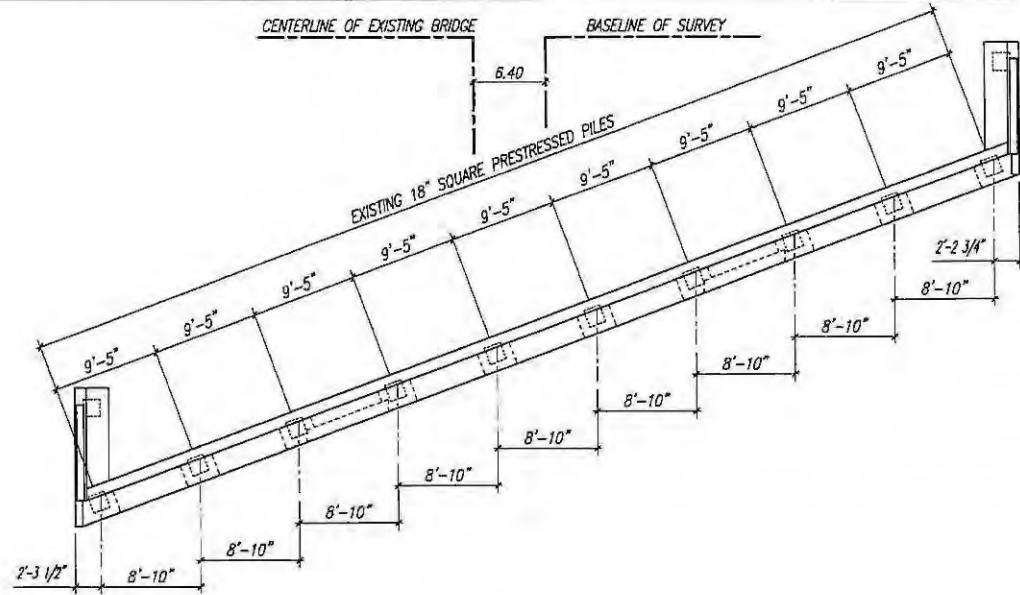
**Department of Public Works**  
Engineering Division

Scales: AS NOTED  
Approved:  
Drawn: C.A.B.  
Checked: B.C.R.  
Date: 07/15/15  
Field Book No:

PROJECT:  
Proposed Concrete Bridge for:  
43rd Avenue over Main Relief Canal  
Indian River County, Florida

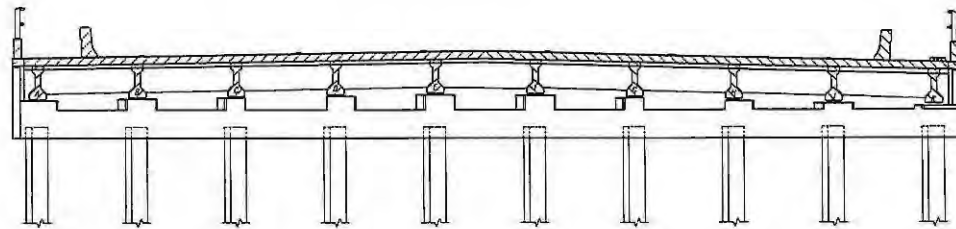
SEAL  
*B. C. Russell*  
Brian C. Russell - 38797  
Professional Engineer

SHEET  
B-14  
PROJECT NO.  
05-609B



1 EXISTING NORTH END BENT PLAN  
B-15

Scale: 3/16" = 1'-0"



2 EXISTING NORTH END BENT ELEVATION  
B-15

Scale: 3/16" = 1'-0"



DATE: 07/08/2017 2:39p S:\1009-jad\10-2016-43rd Avenue of South Road Concept\10-2016-43rd Avenue of South Road Concept.dwg (10/11/16) 1016-2016-43rd Avenue of South Road Concept.dwg

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**Department of Public Works**  
**Engineering Division**

Scale: AS NOTED  
Approved:  
Drawn: C.A.B.  
Checked: B.C.R.  
Date: 07/15/15  
Field Book No:

PROJECT:  
Proposed Concrete Bridge for:  
43rd Avenue over Main Relief Canal  
Indian River County, Florida

SEAL  
Brian C. Fricol  
B.C.F. 12/2019  
Brian C. Fricol - 38797  
LICENSED PROFESSIONAL ENGINEER  
STATE OF FLORIDA

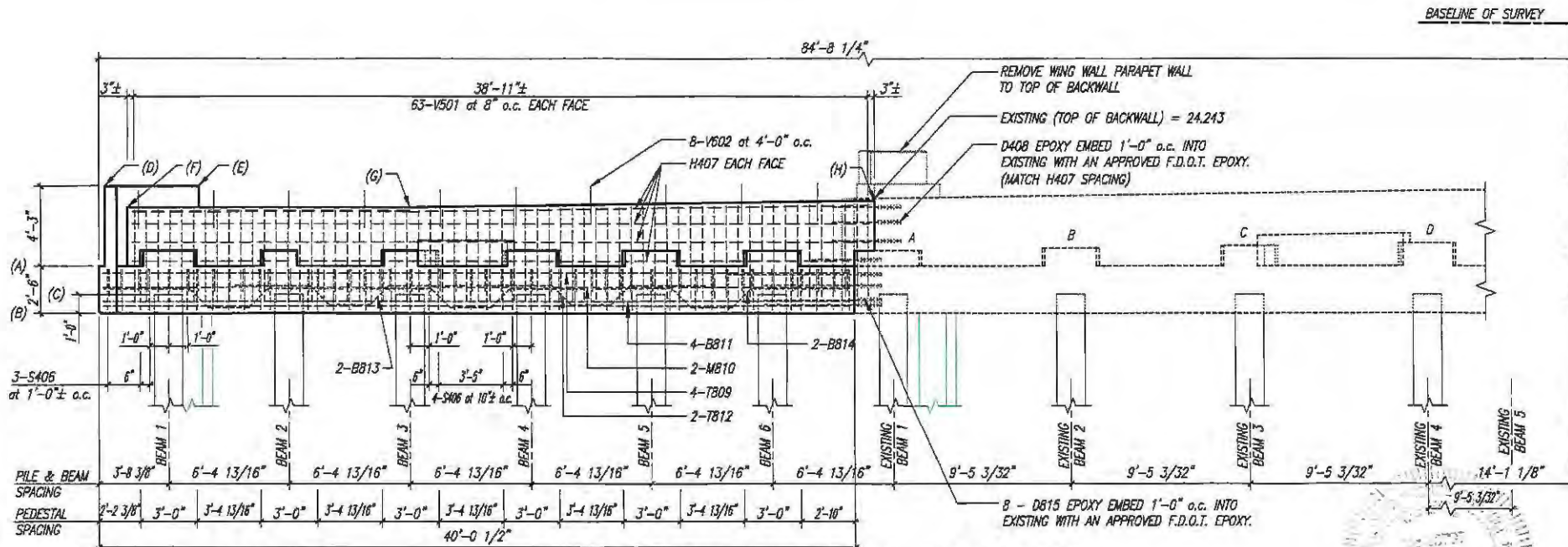
SHEET  
B-15  
PROJECT NO.  
05-609B





### Elevation Table

Bents	Elevations (ft.)							
	A	B	C	D	E	F	G	H
North End Bent No. 4	20.86	18.36	19.36	25.45	25.45	23.68	23.68	24.12



See Sheet B20 for  
Pedestal Details.

### PARTIAL NORTH END BENT ELEVATION

$3/8" = 1'-0"$

0402, Rev. 04, 2017 - 21304e, 3/15/09-jab/15-0508, 43rd Avenue of which north abutment/19 Structural Dept (020)10117, Rev. 04-10-05, 02/08/05, 5/09/09

VERIFY SCALE

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 Tel: 561-840-0800 Fax: 561-840-0801  
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NO.	REVISION	DATE	BY

**Department of Public Works**  
Engineering Division

Scale: AS NOTED  
 Approved: \_\_\_\_\_  
 Drawn: C.A.B.  
 Checked: B.C.R.  
 Date: 07/15/15  
 Field Book No: \_\_\_\_\_

PROJECT:  
**Proposed Concrete Bridge for:**  
**43rd Avenue over Main Relief Canal**  
 Indian River County, Florida

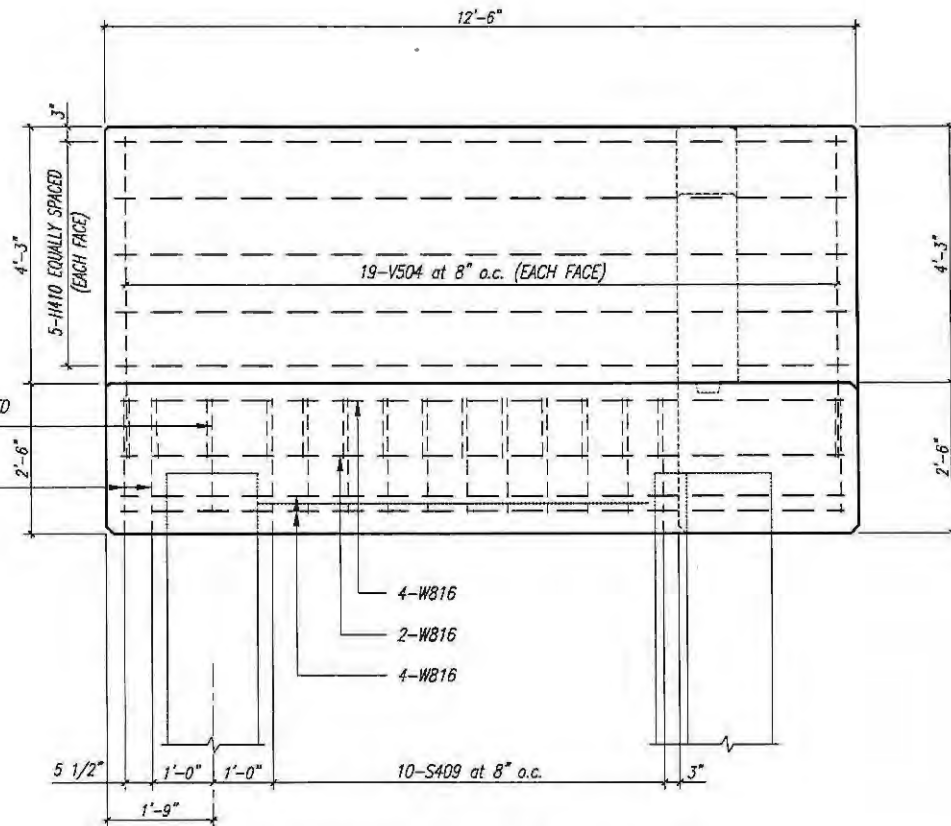
SEAL  
  
 Brian C. Pechel - 35797  
 1/16/2017

SHEET  
**B-17**  
 PROJECT NO.  
**05-609B**

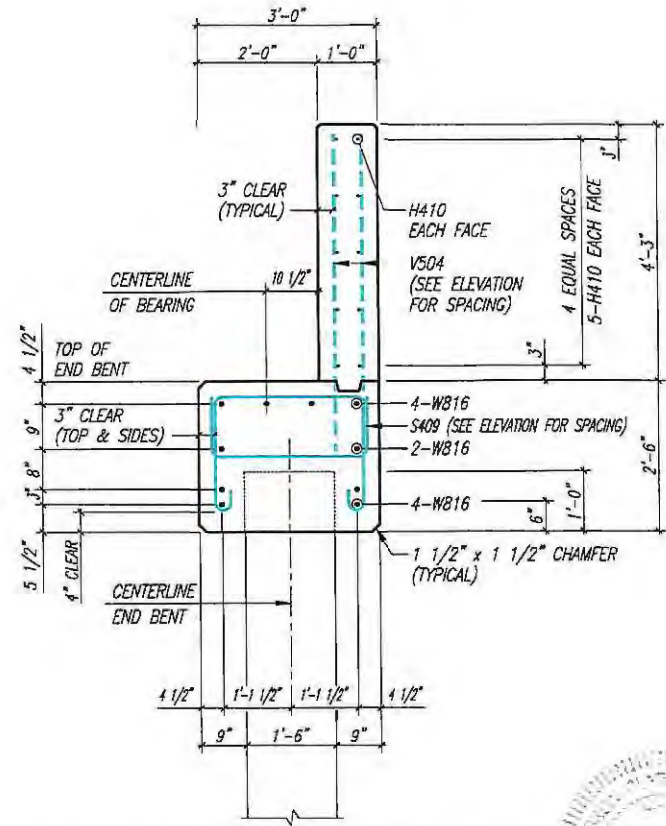




DATE: MAY 04, 2017 - 2:10 PM S:\2008-2010\05-609B-43rd Avenue & Main Relief Canal.dwg (S:\2008-2010\05-609B-43rd Avenue & Main Relief Canal.dwg) PLOT DATE: 05/15/15



**PROPOSED NORTH WING WALL  
ELEVATION C - C**



**PROPOSED NORTH WING WALL  
SECTION D - D**



**BRIDGE DESIGN ASSOCIATES, INC.**  
 10000 W. US HWY 90, SUITE 100  
 TAMPA, FL 33613  
 (813) 973-1100  
 FAX: (813) 973-1101

NO.	REVISION	DATE	BY

**Department of Public Works  
Engineering Division**

Scale: AS NOTED  
 Approved:  
 Drawn: C.A.B.  
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**Proposed Concrete Bridge for:  
 43rd Avenue over Main Relief Canal**  
 Indian River County, Florida

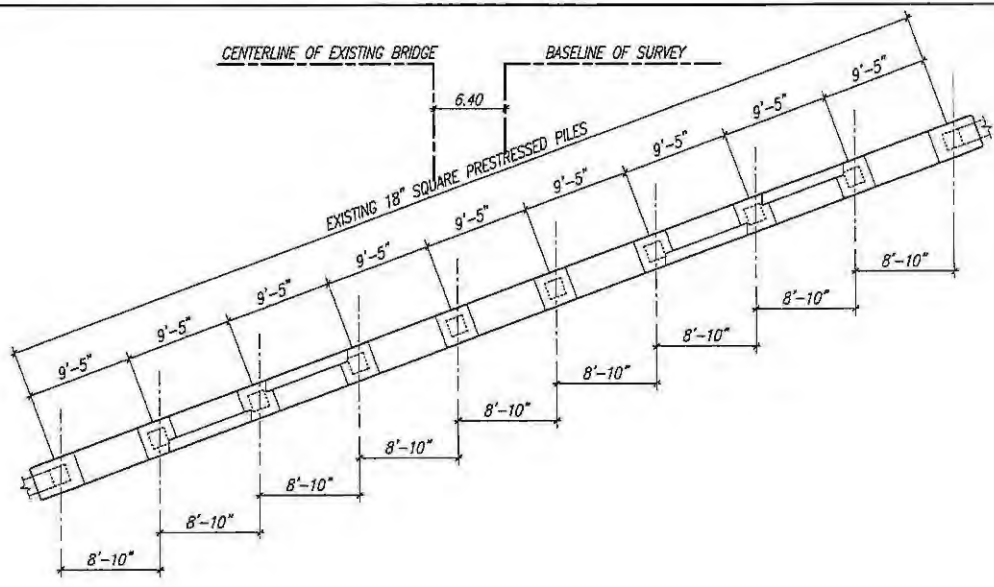
SEAL  
  
 Brian C. Howell - 38197

SHEET  
**B-19**  
 PROJECT NO.  
 05-609B

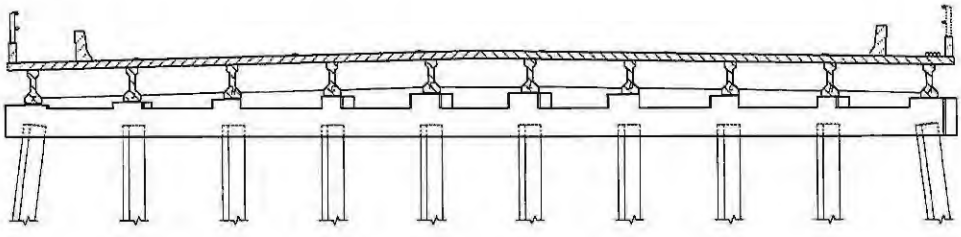








1 EXISTING TYPICAL INTERMEDIATE BENT PLAN  
 B-22 Scale: 3/16" = 1'-0"



2 EXISTING TYPICAL INTERMEDIATE BENT ELEVATION  
 B-22 Scale: 3/16" = 1'-0"



DATE: May 08, 2017 - 2:10pm S:\000-00105-609B - 234 - 234.dwg 3/16" = 1'-0" 05/08/17 10:11:14 AM 2017 - 2460 - 2460 - 2460 - 2460 - 2460

VERIFY SCALE  
  
 BAR IS ONE INCH ON ORIGINAL DRAWINGS. ADJUST SCALES AS NECESSARY.

BRIDGE DESIGN ASSOCIATES, INC.  
 12200 W. 39th Ave., Suite 200, Fort Lauderdale, FL 33322  
 TEL: (954) 349-3440 FAX: (954) 349-3441  
 WWW.BRIDGEDESIGNASSOCIATES.COM

NO.	REVISION	DATE	BY

**Department of Public Works**  
 Engineering Division

Scale: AS NOTED  
 Approved:  
 Drawn: C.A.B.  
 Checked: B.C.R.  
 Date: 07/15/15  
 Field Book No:

PROJECT:  
**Proposed Concrete Bridge for:**  
**43rd Avenue over Main Relief Canal**  
 Indian River County, Florida

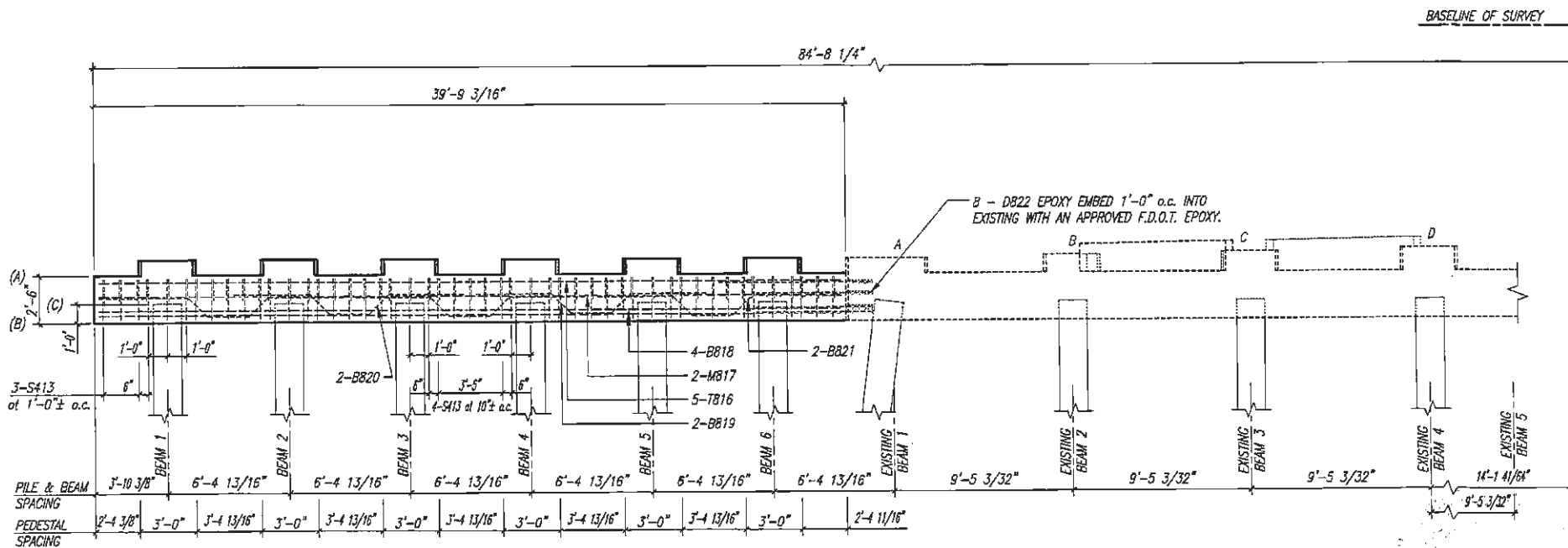
SEAL  
  
 Brian G. Rhoads - 30787  
 APRIL 22, 2015 4:00PM

SHEET  
**B-22**  
 PROJECT NO.  
 05-609B





Elevation Table			
Bents	Elevations (ft.)		
	A	B	C
Intermediate Bent No. 2	20.96	18.46	19.46
Intermediate Bent No. 3	21.02	18.52	19.52



See Sheet B26 for Pedestal Details.

**PARTIAL INTERMEDIATE BENT ELEVATION**  
 $\frac{3}{8}'' = 1'-0''$

DATE: MAY 08 2017 - 1:16pm - C:\Users\jacob.1016\OneDrive\Documents\Bent Elevation.dwg

VERIFY SCALE  
  
 BAR IS ONE INCH ON ORIGINAL DRAWINGS. ADJUST SCALES AS NECESSARY.

**BRIDGE DESIGN ASSOCIATES, INC.**  
 1000 W. UNIVERSITY BLVD., SUITE 200  
 GAITHERSBURG, MD 20878  
 TEL: 410-286-7600 FAX: 410-286-7601  
 WWW.BRIDGEDESIGNASSOCIATES.COM

NO.	REVISION	DATE	BY



**Department of Public Works**  
**Engineering Division**

Scale: AS NOTED  
 Approved:  
 Drawn: C.A.B.  
 Checked: B.C.R.  
 Date: 07/15/15  
 Field Book No:

PROJECT:  
**Proposed Concrete Bridge for:**  
**43rd Avenue over Main Relief Canal**  
 Indian River County, Florida

SEAL  
  
 Brian C. Reout - 38797  
 LICENSED PROFESSIONAL ENGINEER

SHEET  
**B-24**  
 PROJECT NO.  
**05-8095**



## Intermediate Bent Pedestal Elevations Table

Location		Elevations (ft)			
		Intermediate Bent No. 2		Intermediate Bent No. 3	
		Elevation	Case	Elevation	Case
BEAM 1	A	21.05	1	21.39	1
	B	21.05		21.39	
BEAM 2	A	21.05	1	21.39	1
	B	21.05		21.39	
BEAM 3	A	21.05	1	21.39	1
	B	21.05		21.39	
BEAM 4	A	21.05	1	21.39	1
	B	21.05		21.39	
BEAM 5	A	21.05	1	21.39	1
	B	21.05		21.39	

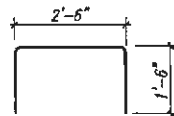
### Estimated Pedestal Quantities

Item	Unit	Quantity
Class II Concrete (Pedestals) (12 Required)	Cu. Yds.	0.5
Reinforcing Steel (Pedestals) (12 Required)	lbs.	309

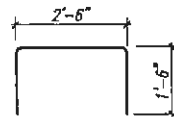
### Bill of Reinforcing Steel

Mark	Size	Number Required	Length + Lap	Total Length	Bending	Weight (lbs.)
P414	4	48		5'-6"	Bar P414	176.4
P415	4	36		5'-6"	Bar P415	132.3

### Bending Diagram

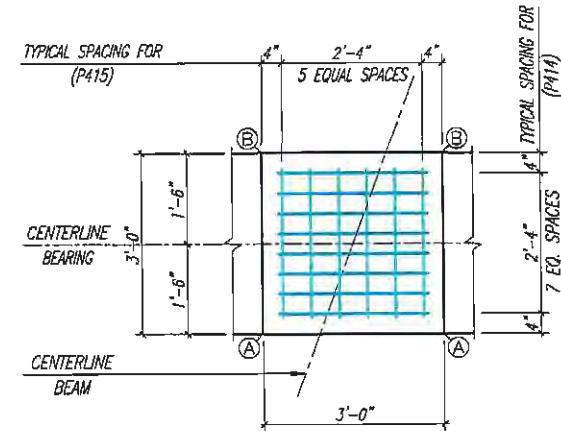


BARS P414

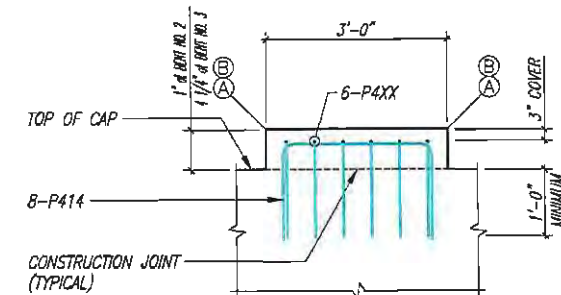


BARS P415

Bill of Reinforcing Steel and Estimated Quantities are for one pile cap only.



PLAN



ELEVATION

P414 & P415 at BEAMS 1 and 2 and 3 and 4 and 5 and 6

## CASE I

PEDESTAL DETAILS INTERMEDIATE BENTS 2 AND 3

DATE: Nov. 05, 2017 - 2:10pm 815026-144105-EG09 4547 users of each user connect to server 10/20/2017 10:00:00 AM

VERIFY SCALE  
1" = 1'  
BAR IS ONE INCH ON ORIGINAL DRAWINGS. ADJUST SCALES AS NECESSARY.

**BRIDGE DESIGN ASSOCIATES, INC.**  
1401 West Palm Beach Blvd., Suite 100, West Palm Beach, FL 33411  
Tel: (561) 840-0000 Fax: (561) 840-0001  
www.bridgedesign.com

NO.	REVISION	DATE	BY

**Department of Public Works**  
Engineering Division

Scale: AS NOTED  
Approved:  
Drawn: C.A.B.  
Checked: B.C.R.  
Date: 07/15/15  
Field Book No:

PROJECT:  
Proposed Concrete Bridge for:  
43rd Avenue over Main Relief Canal  
Indian River County, Florida

SEAL  
  
Brian C. Reault - 38797

SHEET  
B-26  
PROJECT NO.  
05-609B



**Intermediate Bent**

**Estimated Seismic Block Quantities**

Item	Unit	Quantity
Class II Concrete (Seismic Blocks) (4 Required)	Cu. Yds.	0.5
Reinforcing Steel (Seismic Blocks) (4 Required)	lbs.	22.7

**Bill of Reinforcing Steel**

Mark	Size	Number Required	Length + Lap	Total Length	Bending	Weight (lbs.)
BENT NO. 2 and 3						
H452	4	2		4'-2"	Straight	5.6
H453	4	2		2'-11"	Straight	3.9
V551	5	4		3'-2"	Bars V551	13.2

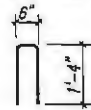
**Required Bar Lap Splices**

Mark	Size	Splice Length
T	#4	29"
T	#5	36"
T	#6	44"
T	#8	78"
M	#8	54"
B	#6	36"
B	#8	54"
W (Top)	#8	54"
W (Middle)	#8	54"
W (Bottom)	#8	54"
H	#4	24"
H	#5	36"

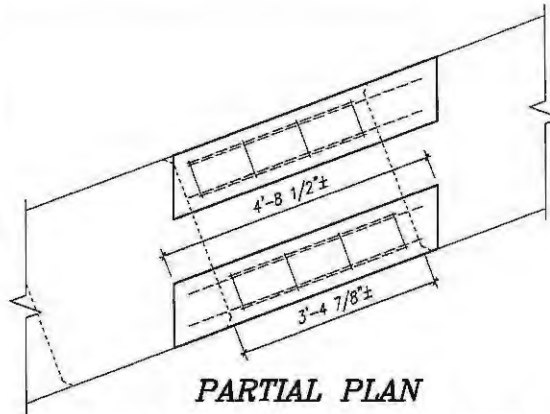
**Note:**  
Splice continuous bars thus:  
Top bars at mid-span between the piles  
Bottom bars at the piles

Bill of Reinforcing Steel and Estimated Quantities are for one pile cap only.

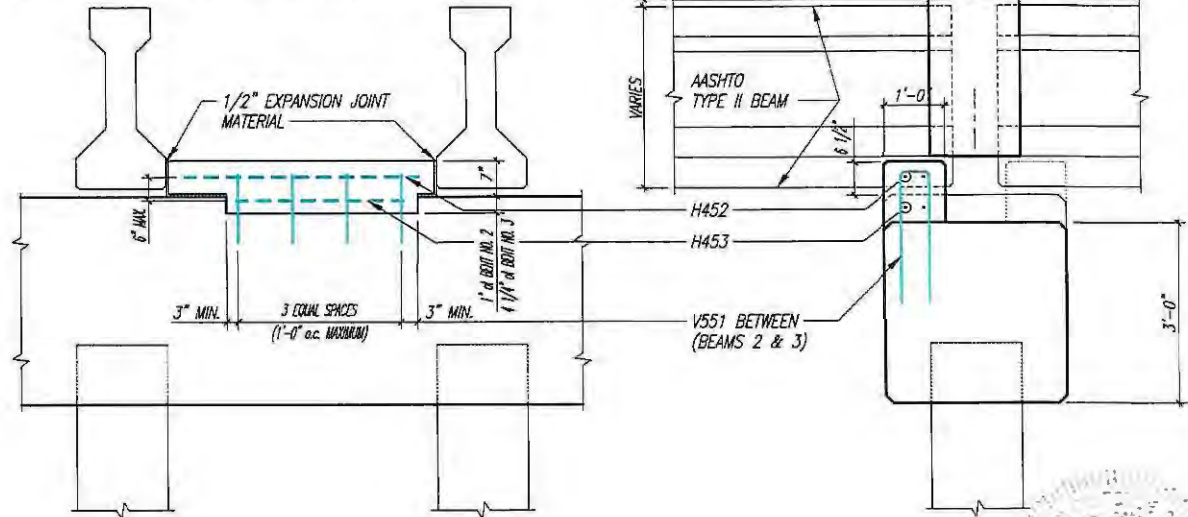
**Bending Diagram**



**BARS V551**



**PARTIAL PLAN**



**TYPICAL INTERMEDIATE BENT ELEVATION  
SEISMIC BLOCKS BETWEEN BEAMS 2 & 3**

**TYPICAL INTERMEDIATE BENT SECTION  
SEISMIC BLOCKS BETWEEN BEAMS 2 & 3**

DATE: 06-20-17 10:51 AM 51938-248(15)-609-184 Issues of new state code/12/12/2017/03/07/17

VERIFY SCALE



**BRIDGE DESIGN ASSOCIATES, INC.**  
10000 W. US HWY 90, SUITE 200, FORT MYERS, FL 33907  
TEL: (813) 699-2800 FAX: (813) 791-3145  
www.bridge-design.com

NO.	REVISION	DATE	BY



**Department of Public Works  
Engineering Division**

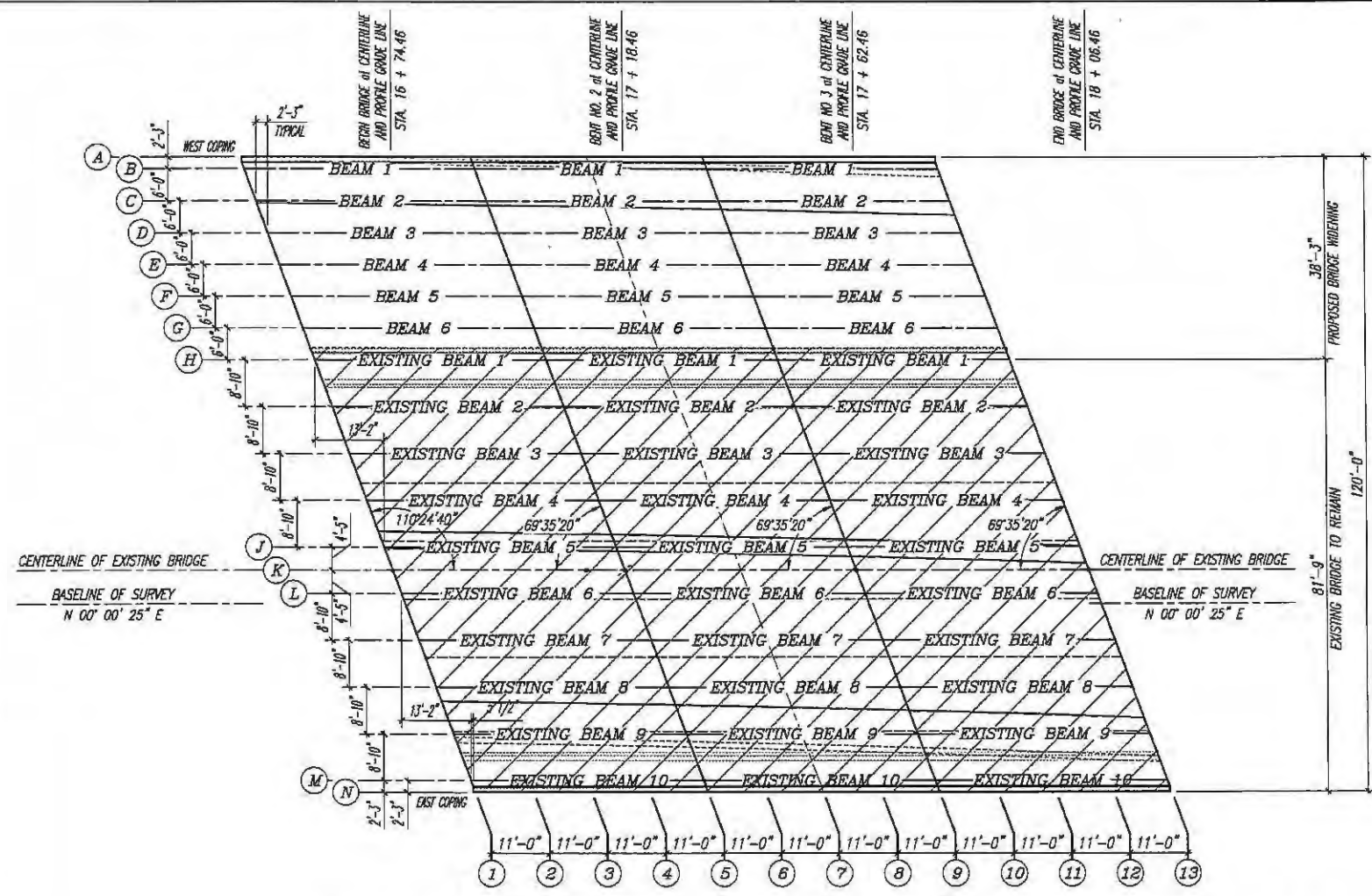
Scale: AS NOTED  
Approved:  
Drawn: C.A.B.  
Checked: B.C.R.  
Date: 07/15/15  
Field Book No:

PROJECT:  
Proposed Concrete Bridge for:  
43rd Avenue over Main Relief Canal  
Indian River County, Florida

SCALE  
B. J. Tredwell  
Brian C. Rowell - 30737

SHEET  
B-27  
PROJECT NO.  
05-609B





**PROPOSED FINISH GRADE PLAN AND BEAM PLACEMENT PLAN**  
3/16" = 1'-0"



DATE: 04-24-2017 2:10pm C:\Users\BCE\Documents\43rd Avenue at Main Relief Canal\07-Structural\43rd\BRIDGE\PROPOSED FINISH GRADE PLAN AND BEAM PLACEMENT PLAN.dwg

VERIFY SCALE  
  
 BAR IS ONE INCH ON ORIGINAL DRAWINGS. ADJUST SCALES AS NECESSARY.

**BRIDGE DESIGN ASSOCIATES, INC.**  
 10000 W. US HWY 19, SUITE 100  
 WEST PALM BEACH, FLORIDA 33411  
 (561) 840-1000  
 WWW.BRIDGEDESIGNASSOCIATES.COM

NO.	REVISION	DATE	BY

**Department of Public Works**  
**Engineering Division**

Scale: AS NOTED  
 Approved:  
 Drawn: C.A.B.  
 Checked: B.C.R.  
 Date: 07/15/15  
 Field Book No:

PROJECT:  
**Proposed Concrete Bridge for:**  
**43rd Avenue over Main Relief Canal**  
 Indian River County, Florida

SEAL  
  
 Brian C. Rood - 38797  
 STATE OF FLORIDA

SHEET  
**B-28**  
 PROJECT NO.  
**05-809B**











### Bending Diagram



**BARS S417**

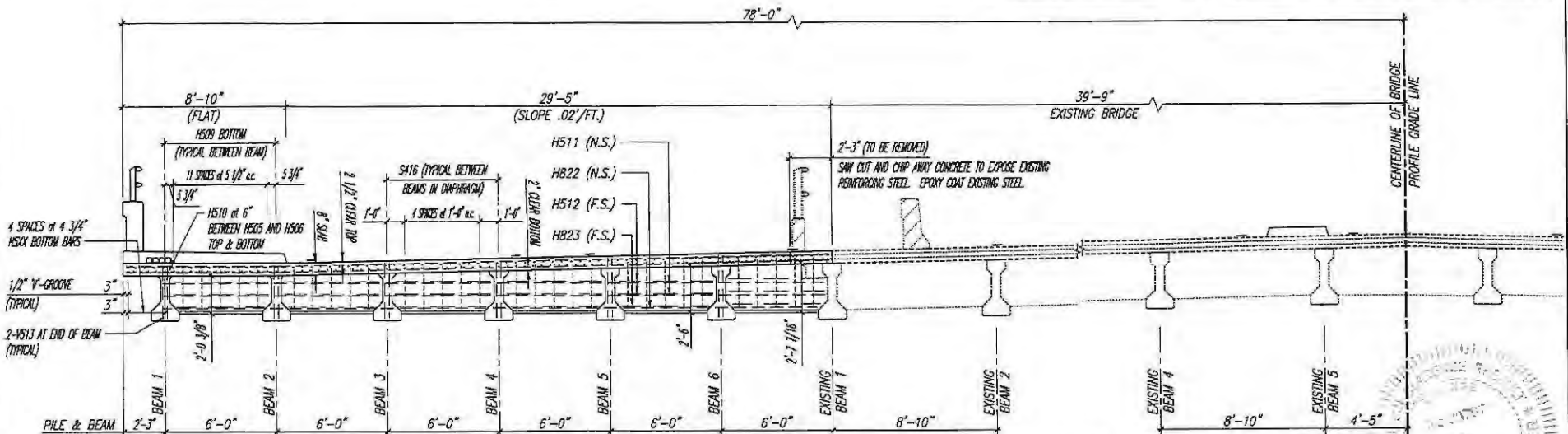
### Estimated Slab and Diaphragm Quantities

Item	Unit	Quantity
Class II Concrete (Slab-Total)	Cu. Yds.	106.5
Reinforcing Steel (Slab-Total)	lbs.	44,154
Class II Concrete (Diaphragm) (6 Required)	Cu. Yds.	10.5
Reinforcing Steel (Diaphragm) (6 Required)	lbs.	394

Bill of Reinforcing Steel and Estimated Quantities are for one diaphragm only and total for slab.

### Bill of Reinforcing Steel

Mark	Size	Number Required	Length + Lap	Total Length	Bending	Weight (lbs.)
Slab						
H505	5	150	VARIES 32'-8 TO 0'-6"	16'-6"	Straight (Average)	2581.4
H506	5	434		32'-0"	Straight	14485.2
H507	5	64		20'-0"	Straight	1335.0
H508	5	66	132'-0" + 9'-0"	141'-0"	Straight - 3 Laps	9708.2
H509	5	66	132'-0" + 9'-0"	141'-0"	Straight - 3 Laps	9708.2
H510	5	630		9'-0"	Straight	5913.8
H603	6	12		34'-1"	Straight	428.6
Diaphragm						
S416	4	25	VARIES 6'-8" TO 7'-0 1/2"	7'-2 3/4"	Bar S416 (Average)	120.7
H511	5	2		29'-9"	Straight	62.1
H512	5	10		5'-2"	Straight	53.9
H513	5	5	VARIES 2'-9" TO 3'-2"	2'-11 1/2"	Straight (Average)	15.4
H822	8	1		29'-5"	Straight	78.5
H823	8	5		4'-9"	Straight	63.4



### PARTIAL SLAB AND DIAPHRAGM REINFORCING CROSS SECTION

3/8" = 1'-0"

VERIFY SCALE



BAR IS ONE INCH ON ORIGINAL DRAWINGS. ADJUST SCALES AS NECESSARY.

**BRIDGE DESIGN ASSOCIATES, INC.**  
 1000 N. W. 10th Ave., Suite 100, Ft. Lauderdale, FL 33304  
 (954) 551-1111

NO.	REVISION	DATE	BY



**Department of Public Works**  
**Engineering Division**

Scale: AS NOTED  
 Approved: \_\_\_\_\_  
 Drawn: C.A.B.  
 Checked: B.C.R.  
 Date: 07/15/15  
 Field Book No: \_\_\_\_\_

PROJECT:  
**Proposed Concrete Bridge for:**  
**43rd Avenue over Main Relief Canal**  
**Indian River County, Florida**

SCALE  
 1/4" = 1'-0"  
 DATE: 7/15/15  
 BY: C. B. REED - 30797

SHEET  
**B-33**  
 PROJECT NO.  
**05-809B**









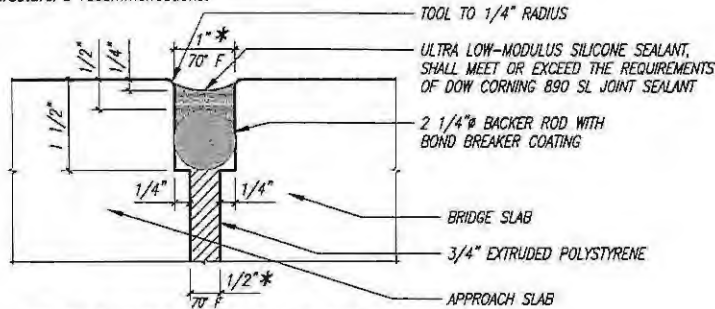


**\* NOTE:**

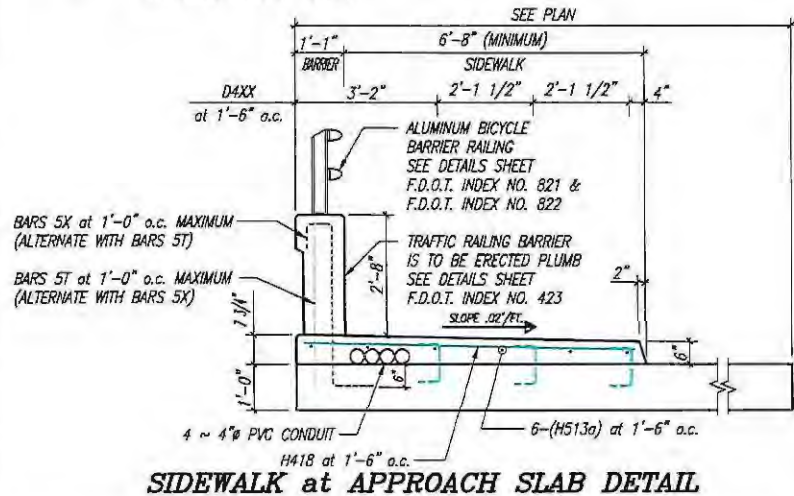
For temperatures other than 70°F adjust opening "E" inches per degree difference between 70° add the temperature at the time the joint is constructed. For temperatures above 70°F diminish the opening and for temperatures below 70° increase opening.

**NOTE:**

The cost of expansion joint, including sealant, shall be included in the contract price for Superstructure Concrete. Installation shall be in accordance with the manufacturer's recommendations.



**EXPANSION JOINT DETAIL**  
(AT END BENTS ONLY)

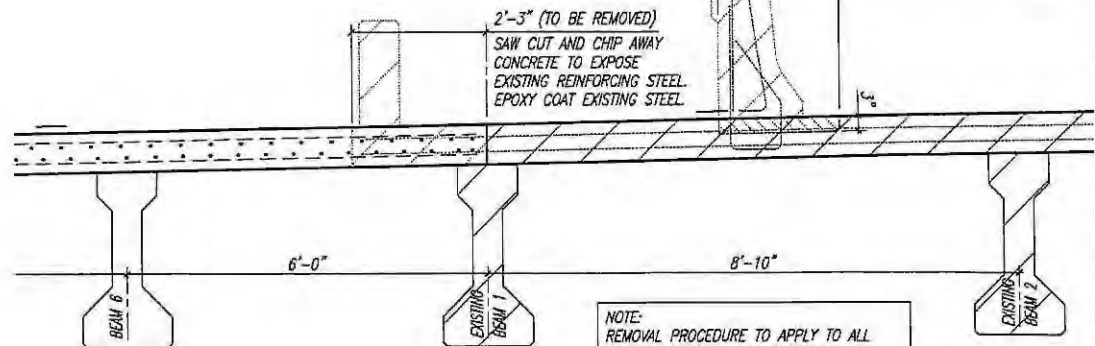


**SIDEWALK at APPROACH SLAB DETAIL**

REMOVE EXISTING CONCRETE BARRIER AND DISPOSE OF PROPERLY CUT EXISTING REINFORCING STEEL AND COAT WITH AN APPROVED EPOXY COATING

2'-0"

SAWCUT - 3/4" DEEP REMOVE EXISTING CONCRETE BY HYDRO BLASTING

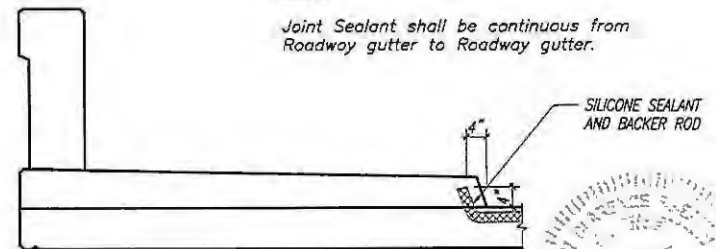


**NOTE:**  
REMOVAL PROCEDURE TO APPLY TO ALL EXISTING BARRIERS AND PARAPETS.

**TYPICAL SECTION AT PROPOSED TO EXISTING SLAB**

**NOTE:**

Joint Sealant shall be continuous from Roadway gutter to Roadway gutter.



**TYPICAL SECTION AT JOINT**

DATE: Nov. 08, 2017 - 2:13pm S:\2018-2019\05-6098 - 43rd Avenue at Main Relief Canal\Structural\DWG\0501\BDM-MSC-BRMAL57.dwg

**VERIFY SCALE**

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1881 17th Street, Suite 200, Ft. Pierce, FL 34949  
Tel: 888-388-2840 Fax: 888-288-1284  
www.bridgedesign.com

NO.	REVISION	DATE	BY



**Department of Public Works**  
**Engineering Division**

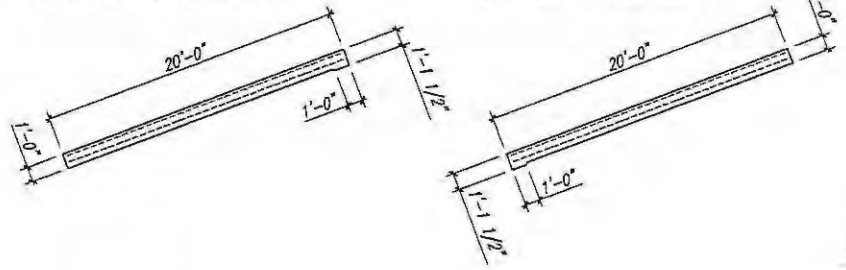
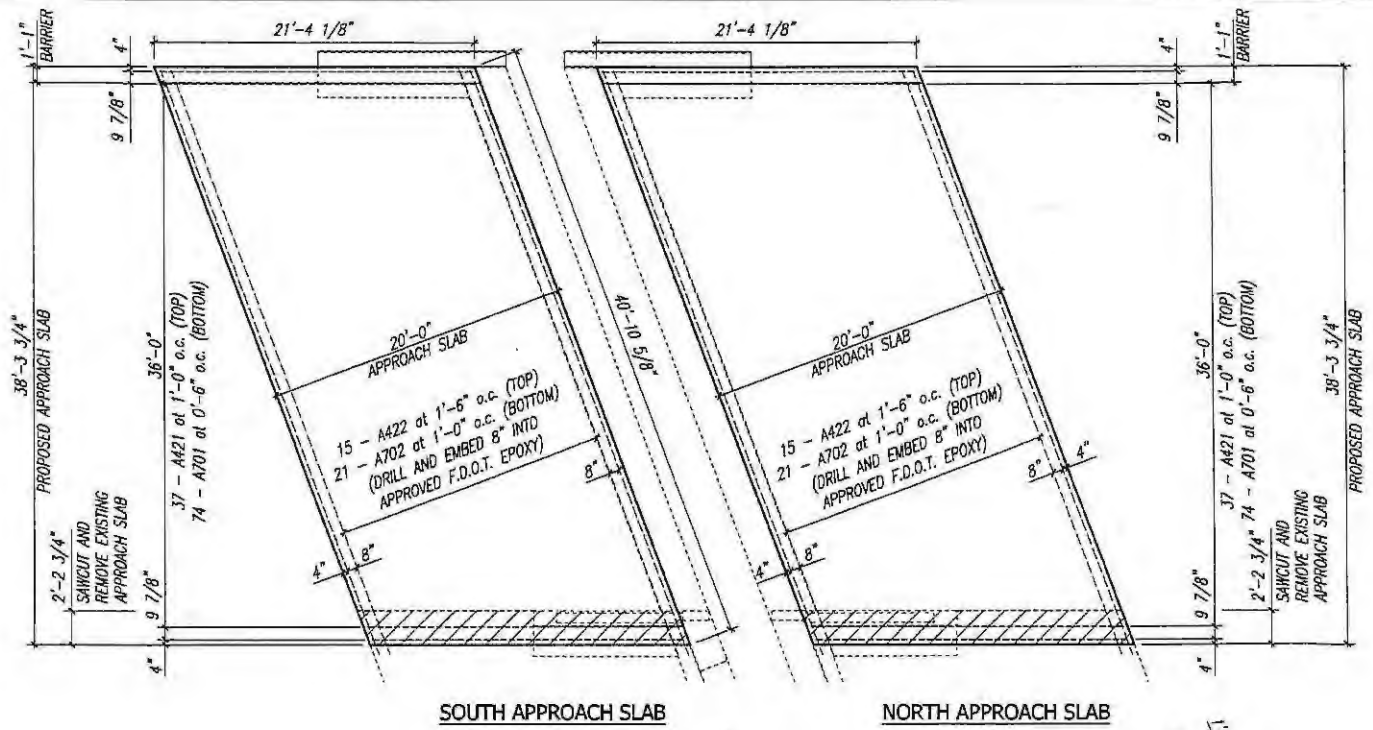
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Approved:  
Drawn: C.A.B.  
Checked: B.C.R.  
Date: 07/15/15  
Field Book No:


PROJECT:  
Proposed Concrete Bridge for:  
43rd Avenue over Main Relief Canal  
Indian River County, Florida

SEAL: [Signature]  
Date: 6/12/2018  
Bren C. Riccardi - 36797

SHEET  
B-37  
PROJECT NO.  
05-609B


DATE: Nov. 08, 2017 - 2:15pm S:\2002-204\02-6098\_A43\cove of main relief canal\07 structural\07\2002-204\02-6098\_A43.dwg



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**BRIDGE DESIGN ASSOCIATES, INC.**  
 10110 13th Street, Suite 100, Palm Beach Gardens, FL 33418  
 Tel: (561) 244-2882 Fax: (561) 791-1312  
 www.bridgedesign.com

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 **Department of Public Works**  
**Engineering Division**

Scale: AS NOTED  
 Approved:  
 Drawn: C.A.B.  
 Checked: B.C.R.  
 Date: 07/15/15  
 Field Book No:

PROJECT:  
**Proposed Concrete Bridge for:**  
**43rd Avenue over Main Relief Canal**  
**Indian River County, Florida**

SEAL  
  
 Brian C. Reed - 35937  
 ENGINEER

SHEET  
**B-38**  
 PROJECT NO.  
**05-6098**







Mail Processing Center  
Federal Aviation Administration  
Southwest Regional Office  
Obstruction Evaluation Group  
10101 Hillwood Parkway  
Fort Worth, TX 76177

Aeronautical Study No.  
2019-ASO-11271-OE

Issued Date: 05/20/2019

James Ennis  
Indian River County  
1801 27th Avenue  
Vero Beach, FL 32960

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Light Pole C3 and C4 on Sheet L-11 of Lighting Plans  
Location: Vero Beach, FL  
Latitude: 27-38-45.00N NAD 83  
Longitude: 80-25-49.00W  
Heights: 25 feet site elevation (SE)  
40 feet above ground level (AGL)  
65 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)  
 Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 2.

This determination expires on 11/20/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (817) 222-5922, or [debbie.cardenas@faa.gov](mailto:debbie.cardenas@faa.gov). On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-ASO-11271-OE.

**Signature Control No: 400864707-406238367**

Debbie Cardenas  
Technician

( DNE )

# **APPENDIX B**

## **Indian River County Fertilizer Ordinances**

ORDINANCE NO. 2013 - 012

**AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF INDIAN RIVER COUNTY, FLORIDA, AMENDING THE CODE OF INDIAN RIVER COUNTY TO ESTABLISH A NEW CHAPTER 316, ENTITLED "FERTILIZER AND LANDSCAPE MANAGEMENT;" ADOPTING THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S MODEL ORDINANCE FOR FLORIDA-FRIENDLY USE OF FERTILIZER ON URBAN LANDSCAPES, WITH MODIFICATIONS; MAKING FINDINGS AND PROVIDING FOR SEVERABILITY, CODIFICATION; DIRECTING COUNTY ATTORNEY'S OFFICE TO POST SUMMARY ON COUNTY WEBSITE, AND AN EFFECTIVE DATE.**

**WHEREAS**, as a result of impairment to Indian River County's surface waters caused by excessive nutrients, or, as a result of increasing levels of nitrogen in the surface and/or ground water within the aquifers or canals within the boundaries of Indian River County, the Board of County Commissioners has determined that the use of fertilizers on lands within Indian River County creates a risk of contributing to adverse effects on surface and/or ground water; and

**WHEREAS**, in order to address this risk, the Board of County Commissioners has determined that it is not only critical to adopt the Florida Department of Environmental Protection's Model Ordinance for Florida-Friendly Use of Fertilizer on Urban Landscapes, but that as part of Indian River County's science-based, and economically and technically feasible, comprehensive program to address nonpoint sources of nutrient pollution, additional and more stringent standards are necessary in order to adequately address urban fertilizer contributions to nonpoint source nutrient loading to the surface and/or ground water of Indian River County; and

**WHEREAS**, this ordinance regulates the proper use of fertilizers by any applicator; requires proper training of Commercial Fertilizer Applicators and Institutional Fertilizer Applicators; establishes training and licensing requirements; establishes a Prohibited Application Period; and specifies allowable fertilizer application rates and methods, fertilizer-free zones, low maintenance zones, and exemptions. The ordinance requires the use of Best Management Practices which provide specific management guidelines to minimize negative secondary and cumulative environmental effects associated with the misuse of fertilizers. These secondary and cumulative effects have been observed in and on Indian River County's natural and constructed stormwater conveyances, rivers, creeks, canals, lakes, estuaries and other water bodies. Collectively, these water bodies are an asset critical to the environmental, recreational, cultural and economic well-being of Indian River County residents and the health of the public. Overgrowth of algae and vegetation hinder the effectiveness of flood attenuation provided by natural and constructed stormwater conveyances. Regulation of nutrients, including both phosphorus and nitrogen contained in fertilizer, will help improve and maintain water and habitat quality,



ORDINANCE NO. 2013 - 012

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF INDIAN RIVER COUNTY, FLORIDA, THAT:

**Section 1. Enactment Authority.**

Article VIII, §1 of the Florida Constitution and Chapter 125, Florida Statutes vest broad home rule powers in counties to enact ordinances, not inconsistent with general or special law, for the purpose of promoting the public health, safety and welfare of the residents of the county. The Board specifically determines that the enactment of this ordinance is consistent with general or special law, and is necessary and appropriate to promote the health, safety and welfare of the residents of Indian River County.

**Section 2. Findings.**

The Board finds that the above "Whereas" clauses are true and correct, and hereby incorporates such clauses as findings of the Board.

**Section 3. Adoption of Chapter 316 of the Code of Indian River County (the "Code").**

Chapter 316 of the Code is hereby adopted, as follows (new language is indicated by underline):

**Section 316.1. Title.**

This chapter shall be known as the "Indian River County Fertilizer and Landscape Management Ordinance."

**Section 316.2. Definitions.**

For the purposes of this chapter, the following terms shall have the following meanings:

"Administrator" shall mean the County Administrator, or an administrative official of the County designated by the County Administrator to administer and enforce the provisions of this chapter.

"Application" or "apply" shall mean the actual physical deposit of fertilizer to turf or landscape plants.

"Applicator" shall mean any Person who applies fertilizer on turf and/or landscape plants in Indian River County.

"Board" shall mean the Indian River County Board of County Commissioners.

"Best Management Practices" shall mean turf and landscape practices or combination of practices based on research, field-testing, and expert review, determined to be the most effective

ORDINANCE NO. 2013 - \_\_\_\_\_

and practicable on-location means, including economic and technological considerations, for improving water quality, conserving water supplies and protecting natural resources.

"Chapter 85-427" shall mean The Indian River County Environmental Control Act, Chapter 85-427, Special Acts, Laws of Florida.

"Code Enforcement Officer shall mean any designated employee or agent of Indian River County whose duty it is to enforce codes and ordinances enacted by Indian River County.

"Commercial Fertilizer Applicator," except as provided in §482.1562(9), Florida Statutes, shall mean any person who applies fertilizer for payment or other consideration to property not owned by the person or firm applying the fertilizer or the employer of the applicator.

"Code" shall mean The Code of Indian River County.

"Environmental Control Officer" shall mean the Indian River County Environmental Control Officer appointed by the Board pursuant to Chapter 85-427, and Chapter 303 (Part I) of this Code, and his or her designees.

"Fertilize," "fertilizing," or "fertilization" shall mean the act of applying fertilizer to turf, specialized turf, or landscape plants.

"Fertilizer" shall mean any substance or mixture of substances that contains one or more recognized plant nutrients and promotes plant growth, or controls soil acidity or alkalinity, or provides other soil enrichment, or provides other corrective measures to the soil.

"Heavy rain" shall mean rainfall greater than two inches in a 24 hour period.

"Institutional Fertilizer Applicator" shall mean any person, other than a private, non-commercial applicator or a Commercial Fertilizer Applicator (unless such definitions also apply under the circumstances), that applies fertilizer for the purpose of maintaining turf and/or landscape plants. Institutional Fertilizer Applicators shall include, but shall not be limited to, owners, managers or employees of public lands, schools, parks, religious institutions, utilities, industrial or business sites and any residential properties maintained in condominium and/or common ownership.

"Landscape plant" shall mean any native or exotic tree, shrub, or groundcover (excluding turf).

"Low maintenance zone" shall mean an area a minimum of ten feet wide adjacent to water courses which is planted and managed in order to minimize the need for fertilization, watering, mowing, etc.

"Person" shall mean any natural person, business, corporation, limited liability company, partnership, limited partnership, association, club, organization, and/or any group of people acting as an organized entity.

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"Restricted Season" shall mean June 1 through September 30.

"Saturated soil" shall mean a soil in which the voids are filled with water. Saturation does not require flow. For the purposes of this chapter, soils shall be considered saturated if standing water is present or the pressure of a person standing on the soil causes the release of free water.

"Slow Release Nitrogen" shall mean nitrogen in a form which delays its availability for plant uptake and use after application, or which extends its availability to the plant longer than a reference rapid or quick release product.

"Turf," "sod," or "lawn" shall mean a piece of grass-covered soil held together by the roots of the grass.

"Urban landscape" shall mean pervious areas on residential, commercial, industrial, institutional, highway rights-of-way, or other nonagricultural lands that are planted with turf or horticultural plants. For the purposes of this section, agriculture has the same meaning as in §570.02, Florida Statutes.

**Section 316.3. Timing of fertilizer application.**

No applicator shall apply fertilizers containing nitrogen and/or phosphorus to turf and/or landscape plants during the Restricted Season, to saturated soils, or during a period in which a Flood Watch or Warning, or a Tropical Storm Watch or Warning, or a Hurricane Watch or Warning is in effect for any portion of Indian River County, issued by the National Weather Service, or if heavy rain is likely.

**Section 316.4. Fertilizer-free zones.**

Fertilizer shall not be applied within ten feet of any pond, stream, watercourse, lake, canal, or wetland as defined by the Florida Department of Environmental Protection (Chapter 62-340, Florida Administrative Code) or from the top of a seawall. If more stringent Indian River County Code regulations apply, this provision does not relieve the requirement to adhere to the more stringent regulations. Newly planted turf and/or landscape plants may be fertilized in this zone only for a 60-day period beginning thirty days after planting if needed to allow the plants to become well established. Caution shall be used to prevent nutrients from being directly deposited into the water.

**Section 316.5. Low maintenance zones.**

A voluntary ten foot low maintenance zone is strongly recommended, but not mandated, from any pond, stream, water course, lake, wetland or from the top of a seawall. A swale/berm system is recommended for installation at the landward edge of this low maintenance zone to capture and filter runoff. If more stringent Indian River County Code regulations apply, this provision

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does not relieve the requirement to adhere to the more stringent regulations. Notwithstanding the voluntary nature of the above sentences, no mowed or cut vegetative material may be deposited or left remaining in this zone or deposited in the water. Care should be taken to prevent the overspray of aquatic weed products in this zone.

**Section 316.6. Fertilizer content and application rates.**

(a) No fertilizer containing phosphorous shall be applied to turf or landscape plants in Indian River County unless a soil or plant tissue deficiency is verified by a University of Florida, Institute of Food and Agriculture Sciences, approved testing methodology. In the case that a deficiency has been verified, the application of a fertilizer containing phosphorous shall be in accordance with the rates and directions for the Central Region of Florida as provided by Rule 5E-1.003(2), Florida Administrative Code. Deficiency verification shall be no more than 2 years old. However, recent application of compost, manure, or top soil shall warrant more recent testing to verify current deficiencies.

(b) The nitrogen content of fertilizer applied to turf or landscape plants within Indian River County shall contain at least 50% slow release nitrogen per guaranteed analysis label.

(c) Fertilizers applied to an urban lawn or turf within Indian River County shall be applied in accordance with requirements and directions set forth on the label or tag for packaged fertilizer products, or in the printed information accompanying the delivery of bulk fertilizer products, as provided by Rule 5E-1.003(2), Florida Administrative Code, *Labeling Requirements For Urban Turf Fertilizers*. All packaged and bulk fertilizer products sold in Indian River County shall be sold in packages with labels or tags, or, if sold in bulk, be accompanied by printed information, which complies with the requirements of Rule 5E-1.003(2), Florida Administrative Code.

(d) Fertilizer containing nitrogen or phosphorus shall not be applied before seeding or sodding a site, and shall not be applied for the first 30 days after seeding or sodding, except when hydro-seeding for temporary or permanent erosion control in an emergency situation (wildfire, etc.), or in accordance with the Stormwater Pollution Prevention Plan for that site.

**Section 316.7. Application practices.**

(a) Spreader deflector shields are required when fertilizing via rotary (broadcast) spreaders. Deflectors must be positioned such that fertilizer granules are deflected away from all impervious surfaces, fertilizer-free zones and water bodies, including wetlands.

(b) Fertilizer shall not be applied, spilled, or otherwise deposited on any impervious surfaces.

(c) Any fertilizer applied, spilled, or deposited, either intentionally or accidentally, on any impervious surface shall be immediately and completely removed to the greatest extent practicable.

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(d) Fertilizer released on an impervious surface must be immediately contained and either legally applied to turf or any other legal site, or returned to the original or other appropriate container.

(e) In no case shall fertilizer be washed, swept, or blown off impervious surfaces into stormwater drains, ditches, conveyances, or water bodies.

**Section 316.8. Management of grass clippings and vegetative materials.**

In no case shall grass clippings, vegetative material, and/or vegetative debris be washed, swept, or blown off into stormwater drains, ditches, conveyances, water bodies, wetlands, or sidewalks or roadways. Any material that is accidentally so deposited shall be immediately removed to the maximum extent practicable.

**Section 316.9. Exemptions.**

The provisions set forth above in this chapter shall not apply to:

(a) bona fide farm operations as defined in the Florida Right to Farm Act, § 823.14, Florida Statutes;

(b) other properties not subject to or covered under the Florida Right to Farm Act that have pastures used for grazing livestock;

(c) any lands used for bona fide scientific research, including, but not limited to, research on the effects of fertilizer use on urban stormwater, water quality, agronomics, or horticulture.;

(d) golf courses when landscaping is performed within the provisions of the Florida Department of Environmental Protection document, "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses", these provisions shall be followed when applying fertilizer to golf course practice and play areas;

(e) athletic fields at public parks and school facilities that apply the concepts and principles embodied in the Florida Green BMPs, while maintaining the health and function of their specialized turf areas;

(f) vegetable gardens owned by individual property owners or a community, and trees grown for their edible fruit.

**Section 316.10. Training.**

(a) Within the time period set forth in section 316.12 of this Chapter, all Commercial Fertilizer Applicators and Institutional Fertilizer Applicators within Indian River County shall abide by and successfully complete the six-hour training program in the "Florida-friendly Best

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Management Practices for Protection of Water Resources by the Green Industries” offered by the Florida Department of Environmental Protection through the University of Florida Extension “Florida-Friendly Landscapes” program, or an approved equivalent.

(b) Private, non-commercial applicators are encouraged to follow the recommendations of the University of Florida Institute of Food and Agriculture Sciences Florida Yards and Neighborhoods program when applying fertilizers.

**Section 316.11. General education program.**

The Public Works Department shall have an employee who shall address issues pertaining to this Chapter. This employee shall implement a program to inform the general public of the requirements of this chapter, which program shall include, among other things, informative postings on the County website, printing and distributing informative brochures and other print materials, and speaking engagements at community associations, civic organizations, etc. The program shall also include, to the extent practicable, use of any materials from the Be Floridian program and coordination and collaboration with University of Florida Institute of Food and Agriculture Sciences educational activities. Any claimed or alleged deficiency in the County’s general education program shall not constitute a defense to any action brought to enforce the provisions of this chapter.

**Section 316.12. Licensing of commercial fertilizer applicators.**

(a) No later than December 31, 2013, all Commercial Fertilizer Applicators within Indian River County, shall abide by and successfully complete training and continuing education requirements in the “Florida-friendly Best Management Practices for Protection of Water Resources by the Green Industries,” offered by the Florida Department of Environmental Protection through the University of Florida Institute of Food and Agriculture Sciences “Florida-friendly Landscapes” program, or an approved equivalent program, prior to obtaining an Indian River County Local Business Tax Certificate for any category of occupation which may apply any fertilizer to turf and/or landscape plants. Commercial Fertilizer Applicators shall provide proof of completion of the program to the Indian River County Tax Collector’s Office within 180 days of the effective date of this ordinance.

(b) After December 31, 2013, all Commercial Fertilizer Applicators within Indian River County shall have and carry in their possession at all times when applying fertilizer, evidence of certification by the Florida Department of Agriculture and Consumer Services as a Commercial Fertilizer Applicator per Rule 5E-14.117(18), Florida Administrative Code.

(c) All businesses applying fertilizer to turf and/or landscape plants (including but not limited to residential lawns, golf courses, commercial properties, and multi-family and condominium properties) must ensure that at least one employee has a “Florida-friendly Best Management Practices for Protection of Water Resources by the Green Industries” training certificate prior to the business owner obtaining a Local Business Tax Certificate. Owners for any category of

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occupation which may apply any fertilizer to turf and/or landscape plants shall provide proof of completion of the program to the Indian River County Tax Collector's Office.

**Section 316.13. Enforcement.**

This chapter may be enforced by the Code Enforcement Officer in the Public Works Department who is devoted to issues pertaining to this Chapter, pursuant to Chapter 162, Florida Statutes, and §103.07 of this Code. In addition, this chapter may be enforced by the Environmental Control Officer pursuant to Chapter 85-427, Special Acts, Laws of Florida, and §303.14 of this Code. Penalties and remedies for violations shall be as set forth in §100.05 of this Code, and, to the extent applicable, Chapter 85-427, Special Acts, Laws of Florida. Funds generated by penalties imposed under this section shall be used by Indian River County for the administration and enforcement of §403.9337, Florida Statutes, and the corresponding sections of this chapter, and to further water conservation and nonpoint pollution prevention activities.

**Section 316.14. References to state law.**

Any references in this chapter to Florida Statutes, rules or regulations shall refer to such statutes, rules or regulations, as amended from time to time.

**Section 316.15. Applicability.**

This chapter shall be applicable to and shall regulate any and all applicators of fertilizer and areas of application of fertilizer within the area of Indian River County, unless such applicator is specifically exempted; provided, however, that this chapter shall not apply within the limits of any municipality which has adopted an ordinance regulating the same subject matter. This chapter shall be prospective only, and shall not impair any existing contracts.

**Section 4. Severability.**

If any part of this ordinance is held to be invalid or unconstitutional by a court of competent jurisdiction, the remainder of this ordinance shall not be affected by such holding and shall remain in full force and effect.

**Section 5. Codification.**

It is the intention of the Board of County Commissioners that the provisions of this ordinance shall become and be made part of the Indian River County Code, and that the sections of this ordinance may be renumbered or re-lettered and the word ordinance may be changed to section, article or such other appropriate word or phrase in order to accomplish such intention.

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**Section 6. Directing County Attorney's Office to Post Summary on County Website.**

The County Attorney's Office is directed to post a summary of this ordinance on the County's website within 15 days of the filing of this ordinance with the Florida Department of State.

**Section 7. Effective Date.**

This ordinance shall become effective 45 days after the filing of the ordinance with the Florida Department of State.

This ordinance was advertised in the Vero Beach Press Journal, on the 8th day of July, 2013, for a public hearing to be held on the 18<sup>th</sup> day of July, 2013, and on the 10th day of August, 2013 for an additional public hearing to be held on the 20<sup>th</sup> day of August, 2013, at which time it was moved for adoption by Commissioner Solari, seconded by Commissioner O'Bryan, and adopted by the following vote:

Chairman Joseph E. Flescher	<u>AYE</u>
Vice Chairman Wesley S. Davis	<u>AYE</u>
Commissioner Peter D. O'Bryan	<u>AYE</u>
Commissioner Bob Solari	<u>AYE</u>
Commissioner Tim Zorc	<u>AYE</u>

The Chairman thereupon declared the ordinance duly passed and adopted this 20<sup>th</sup> day of August, 2013.



**BOARD OF COUNTY COMMISSIONERS  
INDIAN RIVER COUNTY, FLORIDA**

By: Joseph E. Flescher  
Joseph E. Flescher, Chairman

ATTEST: Jeffrey R. Smith, Clerk of Court  
and Comptroller

Approved as to form and legal sufficiency:

By: Jeffrey R. Smith  
Deputy Clerk

Dylan Reingold  
Dylan Reingold, County Attorney

EFFECTIVE DATE: This ordinance was filed with the Florida Department of State on the \_\_\_\_ day of \_\_\_\_\_, 2013.



**ORDINANCE NO. 2013 - 014**

**AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF INDIAN RIVER COUNTY, FLORIDA CONCERNING THE FERTILIZER AND LANDSCAPE MANAGEMENT ORDINANCE, AMENDING SECTION 316.6 (FERTILIZER CONTENT AND APPLICATION RATES) AND SECTION 316.15 (APPLICABILITY) OF CHAPTER 316 (INDIAN RIVER COUNTY FERTILIZER AND LANDSCAPE MANAGEMENT ORDINANCE) OF THE CODE OF INDIAN RIVER COUNTY TO ALLOW FOR THE GRADUAL AMORTIZATION OF THE SUPPLY OF CERTAIN NITROGEN CONTAINING FERTILIZER AND APPLYING CHAPTER 316 TO UNINCORPORATED INDIAN RIVER COUNTY, AND MAKING FINDINGS AND PROVIDING FOR SEVERABILITY, CODIFICATION; AND AN EFFECTIVE DATE.**

**WHEREAS**, the Board of County Commissioners adopted an ordinance regulating the proper use of fertilizers in order to protect the water quality of Indian River County's natural and constructed stormwater conveyances, rivers, creeks, canals, lakes, estuaries and other water bodies; and

**WHEREAS**, the new fertilizer regulations require that the nitrogen content of fertilizer applied to turf or landscape plants within Indian River County shall contain at least 50% slow release nitrogen per guaranteed analysis label; and

**WHEREAS**, the new fertilizer regulations go into effect on October 14, 2013; and

**WHEREAS**, in order to provide adequate time for the supply of fertilizer containing nitrogen that does not comply with these regulations to be eliminated, it is necessary to provide additional time for retailers to eliminate those supplies that meet at least a minimum threshold of slow release nitrogen,

**NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF INDIAN RIVER COUNTY, FLORIDA, THAT:**

**Section 1. Enactment Authority.**

Article VIII, §1 of the Florida Constitution and Chapter 125, Florida Statutes vest broad home rule powers in counties to enact ordinances, not inconsistent with general or special law, for the purpose of promoting the public health, safety and welfare of the residents of the county. The Board specifically determines that the enactment of this ordinance is consistent with general or special law, and is necessary and appropriate to promote the health, safety and welfare of the residents of Indian River County.

**Section 2. Findings.**

The Board finds that the above "Whereas" clauses are true and correct, and hereby incorporates such clauses as findings of the Board.

**ORDINANCE NO. 2013 - 014**

**Section 3. Amendment of Section 316.6 (Fertilizer content and application rates) of Chapter 316 (Indian River County Fertilizer and Landscape Management Ordinance) of the Code of Indian River County (the "Code").**

Section 316.6 (Fertilizer content and application rates) of Chapter 316 (Indian River County Fertilizer and Landscape Management Ordinance) of the Code is hereby amended as follows:

**Section 316.6. Fertilizer content and application rates.**

(b) As of the effective date of this chapter, the The nitrogen content of fertilizer applied to turf or landscape plants within Indian River County shall contain at least ~~25~~50% slow release nitrogen per guaranteed analysis label. As of June 1, 2014, the nitrogen content of fertilizer applied to turf or landscape plants within Indian River County shall contain at least 50% slow release nitrogen per guaranteed analysis label.

**Section 4. Amendment of Section 316.15 (Applicability) of Chapter 316 (Indian River County Fertilizer and Landscape Management Ordinance) of the Code of Indian River County (the "Code").**

Section 316.15 (Applicability) of Chapter 316 (Indian River County Fertilizer and Landscape Management Ordinance) of the Code is hereby amended as follows:

**Section 316.15. Applicability.**

This chapter shall be applicable to and shall regulate any and all applicators of fertilizer and areas of application of fertilizer within the unincorporated area of Indian River County, unless such applicator is specifically exempted; ~~provided, however, that this chapter shall not apply within the limits of any municipality which has adopted an ordinance regulating the same subject matter.~~ This chapter shall be prospective only, and shall not impair any existing contracts.

**Section 5. Severability.**

If any part of this ordinance is held to be invalid or unconstitutional by a court of competent jurisdiction, the remainder of this ordinance shall not be affected by such holding and shall remain in full force and effect.

**Section 6. Codification.**

It is the intention of the Board of County Commissioners that the provisions of this ordinance shall become and be made part of the Indian River County Code, and that the sections of this ordinance may be renumbered or re-lettered and the word ordinance may be changed to section, article or such other appropriate word or phrase in order to accomplish such intention.

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**Section 7. Effective Date.**

This ordinance shall become effective upon filing with the Florida Department of State.

This ordinance was advertised in the Vero Beach Press Journal, on the 16th day of September, 2013, for a public hearing to be held on the 1st day of October, 2013, at which time it was moved for adoption by Commissioner Solari, seconded by Commissioner O'Bryan, and adopted by the following vote:

Chairman Joseph E. Flescher	<u>Aye</u>
Vice Chairman Wesley S. Davis	<u>Aye</u>
Commissioner Peter D. O'Bryan	<u>Aye</u>
Commissioner Bob Solari	<u>Aye</u>
Commissioner Tim Zorc	<u>Aye</u>

The Chairman thereupon declared the ordinance duly passed and adopted this 1st day of October, 2013.



**BOARD OF COUNTY COMMISSIONERS  
INDIAN RIVER COUNTY, FLORIDA**

By: Joseph E. Flescher  
Joseph E. Flescher, Chairman

ATTEST: Jeffrey R. Smith, Clerk of Court  
and Comptroller

Approved as to form and legal sufficiency:

By: Laura Allen  
Deputy Clerk

Dylan Reingold  
Dylan Reingold, County Attorney

EFFECTIVE DATE: This ordinance was filed with the Florida Department of State on the \_\_\_\_ day of \_\_\_\_\_, 2013.

# **APPENDIX C**

**INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION**

## **SPECIAL CONDITIONS FOR RIGHT-OF-WAY CONSTRUCTION**



## **INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION SPECIAL CONDITIONS FOR RIGHT-OF-WAY CONSTRUCTION**

### **SPECIAL CONDITIONS:**

1. All work performed under this permit shall be in accordance with the Florida Department of Transportation Design Standards ([fdot.gov/roadway/DS/18/STDs.shtm](http://fdot.gov/roadway/DS/18/STDs.shtm)), Indices 600. The Manual on Uniform Traffic Control Devices, and Indian River County Typical Drawings, latest editions.
2. All special conditions listed are in addition to the attached Indian River County Traffic Engineering Regulations for Maintenance of Traffic.
3. It shall be the contractor's responsibility to contact Sunshine State One Call System (1-800-432-4770) at least 72 hours in advance of commencing construction work to coordinate traffic control and obtain locations of underground traffic signal conduit for the County's Computerized Traffic Signal Coordination System.
4. The contractor shall be responsible for using the applicable Traffic Control Plan for the type of work being performed. All job supervisors shall have a copy of the Traffic Control Plan on site at all times and shall be familiar with the correct set-up of the plan.
5. There shall be no construction work after dark, unless approved by ENGINEER.
6. The Traffic Control Plan (TCP) shall be prepared by Florida Licensed Professional Engineer with a minimum of an Intermediate Maintenance of Traffic current certification in the State of Florida. (Denote on the TCP, certification number and name of the certified personnel that prepared the MOT plan.)
7. For full road closures, Portable Changeable Message Signs are required to pre-advertise the roadway closure, a minimum of seven (7) days in advance of the road closure and during the duration of the road closure. The use of Portable Changeable Message Signs for lane closures on thoroughfare plan roadways will be required. Messages are to be as approved by the Public Works Department and shown on the TCP.

**TRAFFIC ENGINEERING REGULATIONS**

**Maintenance and Protection of Traffic:**

**Traffic Engineering shall be notified twenty-four (24) hours in advance of any lane closings and ten (10) days in advance of any road closures.**

**Traffic Engineering staff shall inspect the Maintenance of Traffic prior to construction commencement to ensure compliance with the approved Traffic Control Plan.**

**Construction at or Near Signalized Intersections:**

The Contractor shall have full responsibility for any work performed at or near any traffic signals in Indian River County. The Contractor shall request that the County locate buried interconnect conduit and cable, loop sensors, and pull boxes prior to commencing construction. Any damage to the interconnect conduit, loop sensors, and pull boxes or any other traffic signal equipment shall be repaired at the contractor's expense. It shall be the responsibility of the contractor to notify Traffic Engineering Division 72 hours prior to any work being performed near a signalized intersection or flashing beacon.

Once the proper notification and locate procedures are satisfied, the contractor working in or near signalized intersections or around traffic signal poles, signal cabinets, or flashing beacons shall be advised of the following regulations:

1. No excavation shall be performed within a 15-foot radius of any traffic signal pole. If excavation is necessary within a 15-foot radius, it will be the Contractors responsibility to provide the following:
  - a. In a manner approved by the County Public Works Director or his designee, the contractor shall provide constant support of the traffic signal pole to prevent movement during excavation and backfill operations.
  - b. Compaction around the excavation site to a 98% density, bringing the backfill up in 1 foot lifts.
  - c. Density reports from a licensed testing company provided to the County Public Works Director.
  - d. Restore the traffic signal and all support equipment to original condition or better.
2. There shall be no pavement cuts made within 500 feet of a signal or flashing beacon without contacting Indian River County Traffic Engineering Division at (772-226-1547), 72 hours prior to construction.
3. Any contractor that works at or in the vicinity of a signalized intersection shall have full responsibility for any liability incurred by causing damage to signal equipment that results in the failure of the traffic signal functions. If such a failure occurs, the contractor shall notify the police and the Traffic Engineering Division immediately at (772-226-1547).

# **APPENDIX D**

## **SOIL BORINGS**



May 25, 2007

Arcadis, Inc.  
2081 Vista Parkway  
West Palm Beach, Florida 33409

Attn: Mr. Hank Deibel, P.E., Vice President

**RE: Roadway Soil Survey Report  
Proposed Intersection Improvements for 43<sup>rd</sup> Avenue and SR 60  
Indian River County, Florida  
Tierra Project No.: 6611-06051**

Dear Hank:

Tierra, Inc. has completed our Geotechnical Engineering evaluation program for the subject project. The results of our field exploration program and subsequent recommendations are presented in this report.

Tierra, Inc. appreciates the opportunity to be of service to Arcadis, Inc. on this project and looks forward to working with you on future projects. If you have any questions or comments regarding this report, please contact our office at your earliest convenience.

Sincerely

**TIERRA, INC.**

Raj Krishnasamy, P.E.  
Principal Geotechnical Engineer/VP  
FL Registration No. 53567

Attachments



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## **INTRODUCTION**

The project, as we understand it, consists of two (2) bridge widening and the roadway widening at intersection of 43<sup>rd</sup> Avenue and SR 60 in Indian River County, Florida.

The purpose of this study was to provide Geotechnical (i.e. soils and groundwater) input to the design team during the evaluation phase of the proposed road improvements. The study for two (2) bridges widening will be present in a separate report.

## **SCOPE OF STUDY**

The study was performed to obtain information on the existing subsurface conditions along the project alignment to assist in the design of the construction plans for proposed roadway widening at the above referenced streets. For this, the following services were provided:

1. Reviewed readily available published topographic and soils information. This information was obtained from the "Soil Survey of Indian River County, Florida" published by the United States Department of Agriculture (USDA) Soil Conservation Services (SCS), and USGS Maps.
2. Performed a Geotechnical field study for the proposed road widening. This included a total of sixty seven (67) auger borings drilled to a depth of 6 feet below the existing grade and two (2) Double Ring Infiltration tests.
3. Performed a limited laboratory testing routine to establish the soil properties along the roadway alignment using the AASHTO Soil Classification System. The laboratory testing included grain size analysis, organic and moisture content determination.
4. Prepared this Roadway Soil Survey Report for the project.

These Geotechnical Services were performed in general accordance with IRC/FDOT Standards.

The scope of our services does not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of our client.

## SOIL SURVEY

### Surficial Soils

Review of the "Soil Survey of Indian River County Area, Florida," prepared by the United States Department of Agriculture (USDA) Soil Conservation Service (SCS) indicates that the project alignment is mapped as follows:

**EauGallie fine sand (3):** This is deep, a nearly level and poorly drained soil on broad flatwoods that has dark colored layers; some has grayish brown or gray sandy loam at depths ranging from about 47 to 61 inches. The water table is at a depth of less than 10 inches of the surface for 2 to 4 months in wet season and within a depth of 40 inches for more than 6 months.

**Urban land (22):** More than 70 percent of this miscellaneous area is covered by urban facilities. The natural soil cannot be observed, and soils in this area generally have been altered by grading and shaping or have been covered to a depth of about 12 inches by fill material, which consists of sandy shell fragments.

**EauGallie-urban land complex (28):** This complex consists of EauGallie fine sand and Urban land. About 55 to 65 percent of the complex consists of nearly level EauGallie soil or of EauGallie soil that has been reworked or reshaped. In undrained areas, the water table is a depth of 10 to 40 inches for periods of 2 to 6 months and is within 10 inches of the surface during the wet season.

## SUBSURFACE CONDITIONS

### Field Explorations

Sub-soils along the proposed roadway widening alignment were explored by a total of sixty seven (67) auger borings. The auger borings were drilled to a depth of 6 feet below the existing grade. The borings were located in the field by Tierra Personnel using tape measurement and existing site features.

The samples of the in-place soils were returned to our laboratory for classification by a geotechnical engineer. The samples were visually classified in general accordance with the AASHTO Soil Classification System.

### General Soil Condition

The sub-soils encountered in the borings typically consisted of gravel and coarse sand with limerock, organic stained fine sand, fine sand, silty sand and organic soil (muck). A thin layer of topsoil was encountered at all the borings. The following table describes the soil stratum that was found during the study as well as usage recommendations per the FDOT Roadway Design Standards.

STRATUM	TYPE	AASHTO CLASSIFICATION	FDOT SOIL DESIGNATION
1	Topsoil	A-8	UNSUITABLE
2	Dark brown to dark gray Gravel & Sand with Limerock	A-1-a	SELECT
3	Dark brown to dark gray coarse Sand with Limerock	A-1-b	SELECT
4	Dark brown to dark gray fine Sand	A-3	SELECT
5	Dark brown to gray fine Sand with Organic Stain	A-3	SELECT
6	Dark brown to gray silty Sand	A-2-4	SELECT
7	Muck	A-8	UNSUITABLE

Auger borings indicate the presence of organic soil (Muck) (oc > 12 percent) at boring AB-39 at a depth ranging from 3.0 to 5.5 feet below the existing grade.

Laboratory organic content tests performed on soil samples obtained from stratum 5 indicate that the soil in these stratum have organic content ranging from 1.0 to 2.8 and moisture content ranging from 12 to 26 percent. The results of laboratory test are present in the Appendix. Our experience suggests that soils with organic content values of less than 5 percent will not pose limitations to the proposed widening.

Soils with organic content more than 5 percent (stratum 7) are not suitable for embankment construction. These soils should be removed and replaced with suitable fill in accordance with indexes 500 and 505.

A Geotechnical engineer bases soil stratification on a visual review of the recovered samples, laboratory testing, and interpretation of the field boring logs. The boring stratification lines represent the approximate boundaries between soil types of significantly different engineering properties; however, the actual transition may be gradual. In some cases, small variations in properties not considered pertinent to our engineering evaluation may have been abbreviated or omitted for clarity. The boring profiles represent the conditions at the particular boring location and variations do occur among the borings.

### **Laboratory Testing**

Representative soil samples collected from the borings were classified and stratified in general accordance with the AASHTO Soil Classification System. Our classification was based on visual inspection, using the results from the laboratory testing as confirmation. The laboratory tests performed include organic content test, natural moisture content test, and grain size analysis. Laboratory test results are presented in the Appendix.

### Groundwater

The groundwater table was measured at the boring locations following termination of drilling. The depth to the water table at the sampled locations generally ranged from 3.0 to 5.5 feet below the existing grades. Fluctuation should be anticipated. Seasonal high groundwater is expected to be controlled by the existing drainage feature present throughout the proposed widening alignment. We recommend that the contractor determine the actual groundwater levels at the time of construction to determine groundwater impact on his construction procedure.

### Double Ring Infiltration Test (DRIT)

Two (2) Double Ring Infiltration Tests were performed to determine the infiltration characteristics of the near surface soils at the proposed retention areas. The approximate locations of the tests performed are included on Sheet 1 in the Appendix. The Double Ring Infiltration Test (DRIT) is performed by advancing two rings into the ground, at the test depth elevation, approximately 6 inches. The inner ring is approximately 12 inches in diameter. The outer ring is approximately 3 feet in diameter. Water is allowed to flow freely into the outer ring, and a constant head level of 12 inches is established. Water is placed into the inner ring continuously, maintaining the same 12 inch head level, but the volume of water placed into the ring is measured and recorded in 15-minute intervals. The test is continued over a 4-hour period. Following the completion of the test, the infiltration rate is established by determining the average volume of water that flows through the cross sectional area of the inner ring per a given time increment. The rate is reported in a unit length per time increment.

Based on the results of the test performed, the infiltration tests results are as follows:

<b>DRIT Number</b>	<b>Test Depth Below Grade (ft)</b>	<b>Infiltration Rate (in/hr)</b>
1	0.5	7.9
2	0.5	12

## ENGINEERING EVALUATION AND RECOMMENDATIONS

### General

In general, the existing shallow subsurface soils encountered in the borings performed are suitable for supporting the proposed roadway widening after proper sub-grade preparation. Site preparation should consist of normal clearing and grubbing, followed by compaction of sub-grade soils, and removal and replacement of muck.

The removal of topsoil and muck should be accomplished in accordance with the Florida Department of Transportation (FDOT) Standard Indexes 500 and 505. Backfill should consist of materials conforming to FDOT Standard Index 505 and compacted in accordance with Section

120-9 of the Standard Specification for Road and Bridge Construction, latest edition. The structural fill to be placed below the water level should consist of well graded gravel or clean sand with a maximum of 5 percent passing the U.S. Standard No. 200 sieve.

Silty soils encountered at the site are likely to retain excessive moisture and may be difficult to dry and compact. This material may be used in the subgrade above the water table at the time of construction.

Any buried organic soils, debris, or unsuitable fills encountered during construction, which are not shown on the boring profiles should be removed and replaced with clean, compacted, sandy soils. Plastic soils (if any encountered), within the pavement section should also be removed and placed in areas not affecting pavement performance.

### **Embankment Construction**

We anticipate that fill required for the proposed roadway will be about 2 to 3 feet. The embankment/fills should be constructed in accordance with Section 120-8 of FDOT Standard Specifications for Road and Bridge Construction using materials in accordance with FDOT Standard Index 505.

Assuming proper subgrade preparation and adequate fill materials are utilized, we recommend that all proposed side slopes be constructed on 2.0 horizontal to 1.0 vertical (2H: 1V) or flatter. For the anticipated new fill heights of approximately 2 to 3 feet, we expect total settlements will be less than ½ inch. We expect these settlements to be elastic and should occur during construction.

### **Temporary Side Slopes**

Side slopes for temporary excavations may stand near 1H: 1V for short dry periods of time; however, we recommend that temporary excavations below 5-foot depth be cut on slopes of 2H: 1V or flatter. Where restrictions will not permit slopes to be laid back as recommended above, the excavation should be shored in accordance with OSHA requirements. Furthermore, open-cut excavations exceeding 10 feet in depth should be properly dewatered and sloped 2H:1V or flatter or be benched using a bracing plan approved by a professional engineer licensed in the State of Florida. During construction, excavated materials should not be stockpiled at the top of the slope within a horizontal distance equal to the excavation depth.

### **Groundwater Control**

In our opinion, groundwater is not expected to impose any restrictions to the proposed roadway widening provided final grades are to be raised by 2 to 3 feet to match the existing grades for the proposed roadway. However, dewatering will be required for utility and culvert installations when the excavation bottom is below the water table during construction.

### **Pavement Design Considerations**

Based on the experience on similar soils, for in-situ sandy soils we recommend a design LBR value of 25 provided the site is prepared as recommended in this report.

If a stabilized subgrade is required, we recommend a sand-gravel mixture, 12 inch thick, with a minimum design LBR of 40. Base course should consist of Limerock, Shellrock or coquina, meeting the minimum requirements of the FDOT "Standard Specifications for Road and Bridge Construction," Sections 911, 913 or 915, respectively. The Limerock (coquina) should have a minimum LBR value of 100. Both the base and stabilized sub-grade should be compacted to at least 98 percent of maximum dry density (AASHTO T-180).

Asphalt thickness should be determined considering the anticipated traffic loading conditions and expected life expectancy of the pavement section.

### **On-Site Soil Suitability**

Strata 2, 3, 4, 5 & 6 consist of Select material and are good for sub-grade and embankment support. This material must be prepared and utilized according to the Standard Index 505.

Stratum 6 consists of select material and is good for subgrade and embankment support, and should be utilized according to Standard Index 505. However, it may retain excess moisture and may be difficult to dry and compact. It should be utilized in the embankment above the water level existing at the time of construction.

## **REPORT LIMITATIONS**

Our Geotechnical engineering evaluation of the site and subsurface conditions with respect to the planned roadway improvement and our recommendations for site preparation are based upon the following: (1) site observations, (2) the field exploratory test data obtained during the geotechnical study, and (3) our understanding of the project information as presented in this report.

If the final grades vary considerably from those stated, or when final cross-sectional data becomes available, please contact our offices so that we can review our recommendations. Furthermore, upon the discovery of any site or subsurface conditions during construction, which appears to deviate from the data obtained during this Geotechnical exploration, please contact us immediately so that we may visit the site, observe the differing conditions, and evaluate the new information with regards to our evaluation and recommendations contained herein.

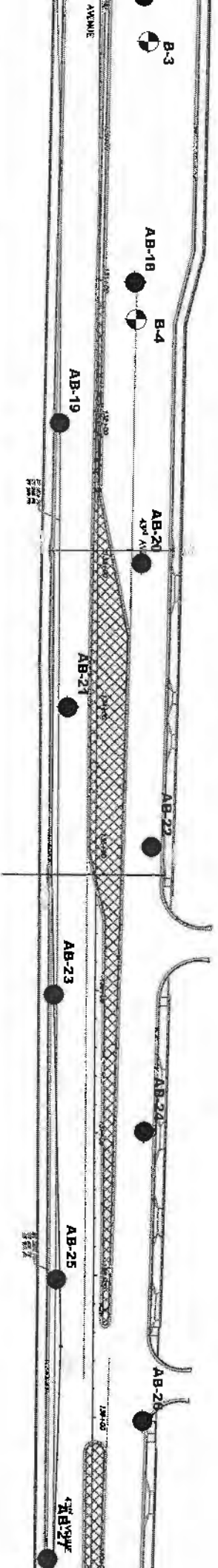
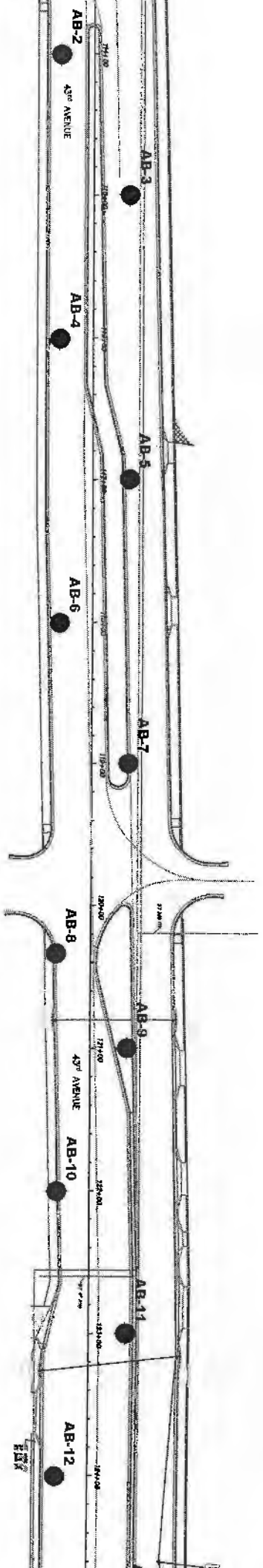
The recommendations presented previously represent design and construction techniques that we feel are both applicable and feasible for the planned construction. We recommend, however, that we be provided the opportunity to review the final foundation plans and the earthwork construction specifications to evaluate whether our recommendations have been properly interpreted and implemented.

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

This geotechnical report has been prepared for the exclusive use of Arcadis, Inc, for the specific application to the proposed roadway widening of 43<sup>rd</sup> Avenue and SR 60, in Indian River County, Florida.



## **APPENDIX**



L E G E N D

● ROADWAY BORING LOCATION

NOTES:

- 1-BORING LOCATIONS SHOULD BE CONSIDERED APPROXIMATE.
- 2-THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY.

Description	Drawn by	Notes	Date
	JK		05/07
Designed by	JK		
Checked by			
Approved by	RAJ KRISHNASAMY, P.E.		

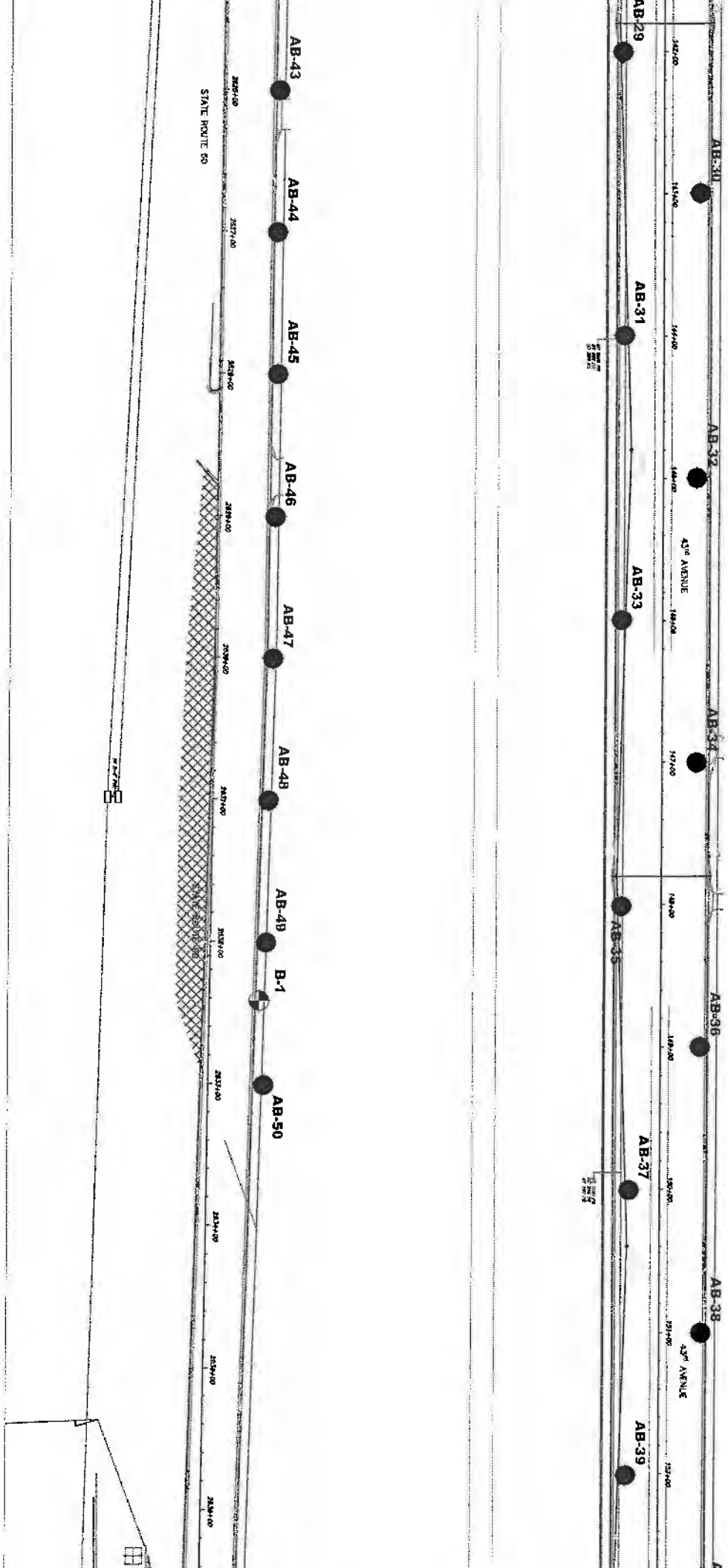


Business License No. 6486  
 ENGINEER OF RECORD:  
 Raj Krishnasamy, P.E.  
 P.E. License No. 53567  
 2795 Vista Parkway Blvd, S-11  
 West Palm Beach, Florida 33411

SEAL:

ROAD NO.	COUNTY	PROJECT NO.
-	INDIAN RIVER	6611-06051

SHEET TITLE  
 BORING LO  
 SR 60 AND  
 INDIAN RIVER CO



L E G E N D

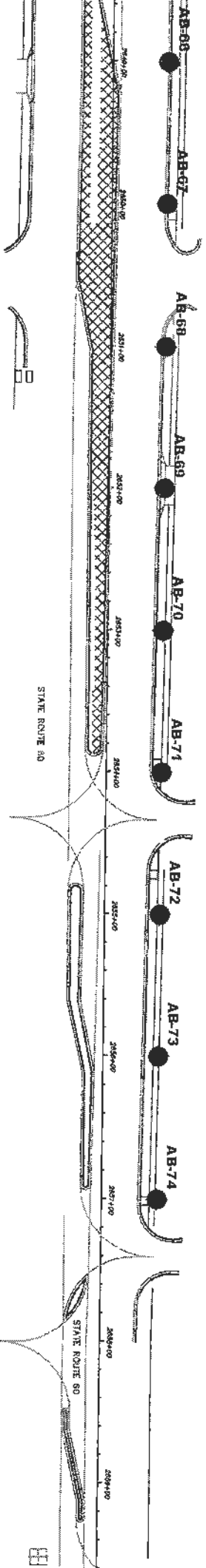
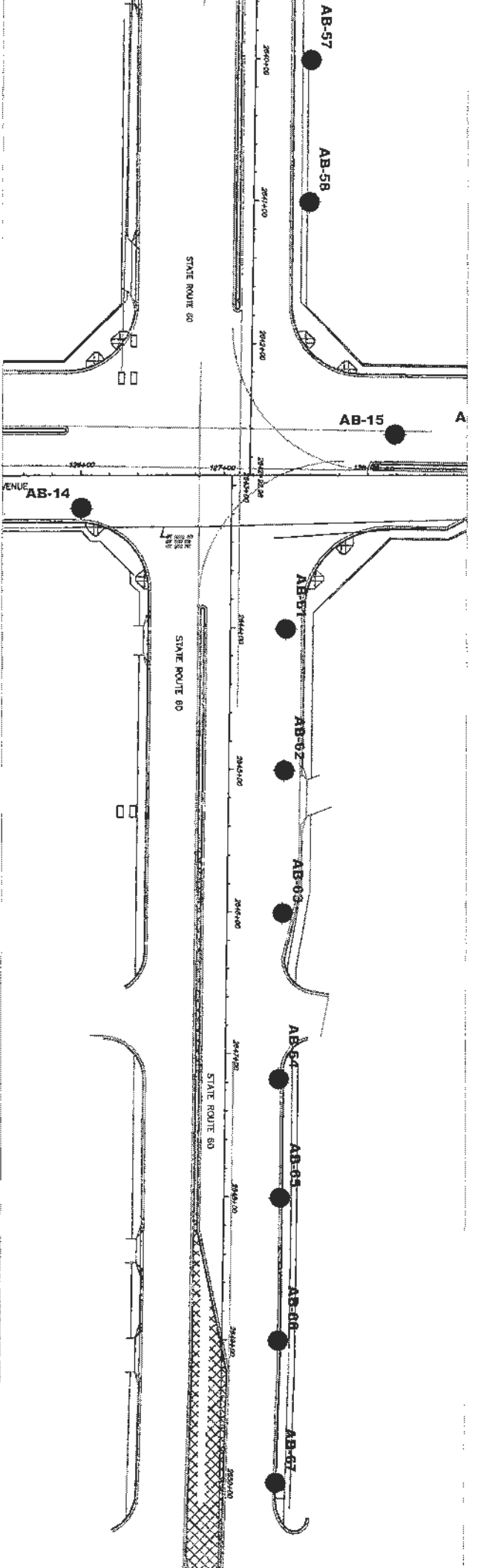
● ROADWAY BORING LOCATION

NOTES:

1-BORING LOCATIONS SHOULD BE CONSIDERED APPROXIMATE.

2-THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY.

Description	Drawn by	Name	Date	 <b>TERRA</b> GEOTECHNICAL/PAISIPALS ENGINEERING	Business License No. 6486	SEAL:	ROAD NO.	COUNTY	PROJECT NO.	SHEET TITLE	
	Checked by	JK	05/07		ENGINEER OF RECORD: Raj Krishnasamy, P.E. P.E. License No. 53567						
	Checked by				2/65 Vista Parkway Blvd S-10 West Palm Beach, Florida 33411						
	Approved by	RAJ KRISHNASAMY, P.E.						INDIAN RIVER	6611-06051	BORING LO SR 60 AND INDIAN RIVER CO	



L E G E N D

● ROADWAY BORING LOCATION

NOTES:

1-BORING LOCATIONS SHOULD BE CONSIDERED APPROXIMATE.

2-THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY.

	Drawn by	Norman Jt.	Date	 <b>TERRA</b> GEOTECHNICAL SERVICES ENGINEERING					
Description	Checked by	RK	05/07		Business License No. 6486	SEAL:	ROAD NO.	COUNTY	PROJECT NO.
	Designed by				ENGINEER OF RECORD:		INDIAN RIVER	INDIAN RIVER	6611-06051
	Checked by				Raj Krishnasamy, P.E. P.E. License No. 53567				
	Approved by			Raj Krishnasamy, P.E.					
				Business License No. 6486 ENGINEER OF RECORD: Raj Krishnasamy, P.E. P.E. License No. 53567 2765 Vista Parkway Blvd S-10 West Palm Beach, Florida 33411					
								SHEET TITLE: BORING LO	
								PROJECT NAME: SR 60 AND INDIAN RIVER C	



**Summary of Laboratory Test Results  
Proposed Intersection Improvements for 43rd Avenue and SR 60  
Indian River County, Florida  
Tierra Project No: 6611-06-051**

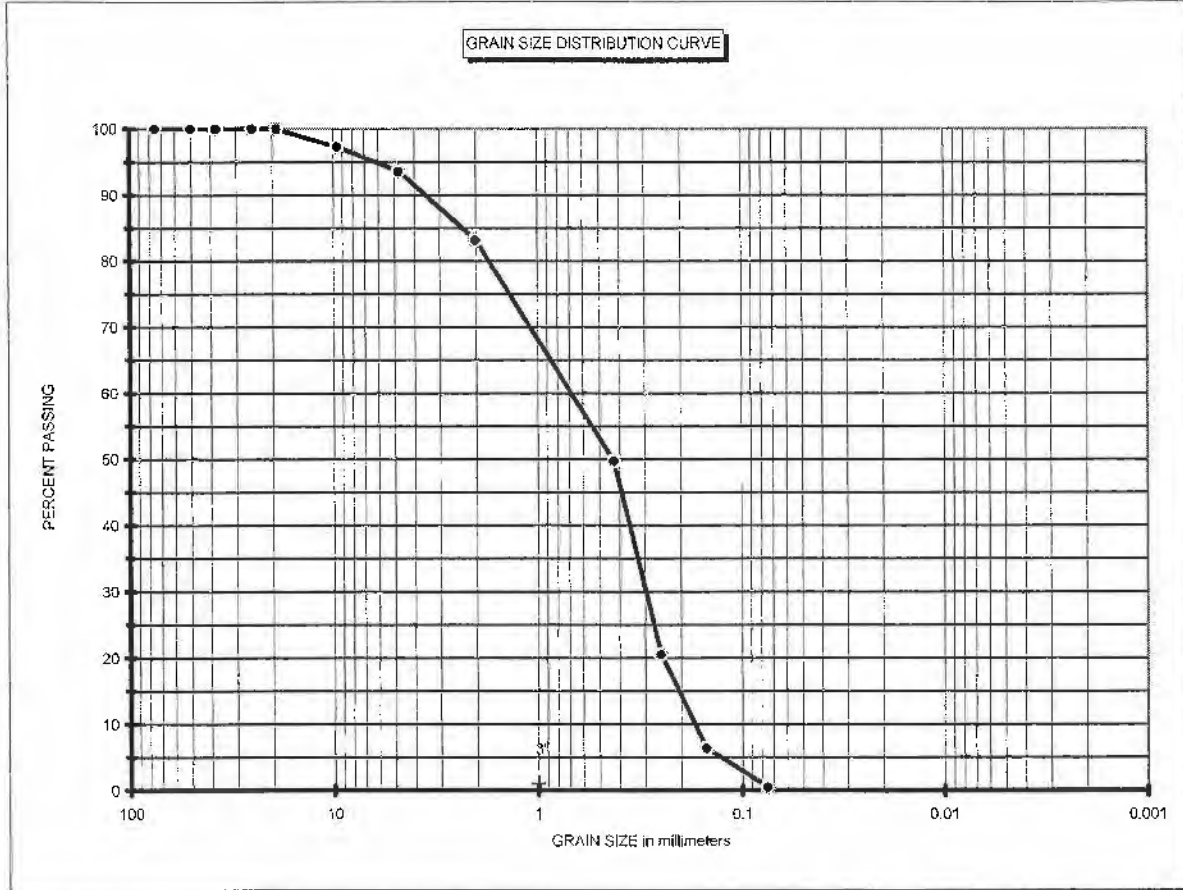
Sample Depth (ft)	Stratum Number	USCS Symbol	Sieve Analysis								Atterberg Limits			Organic Content (%)	Natural Moisture Content (%)		
			3/4"	3/8"	#4	#10	#40	#60	#100	#200	Liquid Limit	Plastic Limit	Plasticity Index				
5.0 - 6.0	5	A-3														2.5	27
0.5 - 3.5	3	A-1-b	100	97	94	83	50	21	6	0							9
3.5 - 6.0	5	A-3														1	22
4.5 - 6.0	5	A-3														2.7	25
4.0 - 6.0	6	A-2-4	100.0	100.0	100.0	98.0	81.0	42.0	30.0	21.0							21
5.0 - 6.0	4	A-2-4	100	100	100	100	91	46	28	16							21
4.0 - 6.0	5	A-3															26
4.5 - 6.0	2	A-1-a	98	78	55	38	18	5	2	0						2.6	14
3.5 - 4.0	5	A-3															12
5.0 - 6.0	4	A-3	100	100	100	97	76	28	12	2						2.8	15

# GRAIN SIZE DATA SHEET

PROJECT NAME: Improvements for 43rd Ave. & SR 60

DATE: 3/21/2006

PROJECT #: 6611-06-051



ASTM D 2487 Classification of Soil for Engineering Purposes		Coarse Sand	< #4 and > #10	$C_u = D_{60} / D_{10}$
Coarse Gravel	< 3" and > 3/4"	Medium Sand	< #10 and > #40	$C_c = (D_{30})^2 / (D_{10} \times D_{60})$
Fine Gravel	< 3/4" and > #4	Fine Sand	< #40 and > #200	

BORING # AB - 4      OFFSET (ft) \_\_\_\_\_      DEPTH (ft): 0.5 - 3.5

SOIL CLASSIFICATION: A-1-b

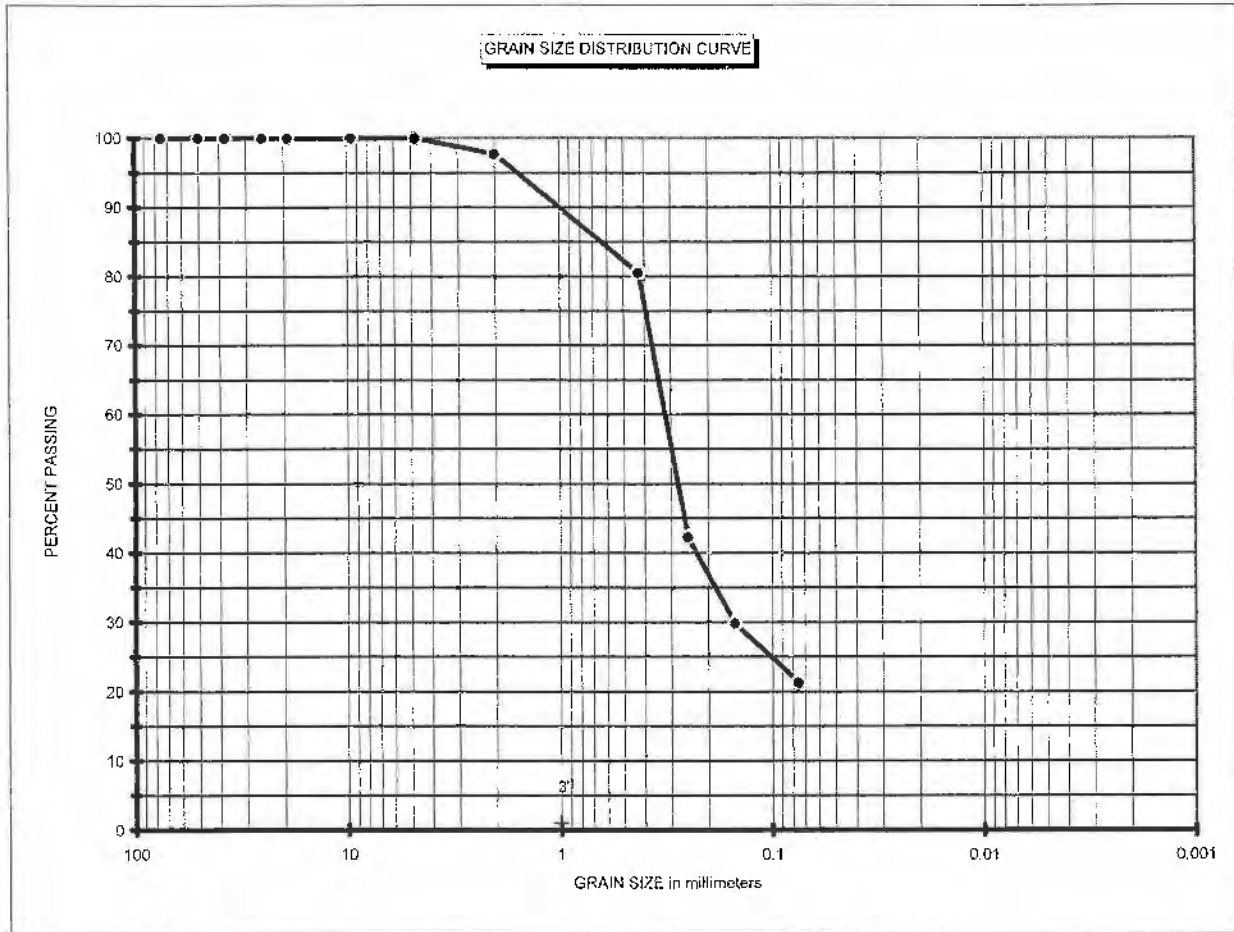
MOISTURE CONTENT: 8.9%

ATTEBERG LIMIT ( - #40 Material )	
LIQUID LIMIT	NP
PLASTIC LIMIT	NP
PLASTIC INDEX	NP

# GRAIN SIZE DATA SHEET

PROJECT NAME: Improvements for 43rd Ave. & SR 60  
 PROJECT #: 6611-06-051

DATE: 3/21/2006



ASTM D 2487 Classification of Soil for Engineering Purposes		Coarse Sand	< #4 and > #10	$C_u = D_{60} / D_{10}$
Coarse Gravel	< 3" and > 3/4"	Medium Sand	< #10 and > #40	$C_c = (D_{30})^2 / (D_{10} \times D_{60})$
Fine Gravel	< 3/4" and > #4	Fine Sand	< #40 and > #200	

BORING # AB - 42      OFFSET (ft) \_\_\_\_\_      DEPTH (ft): 4 - 6

SOIL CLASSIFICATION: A-2-4

MOISTURE CONTENT: 20.8%

ATTERBERG LIMIT ( - #40 Material )	
LIQUID LIMIT	NP
PLASTIC LIMIT	NP
PLASTIC INDEX	NP



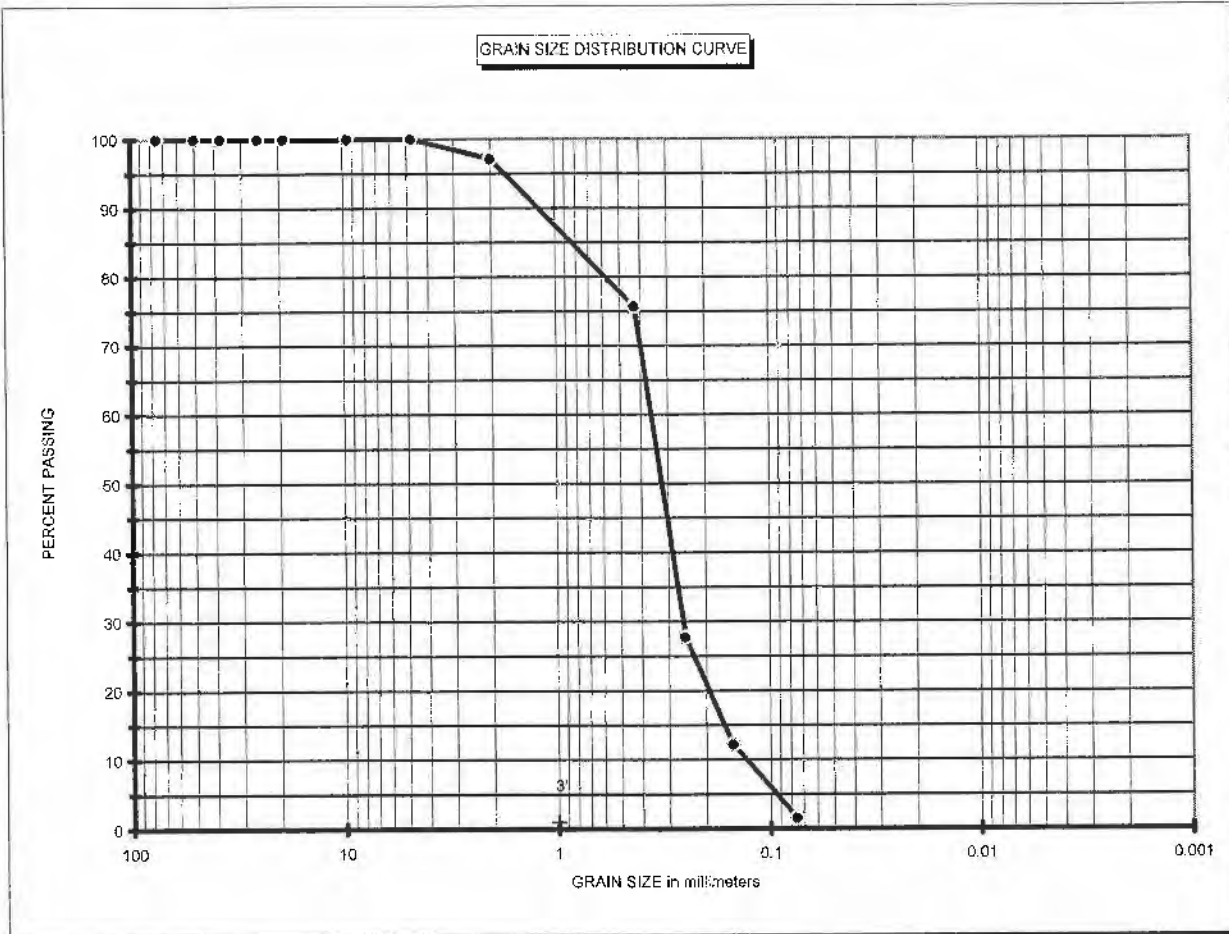




# GRAIN SIZE DATA SHEET

PROJECT NAME: Improvements for 43rd Ave. & SR 60  
 PROJECT #: 6611-06-051

DATE: 3/21/2006



ASTM D 2487 Classification of Soil for Engineering Purposes		Coarse Sand	< #4 and > #10	$C_u = D_{60} / D_{10}$
Coarse Gravel	< 3" and > 3/4"	Medium Sand	< #10 and > #40	$C_c = (D_{30})^2 / (D_{10} \times D_{60})$
Fine Gravel	< 3/4" and > #4	Fine Sand	< #40 and > #200	

BORING # AB - 74      OFFSET (ft) \_\_\_\_\_      DEPTH (ft): 5 - 6

SOIL CLASSIFICATION: A-3

MOISTURE CONTENT: 15.3%

ATTERBERG LIMIT ( - #40 Material )	
LIQUID LIMIT	NP
PLASTIC LIMIT	NP
PLASTIC INDEX	NP



January 12, 2012

ARCADIS  
2085 Vista Parkway  
West Palm Beach, FL 33411

Attn: Mr. Hank Deibel, Jr., P.E.

RE: **Geotechnical Engineering Service Report for Mast Arms  
Intersections of SR 60 and 43<sup>rd</sup> AVE  
Indian River County, Florida  
TSF Project No.: 7111-11-322**


Dear Hank:

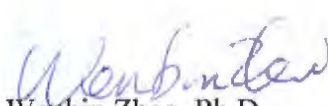
Tierra South Florida, Inc. (TSF) has completed the subsurface exploration and developed recommendations for the proposed mast arms at the subject site. This report presents the results of our study and includes our evaluation of the soil and groundwater conditions and soil parameters for foundation design.

We appreciate the opportunity to be part of this project. Please do not hesitate to call our office if you have any questions regarding this report or if we can be of further service to you.

Sincerely,

**TIERRA SOUTH FLORIDA, INC.**

  
Raj Krishnasamy, P.E.  
Principal Engineer/President  
FL Registration No. 53567

  
Wenbin Zhao, Ph.D.  
Staff Engineer

Attachments

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APPENDIX: Corrosion Test Results  
          Report of Core Borings

## **1.0 PROJECT INFORMATION**

The project, as we understand it, is to improve the intersection at State Road 60 and 43<sup>rd</sup> Avenue in Indian River County. We understand that the proposed improvements include the installation of a mast arm structure at the above-mentioned intersection location.

The purpose of this study was to provide Geotechnical (i.e. soils and groundwater) input to the design team to assist in the mast arm foundation design.

## **2.0 SCOPE OF SERVICES**

Services for this project consisted of performing subsurface exploration and obtaining other geotechnical information required to develop recommendations for a deep foundation to support the proposed mast arm. The following services were provided:

1. Performed a total of one (1) Standard Penetration Test (SPT) boring to a depth of 30 feet below the existing grade and obtained soil samples.
2. Measured groundwater levels at time of drilling.
3. Visually classified and stratified the samples in the laboratory utilizing the ASTM Unified Soil Classification System.
4. Prepared a formal engineering report, summarizing the course of study pursued, field data, subsurface conditions, and engineering recommendations.

## **3.0 FIELD EXPLORATION**

In order to explore subsurface conditions, one (1) Standard Penetration Test (SPT) boring was performed to a depth of 30 feet below the existing grade at the intersection. The borings was located in the field by our personnel by measuring the distances from existing site features. The boring was performed with a truck-mounted drill rig in general accordance with ASTM specification D-1586. The boring was advanced by using wash boring techniques and bentonite drilling fluids to stabilize the borehole. Samples of the in-place materials were obtained continuously in the upper 10 feet and at a 5-foot interval thereafter. The representative soil samples were placed in glass jars and returned to our laboratory for classification by a Geotechnical engineer.



## **4.0 SUBSURFACE CONDITIONS**

### **4.1 Soil Boring Results**

The results of the performed soil boring are presented in the Appendix. Soil stratification is based on a visual examination of the recovered soil samples coupled with an interpretation of the field boring log by a Geotechnical engineer. The stratification lines represent the approximate boundaries between soil types of significantly different engineering properties. The actual transition may be gradual. In some cases, small variations in properties not considered pertinent to our engineering evaluation may have been abbreviated or omitted for clarity.

### **4.2 Groundwater**

The groundwater level was measured at the boring location following the termination of the boring, and presented on the boring profile sheet in the Appendix. Groundwater conditions will also vary with environmental variations and seasonal conditions, such as the frequency and magnitude of rainfall patterns, as well as man-made influences, such as existing swales, drainage ponds, and under drains. Fluctuation should be anticipated. We recommend that the contractor determine the actual groundwater levels at the time of construction and evaluate its possible impacts on his construction procedures.

### **4.3 Environmental Classification**

Environmental corrosion tests were performed on soil samples recovered from the borings. Environmental corrosion tests include parameters such as pH, resistivity, sulfate and chloride contents. These laboratory test results were used to perform the environmental classification in accordance with FDOT Structures Design Guidelines. Based on the laboratory test results the environmental classification is slightly aggressive for both steel structures and concrete structures.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Mast Arm Foundation Design

Based on the soil boring data and our experience, it is our opinion that a drilled shaft foundation system may be used to support the proposed mast arm. The following soil parameters may be utilized in the foundation design. Where applicable, FDOT Standard Indices may be used in foundation design.

<b>SOIL PARAMETERS FOR THE MAST ARM DESIGN</b>									
BORING NUMBER	DEPTH (FEET)	SPT "N" AVERAGE	SOIL CLASSIFICATION	APPROXIMATE SOIL UNIT WEIGHT (PCF)		SOIL ANGLE OF FRICTION (DEGREES)	COHESION (PSF)	EARTH PRESSURE COEFFICIENT	
				$\gamma$ SAT	$\gamma$ SUB			ACTIVE (Ka)	PASSIVE (Kp)
B-1	0 – 30	12*	SP/SP-SM	112.4	50	30	0	0.333	3.00

Note: A drilled shaft may be designed for a fully submerged condition with design groundwater level at grade.

\*The N-value has been converted to an equivalent a Safety hammer N-value; the correction factor is 1.24.

### 5.2 Drilled Shaft Construction

Drilled shaft construction for the mast arm foundation should be performed in accordance with Section 455 of the most recent copy of the Standard Specifications for Road and Bridge Construction. It is anticipated that the sandy soils below the groundwater level will tend to cave during construction. Accordingly, drilling slurry may be required during excavation. Additionally, we recommend that the following notes be included in the plans:

- The contractor is advised that caving soils may be encountered during excavation of drilled shafts.
- Drilling mud will be required to stabilize drilled shaft excavations.



## 6.0 LIMITATIONS

Our Geotechnical engineering evaluation of the site and subsurface conditions with respect to the planned foundation construction are based upon the following: (1) site observations, (2) the field exploratory test data obtained during the geotechnical study, and (3) our understanding of the project information and anticipated final grade as presented in this report.

If the final grade varies considerably from the existing grade, or when final cross-sectional data becomes available, please contact our office so that we can review our recommendations. Furthermore, upon the discovery of any site or subsurface conditions during construction, which appear to deviate from the data obtained during this Geotechnical exploration, please contact us immediately so that we may visit the site, observe the differing conditions, and evaluate the new information with regards to our evaluations and recommendations contained herein.

The recommendations presented previously represent design and construction techniques that we feel are both applicable and feasible for the planned construction. We recommend, however, that we be provided the opportunity to review the final foundation plans and construction specifications to evaluate whether our recommendations have been properly interpreted and implemented.

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

This geotechnical report has been prepared for the exclusive use for ARCADIS for the specific application to the proposed mast arm installations at the intersections of State Road 60 and 43<sup>rd</sup> Avenue in Indian River County, Florida.

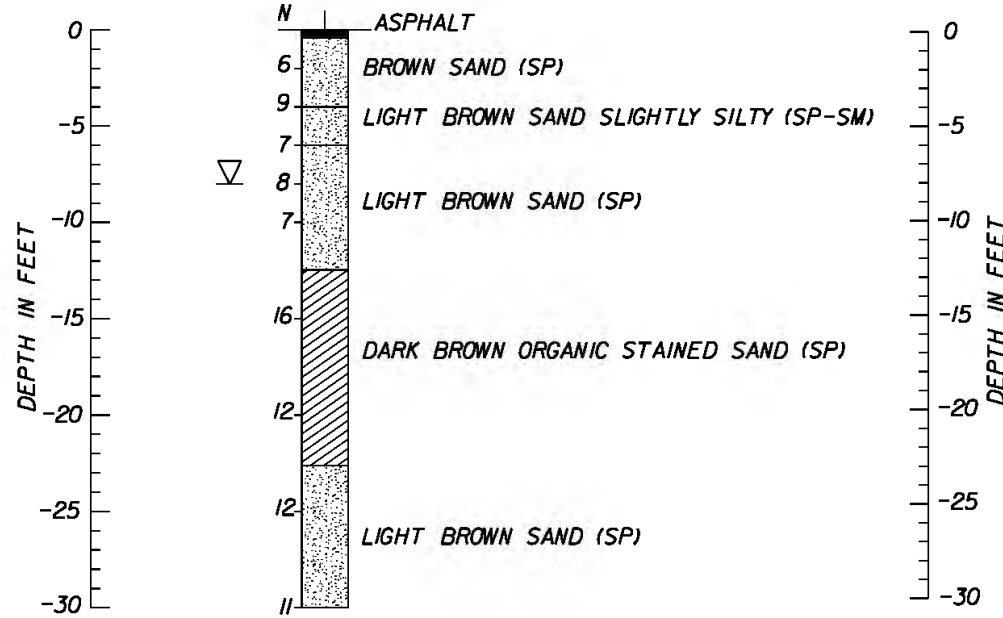
**APPENDIX**

**Corrosion Test Results  
Report of Core Borings**





BOR # B-1  
 DATE 12/23/2011  
 HAMMER AUTO  
 RIG CME-45



- Asphalt/Topsoil
- Sand
- Organic Stained Sand

**NOTES:**

▽ WATER TABLE  
 N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12" PENETRATION AND THEY WERE OBTAINED USING AN AUTOMATIC HAMMER. (UNLESS OTHERWISE NOTED.)  
 WOH WEIGHT OF HAMMER

- MC= NATURAL MOISTURE CONTENT (%)
- 200= FINES PASSING #200 SIEVE (%)
- OC= ORGANIC CONTENT (%)
- LL= LIQUID LIMIT (%)
- PI= PLASTICITY INDEX (%)
- NP= INDICATES NON-PLASTIC
- WOH= WEIGHT OF HAMMER

STRATA BOUNDARIES ARE APPROXIMATE AND MAY VARY BETWEEN OR AWAY FROM BORING LOCATIONS.

**STANDARD PENETRATION TEST DATA**

SPOON INSIDE DIA. 1.375 Inches  
 SPOON OUTSIDE DIA. 2.0 Inches  
 AVG. HAMMER DROP 30.0 Inches  
 HAMMER WEIGHT 140.0 pounds

**SPT CONSISTENCY CHART**

CONSISTENCY	SILTS AND CLAYS	
	SAFETY HAMMER SPT N-VALUE (BLOW/FOOT)	AUTOMATIC HAMMER SPT N-VALUE (BLOW/FOOT)
VERY SOFT	LESS THAN 2	LESS THAN 1
SOFT	2 - 4	1 - 3
FIRM	4 - 8	3 - 6
STIFF	8 - 15	6 - 12
VERY STIFF	15 - 30	12 - 24
HARD	GREATER THAN 30	GREATER THAN 24

**SPT DENSITY CHART**

RELATIVE DENSITY	GRANULAR MATERIALS	
	SAFETY HAMMER SPT N-VALUE (BLOW/FOOT)	AUTOMATIC HAMMER SPT N-VALUE (BLOW/FOOT)
VERY LOOSE	LESS THAN 4	LESS THAN 3
LOOSE	4 - 10	3 - 8
MEDIUM	10 - 30	8 - 24
DENSE	30 - 50	24 - 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40

**ENVIRONMENTAL CLASSIFICATION**

**SUBSTRUCTURE:**

STEEL: SLIGHTLY AGGRESSIVE

CONCRETE: SLIGHTLY AGGRESSIVE

SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

DRAWN BY: NG	APPROVED BY: KV	ENGINEER OF RECORD: <b>RAJ KRISHNASAMY, P.E.</b>	Tierra South Florida 2765 Vista Parkway Suite 9 West Palm Beach, Florida 33411 Phone: 561-687-8536 Fax: 561-687-8570 FL Cert. No.: 28073	SCALE: NTS	PROJECT NUMBER: 7111-11-322	<b>GEOTECHNICAL ENGINEERING SERVICES</b> <b>REPORT OF CORE BORINGS</b> <b>SR 60 AND 43rd AVE.</b> <b>VERO BEACH, FLORIDA</b>	SHEET NO. 1
CHECKED BY: KV	DATE: 12/27/2011	FLORIDA LICENSE NO.: <b>53567</b>					

# **APPENDIX E**

**CITY OF VERO BEACH WATER AND SEWER DEPARTMENT**

## **STANDARD CONSTRUCTION SPECIFICATION AND DETAILS FOR WATER AND SANITARY SYSTEMS**

**CITY OF VERO BEACH WATER AND SEWER DEPARTMENT**



**STANDARD CONSTRUCTION SPECIFICATIONS AND DETAILS  
FOR  
WATER AND SANITARY SEWER SYSTEMS**

ROBERT J. BOLTON, P.E.



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SECTION 1

GENERAL SPECIFICATIONS

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**SECTION 1**  
**GENERAL SPECIFICATIONS**

- 1.01 **GENERAL REQUIREMENTS AND PROCEDURES**: All materials shall be new and unused and shall meet or exceed the following specifications or requirements. The work must include all appurtenances so as to be complete.
- A. All parties concerned shall review project concepts with the Water and Sewer Department.
  - B. A Florida Registered Professional Engineer (herein referred to as "Engineer of Record") shall prepare plans and specifications in accordance with the specifications found herein.
    - 1. Submit three (3) sets of plans for review and approval to the Water and Sewer Department. One (1) set, signed by the Director of the Water and Sewer Department or the designee, will be returned after approval.
    - 2. Submit construction permit applications to the Florida Department of Environmental Protection (F.D.E.P.) for water main extension, reuse main extension, force main construction and/or gravity sewer extension. Permits must be made in the name of the City of Vero Beach and signed by the Director of the Water and Sewer Department.
    - 3. Submit permit applications to the Florida Department of Transportation (F.D.O.T.), Indian River County Department of Public Works, and/or the City Department of Public Works and Engineering for construction in rights-of-way.
    - 4. No changes may be made to the plans and specifications without prior approval from the City of Vero Beach Water and Sewer Department.
  - C. The Engineer of Record shall notify the Water and Sewer Department prior to commencement of construction in order to schedule service outages, if required.
  - D. The Engineer of Record shall have a full-time, on-site inspector at the job site. Daily construction reports must be submitted to the Water and Sewer Department not later than one week after the work has been completed. If the work is within the City of Vero Beach right-of-way, a copy of the inspection must also be submitted to the City Engineer. (The City reserves the right to inspect the construction work at any time.)
  - E. All service outages shall be administered by City personnel and scheduled at the discretion of the Water and Sewer Department and the Commercial Services Department. All outages will require at least 24-hour notice. The contractor will operate no valves on the existing system. **Only** City personnel shall activate valves on the existing utility systems. City personnel will locate existing water and sewer lines. All locates shall require at least 24-hour advance notice.
  - F. All connections to existing facilities shall be made by or under the direction of the Water

and Sewer Department.

- G. The Owner, Engineer of Record, and the Contractor shall agree to hold the City harmless for any suits, claims and liabilities arising from said construction in exchange for the City's commitment to provide utility services.
- H. The Engineer of Record shall be responsible for preparing "as-built" drawings. These "as-built" drawings shall be provided to the City prior to final acceptance of the project by the City and shall include one set of reproducible mylar drawings marked with any deviations from the original plans, and one set of AutoCAD R12 \*.DWG files showing the actual pipe locations and elevations referenced to State Plane Coordinates for horizontal alignment, and National Geodetic Vertical Datum, 1929 (N.G.V.D. 29) for vertical alignment, and certified as such by a licensed surveyor registered in the State of Florida. Actual shots shall be at maximum 40' intervals along the work and at all fittings, unless otherwise directed by the City.
- I. The following items shall be delivered to the City Manager prior to being scheduled for final acceptance by the City Council. No individual services shall be attached to the new facilities until they have been formally accepted for operation and maintenance by City Council.
  - 1. Adequate easements shall be dedicated, if necessary, to the City in conjunction with the placement of utilities. An easement document prepared by the City Attorney shall be utilized for this purpose and recorded at the County Courthouse.
  - 2. Conveyance of the utility facilities to the City shall be made using the form prepared by the City Attorney.
  - 3. A letter from the Contractor stating that all labor and materials incorporated for this project have been paid (include statement of total material costs).
  - 4. A letter from the Contractor granting a one-year warranty period for the project, from the date of acceptance by the City, for all labor and materials incorporated herein.
  - 5. A letter from the Water and Sewer Department stating that all work is complete and satisfactory.
  - 6. A letter from the Engineer of Record for the project certifying the following:
    - a. Tests as required by the City of Vero Beach Water and Sewer Department have been performed and meet or exceed the criteria as established. Attach copies of test results if not previously submitted;
    - b. That bacteriological tests have been performed by a certified lab and are satisfactory. Attach copies of the test results if not previously submitted;

- c. All specification requirements for the City of Vero Beach have been met;
- d. All engineering fees have been paid;
- e. As-builts have been provided as required. Attach copies of said as-built documents if not previously submitted.
- f. F.D.E.P. has issued a letter of clearance, where applicable. Attach a copy of said F.D.E.P. clearance letter.

1.02 PROTECTION OF EXISTING CITY OF VERO BEACH UTILITIES AND STRUCTURES:

Existing utilities, structures, trees, shrubs, and facilities shall be accurately located and shown on the Plans.

In order to assure himself of the actual location of existing facilities, the Engineer of Record is advised to notify each utility company involved to arrange for positive underground location.

Engineer of Record shall notify and coordinate with the utility companies where their facilities may be in conflict with or endangered by the proposed construction in order to maintain utility service and minimize the amount of interference and interruption. Relocation of existing utilities for the convenience of the Developer shall be paid for by the Developer. Temporary support of City of Vero Beach utilities, if required, shall be the responsibility of the Contractor who shall coordinate his activities with the appropriate City departments.

All existing overhead, surface or underground facilities and utilities are to be carefully protected from injury or displacement. All damage to such structures is to be completely repaired, at no expense to the City, within a reasonable time; needless delay will not be tolerated. The City reserves the right to remedy such damage by ordering outside parties to make such repairs at the expense of the Contractor. All such repairs made by the Contractor to City facilities are to be made to the satisfaction of the City and at no cost to the City. All damaged utilities, structures, etc. must be replaced or prevented from leaking or malfunctioning. All repairs are to be inspected by the City prior to backfilling.

1.03 HORIZONTAL AND VERTICAL SEPARATION : (Per F.D.E.P. REG. 62-555.314 Location of Public Water System mains)

- (1) Horizontal Separation Between Underground Water Mains and Sanitary or Storm Sewers, Wastewater or Stormwater Force Mains, Reclaimed Water Pipelines, and On-Site Sewage Treatment and Disposal Systems.
  - (a) New or relocated, underground water mains shall be laid to provide a horizontal distance of at least three feet between the outside of the water main and the outside of any existing or proposed storm sewer, stormwater force main, or

pipeline conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C.

- (b) New or relocated, underground water mains shall be laid to provide a horizontal distance of at least three feet, and preferably ten feet, between the outside of the water main and the outside of any existing or proposed vacuum-type sanitary sewer.
  - (c) New or relocated, underground water mains shall be laid to provide a horizontal distance of at least six feet, and preferably ten feet, between the outside of the water main and the outside of any existing or proposed gravity- or pressure-type sanitary sewer, wastewater force main, or pipeline conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C. The minimum horizontal separation distance between water mains and gravity-type sanitary sewers shall be reduced to three feet where the bottom of the water main is laid at least six inches above the top of the sewer.
  - (d) New or relocated, underground water mains shall be laid to provide a horizontal distance of at least ten feet between the outside of the water main and all parts of any existing or proposed "on-site sewage treatment and disposal system" as defined in Section 381.0065(2), F.S., and Rule 64E-6.002, F.A.C.
- (2) Vertical Separation Between Underground Water Mains and Sanitary or Storm Sewers, Wastewater or Stormwater Force Mains, and Reclaimed Water Pipelines.
- (a) New or relocated, underground water mains crossing any existing or proposed gravity- or vacuum-type sanitary sewer or storm sewer shall be laid so the outside of the water main is at least six inches, and preferably 12 inches, above or at least 12 inches below the outside of the other pipeline. However, it is preferable to lay the water main above the other pipeline.
  - (b) New or relocated, underground water mains crossing any existing or proposed pressure-type sanitary sewer, wastewater or stormwater force main, or pipeline conveying reclaimed water shall be laid so the outside of the water main is at least 12 inches above or below the outside of the other pipeline. However, it is preferable to lay the water main above the other pipeline.
  - (d) At the utility crossings described in paragraphs (a) and (b) above, one full length of water main pipe shall be centered above or below the other pipeline so the water main joints will be as far as possible from the other pipeline. Alternatively, at such crossings, the pipes shall be arranged so that all water main joints are at least three feet from all joints in vacuum-type sanitary sewers, storm sewers, stormwater force mains, or pipelines conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C., and at least six feet from all joints in gravity-

or pressure-type sanitary sewers, wastewater force mains, or pipelines conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.

- (3) Separation Between Water Mains and Sanitary or Storm Sewer Manholes.
  - (a) No water main shall pass through, or come into contact with, any part of a sanitary sewer manhole.
- (4) Separation Between Fire Hydrant Drains and Sanitary or Storm Sewers, Wastewater or Stormwater Force Mains, Reclaimed Water Pipelines, and On-Site Sewage Treatment and Disposal Systems. New or relocated fire hydrants with underground drains shall be located so that the drains are at least three feet from any existing or proposed storm sewer, stormwater force main, or pipeline conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C.; at least three feet, and preferably ten feet, from any existing or proposed vacuum-type sanitary sewer; at least six feet, and preferably ten feet, from any existing or proposed gravity- or pressure-type sanitary sewer, wastewater force main, or pipeline conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.; and at least ten feet from any existing or proposed "on-site sewage treatment and disposal system" as defined in Section 381.0065(2), F.S., and Rule 64E-6.002, F.A.C.

#### 1.04 EXCAVATION AND TRENCHING:

- A. The Contractor shall perform all trenching of every description and in whatever substances are encountered to the depths indicated on the drawings or as necessary as may be required to accomplish the work. This shall include all necessary clearing and grubbing of any foreign substance encountered within the structure or trench area. Excavated material suitable for backfill shall be piled in an orderly manner at a sufficient distance from the trench to prevent slides or cave-ins. The Contractor shall place a ladder in the trench if it is deeper than 5 feet from the bottom of the trench to the ground surface. Contractor shall comply with all agency requirements relative to shoring including the Trench Safety Act.
- B. The minimum width of the trench shall be equal to the outside diameter of the pipe at the joint with the maximum width of trench, measured at the top of the pipe, not to exceed the outside pipe diameter plus 24 inches (approximately 12" from pipe OLD. to each wall), unless otherwise shown on the drawings. Trench walls shall be maintained vertical from the bottom of the trench to a line measured 12" inches above the top of the pipe. From the top of the pipe to the ground surface, the trench walls shall be as vertical as possible under soil conditions encountered.
- C. No more than 100 linear feet of trench shall be open in advance of the completed pipe laying operation without prior approval of the Engineer of Record. No more than 30 feet of open trench in advance of the backfilling operation will remain at the end of the working day. Pipe trenches across roadways and driveways shall be backfilled as soon as pipe is installed. Where, in the opinion of the Engineer of Record, adequate detour facilities are

not available, no trench shall be left open across a roadway or commercial property driveway for a period in excess of 30 minutes, or as directed by the governing authority. No trench shall be left open across any roadway or driveway for more than 24 hours.

- D. All trenches shall be protected by the Contractor with barriers, warning devices, and traffic control devices, which shall be kept in the correct position, properly directed and clearly visible at all times. The barrier, warning and traffic control devices shall be suitably lighted at all times that vehicular traffic lights are required. All traffic control procedures shall conform to F.D.O.T. Section 600 and requirements of the Manual of Uniform Traffic Control Devices and shall be subject to approval by the Engineer of Record.
- E. Shoring, Sheeting, and Bracing: The Contractor shall provide and install all shoring, sheeting, and bracing or other approved facilities required to perform and protect the excavation in accordance with the Trench Safety Act, and as necessary for the safety of the public, the employees, and the preservation of existing roads, structures, and other utilities. The top of such sheeting left in place shall be cut off at a minimum elevation of 2.5 feet below finished grade. The cost of all shoring, sheeting, and bracing shall be borne by the Contractor. Confined space laws shall be strictly adhered to. Florida Statutes 1926.650 and 1926.651.
- F. Unsuitable Soil Conditions and Over depth Excavation: Where determined by Engineer of Record or his representative that the material encountered in the utility trench excavation is unsuitable for pipe bedding, the depth of excavation shall be increased as directed by Engineer of Record or his representative. If rock is encountered in the trench excavation, it shall be removed to a minimum depth of four inches (4") below the trench depth specified. The bottom of the excavation shall be brought up to the proper excavation elevation utilizing suitable and properly compacted backfill or bedding material, as directed by the Engineer of Record or his representative. Bedding material, if required, shall be placed in the bottom of trench at a thickness of 4 to 6 inches. Suitable backfill material shall then be installed and compacted over pipe.

1.05 ABANDONMENT OF EXISTING FACILITIES:

When existing facilities, which are to be taken out of service, are determined to be beneficial for future use (by the Water and Sewer Department), said existing facilities shall be capped and left in place. Existing facilities which are not determined to be beneficial for future use shall be removed and disposed of by the Contractor. Voids left as a result of the removal shall be backfilled and compacted in accordance with the requirements of Section 1.06C of these specifications. Where complete removal is not a feasible option, as determined by the Water and Sewer Department, the pipe line or other facility may be left in place and grouted full with cement or other similar, approved material, and its description and location noted on the as-builts. Payment for each of these conditions (capping, removal, or grouting) shall be made per the appropriate bid item.

1.06 ~~BACKFILL, COMPACTION, AND TESTING:~~

A. ~~DESCRIPTION: All excavated trenches, ditches, swale and roadway areas shall be properly backfilled with suitable material to the required finished grade as shown on the Drawings. Backfill shall be placed and spread evenly in layers not to exceed six inches before compaction.~~

B. ~~MATERIALS:~~

1. ~~Backfill/Suitable Material: Suitable material for backfill shall consist of earth, loam, sandy clay, sand and gravel, soft shale or other approved materials. Rock, stone, and shell shall pass through a three-inch ring.~~

2. ~~Unsuitable Material: All humus, peat, spongy material, roots, stumps, muck, clay, paving materials and other objectionable materials shall be unsuitable for backfill. Rocks, stones, boulders or concrete having a dimension larger than 3" shall be unsuitable for backfill and shall be separated from suitable backfill material.~~

3. ~~Bedding Material: Bedding material is select backfill material, which is placed around and to a depth of one foot over pipes. Bedding material shall consist of a mixture of sand, shell or crushed rock, properly graded and mixed so that fine material from the sidewalls of the trench or backfill above the embedment will not migrate into the bedding material. Bedding material shall meet the following limitations:~~

a. ~~Cast Iron or Ductile Iron Pipe: All material shall pass through a three-quarter-inch square opening laboratory sieve.~~

b. ~~Plastic Pipe: All material shall pass through a one-half-inch opening laboratory sieve.~~

C. ~~PLACING AND COMPACTION:~~

1. ~~Under Pavement: Where the excavation is made through existing or proposed pavements, including shoulders, curbs, driveways or sidewalks, or where such structures are penetrated by well points, the entire backfill to the sub grade of the pavement or structures shall be made with predominantly sandy material free from rock, stones, or organic matter, except that rocks passing a three-inch ring will be permitted in the backfill between the elevation one foot above the top of the pipe and the bottom of the pavement sub grade. Particular care shall be taken to ensure that the backfill at the haunch is free from voids and is properly compacted. Roads, walks, and driveways consisting of broken stone, gravel, marl, shell, shell rock, or a conglomerate of such materials are not considered as being permanent pavement.~~

2. ~~Areas Not Under Permanent Pavement: Includes areas within rights-of-way or other areas where permanent pavement does not exist or is not proposed, including roads,~~



~~walks, and driveways consisting of broken stone, gravel, marl, shell, shell rock, or conglomerate. The entire backfill to the sub grade of the pavement or structures shall be made with predominantly sandy material free from rocks, stones, or organic matter, except that rocks passing a three inch ring will be permitted in the backfill between the elevation one foot above the top of the pipe and one foot below the surface. Particular care shall be taken to ensure that the backfill at the haunch is free from voids and is properly compacted.~~

- ~~3. Miscellaneous: Backfilling around meter boxes, valve boxes, manholes, catch basins and other structures shall be accomplished in the same manner as the connected pipe. Extreme care shall be used in backfilling well point holes to prevent voids and settlement. The well point holes should be plugged with a concrete slurry.~~

~~D. TESTING:~~

- ~~1. The Contractor shall be responsible for demonstrating compliance with soil specifications and shall make arrangements for all soil testing as directed herein.~~
- ~~2. The testing laboratory shall be approved by the City. The costs of all soil testing, unless otherwise specified, shall be borne by the Contractor.~~
- ~~3. One copy of each test report signed, sealed, and dated by a Florida Registered Professional Engineer representing the testing laboratory, shall be delivered immediately following the test to the City for review.~~
- ~~4. In no case shall any phase of work be initiated until prerequisite phases of the work have been inspected, tested, and approved.~~
- ~~5. General: Unless otherwise specified, backfill material shall be compacted in uniform lifts to 98% of the maximum dry density as determined by AASHTO T-180. All compaction equipment shall be suitable for the intended use and shall be in good working order. Any unsuitable, worn or defective equipment shall be immediately replaced or repaired.  
Compaction by flooding or puddling may be permitted (by the City) upon receipt of written authorization from the Engineer of Record.~~

1.07 DEWATERING:

- A. General: The dewatering of any excavation areas and the disposal of the water shall be in strict accordance with the latest revision of all local and state agency rules and regulations. The Contractor shall obtain any required dewatering permits from the appropriate agencies prior to commencing dewatering operations.
- B. Dewatering: The Contractor shall provide adequate equipment for the removal of storm or subsurface waters, which may accumulate in the excavation. If subsurface water is

encountered, the Contractor shall utilize suitable equipment to adequately dewater the excavation so that it will be dry for the work. A well point system or other Engineer of Record-approved dewatering method shall be utilized if necessary to maintain the excavation in a dry condition. Well point holes shall be plugged with concrete grout immediately upon removal of the well points. Dewatering by trench pumping will not be permitted if migration of fine-grained natural material from bottom, sidewalls, or bedding material will occur. In the event that satisfactory dewatering cannot be accomplished due to subsurface conditions or where dewatering could damage existing structures, the Contractor shall obtain the Engineer of Record's approval for wet trench construction procedure before commencing construction.

- C. Disposal: Water pumped from the trench or other excavation shall be disposed of in storm sewers, canals, ditches or swales, as approved in writing by the City Engineer. As approved by the Engineer of Record, Contractor shall be responsible for acquiring all permits required to discharge the water and shall protect waterways from turbidity during the dewatering operation. In areas where adequate disposal sites are not available, partially backfilled trenches may be used for water disposal only when the Contractor's plan for trench disposal is approved in writing by the Engineer of Record. The Contractor's plan shall include temporary culverts, barricades, and other protective measures to prevent damage to property or injury to any person or persons. No flooding of streets, roadways, driveways, or private property will be permitted. Engines driving dewatering pumps shall be equipped with residential-type mufflers or shall be electric motors.
- D. Upon completion of construction, dewatering shall cease in a manner to allow the subsurface water to slowly return to normal levels.

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SECTION 2

GRAVITY SEWER SPECIFICATIONS

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**SECTION 2**  
**GRAVITY SEWER SPECIFICATIONS**

2.01 **DESIGN CRITERIA:**

All design must be in accordance with the City of Vero Beach master Sewage Collection Plan. The sewer system shall be designed using a Manning Roughness Coefficient of  $n=0.013$ . The slopes when calculated must result in a minimum velocity of 2 ft./second when the pipe is flowing one-half full to full. Service laterals shall not discharge into manholes. Force mains shall not be permitted to discharge into gravity sewer systems.

Collection system and force mains shall be designed based upon 150 gpcd and a velocity of 2 fts to 5 fps in the force main.

The minimum pipe size shall be 8" for main lines and 6" for service laterals except for a lateral serving one single-family residence, which may be 4". All service laterals shall be PVC (SDR35) from the main to the property line. All pipe with less than 24" cover shall be ductile iron. The type of connection between vitrified clay or ductile iron, and the PVC must be factory fabricated of resilient materials and shall meet the requirements of ASTM Standard C425. The manufacturer of the pipe shall supply special lubricants, sealing compounds, or gaskets.

Manholes must be constructed at all changes in grade or alignment, at all junctions (except service laterals), at the end of any sewer, or every 400 feet (maximum) or less along the alignment.

2.02 **GRAVITY SEWER MATERIALS:**

A. **Polyvinyl Chloride (PVC) Pipe:**

1. PVC Pipe (SDR35) - PVC pipe shall meet ASTM D-3034 requirements. The joints shall consist of an integral bell with elastomeric gasket. The gasket shall be locked securely in the bell. The pipe shall be approximately 12.5' or 20' lengths. The pipe must meet or exceed the testing procedure per ASTM D-2412, D-3212-73T and D-2444. The pipe shall be manufactured from clean virgin, Class 11332-B PVC compound conforming to the latest ASTM Standard C-1784.
2. ULTRA-Rib - Gravity Sewer pipe manufactured to meet ASTM Specification F794-86 and Uni-Bell B-9-87 as manufactured by Extrusion Technologies, Inc.
3. Joints: Shall be push on type with integral bell. Spigot ends shall be supplied from factory with bevels. Elastomeric seals shall meet the requirements of ASTM C-3212.
4. Pipe Marking and Identification: All PVC gravity sewer pipe shall be manufacturer's standard **green color** or shall be white in color, permanently imprinted with the words "GRAVITY SEWER" in one-inch **green letters** every twenty-four inches along the

length of the pipe. In addition, marking tape with the words "GRAVITY SEWER" printed in one-inch letters every twenty-four inches, shall be placed in the trench over the pipe, six to twelve inches below finished grade, for the entire length of pipe.

5. Acceptable Manufacturers: P.V.C. pipe shall be Johns-Manville "Ring Tite", Extrusions Technologies, Inc. or an approved equal.

#### B. Ductile Iron Pipe

1. General: Ductile Iron Pipe for gravity sewers shall have a working pressure of 150 psi and shall have adequate strength and thickness for Laying Condition Type 4. Pipe shall meet all the requirements of the latest A.W.W.A. Standards C150 and C151 (4" - Class 52; 6" and larger Class 50) and conform to the requirements of ASTM A-746. (Four inch (4") DI pipe is authorized for use as a lateral serving only one single family dwelling).
2. Joints: Joints shall be push-on type consisting of an integral bell with an elastomeric gasket or mechanical type utilizing a single gasket made of plain rubber or neoprene. Either joint type shall meet the requirements of ANSI/A.W.W.A. C111/A21.11.
3. Linings and Coatings:
  - a. External surfaces of DI pipe shall be coated with a minimum 10-mil thickness of Koppers Co. Bitumastic 300m or Protect EP214 Epoxy Mastic or approved equivalent.
  - b. Internal surfaces shall be coated to a minimum thickness of 40 mil with McWane's Protecto 401 ceramic lining or approved equal.
  - c. Where directed by the City, polyethylene film encasement, conforming to A.W.W.A. Standard C105 (Type I, Class C, Grade E-1, 8 mil thickness) shall be utilized for ductile iron pipe.
4. Pipe Marking and Identification: Permanent marking tape, with the words "**GRAVITY SEWER**" printed in one-inch letters every twenty-four inches along the tape, shall be attached to the pipe for its entire length. In addition, similar marking tape shall be placed in the trench over the pipe, six to twelve inches below finished grade, for the entire length of pipe.
5. Acceptable Manufacturers: American Pipe, U.S. Pipe, McWane Pipe or approved equal.

#### C. Fittings for Gravity Sewer Applications

1. Fitting for Ductile Iron Pipe: Shall conform to the requirements of ANSI/A.W.W.A. C110/A21.10-82. Joints, linings and coatings for fitting shall be the same as those

specified for ductile iron pipe.

2. Fittings for PVC Pipe: Shall be PVC, shall be supplied by the pipe manufacturer and shall be compatible with the pipe (e.g. SDR35). Joints for fittings shall be the same as joints specified for PVC pipe. PVC fittings shall be manufactured from clean, virgin, Class 11332-B PVC compound conforming to ASTM C-1784. Adapters to connect PVC with clay, concrete, asbestos-cement, ductile iron, or cast iron pipe shall be as manufactured by Fern co Joint Sealer Co. or approved equal.

D. Sanitary Manholes:

1. General: Manholes shall be constructed of precast concrete or fiberglass and be capable of withstanding the AASHTO HS-20 vertical, dynamic wheel load. All manholes shall be a minimum of 48" inside diameter with minimum of two courses of brick for leveling outside. Drop manholes shall be constructed wherever the drop from pipe invert to floor exceeds 24". No inside drops will be allowed. Invert channels shall be constructed smooth and even, with curves having a radius as large as possible. Bench walls shall be sloped slightly toward the channel.
2. Materials: Concrete for precast manholes shall use Type II acid-resistant cement and shall have a minimum 28-day compressive strength of 4000 psi. Precast sections shall be sealed with Ram-nek or other pliable seal approved by the manufacturer and capable of preventing leaks between the precast sections. Seals shall conform to the requirements of ASTM Standard C478. Precast manholes shall have a minimum two coats protective coating of "Pro-tech" EW-1 Water Base Epoxy (or approved equal) on the interior and exterior surfaces. Coatings shall be applied with methods approved by the manufacturer to a minimum total thickness of 8 mils. Brick manholes will not be permitted.
3. Frames and Covers: Shall be heavy duty cast iron construction suitable for traffic loading standard HS-20 and approved by the City Water and Sewer Department. Lids shall be stamped "**Sanitary Sewer.**" Style shall be similar to U.S. Foundry 420 with type "B" lid. Bearing surfaces are to be machined to fit well. Lid diameter should not exceed 24" except in special conditions approved by City of Vero Beach Water and Sewer Department. Lid weight should be minimum to meet HS-20 standards. Acceptable manufacturers - Neenah, U.S. Foundry
4. Resilient Pipe Connectors for Precast Concrete Manholes: The connection of any pipe to an existing manhole shall be performed utilizing a resilient connector conforming to ASTM C923-84. All metallic components of the connector shall be stainless steel. Acceptable manufacturers - Breeze 600 Jet Series

## 2.03 GRAVITY SEWER INSTALLATION:

- A. General: Unless otherwise noted on the drawings or in other sections of this specification, the pipe shall be handled and installed in strict accordance with the manufacturer's instructions. The Contractor shall keep a copy of the aforementioned instructions at the work site at all times. The Contractor shall use every precaution during construction to protect the pipe against the entry of non-potable water, dirt, wood, small animals, and any other foreign material that would hinder the operation of the pipeline. Excavation required for installation of pipe or appurtenances shall be done in accordance with Section 1.04 Excavation and Trenching, of these Specifications.
- B. Pipe Laying: The trench shall be excavated as specified and the bottom of the trench shall be shaped to give sufficient uniform circumferential support to the lower one-fourth of each pipe length. Pipe laying shall proceed upgrade in a dry trench. Each pipe shall be laid true to line and grade with the proper grade controlled by the use of a laser. The gravity sewer shall be installed so as to maintain a minimum cover of 36 inches. Where it is not possible to maintain the minimum 36 inches of cover, ductile iron pipe may be used upon written approval of the City. At no time, however, shall it be less than 24 inches of cover above the crown of the pipe. The City, at its option, may require a concrete protective cap placed above any gravity sewer not having the minimum 36 inches of cover.
- C. Cleaning of Pipe Interior: Where cleaning of the pipe after laying is difficult because of the small diameter, the Contractor shall keep a suitable swab or drag in the pipe and shall pull the swab forward past each joint immediately after the jointing operation. Contractor shall securely seal the open ends of all pipes in order to prevent the entrance of foreign matter at all times when work is not in progress. Stoppers shall be installed in the ends of all service laterals. In the event that it is necessary to clean the gravity sewer by flushing with water, no water or debris shall be permitted to enter an existing or previously approved sewer. Under no conditions shall the water and debris be removed with lift station pumps or discharged into or through force mains.
- D. Jointing: The bell and spigot surfaces shall be wiped free of dust, dirt, gravel, or any other foreign matter before the application of the lubricant sealer. The resilient coupling shall be connected by first brushing the mating surfaces with the proper lubricant sealer as recommended by the pipe manufacturer. The spigot end shall then be centered on grade into the bell end of the last downstream pipe length and shoved home and properly seated with the application of a moderate force by a pry bar or lever device. The pipes shall be jointed not later than 5 minutes after the application of the joint lubricant sealer.
- E. Wye and Tee Branches and Service Connections: The Contractor shall install wye or tee branches where sewer connections are indicated on the drawings or where required by the City.
- F. Polyethylene Encasement: Where polyethylene encasement is required, methods A or B shall be employed using flat tube polyethylene. The Contractor shall make provisions to keep the polyethylene from direct exposure to sunlight prior to installation. Backfilling

following installation shall be completed without delay to avoid exposure to sunlight.

- G. All gravity sewer pipe installed underground shall have a #14 gauge THHN trace wire (**green** in color) attached for locating purposes. Pipe attachments, soldered splices and terminations shall be made as shown on details S-3.1, S-4.1, S-4.2, S-5.1, WS 1.4, WS 3.1, WS 3.2, WS 4.1, WS 4.2, and WS 4.3.
- H. Quality Assurance: It is the responsibility of the Contractor to install the sewer pipe as shown on the plans approved by the City. The Contractor shall survey the newly installed line before backfilling to determine the actual invert elevations of the pipe. If the calculated slope is below the minimum acceptable requirements or any bellies (sags) in the pipe are detected, the Contractor shall remove and re-lay the sewer pipe at his own expense before any further installation occurs. The constructed slopes shall not vary more than + or - 2% from the minimum design standard slope of 0.004%. (Allowable as-built slope is 0.395% to 0.408%). The Contractor shall submit the as-built information to the City at the end of each work day.
- I. Protection: At the end of each workday the mains under construction shall be plugged to prevent the entry of small animals or rodents. Temporary plugs shall be provided for this purpose.

#### 2.04 GRAVITY SEWER INSPECTION AND TESTING:

- A. General: The Contractor shall perform testing of all sanitary gravity sewers as set forth in this section and shall conduct the tests in the presence of a authorized City representative and the project Engineer. The Contractor shall schedule the tests with the City at least two days in advance.
- B. Pretest Requirements: Testing shall not proceed until all facilities are complete in place and the concrete is cured. All piping shall be thoroughly cleaned prior to testing to clear the lines of all foreign matter.
- C. Lamping: The installed sewers shall be visually inspected by "lamping" between each manhole, lamphole, or other structures in order to ascertain that they are clear, to correct alignment and have no visual bellies. The concentricity of the lamp image received shall be such that the diameter of said image shall have no vertical or horizontal reduction from that of the pipe inside diameter.
- D. T.V. Inspection: Upon completion of construction, the gravity sewer will be inspected by the City, at no charge to the Contractor, using a television camera. TV inspection will be done at a point in time that the area of pipe construction has been compacted and road material compacted to support heavy trucks. The Contractor shall remove any sand or dirt found in the sewers. All leaking joints or fittings shall be replaced, encased with concrete or sealed from the inside with grout as determined by the City. The Contractor shall replace all cracked or defective pipe. Bellies in the pipe or at the joints, which retain more



liquid that allowable, shall be replaced. Reinspection by City TV unit will be at Contractor's expense.

E. Infiltration/Exfiltration Testing: All sewer mains, house laterals and manholes shall be subjected to infiltration and/or exfiltration tests. In general, infiltration testing shall be performed on sewers lying below the ground water table and exfiltration testing shall be performed on sewers lying above the groundwater table. (The City and project Engineer shall agree which type of test shall be utilized for each section of pipe being tested.

1. Infiltration Test: Infiltration testing shall be conducted in a dry system prior to the system being filled with water. Testing shall proceed for a continuous period of four hours with infiltration amounts measured by a weir or other approved method by the City. In no case shall the infiltration exceed 50 gal/day/inch of pipe diameter/mile of pipe (or 0.4 gal/hr/in/1000 ft).
2. Exfiltration Test: Exfiltration testing shall be conducted by filling the system with water and measuring the amount of exfiltration. Water shall be added to the system until the manhole with the lowest top elevation (test manhole) of that portion of the system being tested is filled to within 24 inches of its top. Testing of the system shall be segmented such that the difference between the top elevations of any two manholes being tested does not exceed 2 feet. Testing shall proceed for a continuous period of four hours with exfiltration amounts measured by adding known amounts of water to the beginning water level in the test manhole. In no case shall exfiltration exceed 50 gal/day/inch of pipe diameter/mile of pipe (or 0.4 gal/hr/in/1000 ft). Leakage from any manholes shall be included in the pipe exfiltration determination.
3. Air Leakage Test: Air leakage tests may be required in lieu of infiltration/exfiltration at the option of the City. The testing shall be by compressed air from manhole to manhole. Plugs, caps and branch connections must be secured against blow-off during the test. The pipe and manholes shall be free of water during the test. The pipe shall be tested at 3.5 psi in excess of the groundwater pressure above the pipe. For each foot of water above the pipe at the deepest point, the air pressure shall be increased by 0.43 psi. The minimum time for the air pressure to drop by 0.5 psi shall be:

<u>Pipe Size</u>	<u>Time in Minutes</u>
6 inch	4.0
8 inch	5.0
10 inch	6.5
12 inch	7.5
15 inch	9.5

4. Test Failures: Should a test failure occur, necessary repairs shall be accomplished by the Contractor and the test repeated until within the established limits. The Contractor shall furnish the necessary labor, water, and all other items required to conduct the

required testing and shall perform the necessary system repairs required to comply with the specified test. If the water supply is from the city's potable water system, a meter is required. Contractor is responsible for all costs associated with retesting.

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SECTION 4

FORCE MAIN SPECIFICATIONS

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**SECTION 4**  
**FORCE MAIN SPECIFICATIONS**

4.01 DESIGN:

All design must be in accordance with the City of Vero Beach Master Sewage Collection Plan. The collection system and force mains shall be designed based upon 150 gpcpd with a velocity of 2 fps to 5 fps in the force main with a minimum diameter of 2 inches. All pipe with less than 24" cover shall be ductile iron. Automatic Air Release valves shall be placed at all high points in the force main to prevent air locks. Special lubricants, sealing compounds, or gaskets shall be supplied by the manufacturer of the pipe.

4.02 FORCE MAIN PIPE AND FITTINGS:

A. Ductile Iron Pipe:

1. General: All ductile iron pipe shall conform to the requirements of ANSI A21.51-81/A.W.W.A. C151 unless otherwise noted. Pipe shall have a minimum working pressure of 150 psi and shall be suitable for laying condition "Type 2." Unless noted otherwise, the pipe shall be Class 50 thickness for pipe six inches or larger and Class 51 for pipe smaller than six inches. Acceptable manufacturers: American Pipe, U.S. Pipe, McWane, or approved equal.
2. Joints: All ductile iron pipe to be located underground shall have either push-on or mechanical joints. Joint restraint shall be required for minimum of 60 LF of ductile iron pipe (three joints) on each side of every valve and fitting unless otherwise indicated on drawings or directed by Engineer. All piping located above ground shall be ductile iron and flanged joint.
  - a. Push-On Joints: Shall be bell and spigot type meeting the requirements of ANSI A21.11/A.W.W.A. C111. They shall utilize a compression-type rubber ring gasket and shall be rated for water working pressures up to 250 psi. Acceptable: American Fast-Tite, U.S. Pipe Tyton Joint, or approved equal.
  - b. Mechanical Joints: Shall meet the requirements of ANSI A21.11/A.W.W.A. C111, shall utilize a single gasket made of plain rubber or neoprene, and shall provide joint restraint against thrust due to internal water working pressures up to 250 psi.
  - c. Restrained Joints: The length of ductile iron pipe to be restrained on either side of a valve or fitting shall be a minimum of three (3) joints or 60 linear feet (whichever is greater), or as directed by the Engineer. Joint restraint shall be accomplished by utilizing factory-installed restrained push-on joints for push-on pipe or mechanical joint retainer glands for mechanical joint pipe.

- (1) Restrained Push-On Joints: Shall be a boltless, factory-installed joint that provides a flexible, positive lock between the bell end and spigot end of push-on joint pipe. It shall be rated for 350-psi minimum for pipe sizes up to 12-inch and 250 psi minimum for pipe sizes larger than 12-inch. Acceptable manufacturers: U.S. Pipe TR FLEX, American Pipe Flex-Ring or Look-Ring, or approved equal.
  - (2) Mechanical Joint Retainer Glands: Shall be utilized to restrain mechanical joint pipe. Glands and restraining devices shall be manufactured of ductile iron. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to ANSI A21.11 and ANSI A21.53/A.W.W.A. C-153 or ANSI A21.10/A.W.W.A. C110. Mechanical joint restraint device shall have a working pressure of at least 250 psi. Acceptable manufacturers: American Pipe, U.S. Pipe, EBAA Iron Megalug, or approved equal.
- d. Flanged Joint: Shall be in accordance with ANSI Standard B16.1, 125 lb. standard, and utilized with a full faced type rubber or neoprene gaskets 1/8" thick. Bolts and nuts shall be Grade B, conforming to the ASTM Designation A307, for Steel Machine Bolts, Nuts and Tap Bolts.
3. Linings and Coatings: Unless otherwise approved in writing by the City, all ductile iron pipe shall be factory lined and coated as follows:
- a. External surface of underground pipe shall be coated with a minimum of 10 mils of Koppers Co. Bitumastic 300m or Protech EP214 Epoxy Mastic or approved equal. The exterior of exposed pipe shall have a primer coat of Koppers Inorganic Zinc No. 701 (3 mils DFT minimum) and two topcoats of Koppers Aluminum Epoxy Mastic (13 mils DFT total, minimum), or approved equal coating system.
  - b. The internal surface of all ductile iron pipe shall be coated to a minimum thickness of 40 mil with McWane's Protecto 401 ceramic epoxy lining or approved equal.
  - c. Where directed by the City, polyethylene encasement shall be provided over ductile iron pipe, fittings, and valves. The material, installation, and workmanship shall conform to applicable sections of ANSI A21.5-88/A.W.W.A. C105 (Type I, Class C, Grade E, 8 mil thickness). Installation methods A or B shall be employed using flat tube polyethylene. The Contractor shall make provisions to keep the polyethylene from direct exposure to sunlight prior to installation. Backfilling following installation shall be completed without delay to avoid exposure to sunlight.

B. Polyvinyl Chloride (PVC) Pipe:

1. Greater Than or Equal to 4-inch Diameter:

- a. General: All PVC pipe four to twelve inches in diameter shall conform to the requirements as set forth in A.W.W.A. C900-75 and ASTM D1784 and D2241, latest revision. All PVC pipe 14 to 36 inches in diameter shall conform to A.W.W.A. C905 and ASTM D1784, latest revision. All PVC pipe shall have a minimum working pressure of 150 psi. PVC pipe shall have outside dimensions equivalent to cast iron pipe and shall have a minimum wall thickness of DR18. Pipe shall bear the NSF label for non-potable water pipe. Acceptable manufacturers: Johns-Manville or approved equal.
- b. Joints: Joints for PVC pressure pipe greater than 4-inch diameter shall be bell and spigot push-on rubber gasket type. No solvent weld or threaded joints will be permitted. Joint restraint, where required, for PVC pipe shall be accomplished using EBAA Iron 1100 and 1500 or Ford 1300, 1350, or 1390 Series Restrainers. A minimum of 60 linear feet of PVC pipe on each side of a valve or fitting shall be restrained. Thrust blocking shall not be allowed, unless specifically approved by Engineer.

2. Less than 4-inch Diameter:

- a. General: All PVC pipe less than 4-inch diameter shall comply with ASTM D2241, D1784, D1869, and F477. Pipe shall have a working pressure of 200 psi and shall be designed with a 2:1 safety factor over rated pressure. Pipe shall be SDR21 and shall have steel pipe outside dimensions. Pipe shall bear the NSF label for non-potable water pipe. Acceptable manufacturers: J-M Ring-Tite or equal.
- b. Joints: Pipe shall have integral bells with elastomeric gaskets. Solvent welded joints in accordance with ASTM 2564 and ASTM 2855 shall be utilized where joint restraint is required. A minimum of 20 linear feet of PVC pipe on both sides of a valve or fitting shall be restrained.

C. Fittings

1. For Pipe Greater Than or Equal to 4-inch Diameter:

- a. General: All underground fittings for ductile iron pipe and PVC pipe 4 inches and greater shall be made of ductile iron and shall conform to ANSI

A21.10/A.W.W.A. C110 or ANSI A21.53/A.W.W.A. C153. All aboveground fittings shall be made of ductile iron and shall be flanged joint conforming to ANSI A21.10/A.W.W.A. C110 and ANSI B16.1 Class 125. Pressure rating for fittings 4 to 12 inches shall be 250-psi minimum. Pressure rating for fittings larger than 12 inches shall be 150-psi minimum.

- b. Joints: All underground fittings shall be either push-on or mechanical joint with the joint conforming to ANSI A21.11/A.W.W.A. C111. Joint restraint must be provided at every fitting. Fittings, which are to be connected to ductile iron pipe, shall have joint ends compatible with the ductile iron pipe restrained joint. Fittings, which are to be connected to PVC pipe, shall have joints compatible with the PVC pipe and shall be restrained using Megalug 1100 PV or EBAA Iron Series 500 or 1500 Restrainer.
- c. Lining and Coating: All ductile iron fittings shall be factory lined and coated in accordance with ductile iron pipe lining and coating requirements.

2. For Pipe Less than 4-Inch Diameter:

- a. General: All fittings shall be PVC conforming to ASTM D-1784 and shall be NSF approved for non-potable water service. Fittings for pipe 2 inches in diameter or less shall be Schedule 80 and shall conform to ASTM D-2467. Fittings for pipe 2 1/2 inch to 3 inch shall be Schedule 40 and shall conform to ASTM D-2466. All fittings shall be rated for 200-psi minimum.
- b. Joints: Joints for all fittings less than 4 inch diameter shall be solvent welded in accordance with ASTM 2564 and ASTM 2855.

D. Pipe Marking and Identification:

- 1. All force main pipe installed underground shall have a #14 gauge THHN trace wire (brown in color) attached for locating purposes. Splices and terminations shall be made as shown on drawing details.
- 2. All PVC force main pipe shall be manufacturer's standard brown or green color, or shall be white pipe, permanently imprinted with the words "FORCE MAIN" in one inch brown letters every 24" along the length of the pipe. White PVC pipe or ductile iron pipe shall have a permanent marking tape attached to the entire length of the pipe with the words "FORCE MAIN" printed in one-inch letters every 24 inches along the tape.
- 3. In addition, marking tape shall be placed in the trench over the pipe, six to twelve inches below finished grade, for the entire length of pipe.

#### 4.03 VALVES:

A. Gate Valves - 4" and Larger: Gate valves shall be of the resilient seat variety and shall meet all the requirements of A.W.W.A. C509 and/or A.W.W.A. C515. The internal diameter of the liquid passageway shall be free of all obstructions and shall be at least as large as the pipe to which it is attached. Gate valves shall provide bubble-tight shutoff regardless of direction of flow and shall operate equally well in either direction. All internal parts shall be accessible without removing the main body from the pressure line. Valves shall be tested for zero leakage past the seat at 200 psi and hydrostatically shell tested at 400 psi.

1. Materials of Construction:

- a. Body and bonnet: cast iron.
- b. Stem and stem nut: bronze.
- c. Wedge or disc: cast iron.
- d. Resilient seat: polyurethane rubber.
- e. Internal components in contact with liquid: epoxy lined.

2. Features:

- a. Stem: Shall be non-rising.
- b. Open: Valve shall open by turning valve operator to the left.
- c. Operator: Shall be 2-inch square nut, for buried valves, and shall be manufacturer's standard hand wheel operation for non-buried or aboveground valves.
- d. O-Rings: Shall be located above and below thrust collar.
- e. Coatings: Valve interior shall be coated with an epoxy coating. Valve exterior shall be either epoxy coated or painted with two coats of asphalt varnish, whichever is manufacturer's standard.
- f. Joint Ends: Provide valve ends suitable for mechanical or flanged pipe joint, as required.

3. Acceptable Manufacturers: Mueller Co., Decatur, IL; CLOW Valve Division, Oskaloosa, IA; Kennedy Valve, Atlanta, GA; or approved equal.

B. Gate Valves (Less Than Three Inches):

Gate valves less than three inches in diameter shall be as manufactured by Mueller or approved equal.

C. Check Valves:

1. General: Check valves shall be counter weighted, bronze disk variety conforming to



A.W.W.A. C508. The valve shall permit flow in one direction only and shall close tightly, without slamming, when its discharge pressure exceeds its inlet pressure. The valve shall provide a full equivalent pipe when fully open. Flanged end dimensions and boltholes shall comply with ANSI B16.1, Class 125.

2. Construction: Valve body and disc shall be made of cast iron (ASTM A126-B). Hinge shaft shall be stainless steel. Body seat shall be all bronze and shall be field adjustable.
3. Acceptable Manufacturers: Mueller (A-2600-6-01) or approved equal.

D. Sewage Air Release Valves:

1. Automatic Sewage Air Release Valves: The valve body and cover shall be cast iron construction, ASTM Z126-B, and all internal working parts shall be of stainless steel type 316. The venting orifice shall be 3/8-inch in diameter and the seating material shall be of Viton. The inlet opening shall be standard two-inch NPT screwed connection. The valve shall include a flush-out feature for periodic cleaning of the internal mechanism. The overall height of the valve body shall not exceed 21 inches. Acceptable manufacturers: Crispin, Empire, or approved equal.
2. Manual Sewage Air Release Valves: The manual sewage air release valve assemblies shall be as indicated on the drawings. The manual sewage air release valve assembly shall be arranged so that an automatic air release valve can be installed at a future date with minimal modification.

E. Ball Valves:

Ball valves to be used for manual air release valves shall have the following features: full ported, 600 psi working pressure, heavy duty bronze body, Teflon seats, solid brass chrome plated ball and adjustable stem seal. Acceptable manufacturer: Val-Matic "Ultra Flow" or approved equal.

F. Tapping Sleeves and Valves:

1. Tapping Sleeves: Shall be mechanical joint type with ductile iron or stainless steel body and hardware. Provide tapping sleeves and gaskets, which are specifically designed for the size and material of pipe to be tapped. Outlet of sleeve shall conform to ANSI B16.1, Class 125. Tapping sleeve shall be compatible with tapping valve. Tapping sleeve and valve shall be restrained in accordance with pipe specifications. Acceptable manufacturers: Ductile Iron type - Mueller Company; Stainless steel type - Ford FAST Style, ROMAC No. SST, or approved equal.
2. Tapping Valves: Shall be specifically designed for the purpose of tapping pressurized mains. Valves used for tapping shall meet the requirements for gate valves in these specifications.

G. Valve Boxes:

1. Gate Valves: All buried gate valves shall have cast iron two- or three-piece valve boxes with cast iron covers. Valve boxes shall be provided with suitable heavy bonnets and shall extend to such elevation at or slightly above the finished grade surface as directed by the Engineer of Record. The barrel shall be one- or two-piece, screw type, having 5-1/4 inch shaft. All valves shall have actuating nuts extended to within six inches of the top of valve box cover. All valve box covers shall have "SEWER" cast into the top and shall be painted M8-136 OSHA red. A 24-inch square by 6-inch thick concrete pad shall be poured around the top of the valve box to prevent movement or damage. Size of valve and orientation of force main in which valve is located shall be imprinted in 2-inch letters on concrete pad. Acceptable valve box manufacturers: M & H Valve and Fitting Co., Mueller Company, or approved equal.
2. Air Release Valves: Valve boxes for automatic and manual air release valves shall be of precast concrete, for underground service and designed for HS-20-44 loading. All air release valves shall be located in an underground box, unless indicated otherwise. The minimum inside dimension shall be twenty-four inches (24"). These boxes shall be equipped with cast iron traffic covers marked "SEWER."

H. Corporation Stops:

Shall be Mueller H-10046 or approved equal and shall be of the sizes required and/or noted on the Drawings.

I. Saddles:

Saddles shall be stainless steel double strap saddles as manufactured by Ford Meter Box Co. or approved equal.

4.04 INSTALLATION:

- A. Unless otherwise noted on the drawings or in other sections of this specification, the pipe shall be handled and installed in strict accordance with the manufacturer's instructions and with the applicable provisions of A.W.W.A. C600, A.W.W.A. C605, and A.W.W.A. Manual M23. If a conflict exists between the manufacturer's instructions and the A.W.W.A. Standards, the manufacturer's instructions shall govern. The Contractor shall use every precaution during construction to protect the pipe against the entry of non-potable water, dirt, wood, small animals, and any other foreign material that would hinder the operation of the pipeline. Excavation required for installation of pipe or appurtenances shall be done in accordance with Section 1.04 - EXCAVATION AND TRENCHING, of these specifications.

B. Pipe Installation:

1. Unless otherwise shown on the drawings, or otherwise authorized by the City, all pipe shall have a minimum cover of 36 inches. Contractor shall determine top of pipe elevation and top of ground elevation for every joint of pipe and casing pipe installed using a level. Pipe must have the minimum cover described above and must be within  $\pm 0.2$  feet of the top of pipe elevation indicated on the drawings. Installed pipe, which does not meet these requirements, shall be reinstalled until it does meet these requirements. Contractor shall record top of pipe and top of ground elevations and the locations of where these elevations were determined and submit this information to the City.
2. Polyethylene Encasement: Where polyethylene encasement is required, methods A or B shall be employed using flat tube polyethylene. The Contractor shall make provisions to keep polyethylene from direct exposure to sunlight prior to installation. Backfilling following installation shall be completed without delay to avoid exposure to sunlight.
3. Concrete Thrust Blocking and Pipe Supports: Thrust blocking shall not be allowed except where shown on the drawings and approved by the City. Restrained joints and fittings shall be utilized at all points of unbalanced reactions in lieu of thrust blocks. All exposed valves and fittings shall be provided with mechanical pipe jacks for support.

C. Gate Valves: Set with stems vertically above the centerline of the pipe, except valves with gearboxes or where indicated or directed otherwise. Keep valves tightly closed during installation and take care to prevent dirt from damaging seating surfaces. Tighten stuffing box, if provided, and operate valve to see that all parts are in working condition before installation. Set valve box for buried valve, plumb and place directly over the valve box for a distance of one foot. Provide valve box extensions where depth of bury exceeds 5'.

D. Air Release Valves: Air release valves shall be installed at high points in force main at the approximate locations indicated on the drawings. Contractor must verify to City that air release valves are located at actual high points of pipe by means of a level. Contractor shall determine top of pipe elevations for each joint of pipe installed in order to properly locate air release valves. Installation of air release valves shall be in accordance with manufacturer's recommendations.

4.05 TESTING:

A. Pressure and Leakage Test for Sewer Force Mains: Hydrostatic pressure and leakage tests shall conform to Section 4 of the latest edition of A.W.W.A. C-605. Contractor shall furnish all meters, pressure pumps, and other equipment needed to test the line. Contractor

shall install a 1/4" valve in piping to accept a pressure gauge to be provided by the City. City shall be present during all testing and final inspections.

1. Flushing: Contractor shall flush pipe system before conducting leakage/pressure tests in order to remove air, dirt, debris, etc. from pipe. Pipe must be full-line flushed meaning the temporary flushing discharge piping and fittings must be the same diameter as the pipe it is connected to, unless otherwise authorized by City. Minimum velocity for flushing shall be 2.5 fps. A suitable USC-FCCC backflow prevention device must be installed between the water main supplying water for flushing and the pipe to be flushed during the entire flushing/pressure testing operations. Install corporation stops at any high points in line in order to bleed air from pipe. Contractor shall make provisions to properly dispose of water from his flushing operations. Flooding of streets and private property shall not be permitted. Contractor shall arrange with City 24 hours in advance of the time of flushing for the availability of water. Water required for testing and flushing shall be furnished by the City. Contractor shall coordinate all flushing operations with the City Water and Sewer Department.
2. Hydrostatic Pressure Test: The Contractor shall notify the City a minimum of 24 hours in advance of final pressure and leakage test. The pipelines shall be tested in sections between every consecutive in-line valve, unless otherwise directed by City. The pressure required for the field hydrostatic pressure test shall average not less than 150 psi and shall be maintained between 145 and 155 psi for the duration of the test. The Contractor shall provide temporary plugs and blocking necessary to maintain the required test pressure. Duration of pressure test shall be at least four hours.
3. Leakage Test: The leakage test shall be conducted concurrently with the hydrostatic pressure test and shall be of not less than four hours duration. All leaks evident at the surface shall be repaired and leakage eliminated regardless of total leakage shown by test. Lines, which fail to pass tests, shall be repaired and retested as necessary until test requirements are complied with. Defective materials, pipes, valves, and accessories shall be removed and replaced. The line shall be filled with water and all air removed, and the test pressure shall be maintained in the pipe for the entire test period by means of a force pump to be furnished by the Contractor. Accurate means shall be provided by the Contractor for measuring the water required to maintain this pressure. The amount of water required is a measure of the leakage. No pipe installation will be accepted until the leakage is less than the number of gallons per hour as determined by the formula:

$$L = \frac{N D \sqrt{P}}{7400}$$

Where:

L= Leakage in gallons per hour

N= Number of joints in length of pipe tested (length of pipe divided by 20)

D= Nominal diameter of pipe in inches

P= Average test pressure during test (150 psi)

4. Testing Plan: The Contractor must review his plan for testing with the City at least two (2) working days before starting the test. The Contractor shall remove and adequately dispose of all blocking material and equipment after completion and acceptance of the field hydrostatic test, unless otherwise directed by the City. Any damage to the pipe coating shall be repaired by the Contractor. Lines shall be totally free of debris prior to final acceptance.
5. Cost of Sampling and Testing: All costs associated with flushing and pressure testing, force mains shall be the responsibility of the Developer or his Contractor.

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SECTION 5

WATER MAIN SPECIFICATIONS

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**SECTION 5**  
**WATER MAIN SPECIFICATIONS**

5.01 **DESIGN:**

Design shall be based upon an average daily consumption of 250 gpcd with the maximum day equal to 150% of the average and the peak hour equal to 200% of the maximum day. Each design shall be in accordance with the Vero Beach Master Water Distribution Plan. All new distribution systems shall be designed to provide for a properly looped system and with valving incorporated to grant maximum flexibility in providing service. Backflow prevention devices shall be designed into the system in strict accordance with the City of Vero Beach Cross Connection Control Program.

5.02 **WATER MAIN PIPE AND FITTINGS:**

A. **Ductile Iron Pipe:**

1. General: All ductile iron pipe shall conform to the requirements of ANSI A21.51-81/A.W.W.A. C151 unless otherwise noted. Pipe shall have a minimum working pressure of 150 psi and shall be suitable for laying condition "Type 2." Unless noted otherwise, the pipe shall be Class 50 thickness for pipe six inches or larger and Class 52 for pipe smaller than six inches. Thicker class pipe shall be utilized where indicated on the drawings. Acceptable manufacturers: American Pipe, U.S. Pipe, McWane, or approved equal.
2. Joints: All ductile iron pipe to be located underground shall have either push-on or mechanical joints. Joint restraint shall be required for a minimum of 60 LF on each side of every valve and fitting unless otherwise indicated on the drawings or directed by Engineer of Record. All piping located above ground shall be ductile iron and flanged joint.
  - a. Push-On Joints: Shall be bell and spigot type meeting the requirements of ANSI A21.11/A.W.W.A. C111. They shall utilize a compression-type rubber ring gasket and shall be rated for liquid working pressures up to 250 psi. Acceptable manufacturers: American Fast-Tite, U.S. Pipe Tyton Joint, or approved equal.
  - b. Mechanical Joints: Shall meet the requirements of ANSI A21.11/A.W.W.A. C111, shall utilize a single gasket made of plain rubber or neoprene, and shall provide joint restraint against thrust due to internal liquid working pressures up to 250 psi.
  - c. Joint Restraint: Joint restraint shall be accomplished by utilizing factory-installed restrained push-on joints for push-on pipe or mechanical joint retainer glands for mechanical joint pipe.
    - (1) Restrained Push-On Joints: Shall be a bolt-less, factory-installed joint that

provides a flexible, positive lock between the bell end and spigot end of push-on joint pipe. It shall be rated for 350-psi minimum for pipe sizes up to 12-inch and 250 psi minimum for pipe sizes larger than 12-inch. Acceptable manufacturers: U.S. Pipe TR FLEX, American Pipe Flex Ring, or approved equal.

(2) Mechanical Joint Retainer Glands: Shall be utilized to restrain mechanical joint pipe. Glands and restraining devices shall be manufactured of ductile iron. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to ANSI 21.11 and ANSI A21.53/A.W.W.A. C153 or ANSI A210.10/A.W.W.A. C110. Mechanical joint restraint device shall have a working pressure of at least 250 psi. Acceptable manufacturers: American Pipe, U.S. Pipe, EBAA Iron Megalug, or approved equal.

d. Flanged Joints: Shall be in accordance with ANSI Standard B16.1, 125 lb. standard and utilized with a full faced type plain rubber or neoprene gaskets 1/8 inch thick. Bolts and nuts shall be Grade B, conforming to the ASTM Designation A307, for Steel Machine Bolts, Nuts and Tap Bolts.

B. Polyvinyl Chloride (PVC) Pipe:

1. Greater than or equal to 4-inch diameter:

a. General: All PVC pipe four to twelve inches in diameter shall conform to the requirements as set forth in A.W.W.A. C900-75 and ASTM D1784 and D2241, latest revision. All PVC pipe 14 to 36 inches in diameter shall conform to A.W.W.A. C905 and ASTM D1784, latest revision. All PVC pipe shall have a minimum working pressure of 150 psi. PVC pipe shall have outside dimensions equivalent to cast iron pipe and shall have a minimum wall thickness of DR18. Pipe shall bear the NSF label for potable water pipe. Acceptable manufacturers: Johns-Manville or approved equal.

b. Joints: Joints for PVC pressure pipe 4" or greater in diameter shall be bell and spigot push-on rubber gasket type. No solvent weld or threaded joints will be permitted. Joint restraint, where required, for PVC pipe shall be accomplished using EBAA Iron 1100 and 1500, or Ford 1300, 1350, or 1390 Series Restrainers. A minimum of 60 LF of PVC pipe on each side of a valve or fitting shall be restrained. Thrust blocking shall not be allowed unless specifically approved by the Engineer of Record.

2. Less than 4-inch diameter:

a. General: All PVC pipe less than 4" in diameter shall comply with ASTM D2241, D1784, D1869 and F477. Pipe shall have a working pressure of 200 psi and shall



be designed with a 2:1 safety factor over rated pressure. Pipe shall be SDR21 and shall have steel pipe outside dimensions. Pipe shall bear the NSF label for potable water pipe. Acceptable manufacturers: Johns-Manville Ring-Tite or equal.

- b. Joints: All PVC pipe less than 4" in diameter shall have integral bells with elastomeric gaskets. Solvent-welded joints in accordance with ASTM 2564 and ASTM 2855 shall be utilized where joint restraint is required.

C. Fittings:

1. For pipe greater than or equal to 4-inch diameter:

- a. General: All underground fittings for ductile iron pipe and PVC pipe 4 inches and greater shall be made of ductile iron and shall conform to ANSI A21.10/A.W.W.A. C110 or ANSI A21.53/A.W.W.A. C153. Pressure rating for fittings 4 to 12 inches shall be 250-psi minimum. Pressure rating for fittings larger than 12 inches shall be 150-psi minimum.
- b. Joints: All underground fittings shall be either push-on or mechanical joint with the joint conforming to ANSI A21.11/A.W.W.A. C111. Joint restraint must be provided at every fitting. All above ground fittings shall be ductile iron flanged joints conforming to ANSI A21.10/A.W.W.A. C110 and ANSI B16.1 Class 125. Fittings, which are to be connected to ductile iron pipe, shall have joint ends compatible with the ductile iron pipe restrained joint. Fittings, which are to be connected to PVC pipe, shall have joints compatible with the PVC pipe and shall be restrained using Megalug 1100 PV or EBAA Iron Series 500 or 1500 Restrainer.
- c. Lining and Coating: All ductile iron fittings shall be factory lined and coated in accordance with ductile iron pipe lining and coating requirements.

2. For pipe less than 4-inch diameter:

- a. General: All fittings shall be PVC conforming to ASTM D-1784 and shall be NSF approved for potable water service. Fittings for pipe 2 inches or less in diameter shall be Schedule 80 and shall conform to ASTM D-2467. Fittings for pipe 2 1/2-inch to 3-inch shall be Schedule 40 and shall conform to ASTM D-2466. All fittings shall be rated for 200-psi minimum.
- b. Joints: Joints for all fittings less than 4-inch diameter shall be solvent welded in accordance with ASTM D2564 and ASTM 2855.

D. Linings and Coatings: Unless otherwise approved in writing by the City, all ductile iron pipe shall be factory lined and coated as follows:

1. All ductile iron pipe shall be lined (interior) with cement mortar and seal coated in accordance with A.W.W.A. Standard C104.
2. The exterior of underground pipe shall be coated with a minimum 10 mils of Koppers Co. Bitumastic 300M or PRO-TECH EP214 Epoxy Mastic. The exterior of exposed pipe shall have a primer coat of Koppers Inorganic Zinc No. 701 (3 mils DFT minimum) and two topcoats of Koppers Aluminum Epoxy Mastic (13 mils DFT total, minimum) or approved equal coating system.
3. Where directed by the City and/or the Engineer of Record, polyethylene encasement shall be provided over ductile iron pipe, fittings, and valves. The material, installation, and workmanship shall conform to applicable sections of A.W.W.A. C105/ANSI A21.5-88 (Type I, Class C, Grade E, 8 mil thickness). Installation methods A or B shall be employed using flat tube polyethylene. The Contractor shall make provisions to keep the polyethylene from direct exposure to sunlight prior to installation. Backfilling following installation shall be completed without delay to avoid exposure to sunlight.
4. No linings or coatings are required for PVC pipe.

E. Polyethylene (PE) Pipe and Fittings:

This specification includes but is not limited to polyethylene (PE 3408) (ductile iron pipe size O.D) pressure pipe primarily intended for the transportation of water and sewage either buried or above grade.

1. References

AWWA C901	Polyethylene (PE) pressure Pipe & Tubing, ½ inch through 3 inch for water
AWWA C906	Polyethylene (PE) pressure Pipe & Fittings, 4 inch through 63 inch for water
ASTM D3035	Standard Spec for PE Pipe (DR-PR) Based on Controlled Outside Diameter
ASTM D3261	Butt Heat Fusion PE Fittings for PE Pipe & Tubing
ASTM D3350	Standard Specification for PE Pipe & Fittings Materials
ASTM D1238	Melt Flow Index
ASTM D1505	Density of Plastics
ASTM D2837	Hydrostatic Design Basis
NSF Std. #14	Plastic Piping Components & Related Materials
TR-33/2005	Generic Butt Fusion Joining Procedure for Field Joining of PE Pipe

## 2. General

### a. Use

Polyethylene (PE) pipes/fittings shall be allowed for use as water, wastewater and reclaimed water pressure pipe where compatible with the specific conditions of the project. The use of material other than PE pipe may be required by COVB if it is determined that PE pipe is unsuitable for the particular application. All material used in the production of water main piping shall be approved by the National Sanitation Foundation (NSF).

### b. Documentation

1. Documentation from the resin's manufacturer showing results of the following tests for resin identification:

a. Melt Flow Index ASTM D1238

2. Density ASTM D1505

### c. Manufacturer

All PE pipe and fittings shall be from a single manufacturer, who is fully experienced, reputable and qualified in the manufacture of the PE pipe to be furnished. The pipe shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications. Qualified manufacturers shall be: PLEXCO Division of Chevron Chemical Company, DRISCOPIPE as manufactured by Phillips Products Co., Inc., SCLAIRPIPE as manufactured by DuPont of Canada or equal as approved by the Utilities Engineer.

### d. Finished Product Evaluation

1. Production staff shall check each length of pipe produced for the items listed below. The results of all measurements shall be recorded on production sheets, which become part of the manufacturer's permanent records.

a. Pipe in process shall be checked visually, inside and out for cosmetic defects (grooves, pits, hollows, etc.)

b. Pipe outside diameter shall be measured using a suitable periphery tape to ensure conformance with ASTM F714 or ASTM D3035, whichever is applicable.

c. Pipe wall thickness shall be measured at 12 equally spaced locations around the circumference at both ends of the pipe to ensure conformance with ASTM F714 or ASTM D3035, whichever is applicable.

d. Pipe length shall be measured.

e. Pipe marking shall be examined and checked for accuracy.

- f. Pipe ends shall be checked to ensure they are cut square and clean.
  - g. Subject inside surface to a “reverse bend test” to ensure the pipe is free of oxidation (brittleness).
- e. Stress Regression Testing
- The polyethylene pipe manufacturer shall provide certification that stress regression testing has been performed on the specific polyethylene resin being utilized in the manufacture of this product. This stress regression testing shall have been done in accordance with ASTM D2837 and the manufacturer shall provide a product supplying a minimum Hydrostatic Design Basis (HDB) of 1,600 psi as determined in accordance with ASTM D2837.
- f. Compatibility
- Contractor is responsible for compatibility between pipe materials, fittings and appurtenances.
- g. Warranty
- The pipe MANUFACTURER shall provide a warranty against manufacturing defects of material and workmanship for a period of ten years after the final acceptance of the project by the OWNER. The MANUFACTURER shall replace at no expense to the OWNER any defective pipe/fitting material including labor within the warranty period.

### 3. Materials for Pipe Sizes 4-inch Diameter and Larger

- a. Materials used for the manufacture of polyethylene pipe and fittings shall be made from a PE 3408 polyethylene resin compound meeting cell classification 345434C per ASTM D3350; and meeting Type III, Class C, Category 5, Grade P34 per ASTM D1238.
- b. Polyethylene (PE 3408) pipe shall comply with AWWA Specifications C906.
- c. If rework compounds are required, only those generated in the Manufacturer’s own plant from resin compounds of the same class and type from the same raw material supplier shall be used.
- d. Dimensions and workmanship shall be as specified by ASTM F714. PE fittings and transitions shall meet ASTM D3261. PE pipe shall have a minimum density of 0.955 grams per cubic centimeter. All PE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi.
- e. PE pipe and accessories 4-inch diameter and larger, shall be 160 psi at 73.4°F meeting the requirements of Standard Dimension Ratio (SDR) 11 as MINIMUM STRENGTH.

- f. The pipe Manufacturer must certify compliance with the above requirements.
4. Materials for Pipe Sizes 2-inch Diameter and Less
- a. Materials used for the manufacture of polyethylene pipe and fittings shall be made from a PE 3408 high density polyethylene resin compound meeting cell classification 345434C per ASTM D3350; and meeting Type III, Class C, Category 5, Grade P34 per ASTM D1238.
  - b. Polyethylene (PE) pipes shall comply with AWWA Specifications C901.
  - c. If rework compounds are required, only those generated in the Manufacturer's own plant from resin compounds of the same class and type from the same raw material supplier shall be used.
  - d. Dimensions and workmanship shall be as specified by ASTM D3035. PE fittings and transitions shall meet ASTM D3261. PE pipe shall have a minimum density of 0.955 grams per cubic centimeter. All PE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi.
  - e. PE pipe and accessories 2" and less in diameter, shall be 160 psi at 73.4°F meeting the requirements of Standard Dimension Ratio (SDR) 9 as MINIMUM STRENGTH.
  - f. The pipe Manufacturer must certify compliance with the above requirements.
5. Fittings
- a. All molded fittings and fabricated fittings shall be fully pressure rated to match the pipe SDR pressure rating to which they are made. All fittings shall be molded or fabricated by the manufacturer. No Contractor fabricated fittings shall be used unless approved by the Engineer.
  - b. The manufacturer of the PE pipe shall supply all PE fittings and accessories as well as any adapters and/or specials required to perform the work as shown on the Drawings and specified herein.
  - c. All fittings shall be installed using butt-fused fittings, thermo-fused fittings/couplings, or flanged adapters and must be approved by the Engineer. **NO** size on size wet taps shall be permitted.
  - d. All transition from PE pipe to ductile iron or PVC shall be made per the approval of COVB Engineer and per the PE pipe manufacturer's recommendations and specifications. A molded flange connector adapter within a carbon steel back-up ring assembly shall be used for pipe type transitions. Ductile iron back-up rings shall mate with cast iron flanges per ANSI B16.1. A 316 stainless steel back-up ring shall mate with a 316 stainless steel flange per ANSI B16.1.
    - 1. Transition from PE to ductile iron fittings and valves shall be approved by COVB Engineer before installation.

2. No solid sleeves shall be allowed between such material transitions.
3. Fittings and transitions shall be as manufactured by Phillips DRISCOPIPE, Inc., 1000 Series Pressure Pipe, Chevron Chemical Company Plexco/Spiralite pipe, or equal.
4. The pipe supplier must certify compliance with the above requirements.

6. Pipe Identification

- a. The following shall be continuously indent printed on the pipe or spaced at intervals not exceeding 5-feet:
  1. Name and/or trademark of the pipe manufacturer.
  2. Nominal pipe size.
  3. Dimension ratio.
  4. The letters PE followed by the polyethylene grade in accordance with ASTM.
  5. D1248 followed by the hydrostatic design basis in 160's of psi, e.g., PE 3408.
  6. Manufacturing standard reference, e.g., ASTM F714 or D-3035, as required.
  7. A production code from which the date and place of manufacture can be determined.
  8. Color Identification, either stripped by co-extruding longitudinal identifiable color markings or shall be solid in color and as follows:
    - a. BLUE – Potable Water
    - b. GREEN – Sanitary Sewer
    - c. LAVENDER – IQ cover all
- b. Tracing Wire
  1. Open trench installation of PE shall be identifiable per COVB Specification Section 5, 5.02.F.
  2. Directional Drilled PE shall have wire conforming to Copperhead Industries Reinforced #1245 Extra-High Strength Tracer Wire and affixed to the drilling head/reamer.
- c. Marking Tape: Marking tape shall be installed per COVB Engineer approval.

## 7. Joining Method

- a. The pipe shall be joined with butt, heat fusion joints as outlined in ASTM D2657 and conform to the Generic Butt Fusion Joining Procedure for Field Joining of Polyethylene Pipe, Technical Report TR-33/2005, published by the Plastic Pipe Institute (PPI). All joints shall be made in strict compliance with the manufacturer's recommendations. A factory qualified joining technician as designated by pipe manufacturer or experienced, trained technician shall perform all heat fusion joints in the presence of the COVB Inspector.
- b. Lengths of pipe shall be assembled into suitable installation lengths by the butt-fusion process. All pipes so joined shall be made from the same class and type of raw material made by the same raw material supplier. Pipe shall be furnished in standard laying lengths not to exceed 50 feet and no shorter than 20 feet.
- c. On days butt fusions are to be made, the first fusion shall be a trial fusion in the presence of a COVB Inspector. The following shall apply:
  1. Heating plate surfaces shall be inspected for cuts and scrapes and shall be free of dirt and residue. Heater surfaces should be between 400<sup>o</sup>F (minimum) to 450<sup>o</sup>F (maximum). Measure the temperature @ 12:00, 3:00, 6:00 and 9:00 o'clock positions using a pyrometer or infrared thermometer at locations where the heating plate will contact the pipe/fitting ends. The maximum temperature difference between any two points on a single heating surface must not exceed 24<sup>o</sup>F. If this temperature is exceeded, the heating plate shall be cleaned per the manufacturer's recommendations.
  2. The fusion or test section shall be cut out after cooling completely for inspection.
  3. The test section shall be 12" or 30 times (minimum) the wall thickness in length and 1" or 1.5 times the wall thickness in width (minimum).
  4. The joint shall be visually inspected as to continuity of "beads" from the melted material, and for assurance of "cold joint" prevention (i.e. – joint shall have visible molded material between walls of pipe). Joint spacing between the walls of the two ends shall be a minimum of 1/16" to a maximum 3/16".
- d. The polyethylene flange adapters at pipe material transitions shall be backed up by stainless steel flanges conforming to ANSI B16.1 and shaped as necessary to suit the outside dimensions of the pipe. The flange adapter assemblies shall be connected with corrosion resisting bolts and nuts of Type 316 Stainless Steel as specified in ASTM A726 and ASTM A307. All bolts shall be tightened to the manufacturer's specified torques. Bolts shall be tightened alternatively and evenly. After installation, apply a bitumastic coating to bolts and nuts.

## 8. Installation

- a. Polyethylene (PE) Pipe shall be installed in accordance with the instruction of the manufacturer, as shown on the Drawings and as specified herein. A factory qualified joining technician as designated by the pipe manufacturer shall perform all heat fusion joints.
- b. PE shall be installed either by Open Trench Construction or Directional Bore Method as outlined in Section 5, 5.02.E.8 – Installation, Item q – Open Trench Installation or Item r – Directional Bore Installation.
- c. Care shall be taken in loading, transporting and unloading to prevent damage to the pipe. Pipe or fitting shall not be dropped. All pipe or fitting shall be examined before installation, and no piece shall be installed which is found to be defective. Any damage to the pipe shall be repaired as directed by the Engineer. If any defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner by the contractor, at his own expense.
- d. Under no circumstances shall the pipe or accessories be dropped into the trench or forced through a directional bore upon “pull-back”.
- e. Care shall be taken during transportation of the pipe such that it will not be cut, kinked or otherwise damaged.
- f. Ropes, fabric or rubber protected slings and straps shall be used when handling pipes. Chains, cables or hooks inserted into the pipe ends shall not be used. Two slings spread apart shall be used for lifting each length of pipe.
- g. Pipes shall be stored on level ground, preferably turf or sand, free of sharp objects, which could damage the pipe. Stacking of the polyethylene pipe shall be limited to a height that will not cause excessive deformation of the bottom layers of pipes under anticipated temperature conditions. Where necessary due to ground conditions, the pipe shall be stored on wooden sleepers, spaced suitably and of such width as not to allow deformation of the pipe at the point of contact with the sleeper or between supports.
- h. Pipe shall be stored on clean level ground to prevent undue scratching or gouging. The handling of the pipe shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects. The maximum allowable depth of cuts, scratches or gouges on the exterior of the pipe is 5 percent of wall thickness. The interior pipe surface shall be free of cuts, gouges or scratches.
- i. Pipe shall be laid to lines and grade shown on the Drawings with bedding and backfill as shown on the Drawings.
- j. When laying is not in progress, including lunchtime, the open ends of the pipe shall be closed by fabricated plugs, or by other approved means.
- k. Sections of pipe with cuts, scratches or gouges exceeding 5 percent of the pipe wall thickness shall be removed completely and the ends of the pipeline rejoined.



- l. The pipe shall be joined by the method of thermal butt fusion, as outlined in Specification 5.02.E.7, Joining Method. All joints shall be made in strict compliance with the manufacturer's recommendations.
- m. Mechanical connections of the polyethylene pipe to auxiliary equipment such as valves, pumps and tanks shall be through flanged connections which shall consists of the following:
  1. A polyethylene flange shall be thermally butt-fused to the stub end of the pipe.
  2. A 316 stainless steel back up ring shall mate with a 316 stainless steel flange.
  3. 316 stainless steel bolts and nuts shall be used.
- n. Flange connections shall be provided with a full-face neoprene gasket.
- o. All PE pipe must be at the temperature of the surrounding soil at the time of backfilling and compaction.
- p. If a defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner at no additional cost to the Owner. All pipe and fittings shall be thoroughly cleaned before installation, shall be kept clean until they are used in the work and when laid, shall conform to the lines and grades required.
- q. Open Trench Installation:
  1. COVB Standard Construction Specifications and Details for Water and Sewer Systems, Section 1, 1.04 Excavation and Trenching, and ~~1.06 Backfill, Compaction and Testing, shall apply in its entirety.~~
  2. The centerline of the pipe shall not deviate from a straight line drawn between the centers of the openings at the ends of the pipe by more than 1/16-in per foot of length. If a piece of pipe fails to meet this requirement check for straightness, it shall be rejected and removed from the site. Laying instructions of the manufacturer shall be explicitly followed.
  3. Good alignment shall be preserved during installation. Deflection of the pipe shall occur only at those places on design drawings and as approved by the Engineer. Fittings, in addition to those shown on the Drawings, shall be used only if necessary or required by the Engineer.
  4. Each length of the pipe shall have the assembly mark aligned with the pipe previously laid and held securely until enough backfill has been placed to hold the pipe in place. Joints shall not be "pulled" or "cramped".
  5. Precautions shall be taken to prevent flotation of the pipe in the trench.

6. When moveable trench bracing such as trench boxes, moveable sheeting, shoring or plates are used to support the sides of the trench, care shall be taken in placing and moving the boxes or supporting bracing to prevent movement of the pipe, or disturbance of the pipe bedding and the backfill. Trench boxes, moveable sheeting, shoring or plates shall not be allowed to extend below top of the pipe. As trench boxes, moveable sheeting, shoring or plates are moved, pipe bedding shall be placed to fill any voids created and the backfill shall be recompacted to provide uniform side support for the pipe.
7. Restrained joints shall be installed where shown on the Drawings or as directed by the Engineer.

r. Directional Bore Installation:

1. Refer to COVB Specification Section 5, 5.04.C - Horizontal Directional Drilling in its entirety.

9. Cleaning

- a. At the conclusion of the work, thoroughly clean all of the new pipe lines to remove all dirt, stones, pieces of wood or other material which may have entered during the construction period by forcing a cleaning swab through all mains 4" or greater. Flushing velocities shall be a minimum of 2.5 feet per second. All flushing shall be coordinated with COVB Inspector and Water Resources Department. Debris cleaned from the lines shall be removed from the job site.

10. Testing

- a. Pressure testing shall be conducted per Manufacturer's recommendations and as approved by the COVB Engineer.
- b. All PE water mains shall be disinfected prior to pressure testing as per COVB Specifications, Section 5, 5.05 Testing and Disinfection.
- c. All PE mains shall be field-tested. Contractor shall supply all labor, equipment, material, gages, pumps, meters and incidentals required for testing. Each main shall be pressure tested upon completion of the pipe laying and backfilling operations, including placement of any required temporary roadway surfacing.
- d. All mains shall be tested at 150 percent of the operating design pressure of the pipe unless otherwise approved by the Engineer.
- e. Pressure testing procedure shall be per Manufacturer's recommendations or as follows:
  1. Fill line slowly with water. Maintain flow velocity less than 2 feet per second.

2. Expel air completely from the line during filling and again before applying test pressure. Air shall be expelled by means of taps at points of highest elevation.
  3. Apply initial test pressure and allow to stand without makeup pressure for two to three hours, to allow for diametric expansion or pipe stretching to stabilize.
  4. After this equilibrium period, apply the specified test pressure and turn the pump off. The final test pressure shall be held for one to three hours.
  5. Upon completion of the test, the pressure shall be bled off from a location other than the point where the pressure is monitored. The pressure drop shall be witnessed by the resident project representative and COVB representative at the point where the pressure is being monitored and shall show on the recorded pressure read-out submitted to the Engineer of Record.
- f. Allowable amount of makeup water for expansion during the pressure test shall conform to Chart 6, Allowance for Expansion Under Test Pressure, Technical Report TR 31/9-79, published by the Plastic Pipe Institute (PPI). If there are no visual leaks or significant pressure drops during the final test period, the installed pipe passes the test.
  - g. If any test of pipe laid disclosed leakage significant pressure drop greater than the manufacturer's recommended loss, the Contractor shall, at his/her own expense, locate and repair the cause of leakage and retest the line. The amount of leakage, which will be permitted, shall be in accordance with AWWA C600 Standards.
  - h. All visible leaks are to be repaired regardless of the amount of leakage.
  - i. The Contractor must submit his plan for testing to the Engineer for review at least 10 days before starting the test and shall notify COVB Inspector a minimum of 48 hours prior to test.

F. Pipe Marking and Identification:

1. All water main pipe installed underground shall have a #14 gauge THHN trace wire (blue in color) attached for locating purposes. Splices and terminations shall be made as shown on drawing details.
2. All PVC water main pipe shall be manufacturer's standard blue color, or shall be white pipe, permanently imprinted with the words "WATER MAIN" in one inch blue letters every 24" along the length of the pipe, alternating. White PVC pipe or ductile iron pipe shall have a permanent marking tape attached to the entire length of the pipe with the words "WATER MAIN" printed in one-inch letters every 24 inches along the tape.

3. In addition, marking tape shall be placed in the trench over the pipe, six to twelve inches below finished grade, for the entire length of pipe.

### 5.03 VALVES AND APPURTENANCES:

#### A. Butterfly Valves (12-Inch and Greater):

1. General: Butterfly valves and operators shall conform to the A.W.W.A. Standard Specifications for Rubber Seated Butterfly Valves, Designation C504, except as hereinafter specified. Valves shall be Class 150A or B and equal to those manufactured by Mueller or DeZurik. The valve discs shall be constructed of alloy cast iron ASTM A-436, Type I (Ni-Resist), or if solid disc is used, of cast iron conforming to ASTM A-48, Class 40, or 404 stainless steel as approved.
2. Joints: Valves shall have integrally cast mechanical joint ends or flanged ends. The face-to-face dimensions of flanged end valves shall be in accordance with Table 3 of the above-mentioned A.W.W.A. Specification for short-body valve. Adequate two-way thrust bearings shall be provided. Flange drilling shall be in accordance with ANSI B16.1.
3. Seats: Valve seats shall be a natural rubber neoprene or neoprene Buna-N Viton. Valve seats 30 inches and larger shall be field adjustable and replaceable without dismounting operator disc or shaft and without removing the valve from the line. All retaining segments and adjusting devices shall be of corrosion-resistant material with stainless Nylock screws, and be capable of a 1/8-inch adjustment. Valves 24 inches and smaller shall have bonded or mechanically restrained seats, as outlined in A.W.W.A. C-504. Where seat is mounted on the valve body, the mating edge of the valve disc shall be 18-8 stainless steel or Ni-Resist, ASTM A-436, Type I. Where rubber seat is mounted on the valve disc, the valve body shall be fitted with an 18-8 stainless steel seat offset from the shaft, mechanically restrained and covering 360 degrees of the peripheral opening or seating surface.
4. Body and Stuffing Box: The valve body shall be constructed of close grain cast iron per ASTM A126, Class B, with integrally cast hubs for shaft bearing housings of the through boss-type. Permanently self-lubricating, corrosion-resistant, sleeve-type bearings shall be provided, and shall be sized to withstand bearing loads. Bearing loads shall not exceed 1.5 of the compressive strength of the bearing or shaft material, and shall not exceed 2,500 psi. A stuffing box of liberal dimensions shall be provided at the operator end of the vane shaft, arranged so that the packing can be replaced by removing the bronze follower without removing the operator. Packing shall be of the self-compensating type especially selected for the operating pressures to be encountered. A sealing element utilizing O-rings shall be considered.
5. Shaft: The valve shaft shall be turned, ground, and polished, constructed of 18-8 stainless steel and designed for both torsional and shearing stresses when the valve is operated under its greatest dynamic or seating torque. Shaft shall be of either a

one-piece unit extending full size through the valve disc and valve bearing, or it may be of a stub shaft design.

6. Operators: Valve operators shall conform to the requirements of Section 3.8 of the A.W.W.A. Standard Specifications for Rubber Seated Butterfly Valves, Designation C504, insofar as applicable and as herein specified.

B. Gate Valves (4-Inch to 12-Inch):

1. General: Gate valves shall be of the resilient seat variety and shall meet all the requirements of A.W.W.A. C509 and/or A.W.W.A. C515. The internal diameter of the liquid passageway shall be free of all obstructions and shall be at least as large as the pipe diameter it is intended for. Gate valves shall provide bubble-tight shutoff regardless of direction of flow and shall operate equally well in either direction. All internal parts shall be accessible without removing the main body from the pressure line. Valves shall be tested for zero leakage past the seat at 200 psi and hydrostatically shell tested at 400 psi.

2. Materials of Construction:

- a. Body and bonnet: cast iron.
- b. Stem and stem nut: bronze.
- c. Wedge or disc: cast iron.
- d. Resilient seat: polyurethane rubber.
- e. Internal components in contact with liquid: epoxy lined.

3. Features:

- a. Stem: Shall be non-rising (for fire service stem shall be OS & Y type, flanged).
- b. Open: The valve shall open by turning valve operator to the left.
- c. Operator: Shall be 2-inch square nut for buried valves and shall be manufacturer's standard hand wheel operator for aboveground valves.
- d. O-rings: Shall be located above and below thrust collar.
- e. Coatings: Valve interior shall be coated with an epoxy coating approved for potable water applications. Valve exterior shall be either epoxy coated or painted with two coats of asphalt varnish, whichever is manufacturer's standard.
- f. Joint Ends: Provide valve ends suitable for mechanical or flanged pipe joint, as required.

4. Acceptable Manufacturers: Mueller Co., Decatur, IL; CLOW Valve Division, Oskaloosa, IA; Kennedy Valve, Atlanta, GA; or approved equal.

C. Gate Valves (Less Than 4-Inch): Shall be 200 psi, wrench nut with inside IPT. Valves shall be Mueller 2360 Series or approved equal.

D. Tapping Sleeves and Valves:

1. Tapping Sleeves: Shall have mechanical joint ends for the run and shall have a flanged outlet to mate to a standard tapping valve. Tapping sleeve shall be all stainless steel (including hardware) and shall have a fully gridded gasket and test plug. Provide tapping sleeves and gaskets, which are specifically designed for the size and material of pipe to be tapped. Tapping sleeve and valve shall be restrained in accordance with pipe specifications. Acceptable manufacturers: Ford Style FAST, Romac No. SST, or approved equal.
2. Tapping Valves: Shall be specifically designed for the purpose of tapping pressurized mains. Valves used for tapping shall be gate valves meeting the requirements of these specifications.

E. Check Valves:

Shall be iron body, bronze mounted variety with lever and weight. Check valve shall meet requirements of ANSI/A.W.W.A. C508. Disc facing shall be rubber. Valve shall have O-ring sealed stuffing box and shall be capable of properly operating in vertical or horizontal position. Adjustable weight to control opening and closing of clapper/lever on either side of valve shall be provided. Valve shall have a minimum working pressure of 150 psi and shall be subjected to a test pressure of 300 psi. Ends of valve shall be flanged and shall comply with ANSI B16.1 class 125. Acceptable manufacturers: Mueller or approved equal.

F. Backflow Preventer: Backflow preventers shall be specifically designed to prevent backflow or back siphonage and shall meet the required standards and be approved by the following:

1. A.W.W.A. C-506 - Standard for backflow prevention devices, Reduced Pressure Principle and Double Check Valve type.
2. USC-FCCC - University of Southern California Foundation for Cross-connection control and hydraulic research
3. C.O.V.B - W.S.D. - City of Vero Beach Water and Sewer Department

The type of device used in any given situation shall be based on the degree of hazard, either existing or potential, as determined by the Department.

G. Air Release Valves:

1. General: Air release valves shall be the automatic variety suitable for potable water applications. Valve size shall be 2-inch or as indicated on the drawings.

2. Construction:
  - a. Body and Cover: Iron (ASTM A48).
  - b. Float and Leverage Mechanism: Stainless steel (ASTM A240).
  - c. Orifice Button: Buna-N.
  - d. Cover Gasket: Composition.
  - e. Bolts: Steel 1035 H.T.
  - f. Working Pressure: 150-psi minimum.
  - g. Orifice Diameter: 3/32".

3. Acceptable Manufacturers: Crispin or approved equal.

H. Valve Boxes:

1. Gate Valves and Butterfly Valves: All buried valves shall have cast iron two- or three-piece valve boxes with cast iron covers. Valve boxes shall be provided with suitable heavy bonnets and shall extend to such elevation at or slightly above the finished grade surface as directed by the Engineer. The barrel shall be one- or two-piece, screw type, having 5 1/4-inch shaft. All valve box covers shall have "WATER" cast into the top and shall be painted with Porter Coatings "Porter Guard" super fast dry enamel high gloss "2554 Safety Yellow". A 24-inch square by 6-inch thick concrete pad shall be poured around the top of the box to prevent movement or damage. Size of valve and orientation of water main in which valve is located shall be imprinted in 2-inch letters on concrete pad. All valves below 5' bury, shall have actuating nuts extended to within six inches of the top of valve box cover. Acceptable valve box manufacturers: M & H Valve and Fitting Co., Mueller Company, or approved equal.
2. Air Release Valves: Valve boxes for automatic and manual air release valves shall be of pre cast concrete, for underground service and designed for HS-20-44 loading. All air release valves shall be located in an underground box, unless indicated otherwise. The minimum inside dimension of box shall be twenty-four inches (24"). These boxes shall be equipped with cast iron traffic covers marked "WATER."

- I. Fire Hydrants: Hydrants shall be dry barrel, traffic model, and compression type conforming to A.W.W.A. C502. Hydrant shall have 5 1/4" valve opening with one 4 1/2" pumper nozzle and two 2 1/2" hose nozzles, all National Standard Threads. Nozzles shall have caps attached by chains. Hydrant shall have 6-inch mechanical joint inlet connection and National Standard pentagon operating nut, and shall open left. Hydrant shall be painted with Rust-oleum Industrial Enamel No. 3744402 Federal Safety Yellow. Provide one hydrant wrench per ten fire hydrants installed (one wrench shall be provided if fewer than ten hydrants are installed). Acceptable manufacturers: American-Darling B-84-B, Mueller Centurion A423, American Darling B-84-B-5, or CLOW Medallion.

J. Water Services: Water services shall consist of a tapping saddle (or tee), a corporation stop copper tubing size (CTS) water service tubing, pack joints, fittings, and angle yoke valve adjacent to the meter as indicated on the details. All components from the water main to and including the angle yoke valve are to be supplied and installed by the Contractor. Water meter boxes for meters 5/8" to 2" shall be supplied by the City and shall be installed by the Contractor to finished grade. Water meter and meter yoke shall be supplied and installed by the City.

1. Water Service Tubing (1" and 2"):

- a. Polyethylene: Polyethylene tubing shall be black in color, copper tube size for use with stainless steel liners (inserts) and compression fittings. The tubing shall be rated for 200 psi at 73.4 degrees Fahrenheit. The material shall meet the requirements of A.W.W.A. C901-88 - DR 9 (PE 3408). The tubing shall be marked with size, manufacturer's name or symbol, working pressure, NSF approval, A.W.W.A. specification, and production code.
- b. Copper: All copper tubing shall be rated for 160-psi working pressure or greater for use with compression fittings. Copper tubing shall be Type K or L, conforming to ASTM B88-55, A.W.W.A. 75-CR specifications.
- c. Fittings for Water Service Tubing: Fittings for water service tubing shall be made of brass and shall conform to A.W.W.A. Standard C800. Fittings shall be compression type for use with copper tubing or copper-sized polyethylene. Stainless steel liners (i.e., tube inserts with flared end) must be inserted into the end of polyethylene tubing prior to fitting the compression connections.

2. Other Components of Water Services: All other components of water services (e.g., corporation stops, tapping saddles, angle yoke valves, etc.) shall be as indicated on the details.

5.04 INSTALLATION:

A. General: Unless otherwise noted on the drawings or in other sections of this specification, the pipe shall be handled and installed in strict accordance with the manufacturer's instructions and with the applicable provisions of A.W.W.A. C600, A.W.W.A. C605 and A.W.W.A. Manual M23. If a conflict exists between the manufacturer's instructions and the A.W.W.A. Standards, the manufacturer's instructions shall govern. The Contractor shall use every precaution during construction to protect the pipe against the entry of non-potable water, dirt, wood, small animals, and any other foreign material that would hinder the operation of the pipeline. Excavation required for installation of pipe or appurtenances shall be done in accordance with Paragraph 1.04 - EXCAVATION AND TRENCHING of these specifications.



- B. Pipe Installation: Unless otherwise shown on the drawings, or otherwise authorized by the City, all pipe shall have a minimum cover of 36 inches. Contractor shall determine top of pipe elevation and top of ground elevation for every joint of pipe and casing pipe installed using a level. Pipe must have the minimum cover described above and must be within  $\pm 0.2$  feet of the top of pipe elevation indicated on the drawings. Installed pipe, which does not meet these requirements, shall be reinstalled until it does meet these requirements. Contractor shall record top of pipe and top of ground elevations and the locations of where these elevations were determined and submit this information to the City.
- C. Horizontal Directional Drilling: The work specified in this section consists of furnishing and installing underground utilities using the horizontal directional drilling (HDD) method of installation, also commonly referred to as directional boring or guided horizontal boring. This work shall include all services, equipment, materials, and labor for the complete and proper installation, testing, restoration of underground utilities and environmental protection and restoration.
1. COVB Specification 5.02.E –Polyethylene (PE) Pipe and Fittings shall be used as a reference.
  2. Quality Assurance:

The requirements set forth in this document specify a wide range of procedural precautions necessary to insure that the very basic, essential aspects of a proper directional bore installation are adequately controlled. Strict adherence shall be required under specifically covered conditions outlined in this specification. Adherence to the specifications contained herein, or the Engineer's approval of any aspect of any directional bore operation covered by this specification, shall in no way relieve the Contractor of their ultimate responsibility for the satisfactory completion of the work authorized under the Contract.
  3. Submittals:
    - a. Work Plan

Prior to beginning work, the Contractor must submit to the Engineer a general work plan outlining the procedure and schedule to be used to execute the project. Plan should document the thoughtful planning required to successfully complete the project.
    - b. Equipment

Contractor will submit specifications on directional drilling equipment to be used to ensure that the equipment will be adequate to complete the project.
    - c. Materials

Specifications on material to be used shall be submitted to Engineer. Material shall include the pipe, fittings and any other item which is to be an installed component of the project.

4. Equipment:

The directional drilling equipment shall consist of a directional drilling rig of sufficient capacity to perform the bore and pullback the pipe, a drilling fluid mixing & delivery system of sufficient capacity to successfully complete the crossing, a guidance system to accurately guide boring operations and trained and competent personnel to operate the system. All equipment shall be in good, safe operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this project.

5. Drilling System:

a. Drilling Rig

The directional drilling machine shall consist of a hydraulically powered system to rotate, push and pull hollow drill pipe into the ground at a variable angle while delivering a pressurized fluid mixture to a guidable drill (bore) head. The machine shall be anchored to the ground to withstand the pulling, pushing and rotating pressure required to complete the crossing. The hydraulic power system shall be self-contained with sufficient pressure and volume to power drilling operations. Hydraulic system shall be free of leaks. Rig shall have a system to monitor and record maximum pull-back pressure during pull-back operations.

b. Drill Head

The drill head shall be steerable by changing its rotation and shall provide the necessary cutting surfaces and drilling fluid jets.

c. Mud Motors (if required)

Mud motors shall be of adequate power to turn the required drilling tools.

d. Drill Pipe

Shall be constructed of high quality 4130 seamless tubing, grade D or better, with threaded box and pins. Tool joints should be hardened to 32-36 RC.

6. Guidance System:

The Guidance System shall be of a proven type and shall be setup and operated by personnel trained and experienced with this system. The Operator shall be aware of any magnetic anomalies and shall consider such influences in the operation of the guidance system if using a magnetic system.

7. Drilling Fluid (Mud) System

a. Mixing System

A self-contained, closed, drilling fluid mixing system shall be of sufficient size to mix and deliver drilling fluid composed of bentonite clay, potable water and

appropriate additives. Mixing system shall be able to molecularly shear individual bentonite particles from the dry powder to avoid clumping and ensure thorough mixing. The drilling fluid reservoir tank shall be sized for adequate storage of the mud. Mixing system shall continually agitate the drilling fluid during drilling operations.

b. Drilling Fluids

Drilling fluid shall be composed of clean water and an appropriate additive. Water shall be from a clean source with a pH of 8.5 – 10 and/or as per mixing requirements of the Manufacturer. Water of a lower pH or with excessive calcium shall be treated with the appropriate amount of sodium carbonate or equal. The water and additives shall be mixed thoroughly and be absent of any clumps or clods. No hazardous additives may be used. Drilling fluid shall be maintained at a viscosity sufficient to suspend cuttings and maintain the integrity of bore wall.

c. Delivery System

The mud pumping system shall have a minimum capacity to supply mud in accordance with the drilling equipment pull-back rating at a constant required pressure. The delivery system shall have filters in-line to prevent solids from being pumped into the drill pipe. Connections between the pump and drill pipe shall be relatively leak-free. Used drilling fluid and drilling fluid spilled during drilling operations shall be contained and properly disposed of. A berm, minimum of 12" high, shall be maintained around drill rigs, drilling fluid mixing system, entry and exit pits and drilling fluid recycling system (if used) to prevent spills into the surrounding environment. Pumps and or vacuum truck(s) of sufficient size shall be in place to convey excess drilling fluid from containment areas to storage facilities.

8. Other Equipment:

a. Pipe Rollers

Pipe rollers, if required, shall be of sufficient size to fully support the weight of the pipe while being hydro-tested and during pull-back operations. Sufficient number of rollers shall used to prevent excess sagging of pipe.

b. Pipe Rammers

Hydraulic or pneumatic pipe rammers may only be used if necessary and with the authorization of Engineer.

c. Restrictions

Other devices or utility placement systems for providing horizontal thrust other than those previously defined in the preceding sections shall not be used unless approved by the Engineer prior to commencement of the work. Consideration for approval will be made on an individual basis for each specified location. The proposed device or system will be evaluated prior to approval or rejection on its potential ability to complete the utility placement satisfactorily without undue stoppage and to maintain line and grade within the tolerances prescribed by the particular conditions of the project.

9. Execution:

The Engineer must be notified 48 hours in advance of starting work. The Directional Bore shall not begin until the Engineer is present at the job site and agrees that proper preparations for the operation have been made. The Engineer approval for beginning the installation shall in no way relieve the Contractor of the ultimate responsibility for the satisfactory completion of the work as authorized under the Contract. It shall be the responsibility of Engineer to provide inspection personnel at such times as appropriate without causing undue hardship by reason of delay to the Contractor. All personnel shall be fully trained in their respective duties as part of the directional drilling crew and in safety.

10. Drilling Procedure:

a. Site Preparation

1. Prior to any alterations to work-site, contractor shall photograph or video tape entire work area, including entry and exit points, one copy of which shall be given to Engineer and one copy to remain with contractor for a period of one year following the completion of the project.
2. Work site as indicated on drawings, within right-of-way, shall be graded or filled to provide a level working area. No alterations beyond what is required for operations are to be made. Contractor shall confine all activities to designated work areas.

b. Drill Path Survey

Entire drill path shall be accurately surveyed with entry and exit stakes placed in the appropriate locations within the areas indicated on drawings. If contractor is using a magnetic guidance system, drill path will be surveyed for any surface geo-magnetic variations or anomalies.

c. Environmental Protection

Contractor shall place silt fence between all drilling operations and any drainage, wetland, waterway or other area designated for such protection by contract documents, state, federal and local regulations. Additional environmental protection necessary to contain any hydraulic or drilling fluid spills shall be put in place, including berms, liners, turbidity curtains and other measures. Contractor shall adhere to all applicable environmental regulations. Fuel or oil may not be stored in bulk containers within 200' of any water-body or wetland.

d. Safety

Contractor shall adhere to all applicable state, federal and local safety regulations and all operations shall be conducted in a safe manner. Safety meetings shall be conducted at least weekly with a written record of attendance and topic submitted to Engineer.

e. Pipe

Pipe shall be welded/fused together in one length, if space permits. Steel pipe welds will be X-rayed prior to being placed in bore hole. Pipe will be placed on pipe rollers before pulling into bore hole with rollers spaced close enough to prevent excessive sagging of pipe.

f. Pilot Hole

1. Pilot hole shall be drilled on bore path with no deviations greater than 5% of depth over a length of 100'. In the event that pilot does deviate from bore path more than 5% of depth in 100', Contractor will notify Engineer and Engineer may require Contractor to pull-back and re-drill from the location along bore path before the deviation.
2. In the event that a drilling fluid fracture, inadvertent returns or returns loss occurs during pilot hole drilling operations, contractor shall cease drilling, wait at least 30 minutes, inject a quantity of drilling fluid with a viscosity exceeding 120 seconds as measured by a Marsh funnel and then wait another 30 minutes. If mud fracture or returns loss continues, contractor will cease operations and notify Engineer. Engineer and contractor will discuss additional options and work will then proceed accordingly.

g. Reaming

Upon successful completion of pilot hole, contractor will ream bore hole to a minimum of 25% greater than outside diameter of pipe using the appropriate

tools. Contractor will not attempt to ream at one time more than the drilling equipment and mud system are designed to safely handle.

h. Pull-Back

1. After successfully reaming bore hole to the required diameter, contractor will pull the pipe through the bore hole. In front of the pipe will be a swivel. Once pull-back operations have commenced, operations must continue without interruption until pipe is completely pulled into bore hole. During pull-back operations contractor will not apply more than the maximum safe pipe pull pressure at any time.
2. In the event that pipe becomes stuck, contractor will cease pulling operations to allow any potential hydro-lock to subside and will commence pulling operations. If pipe remains stuck, contractor will notify Engineer. Engineer and contractor will discuss options and then work will proceed accordingly.

11. Pipe Testing

- a. COVB Section 5, 5.02.E and 5.05 shall be followed in its entirety following pull-back of the pipe.
  1. All mains shall be swabbed.
  2. All mains shall be chlorinated.
  3. Pressure-test pipe using potable water for a period of 2 hours at a pressure of 150 psi. A calibrated pressure recorder or pressure gauge will be used to record the pressure during the test period.

12. Site Restoration

Following drilling operations, contractor will de-mobilize equipment and restore the work-site to original condition. All excavations will be backfilled and compacted to 95% of original density. Landscaping will be restored to original. All mud shall be disposed of by the CONTRACTOR.

13. Record Keeping

a. As-Builts

Contractor shall maintain a daily project log of drilling operations and a guidance system log with a copy given to Engineer at completion of project. As-built drawings shall be certified as to accuracy by the Engineer.

- D. Polyethylene Encasement: Where polyethylene encasement is required, methods A or B shall be employed using flat tube polyethylene. The Contractor shall make provisions to keep the polyethylene from direct exposure to sunlight prior to installation. Backfilling following installation shall be completed without delay to avoid exposure to sunlight.
- E. Concrete Thrust Blocking and Pipe Supports: Thrust blocking shall not be allowed except where shown on the drawings and approved by the City. Restrained joints and fittings shall be utilized at all points of unbalanced reactions in lieu of thrust blocks. All exposed valves and fittings shall be provided with mechanical pipe jacks for support.
- F. Gate Valves and Butterfly Valves: All valves shall be set with stems vertically above the centerline of the pipe, except valves with gearboxes or where indicated or directed otherwise. Keep valves tightly closed during installation and take care to prevent dirt from damaging seating surfaces. Tighten stuffing box, if provided, and operate valve to see that all parts are in working condition before installation. Set valve box, for buried valve, plumb and place directly over the valve box. Provide valve box extensions where required by depth of cover.
- G. Air Release Valves: Air release valves shall be installed at high points in water main at the approximate locations indicated on the drawings. Installation of air release valves shall be in accordance with manufacturer's recommendations.
- H. Fire Hydrants: Install fire hydrants at the approximate location indicated on the drawings. Hydrants should be located 4 to 10 feet from edge of road. Do not locate hydrant in swale, if possible. Locate hydrant in an area that is easily accessible and which has a 10-foot minimum semicircular clearance in the direction the steamer connection is pointing. Exact location of the hydrant shall be field-determined and shall be subject to the approval of the Chief of the Fire Division of the Indian River County Department of Emergency Services. Set hydrant at required elevation to provide same depth of cover over the connecting pipe and the distribution main with the lowest nozzle at least 18 inches above the ground. Furnish extended barrels as required. Remove all foreign material from hydrant barrel prior to installation. Open and close all fire hydrants to see that all parts are in proper working condition. Stand hydrants plumb and face steamer connection as directed by the Engineer of Record.
- I. Water Services: All water services shall be installed at the approximate locations indicated on the drawings, unless directed otherwise by the Engineer of Record. Meter boxes shall be located within right-of-way approximately 12 inches from the property line (unless indicated otherwise).
  - 1. New Services: All water services indicated as "new" shall be installed by the Contractor at the approximate locations indicated on the drawings, unless directed otherwise by the Engineer of Record. Contractor is responsible for installing the following components

of each new water service: tapping saddle, corporation stop, water service tubing, angle yoke valve, yoke, dual check valve, meter box, and the associated fittings indicated on the details. The City of Vero Beach Water & Sewer Department shall supply meter boxes at no cost to the Contractor. City shall provide and install water meters. Property owner shall be responsible for installation of water line from property line to dwelling. Contractor is responsible for all restoration resulting from his operations within the right-of-way.

2. Replacement of Existing Service: All existing water services indicated to be replaced should be installed by the Contractor at their existing locations. Contractor is responsible for installing the following components of each so indicated water service: tapping saddle, corporation stop, water service tubing, angle yoke valve, yoke, dual check valve, meter box, and the associated fittings indicated on the details. The City of Vero Beach Water & Sewer Department shall supply meter boxes at no cost to the Contractor. The Contractor shall perform connection to property owner's line. City shall provide and install water meter. It shall be the Contractor's responsibility to remove the old water service that was replaced and to perform all restoration resulting from his operations within the right-of-way and on private property.
3. Relocation of Existing Services: All existing water services indicated to be relocated should be installed by the Contractor at the approximate locations indicated on the drawings unless otherwise directed by the Engineer of Record. Contractor is responsible for installing the following components of each relocated water service: tapping saddle, corporation stop, water service tubing, angle yoke valve, yoke, dual check valve, meter box, and the associated fittings indicated on the drawings. The City of Vero Beach Water & Sewer Department shall supply meter boxes at no cost to the Contractor. City shall provide and install water meters. Contractor shall be responsible for relocating existing water service line located on property owner's property as required to connect to dwelling. All work related to water line installation on private property shall be directly performed and/or supervised by a licensed plumber. Contractor is responsible for all restoration required as a result from damages from his operations within the right-of-way and on private property.

#### 5.05 TESTING AND DISINFECTION:

- A. Pressure and Leakage Test for Water Mains: Hydrostatic pressure and leakage tests shall conform with Section 7 of the latest edition of A.W.W.A. C-605 for PVC and C-600 for DIP. Contractor shall furnish all meters, pressure pumps, and other equipment needed to test the line. Contractor shall install a ¼" valve in piping to accept a pressure gauge to be provided by the City. City shall be present during all testing and final inspections.
  1. Flushing: Contractor shall flush pipe system before conducting leakage/pressure tests in order to remove air, dirt, debris, etc. from pipe. Temporary flushing discharge piping and fittings must be the same diameter as the pipe it is connected to, unless otherwise



authorized by the City. Minimum velocity for flushing shall be 2.5 fps. A suitable backflow preventer must be installed between the potable water main supplying the water for flushing and the pipe to be flushed during the entire flushing/pressure testing/disinfection operations. A detail showing the required backflow preventer configuration is shown in Appendix A. Under no circumstances shall the isolation valves separating the new installation from the existing mains be operated until a Department letter of clearance is obtained. Install corporation stops at any high points in line in order to bleed air from pipe. Contractor shall make provisions to properly dispose of water from his flushing operations. Flooding of streets and private property shall not be permitted. Contractor shall arrange with City 24 hours in advance of the time of flushing for the availability of water. The City of Vero Beach Water & Sewer Department shall supply water required for testing and flushing. The Contractor shall coordinate all flushing operations with the Engineer of Record and the City Water and Sewer Department.

2. Hydrostatic Pressure Test: The Contractor shall notify the City a minimum of 48 hours in advance of final pressure and leakage test. The pipelines shall be tested in sections between every consecutive in-line valve and 1500 feet; whichever is less, unless otherwise directed by the Engineer. The pressure required for the field hydrostatic pressure test shall average not less than 150 psi and shall be maintained between 145 and 155 psi for the duration of the test. The Contractor shall provide temporary plugs and blocking necessary to maintain the required test pressure. Duration of pressure test shall be at least four (4) hours.
  
3. Leakage Test: The leakage test shall be conducted concurrently with the hydrostatic pressure test and shall be of not less than four hours duration. All leaks evident at the surface shall be repaired and leakage eliminated regardless of total leakage shown by test. Lines, which fail to pass tests, shall be repaired and retested as necessary until test results comply with test requirements. Defective materials, pipes, valves, and accessories shall be removed and replaced. The line shall be filled with water and all air removed, and the test pressure shall be maintained in the pipe for the entire test period by means of a force pump furnished by the Contractor. The Contractor for measuring the water required to maintain this pressure shall provide accurate means. The amount of water required is the measure of the leakage. No pipe installation will be accepted until the leakage is less than the number of gallons per hour as determined by the formula:

$$L = \frac{N D \sqrt{P}}{7400}$$

Where:

- L = Leakage in gallons per hour
- N = Number of joints in length of pipe tested (length of pipe divided by 20)

- D = Nominal diameter of pipe in inches  
P = Average test pressure during test (150 psi)

4. Testing Plan: The Contractor must review his plan for testing with the City at least two (2) working days before starting the test. The Contractor shall remove and adequately dispose of all blocking material and equipment after completion and acceptance of the field hydrostatic test, unless otherwise directed by the City. The Contractor shall repair any damage to the pipe coating. Lines shall be totally free of debris prior to final acceptance.
5. Costs incurred by the City for retests as a result of test failures shall be billable to the Contractor.

**B. Disinfecting Potable Water Pipelines**

1. General: Before being placed in service, all potable water pipelines shall be chlorinated in accordance with the latest edition of A.W.W.A. C-651 and these Specifications. The location of the chlorination and sampling points will be as shown on the drawings or as stipulated by the Florida Department of Environmental Protection. Taps for chlorination and sampling shall be uncovered, constructed and backfilled by the Contractor, as shown on the Drawings. Sampling from fire hydrants shall not be allowed.
2. Disinfection Procedure: The disinfection and bacteriological testing procedure shall be as described in "a." through "h." below. No main shall be placed in service until the requirements of the State and County Environmental Health Department are met. Special disinfecting procedures shall be used for connections to existing mains, and where the method outlined below is not practical.
  - a. After the pressure and leakage tests are completed, the main shall be flushed thoroughly at a scouring velocity (through full pipe diameter) of at least 2.5 fps.
  - b. The section of pipe to be disinfected shall be isolated from the system.
  - c. A 3/4" valve or corporation stop shall be installed next to the inlet gate valve on new main as shown on the drawings. Chlorine shall be pumped through entire section of new main being tested. The chlorine and water shall be added to the line at the same time to provide uniform mixing and sufficient disinfection.
  - d. Select proper chlorine dose for section of pipe to be disinfected. In order to achieve a minimum chlorine residual of 50 mg/l after 24 hours, a minimum dose of 200 mg/l of chlorine must be fed into the isolated pipe section. Initial chlorine demand in the segment of pipe being disinfected may be substantial. Utilize chart entitled "Disinfectant Preparation Data" at the end of this section to determine

number of pounds of H.T.H. (calcium hypochlorite or other approved chlorine-containing chemical) for specific length and diameter of pipe. H.T.H. shall be mixed in 50-gallon drums. Not more than 5 pounds of chemical can be dissolved in a single 50-gallon drum.

- e. Chlorine solution shall then be pumped into the isolated segment of main and retained for 24 hours.
- f. After 24 hours, samples will be taken and analyzed by City personnel to ensure that there is a minimum of 50-mg/l chlorine residual. If minimum chlorine residual is not achieved, repeat steps "d." through "f."
- g. After obtaining a minimum chlorine residual of 50 mg/l, the isolated pipe section shall be flushed with potable water until normal system chlorine residuals are observed at the discharge end of the pipe.
- h. After flushing, bacteriological samples will be taken and analyzed by City personnel on two consecutive days. Results will be available approximately 24 hours after samples are taken. Charges for bacteriological samples are currently as follows:

Collection of samples (min 1 hour) = \$15/hour

Analyzing of samples = \$7/each

First and second sets of samples may be taken Monday through Wednesday. Second sets of samples may only be taken on Tuesday through Thursday. First sets of samples may not be taken on Thursdays and no samples may be taken on Fridays unless the City approves special provision. If two successive day bacteriological samples for an isolated section of pipe do not test negative, then step "h." shall be repeated.

**DISINFECTANT PREPARATION DATA**

TOTAL POUNDS OF 70% CALCIUM HYPOCHLORITE (H.T.H.)  
NEEDED TO DOSE AT 200 MG/L

LENGTH OF PIPE IN FEET

<u>SIZE IN INCHES</u>	<u>100'</u>	<u>200'</u>	<u>300'</u>	<u>400'</u>	<u>500'</u>	<u>600'</u>	<u>700'</u>	<u>800'</u>	<u>900'</u>	<u>1000'</u>
2"	.04	.08	.12	.16	.20	.23	.27	.31	.35	.38
4"	.16	.31	.47	.62	.78	.94	1.1	1.3	1.4	1.6
6"	.35	.71	1.1	1.4	1.8	2.1	2.5	2.8	3.1	3.5
8"	.64	1.3	1.9	2.5	3.1	3.7	4.3	5.0	5.6	6.2
10"	.98	2.0	2.9	3.9	4.8	5.8	6.8	7.7	8.7	9.7
12"	1.4	2.8	4.2	5.6	7.0	8.4	9.8	11.2	12.5	13.9
14"	1.9	3.8	5.7	7.6	9.5	11.4	13.3	15.2	17.1	19.0
16"	2.5	5.0	7.4	9.9	12.4	14.9	17.3	19.8	22.3	24.7
18"	3.1	6.3	9.4	12.5	15.7	18.8	21.9	25.1	28.2	31.3
20"	3.9	7.7	11.6	15.5	19.3	23.2	27.1	30.9	34.8	38.7

GALLONS OF WATER PER EACH FOOT

<u>SIZE</u>	<u>VOLUMES IN GALLONS</u>
2"	.16
4"	.65
6"	1.47
8"	2.61
10"	4.08
12"	5.88
14"	8.0
16"	10.44
18"	13.22
20"	16.32

INDEX

SECTION 7

CROSS CONNECTION CONTROL PROGRAM

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**SECTION 7**  
**CROSS CONNECTION CONTROL PROGRAM**

7.01 **INTRODUCTION:**

A cross connection is defined in the State of Florida Department of Environmental Protection (DEP) rules, Chapter 62-555.200, as "Any physical arrangement whereby a public water supply is connected, directly or indirectly with any other water supply system, sewer, drain, conduit, pool, storage, reservoir, plumbing fixture, or device which contains or may contain contaminated water, sewage or other waste, or liquid of unknown or unsafe quality which may be capable of imparting contamination to the public water supply as the result of backflow. By-pass arrangements, jumper connections, removable sections, swivel or changeable devices, and other temporary or permanent devices through which or because of which backflow could occur are considered to be cross connections." In accordance with Rule 62-555.360, "Cross connection, as defined in Rule 62-550.200, FAC., is prohibited." Therefore, cross connections and the chance of backflows must be eliminated to prevent degradation of the high quality potable water product that the City of Vero Beach strives to maintain.

With the enactment of the Florida Safe Drinking Water Act, the rules of the DEP were changed to include the following policy regarding a cross connection control program:

"Community water systems, and all public water systems that have service areas also served by reclaimed water systems regulated under Part III of Chapter 62-610, F.A.C., shall establish and implement a routine cross-connection control program to detect and control cross-connections and prevent backflow of contaminants into the water system. This program shall include a written plan that is developed using recommended practices of the American Water Works Association set forth in *Recommended Practice for Backflow Prevention and Cross-Connection Control*, AWWA Manual M14, as incorporated into Rule 62-555.330, F.A.C. Upon discovery of a prohibited cross connection, public water systems shall either eliminate the cross connection by installation of an appropriate backflow prevention device acceptable to the Department or shall discontinue service until the contamination source is eliminated." (62-555.360(2), (3), Florida Administrative Code.)

To comply with this mandate, the City of Vero Beach Water Distribution Division has developed the following Cross Connection Control and Backflow Prevention Policy.

The Water and Sewer Department is committed to the education of the public, as well as the enforcement of the policies contained in this program and will offer its assistance to help educate and inform those with an interest in protecting our drinking water now and for the future. We urge everyone to acquaint themselves with the policies and information presented in this manual.

## 7.02 OVERVIEW:

A. Purpose: The purpose of this policy is to protect the potable water supply of the City from the possibility of contamination through a cross connection with a system of unknown or questionable quality. It is also the intent of this policy to promote the elimination or control of existing cross connections, actual or potential, between the customers' in plant plumbing, fixtures or industrial piping and the public water supply; and to provide for a continuing program of cross connection control to effectively prevent the contamination of the potable water distribution system and monitor the maintenance of the existing backflow prevention devices. In addition, it is the intent of this policy to prevent water which has passed beyond the public water system and into the consumers' private distribution system from re-entering the public water distribution system and to ensure that those persons responsible for piping design incorporate the installation of appropriate backflow prevention devices on new and existing facilities.

### B. Causes of Backflow:

1. General: The causes of backflow usually cannot be totally eliminated since backflow is often initiated by accidents and circumstances beyond the purveyor's control. However, backflow can be minimized and controlled with good design and the installation and maintenance of appropriate backflow prevention devices. Listed below are some of the major causes of the two types of backflow; back siphonage and backpressure:
2. Backsiphonage: Back siphonage is caused by reduced or negative pressure being created in the supply piping. Typical causes of back siphonage include but are not limited to the following:
  - a. Line repair or break, which is lower than a service point. This will allow negative pressures to be created by water trying to flow to a lower point in the system.
  - b. Undersized piping if the water is withdrawn from a pipe at a very high velocity, the pressure in the pipe is reduced and the pressure differential created can cause water to flow into the pipe from a contaminated source.
  - c. Lowered pressure in water main due to high water withdrawal rate such as fire fighting, water main flushing, or water main breaks.
  - d. Reduced supply main pressure on suction side of a booster pump.

3. Backpressure: Backpressure may cause backflow to occur where a potable water system is connected to a non-potable system of piping, and the pressure in the non-potable system exceeds that in the potable system. Typical causes of backpressures are:
  - a. Booster pump systems designed without backflow prevention devices.
  - b. Potable water connections to boilers and other pressure systems without backflow prevention devices.
  - c. Connections with another system, which may, at times, have a higher pressure.
  - d. Water stored in tanks or plumbing systems, which, by virtue of their elevation, would create sufficient, head pressure to cause a backflow to the public water system if its system pressure is lower.

C. Definitions:

1. Air-Gap Separation - The term air-gap separation shall mean the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, or other device and the flood level rim of said open or non-pressure receiving vessel. An approved air-gap separation shall be a distance of at least two (2) times the diameter of the supply pipe measured vertically above the top rim of the vessel and, in no case, less than a distance of one (1) inch.
2. Approved - Accepted by the City of Vero Beach Water and Sewer Director as meeting an applicable specification stated or cited in this policy, or as suited for the proposed use.
3. Auxiliary Water Supply - Any water supply on or available to premises other than the purveyor's approved public potable water supply. These auxiliary waters may include, but are not limited to, water from a private non-potable water supply or any natural source(s) such as well, spring, river, stream, harbor, etc., or "used waters" or "industrial fluids". These waters may be contaminated or they may be objectionable and constitute an unacceptable water source over which the water purveyor does not have sanitary control.
4. Backflow - The flow of water or other liquids, mixtures or substances under pressure into the distributing pipes of a potable water supply system from any source(s) other than its intended source.



5. Backflow Prevention Device - A device that has been specifically designed to prevent backflow or back siphonage and has met the required standards of and been approved by one or more of the following:
  - a. A.W.W.A. - C-506 Standard for backflow prevention devices, Reduced Pressure Principle and Double Check Valve Type;
  - b. USC-FCCC - University of Southern California Foundation for Cross Connection Control and Hydraulic Research;
  - c. C.O.V.B.-W.S.D. - City of Vero Beach Water and Sewer Department.

The type of device used in any given situation shall be based on the degree of hazard, either existing or potential, as determined by the Department.

6. Back siphonage - The flow of water or other liquid, mixture or substance into the distributing pipes of a potable water supply system from any source other than its intended source by the sudden loss of pressure in the potable water supply system.
7. Backpressure - Backpressure shall mean any elevation of pressure in the downstream piping system (by pump, elevation of piping, or steam and/or air pressure) above the supply pressure at the point of consideration, which would cause, or tend to cause, a flow back into the distribution piping of the potable water supply system.
8. Check Valve - A valve that is drip-tight in the normal direction of flow when the inlet pressure is one psi. And the outlet pressure is zero. The check valve shall permit no leakage in a direction reverse to the normal flow. The closure element (e.g., clapper) shall be internally loaded to promote rapid and positive closure.
9. Contamination - An impairment of the quality of the potable water by any solid, liquid or gaseous compounds or mixtures which would create a potential or actual hazard to the public health, or would create an unacceptable taste, odor or color in the potable water.
10. Cross Connection - Any physical connection or arrangement of piping or fixtures between two otherwise separate piping systems, one of which contains potable water and the other non-potable water or industrial fluids of questionable safety through which, or because of which, backflow (from backpressure or back siphonage) may occur into the potable water system. A water service connection between a public potable water distribution system and

a customer's water distribution system which is cross connected to a contaminated fixture, industrial piping system, or a potentially contaminated supply or auxiliary water system, constitutes one type of cross connection. Other types of cross connections include connectors such as swing connections, removable sections, four-way plug valves, spools, dummy sections of pipe, swivel or changeover devices, sliding multiport tube, solid connections and the like.

11. Department - The City of Vero Beach Water and Sewer Department.
12. Director of Water and Sewer - The Director of Water and Sewer for the City of Vero Beach is vested with the authority and responsibility for the implementation of an effective cross connection program and for the enforcement of the provisions of this policy.
13. Double Check Valve Assembly - An assembly composed of two independently operating approved check valves, with tightly closing shut-off valves on each side of the check valves, plus properly located test cocks for the testing of each check valve independent of the other. The entire assembly shall meet the design and performance specifications and approval of a backflow prevention device.
14. Hazard, Degree of - The term degree of hazard is a qualification of what potential and actual risk to public health may result from cross connections within water using facility and the adverse effect of the hazard upon the potable water system. Establishing the degree of hazard is directly related to the type and toxicity of contaminants that could feasibly enter the public water supply system and is determined by the Department.
15. Hazard, Health - The term health hazard shall mean an actual or potential threat of contamination or pollution of a physical or toxic nature to the public potable water system or the consumer's potable water system to such a degree or intensity that there would be a danger to health.
16. Industrial Piping System, Consumer's - the term consumer's industrial piping system shall mean any system used by the consumer for the transmission of or to store any fluid, solid or gaseous substance other than an approved water supply. Such a system would include all pipes, conduits, tanks, receptacles, fixtures, equipment and appurtenances to produce, convey or store substances, which are or may be polluted or contaminated.
17. Non-Potable Water - Water which is not safe for human consumption or which is of questionable potability.

18. Pollution - The presence of any foreign substance (organic, inorganic, or biological) in the water which tends to degrade its quality so as to constitute a hazard or impair the usefulness or quality of the water to a degree which may or may not create an actual hazard to public health, but which does adversely and unreasonably affect such waters for domestic use.
19. Purveyor or Water Purveyor - The owner or operator of the public potable water system supplying an approved water supply to the public.
20. Potable Water - Any water that, according to recognized standards, is safe for human consumption.
21. Reduced Pressure Principle Backflow Preventer - An assembly composed of two independently operating approved check valves, with an automatically operating differential pressure relief valve between two tightly closing shut-off valves on each side of the check valves, plus properly located test cocks for the testing of each check valve and relief valve independent of the other. The entire assembly shall meet the design, performance specifications and approval of a recognized and City-approved testing agency for backflow prevention devices. The device shall operate to maintain the pressure in the zone between the two check valves at a level less than the pressure on the public water supply side of the device. At cessation of normal flow, the pressure between the two check valves shall be less than the pressure on the public water supply system side of the device. In case of leakage of either of the check valves, the differential relief valve shall operate to maintain the reduced pressure in the zone between the two check valves by discharging to the atmosphere. When the inlet pressure is 2 psi. Or less, the relief valve shall open to the atmosphere. For the installation of this type of device to be approved, it shall be readily accessible for in-line testing and maintenance and the lowest point on the valve shall be a minimum of twelve (12) inches above the ground level. \*(The check valves shall meet the same specifications as the check valves in a double check valve assembly.)
22. Service Connection - The terminal end of the public potable water system; where the purveyor loses jurisdiction and sanitary control over the water at its point of delivery to the customer's water system. If a meter is installed at the service connection, the service connection shall mean the downstream end of the meter. "Service Connection" shall also include water service connections from a fire hydrant and all other temporary or emergency water service connections from the public potable water system.
23. Water System - The water system shall be considered as made up of two parts - the customer system and the potable (utility) system.

- a. The "Customer System" shall include those parts of the facilities beyond the termination of the public potable water distribution system which are utilized in conveying utility-delivered domestic water to points of use within the customer's property.
- b. The "Public Potable (Utility) System" shall consist of the source facilities and the distribution system; and shall include all those facilities of the water system under the complete control of the Department, up to the point where the customer's system begins (meter). The SOURCE shall include all components of the facilities utilized in the production, treatment, storage, and delivery of the water to the distribution system. The DISTRIBUTION SYSTEM shall include the network of the conduits used for the delivery of water from the source to the customer's system.

7.03 RESPONSIBILITY:

- A. City of Vero Beach Cross Connection Control Program: The responsibilities of the City's Cross Connection Control Program, in compliance with Chapter 62-555.360 of the F.A.C. are as follows:
  1. To protect the City's public water supply from the possibility of contamination by isolating within its consumers' private water systems, contaminants or pollutants which could under adverse conditions backflow through uncontrolled cross connections into the public water system.
  2. To eliminate or control existing cross connections, actual or potential, between the consumer's in plant potable water system(s) and non-potable water system(s), plumbing fixtures and industrial piping systems.
  3. To provide a continuing inspection program of cross connection control to ensure the proper maintenance of existing backflow prevention devices and to systematically and effectively control all actual or potential cross connections, which may be installed in the future.
- B. Customers: The customer's responsibility starts at the point of delivery from the public potable water system and includes all of his water systems. The customer, at his own expense, will install, maintain and have tested once a year, an approved backflow prevention device as directed by the department. In the event of accidental pollution or contamination of the public or consumer's potable water system due to backflow on or from customer's premises, the owner shall promptly take steps to confine the further spread of pollution or contamination within the customer's premises, and shall immediately notify the Department of the hazardous

condition.

- C. Backflow Prevention Device Installers: The installer's responsibility is to make installation of backflow prevention devices in accordance with the manufacturer's installation instructions and in compliance with the City of Vero Beach Water and Sewer Department Standards and Specification Details. The installer is also responsible to make sure a device is working properly at the time of installation and is required to submit a completed Backflow Device Installation Report to the Cross Connection Control Program immediately upon a reduced pressure principle backflow preventer (R.P.Z.) or double check valve assembly (D.C.V.A.) being installed. All R.P.Z and D.C.V.A devices are required to be tested following installation and prior to use by a certified backflow prevention device technician. A Backflow Device Installation Report (C.C.C.P. Form 100) shall be filed with the Department for final approval and prior to service commencement.

#### 7.04 INSPECTIONS:

- A. Frequency of Inspections: Due to changes in models or components of equipment, methods of manufacturing and additions to plants, buildings, etc., water use requirements undergo continual change. As a result, new cross connections may be installed and existing protection may be bypassed, removed, or otherwise ineffective. Therefore, the customer shall conduct an annual or biennial survey of water use practices on his premises to determine whether there are any actual or potential cross connections in the consumer's water system through which contaminants or pollutants could flow back into the public water system or the consumer's potable water system.
- B. Proposed Construction: All new proposed construction plans and specifications shall be reviewed by the Department to determine the degree of possible hazard. This review shall determine the backflow prevention requirements necessary to comply with this Backflow Prevention Control Policy.
- C. New and Existing Facilities: In order to determine the degree of hazard to the public potable water system, a survey will be made of the consumer's presently installed water system. This survey need not be a detailed inspection of the location or disposition of the water lines, but can be confined to establishing the water uses on the premises, the existence of cross connections, and the availability of auxiliary or used water supplies. On-site inspections are made of the new and existing facilities based upon information gathered in the survey. Should the installation of any backflow prevention devices be necessary or changes in plumbing be required, a follow-up inspection shall be made at a later date to verify compliance.

All premises of the type where cross-connections are suspect may be surveyed by

the Department to determine if a detailed inspection will be required. The owners of the suspected premises shall be notified in writing 30-days in advance to secure an appointment for inspection of the premises. The owner or his authorized representative may accompany the inspector during the tour of the premises.

The inspector shall complete an inspection form. The owner shall be made aware of any corrective measures that need to be made. All official letters of notification shall be sent to the owner indicating what corrective measures must be taken. Upon conformance with the requirements in the notification letter, the owner shall immediately notify the City to schedule a date for re-inspection.

All existing facilities, which qualify as cross connection risks, will be retrofitted with backflow prevention devices appropriate to their classification, on the customer's side of the meter or point of service. Proof of proper operation of the device must be submitted to the Department; said statement being signed by a recognized, certified tester.

In the event that the report is not received within 90-days of notification, service will be immediately discontinued unless a schedule of compliance has been submitted to, and approved by the City of Vero Beach Water and Sewer Department.

The customer shall be responsible for any and all applicable fees, charges, or other costs associated with retrofitting.

The customer will be responsible for the annual or more frequent re-testing, maintenance, repair, or replacement of the device. The requirements for more frequent testing will be determined on a case-by-case basis by the Water Department, primarily upon the degree of hazard and results of previous testing. Any work done to, or testing of, the device shall be reported to the Department within 7-days of the occurrence.

7.05 CROSS CONNECTION HAZARDS AND REQUIRED PROTECTIONS:

A. Type of Backflow Protection required - General: An approved backflow prevention device of the type designated shall be installed on each water service connection to the following types of facilities. This list is presented as a guideline and should not be construed as being complete. Abbreviations used are as follows:

- |            |   |  |
|------------|---|--|
| A.G.       | - | Air Gap                                  |
| R.P.Z.     | - | Reduced Pressure Zone Backflow Preventer |
| D.C.V.A.   | - | Double Check Valve Assembly              |
| D.D.C.V.A. | - | Detector Double Check Valve Assembly     |

\* - Parallel Installations - Installations  
Requiring Continuous Service

1. Type of Facility - Minimum Type of Protection:

Breweries, Distilleries, Bottling Plants	D.C.V.A.
Car Wash with Recycling System and/or Wax Applicator	R.P.Z.
Chemical Plants	R.P.Z.
Dairies	D.C.V.A.
Dentist Offices	R.P.Z.
Fertilizer Plants	R.P.Z.
Film Laboratories or Processing Plants	R.P.Z.
Food or Beverage Plants	D.C.V.A.
Hospitals, Clinics, Medical Buildings	R.P.Z.*
Irrigation Systems	
With Chemical Injection and/or Auxiliary Pump	R.P.Z.
Without Chemical Injection and/or Auxiliary Pump	D.C.V.A.
Laboratories	R.P.Z.
Laundries & Dry Cleaning Plants	D.C.V.A.
Metal Processing Plants	R.P.Z.
Metal Plating Plants	R.P.Z.
Morgues or Mortuaries	R.P.Z.
Nursing Homes	R.P.Z.
Packing Houses or Rendering Plants	R.P.Z.
Paper Products Plants	R.P.Z.
Pesticides (Exterminating Companies)	R.P.Z.**
+ Overhead Fill Pipes	A.G. **
Petroleum Processing Plants	R.P.Z.
Petroleum Storage Yards	R.P.Z.
Pharmaceutical or Cosmetic Plants	R.P.Z.
Piers, Docks, or Waterfront Facilities	R.P.Z.
Power Plants	R.P.Z.
Restaurants	R.P.Z.
Sand and Gravel Plants	D.C.V.A.
Schools	R.P.Z.
Swimming Pools with Pipe Fill Lines	D.C.V.A.
Sewage Treatment Plants	R.P.Z.
Sewage Pumping or Lift Stations	R.P.Z.
Tall Buildings, Three or More Stories High	D.C.V.A.*
Veterinary and Animal Boarding Establishments	R.P.Z.

2. Type of Premises - Minimum Type of Protection: In addition to and including

those types of facilities listed above, an approved backflow prevention device of the type designated shall be installed on each domestic water service connection to any commercial premises containing the following real or potential hazards:

Premises having an auxiliary water system not connected to the public water system. R.P.Z.

Premises having a water storage tank, reservoir, pond, or similar appurtenance. R.P.Z.

Premises having a steam boiler, cooling system, or hot water heating system where chemical water conditioners are used. R.P.Z.

Premises having submerged inlets to equipment. R.P.Z.

Premises having self-draining yard hydrants, fountains, hose boxes or similar devices presenting a health or system hazard (i.e., chemical storage plants, tank farms, bulk storage yards). R.P.Z.

Premises having self-draining yard hydrants, fountains, hose boxes or similar devices presenting a pollutional hazard (i.e., parks, play fields, cemeteries). R.P.Z.

Premises receiving irrigation water through the City or other Reuse Irrigation systems. D.C.V.A.

Others as specified by the Department.

3. Exterminating Companies\*\*: All tanks, tank trucks, and spraying apparatus used to convey pesticides in an exterminating process are required to use only designated-protected potable water fill locations. Filling with potable water at unspecified locations or private residences is prohibited. All filling locations will consist of overhead piping arrangements and reduced pressure zone backflow prevention devices. All filling locations must be approved by the Department.

- B. Type of Backflow Protection Required - Fire Systems: An approved backflow prevention device of the type designated shall be installed on each fire protection service to any premises where the fire protection system contains any of the following components unless the Department determines that no real or potential health, pollutional, or system hazard to the water supply system exists. Fire systems may be divided into two (2) general classes. The following are typical:



Class 1 - A closed automatic fire system **without** a pumper connection, auxiliary water supply system or a closed pressure tank supply system. D.D.C.V.A.

Class 2 - A closed automatic fire system **with** a pumper connection, auxiliary water supply system, or a closed pressure tank supply system. R.P.Z.

C. Type of Backflow Protection Required - Other Cross Connection Hazards:

1. Fixture Inlets and Valve Outlets with hose attachments which may constitute a cross connection shall be protected by the proper approved vacuum breaker installed at least six (6) inches above the highest point of usage and located on the discharge side of the last valve. Fixtures with integral vacuum breaker manufactured as a unit may be installed in accordance with their approved requirements.
2. Air Conditioning Cooling Tower - Potable water inlet shall have an A.G. separation of twice the inside diameter of the inlet line or a minimum of two (2) inches above the flood level.
3. Aspirators and Ejectors - Shall have an atmospheric vacuum breaker or a pressure vacuum breaker, depending upon the degree of hazard, on the faucet from which these devices are attached or operated.
4. Booster Pumps - All booster pumps shall be provided with a low-pressure cutoff unless other acceptable provisions are made to prevent the creation of low or negative pressures in the piping system.
5. Private Wells - Shall not be interconnected with the public potable water supply.
6. Portable Spraying and Cleaning Company Equipment - Any portable pressure spraying or cleaning units that have the capability of connecting to any potable water supply and do not contain a built-in approved air gap shall be fitted with a R.P.Z. or D.C.V.A. depending on the degree of hazard.
7. Reuse Irrigation Systems - The interconnection of the public potable water supply and any reuse irrigation system is prohibited.
8. Miscellaneous Uses of Water from Fire Hydrants - The operation of fire hydrants by other than authorized personnel is prohibited. The Department may permit the use of water from a fire hydrant for construction or other purposes, provided the applicant shall apply for and adhere to backflow requirements on the hydrant permit.

NOTE: the City of Vero Beach Water and Sewer Department will examine any device, equipment, or situation not covered by this cross connection policy, which may constitute a potential health hazard, for appropriate treatment.

7.06 REUSE APPLICATION/DISTRIBUTION SYSTEMS:

A. Prohibitions:

1. Cross connection between any reclaimed water irrigation system and the public potable water system is prohibited.
2. Reclaimed water shall not enter a dwelling unit or a building containing dwelling units and use for toilet flushing or fire protection is prohibited.
3. The use of reclaimed water for the filling of swimming pools, hot tubs, spas or wading pools is prohibited.
4. The use of reclaimed water for the purpose of irrigating landscaped areas with tank trucks is prohibited except where the following requirements are fulfilled:
  - a. All applicable requirements in Part III of Rule 17-610 F.A.C. are met;
  - b. The truck used to transport and distribute reclaimed water is not used to transport potable water that is used for drinking water; and
  - c. The truck used to transport reclaimed water is not used to transport waters or other fluids that do not meet, at a minimum the requirements of Part III of Rule 17-610 F.A.C., unless the tank has been evacuated and properly cleaned prior to the addition of the reclaimed water.

B. Hose Bib Connections: All hose bib connections on reclaimed irrigation systems are prohibited.

C. Construction:

1. Maximum obtainable separation of reclaimed water lines and domestic water lines shall be practiced. A minimum horizontal separation of five (5) feet (center to center) and three (3) feet (outside to outside) shall be maintained between reclaimed water lines and both potable water mains and sewage collection lines. Sewers crossing under reclaimed water lines shall be laid a minimum vertical distance of 18-inches between the invert of the upper pipe and the crown of the lower pipe. Where this minimum separation cannot be maintained, the crossing shall be arranged so that the sewer pipe joints and the reclaimed water main joints are equidistant from the point of crossing with no

less than 10-feet between any two joints. Alternatively, the sewer main may be placed in a sleeve or encased in concrete to obtain the equivalent of the required 10-foot separation.

2. Where other surface water or ground water sources are used to supplement large users of reclaimed water for irrigation purposes (i.e., golf courses), the surface or ground water pipe shall be protected from contamination by means of an air gap (A.G.) or double check valve assembly (D.C.V.A.) backflow preventer.

D. Color Coding:

1. Pipe

- a. All reclaimed water piping, pipelines. Valve box lids and appurtenances are to be color-coded **purple**.
  - b. All P.V.C. pipelines are to be equipped with a continuous 14 gauge solid THHN electrical trace wire and shall be **purple** in color.
  - c. All ductile iron pipe shall have permanent marking tape with the words "REUSE WATER MAIN" printed in one-inch letters every 24-inches along the tape attached to the pipe for the entire length of the pipe.
  - d. Similar marking tape shall be placed in the trench over both the P.V.C. and ductile iron pipe, six to twelve inches below finished grade for the entire length of the pipe.
2. All valve boxes, meter boxes, meters, sprinkler control valves and sprinkler heads on the reuse system shall be color code identified using **OSHA Safety Purple** (Plum Safety Purple). All valves shall be tagged with 3" x 3" laminated tags inscribed with the City of Vero Beach Reuse Irrigation System symbol.
  3. The City of Vero Beach Standard Specifications and Details provides for the construction standards of all new construction within the service territory of the Water and Sewer Department. Those specifications provide for the following color coding and marking of the water and sewer piping system:

Water: P.V.C. pipe shall be **blue** in color or **white with blue lettering** with the words "Water Main" and shall have a #14 THHN **blue** trace wire attached for locating purposes. Ductile iron pipe shall have permanent marking tape, with the words "Water Main" printed with minimum one-inch high letters every 24-inches along the tape, and it shall be attached to the pipe along the entire length of pipe.

Sewer Force Mains: P.V.C. pipe shall be **brown** in color or **white with brown lettering** with the words "Sewer Force Main" and shall have a #14 THHN **brown** trace wire attached for locating purposes. Ductile iron pipe shall have permanent marking tape with the words "Sewer Force Main" printed with minimum one-inch high letters every 24-inches along the tape and it shall be attached to the pipe along the entire length of pipe.

Sewer Gravity Mains: P.V.C. pipe shall be **green** in color and shall have a #14 THHN **green** trace wire attached for locating purposes. Where sections of poly-lined ductile iron pipe are used for protection and crossing water lines, the trace wire shall be continuous, uninterrupted and attached to the pipe.

E. Residential Irrigation Systems:

1. The potable water service line to all single-family residential properties which are serviced by reclaimed irrigation water shall have an approved dual check valve installed immediately downstream of the potable water meter.
2. The potable water service line to all multi-family residential properties which are serviced by reclaimed irrigation water shall have, at a minimum, an approved double check valve backflow preventer installed immediately downstream of the potable water meter. In cases where the multi-family residential property is required to have a reduced pressure zone backflow preventer installed on the fire service line, an approved reduced pressure zone backflow preventer shall be installed on the potable water service line in place of the double check valve assembly. (See Section 7.05 (B) for type of backflow prevention required for Fire Protection Systems.)

NOTE: Specific details regarding the construction standards for the reuse system can be found in the City of Vero Beach Standard Specifications and Details.

7.07 TESTING BACKFLOW PREVENTERS:

- A. General: It shall be the duty of the customer/user at any premises where reduced pressure zone backflow prevention devices (R.P.Z.), double check valve assemblies (D.C.V.A.) and double detector check valve assemblies (D.D.C.V.A.) are installed to have thorough inspections and operational tests made at least once a year, or more often in those instances where inspections indicate the need. These inspections and tests shall be at the expense of the water user and be performed by the City of Vero Beach Water Department or by a certified device technician. The Water Department will notify the customer/user when tests are required and supply the necessary test forms and instructions. These forms shall be completed and

returned to the Water Department by the date indicated.

- B. Procedures: All backflow prevention devices with test cocks are required to be tested with a minimum frequency of once per year. Testing requires water shut down usually lasting 5 to 30 minutes. For facilities that require uninterrupted supply of water, and when it is not possible to provide water service from two separate meters, provisions shall be made for a "parallel installation" of backflow prevention devices.

Multi-story buildings, which have a number of flush meter toilets, should be equipped with parallel devices. Experience has shown that if the water supply is shut off to this type of building, flush meters may have to be reset manually.

The parallel installation permits one device to be left on while the other is being tested or serviced. Usually, the two devices are sized one device smaller than the service line, e.g. one 2-inch device or two 1-inch devices, one 8-inch device or two 6-inch devices.

The Department shall not accept an unprotected bypass around a backflow preventer when the device is in need of testing, servicing or replacement.

#### 7.08 PENALTIES FOR NON-COMPLIANCE:

Termination of Service: A written notification detailing all cross connections found during the inspection will be sent to the owner of the building or premises, stating that corrections must be made and setting a reasonable time for compliance. Upon failure of the owner or authorized agent of the owner of the building or premises to have the defect(s) corrected by the specified time, the Department will cause the water service to the building or premises to be terminated. The Water Department shall cause discontinuance of water service if a required backflow prevention device has been bypassed or failed to be tested or properly maintained as required by this policy statement.

## City of Vero Beach Ordinance

### **Sec. 78-201. Definitions.**

Except as provided in this section, terms used in this article shall be defined in chapter 2, Definitions, Standard Plumbing Code, Southern Building Code Congress International, Inc., 1994 edition, as it now exists or as it may hereafter be amended. As used in this article, the following words and terms shall have the meanings respectively ascribed to them in this subsection:

*AWWA Standard* means the American Water Works Association Standard for Cold-Water Meters Displacement Type, Bronze Main Case, AWWA C700, and Compound Type, AWWA C702, as it now exists or as it may hereafter be amended.

*Booster pump* means any device installed on the customer's property, which increases water pressure.

*City manager* means the city manager and any of his authorized designees.

*Cross connection* means any physical arrangement whereby a public water supply is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, or other device which contains or may contain contaminated water, sewage or other waste, or liquid of unknown or unsafe quality which may be capable of imparting contamination to the public water supply as the result of backflow. Bypass arrangements, jumper connections, removable sections, swivel or changeable devices, and other temporary or permanent devices through which or because of which backflow could occur are considered to be cross connections.

*Demand rate* means the rate of water usage in gallons per minute.

*Fixture unit* means a relative measure of water demand required by any water fixture according to its size, type, and the nature of the building occupancy.

*Hose bib* means the valve and connection for garden or appliance hose.

*Potable water* means water intended for human consumption supplied from the city water system.

*Reclaimed/reuse water* means water that is provided through a separate distribution system, available for reuse as nonpotable water after receiving treatment as required by the state department of environmental protection.

*Standard Plumbing Code* means the Standard Plumbing Code, Southern Plumbing Code Congress International, Inc., 1994 edition, as it now exists or as it may hereafter be amended.

*Water fixture* means any faucet, water closet, appliance, or other device planned to use city water.

(Code 1982, § 19.01; Ord. No. 97-14, § 1, 5-20-1997)

**Cross references:** Definitions and rules of construction, § 1-2.

**Sec. 78-206. Cross connection prohibited; cross connection control program established.**

- (a) Cross connection, as defined in section 78-201, is prohibited. No person shall construct, operate, maintain, or allow to remain present on property owned or controlled by such person, any device or system which is not in compliance with all provisions of this section article relating to cross connection.
  - (1) The person who owns or controls property upon which such a noncomplying device or system is found shall be liable to the city for an amount equal to the costs incurred by the city in the removal of the noncomplying device or system and the costs incurred by the city for replacement of the noncomplying device or system, and any damage done by the noncomplying device or system; and
  - (2) Any customer whose plumbing or irrigation systems are in violation of this section or the rules and regulations promulgated hereunder shall be subject to immediate discontinuance of all potable water and reclaimed utility service.
- (b) The city manager shall promulgate and from time to time amend, in accordance with requirements imposed by the state department of environmental protection, rules and regulations restricting or prohibiting cross connection. Such rules and regulations shall be referred to as "The Cross Connection Control Program." Copies of the cross connection control program shall be available at the office of customer service director and at the office of the water and sewer department.

(Code 1982, § 19.06; Ord. No. 97-14, § 1, 5-20-1997)