LEE COUNTY
SOUTHWEST FLORIDA

Advertise Date: Tuesday, April 24, 2018

Lee County Board of County Commissioners
DIVISION OF PROCUREMENT MANAGEMENT

Invitation to Bid (B)
Construction

Solicitation No.:	B180248RJD
Solicitation Name:	Orange Grove Blvd from Pondella Rd to Hancock Bridge Pkwy Water Main Improvements
Open Date/Time:	**Friday, May 25, 2018** Time: **2:30 PM**
Location:	Lee County Procurement Management 1500 Monroe Street 4th Floor Fort Myers, FL 33901
Procurement Contact:	Robin Dennard Title Buyer
Phone:	(239) 533-8881 Email: **rdennard@leegov.com**
Requesting Dept.	Utilities

Pre-Bid Conference:

Type: NON-Mandatory

Date/Time: **5/2/2018 10:00 AM**

Location: Procurement: Public Works Building, 1500 Monroe St 4th Floor, Fort Myers, FL 33901

All solicitation documents are available for download at
www.leegov.com/procurement

Electronic bidding is coming! Visit www.leegov.com/bid to stay informed

LEE COUNTY
SOUTHWEST FLORIDA

Advertisement Date: **Tuesday, April 24, 2018**

Notice to Bidder
Invitation to Bid #B180248RJD Orange Grove Blvd from Pondella Rd to Hancock Bridge Pkwy Water Main Improvements

Invitation to Bid (B) Construction

Lee County, Florida, is requesting bids from qualified individuals/firms for
Orange Grove Blvd from Pondella Rd to Hancock Bridge Pkwy Water Main Improvements
Then and there to be publicly opened and read aloud for the purpose of selecting a vendor to furnish all necessary labor, services, materials, equipment, tools, consumables, transportation, skills and incidentals required for Lee County, Florida, in conformance with solicitation documents, which include technical specifications and/or a scope of work.

Those individuals/firms interested in being considered for this solicitation are instructed to submit, in accordance with specifications, their Bids, pertinent to this project prior to

2:30 PM Friday, May 25, 2018

to the office of the **Procurement Management Director, 1500 Monroe Street, 4th Floor, Fort Myers, Florida 33901**. The Invitation to Bid shall be received in a sealed envelope, prior to the time scheduled to receive Bid(s), and shall be clearly marked with the solicitation name, solicitation number, bidder name, and contact information as identified in these solicitation documents.

The Scope of Work/Specifications for this solicitation is available from www.leegov.com/procurement Bidders who obtain Scope of Work/Specifications from sources other than www.leegov.com/procurement are cautioned that the solicitation package may be incomplete. The County's official bidders list, addendum(s) and information must be obtained from www.leegov.com/procurement. It is the bidder's responsibility to check for posted information. The County may not accept incomplete Bids.

A Non-Mandatory Pre-Bid Conference has been scheduled for the following time and location:
10:00 AM May 2, 2018 Public Works Building, 1500 Monroe St. 4th Floor, Fort Myers, FL 33901
for the purpose of discussing the proposed project. Prospective bidders are encouraged to attend. All prospective bidders are encouraged to obtain and review plans, specifications, and scope of work for this bid before the pre-bid conference so that they may be prepared to discuss any question or concerns they have regarding this project. A site visit may follow the pre-bid conference. Questions regarding this solicitation are to be directed, in writing, to the individual listed below using the email address listed below or faxed to (239) 485 8383 during normal working hours.

Robin Dennard, rdennard@leegov.com

Sincerely,

Laurie Victory, CPPB
Procurement Manager
*WWW.leegov.Com/Procurement is the County's official posting site

Terms and Conditions
INVITATION TO BID (B)
CONSTRUCTION

1 DEFINTIONS

1.1 **Addendum/Addenda**: A written change, addition, alteration, correction or revision to a bid, proposal or contract Agreement/Contract. Addendum/Addenda may be issued following a pre-bid/pre-proposal conference or as a result of a specification or work scope change to the solicitation.

1.2 **Approved Alternate**: Solicitation documents may make reference of specific manufacturer(s) or product(s). These references serve only as a recommendation and a guide to minimum quality and performance. The references are not intended to exclude approved alternatives of other manufacturer(s) or product(s).

1.3 **Bid/Proposal Package**: A bid/proposal is a document submitted by a vendor in response to some type of solicitation to be used as a basis for negotiations or for entering into a contract.

1.4 **Bidder/Responder/Proposer**: One who submits a response to a solicitation.

1.5 **County**: Refers to Lee County Board of County Commissioners.

1.6 **Due Date and Time/Opening**: Is defined as the date and time upon which a bid or proposal shall be submitted to the Lee County Procurement Management Division. Only bids or proposals received prior to the established date and time will be considered.

1.7 **Liquidated Damages**: Damages paid usually in the form of monetary payment, agreed by the parties to a contract which are due and payable as damages by the party who breaches all or part of the contract. May be applied on a daily basis for as long as the breach is in effect.

1.8 **Procurement Management**: shall mean the Director of Lee County's Procurement Management Department or designee.

1.9 **Responsible**: A vendor, business entity or individual who is fully capable to meet all of the requirements of the bid/proposal solicitation documents and subsequent contract. Must possess the full capability including financial and technical, to perform as contractually required. Must be able to fully document the ability to provide good faith performance.

1.10 **Responsive**: A vendor, business entity or individual who has submitted a bid or request for proposal that fully conforms in all material respects to the bid/proposal solicitation documents and all of its requirements, including all form and substance.

1.11 **Solicitation**: An invitation to bid, a request for proposal, invitation to negotiate or any document used to obtain bids or proposals for the purpose of entering into a contract.

2 ORDER OF PRECEDENCE

2.1 In resolving conflicts, errors, and discrepancies, the order of precedence of the bid document is as follows

2.1.1 Florida State Law as applied to Municipal Purchasing in accordance with Title XIX, "Public Business", Chapter 287 "Procurement of Personal Property and Services."
2.1.2 Lee County Procurement Management Manual and Ordinances
2.1.3 Change Order
2.1.4 Agreement
2.1.5 Addenda
2.1.6 Special Conditions
2.1.7 General Conditions, if any
2.1.8 Specifications
2.1.9 Supplemental Information
2.1.10 Drawings/Plans, if any
2.1.11 Figure Dimensions, if any
2.1.12 Scale Dimensions (Large Scale Drawings supersede Small Scale Drawings)
2.1.13 Terms and Conditions

3 RULES, REGULATIONS, LAWS, ORDINANCES AND LICENSES

3.1 It shall be the responsibility of the bidder to assure compliance with all other federal, state, or county codes, rules, regulations or other requirements, as each may apply. Any involvement with the Lee County shall be in accordance with but not limited to:

3.1.1 Lee County Procurement Management Manual

3.1.2 Pursuant to FL § Section 119.071, Public Records, General exemptions from inspection or copying of public records. Sealed bids, proposals or replies received by the agency pursuant to a solicitation are exempt from public records request (s. 119.07(1) and s. 24(a), Art. I, of the State Constitution until such time as the agency provides notice of an intended decision or until 30 days after opening the bids, proposals or final replies, whichever is earlier.

3.1.3 FL § 215 regarding scrutinized companies and business operations.

3.1.4 FL § 218 Public Bid Disclosure Act.

3.1.5 Florida State Law as applied to Municipal Purchasing in accordance with Title XIX, "Public Business", Chapter 287 "Procurement of Personal Property and Services."

3.1.6 FL § 337.168 Confidentiality of official estimates, identities of potential bidders, and bid analysis and monitoring system.

3.1.7 FL § Section 607.1501(1) states: A foreign corporation may not transact business in the State of Florida until it obtains a certificate of authority from the Department of State.

3.2 **Local Business Tax Account**: As applicable, anyone providing merchandise or services to the public within the jurisdiction of Lee County must obtain a Lee County business tax account to operate unless specifically exempted.

3.3 **License(s)**: Bidder should provide, at the time of the opening of the bid, licenses required for this product and/or service.

4 BID – PREPARATION OF SUBMITTAL

4.1 **Sealed Bid:** Submission must be in a sealed envelope/box, and the outside of the submission must be marked with the following information (Sealed Bid Label Form is attached for your use):

4.1.1 Marked with the words "Sealed Bid"

4.1.2 Bid Number

4.1.3 Bid Title

4.1.4 Bid Due Date

4.1.5 Name of the firm submitting the bid

4.1.6 Contact e-mail and telephone number

4.2 **Bid submission shall include**:

4.2.1 Provide two (2) hard copies. Mark each: one "Original", one "Copy"

4.2.2 Provide one (1) electronic CD ROM or flash drive set of the entire submission documents.

4.2.3 Electronic submission document is to be one single Adobe PDF file in the same order as the original hard copy.

4.2.4 Limit the color and number of images to avoid unmanageable file sizes.

4.2.5 Use rewritable CD ROM and do not lock files.

4.3 **Submission Format**:

4.3.1 Required Forms: complete and return **all** required forms. If the form is not applicable please return with "Not Applicable" or "N/A" in large letters across the form.

4.3.2 Failure to submit required or requested information may result in the bidder being found non-responsive.

4.3.3 Execution of Bid: All documents must be properly signed by corporate authorized representative, witnessed, and where applicable corporate and/or notary seals affixed. All Bids shall be typed or printed in ink. The bidder may not use erasable ink. All corrections made to the bids shall be initialed.

4.3.4 If a cost/bid schedule was provided in Microsoft Excel format, the returned completed schedule should be included as a Microsoft Excel File on the CD ROM or Flash drive.

4.3.5 The submission should not contain links to other web pages.

4.3.6 Include any information requested by the County necessary to analyze your bid, i.e., required submittals, literature, technical data, financial statements.

4.3.7 Bid Security/Bond(s), as applicable (Construction projects)

4.4 **Preparation Cost**: The Bidder is solely responsible for any and all costs associated with responding to this solicitation. No reimbursement will be made for any costs associated with the preparation and submittal of any bid, or for any travel and per diem costs that are incurred by any Bidder.

5 RESPONSES RECEIVED LATE

5.1 It shall be the Bidder's sole responsibility to deliver the bid submission to the Lee County Procurement Management Division prior to or on the time and date stated. All references to date and time herein reference Lee County, FL local time.

5.2 Any bids received after the stated time and date will not be considered. The bid shall not be opened at the public opening. Arrangements may be made for the unopened bid to be returned at the bidder's request and expense.

5.3 The Lee County Procurement Management Division shall not be responsible for delays caused by the method of delivery such as, but not limited to; internet, United States Postal Service, overnight express mail service(s), or delays caused by any other occurrence.

6 BIDDER REQUIREMENTS (unless otherwise noted)

6.1 **Responsive and Responsible**: Only bids received from responsive and responsible bidders will be considered. The County reserves the right before recommending any award to inspect the facilities and organization; or to take any other necessary action, such as background checks, to determine ability to perform is satisfactory, and reserves the right to reject submission packages where evidence submitted or investigation and evaluation indicates an inability for the bidder to perform.

6.1.1 Bids may be declared "non-responsive" due to omissions of "Negligence or Breach of Contract" on the disclosure form. Additionally, bidders may be declared "not responsible" due to past or pending lawsuits that are relevant to the subject procurement such that they call into question the ability of the bidder to assure good faith performance. This determination may be made by the Procurement Management Director, after consulting with the County Attorney.

6.1.2 Additional sources may be utilized to determine credit worthiness and ability to perform.

6.1.3 Any bidder or sub-contractor that will have access to County facilities or property may be required to be screened to a level that may include, but is not limited to fingerprints, statewide criminal. There may be fees associated with these procedures. These costs are the responsibility of the bidder or sub-contractor.

6.2 **BID--Past Performance**: Bidders past performance and prior dealings with Lee County (i.e., failure to meet specifications, poor workmanship, late delivery, etc.) may be reviewed. Poor or unacceptable past performance may result in bidder disqualification.

6.3 Submission packages, unless otherwise noted, will be considered only from bidders normally engaged in the provision of the services specified here in. The bidder shall have adequate organization, facilities, equipment, and personnel to ensure prompt and efficient service to Lee County. The County reserves the right before recommending any award to inspect the facilities and organization; or to take any other action necessary to determine ability to perform satisfactorily, and reserves the right to reject submission packages where evidence submitted or investigation and evaluation indicated an inability of the bidder to perform.

7 PRE-BID CONFERENCE

7.1 A pre-bid conference will be held in the location, date, and time specified on the cover of this solicitation. The cover will also note if the pre-bid conference is Non-Mandatory or Mandatory. All questions and answers are considered informal. All prospective bidders are encouraged to obtain and review the solicitation documents prior to the pre-bid conference so they may be prepared to discuss any questions or concerns they have concerning this project. All questions must be submitted formally in writing to the procurement staff noted on the first page of the bid document. A formal response will be provided in the form of an addendum (see "County Interpretation/Addendums" for additional information.) A site visit may follow the pre-bid conference, as applicable.

7.2 **Non-Mandatory**: Pre-bid conferences are generally non-mandatory, but it is highly recommended that prospective bidders participate.

7.3 **Mandatory**: Failure to attend a mandatory pre-bid conference will result in the bid being considered **non-responsive**.

8 COUNTY INTERPRETATION/ADDENDUMS

8.1 Each Bidder shall examine the solicitation documents and shall judge all matters relating to the adequacy and accuracy of such documents. Any inquiries, suggestions or requests concerning interpretation, clarification or additional information pertaining to the solicitation shall be **submitted in writing prior to 5:00 PM at least eight (8) calendar days prior to the date when the submission is due.**

8.2 Response(s) will be in the form of an Addendum posted on www.leegov.com/procurement. It is solely the bidder's responsibility to check the website for information. No notifications will be sent by Lee County Procurement Management Division.

8.3 All Addenda shall become part of the Contract Documents.

8.4 The County shall not be responsible for oral interpretations given by any County employee, representative, or others. Interpretation of the meaning of the plans, specifications or any other contract document, or for correction of any apparent ambiguity, inconsistency or error there in, shall be in writing. Issuance of a written addendum by the County's Procurement Management Division is the only official method whereby interpretation, clarification or additional information can be given.

9 QUALITY GUARANTEE/WARRANTY (as applicable)

9.1 Bidder will guarantee their work without disclaimers, unless otherwise specifically approved by the County, for a minimum of twelve (12) months from the date of final completion.

9.2 Unless otherwise specifically provided in the specifications, all equipment and materials and articles incorporated in the work covered by this contract shall be new, unused and of the most suitable grade for the purpose intended. Refurbished parts or equipment are not acceptable unless otherwise specified in the specifications. All warrantees will begin from the date of final completion.

9.3 Unless otherwise specifically provided in the specifications, the equipment must be warranteed for twelve (12) months, shipping, parts and labor. Should the equipment be taken out of service for more than forty-eight (48) hours to have warranty work performed, a loaner machine of equal capability or better shall be provided for use until the repaired equipment is returned to service at no additional charge to the County.

9.4 If any product does not meet performance representation or other quality assurance representations as published by manufacturers, producers or distributors of such products or the specifications listed, the vendor shall pick up the product from the County at no expense to the County. The County reserves the right to reject any or all materials, if in its judgment the item reflects unsatisfactory workmanship or manufacturing or shipping damage. The vendor shall refund, to the County, any money which has been paid for same.

10 SUBSTITUTION(S)/APPROVED ALTERNATE(S)

10.1 Unless otherwise specifically provided in the specifications, reference to any equipment, material, article or patented process, by trade name, brand name, make or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. If a bidder wishes to make a substitution in the specifications, the bidder shall furnish to the County**, no later than ten (10) business days prior to the bid opening date**, the name of the manufacturer, the model number, and other identifying data and information necessary to aid the County in evaluating the substitution. Such information is submitted through the Procurement Management Division. Any such substitution shall be subject to County approval through the issuance of a written addendum by the County's Procurement Management Division. Substitutions shall be approved only if determined by the County to be an **Approved Alternate** to the prescribed specifications.

10.2 A bid containing a substitution is subject to disqualification if the substitution is not approved by the County. Items bid must be identified by brand name, number, manufacturer and model, and shall include full descriptive information, brochures, and appropriate attachments. Brand names are used for descriptive purposes only. An **Approved Alternate** product or service may be used.

11 NEGOTIATED ITEMS

11.1 Any item not outlined in the Scope of Work/Specifications may be subject to negotiations between the County and the successful bidder.

11.2 After award of this bid the County reserves the right to add or delete items/services at prices to be negotiated at the time of addition or deletion.

11.3 At contract renewal time(s) or in the event of significant industry wide market changes, the County may negotiate justified adjustments such as price, terms, etc., if in its sole judgment, the County considers such adjustments to be in their best interest.

12 ERRORS, OMISSIONS, CALCULATION ERRORS (as applicable)

12.1 **Calculation Errors:** In the event of multiplication/addition error(s), the unit price shall prevail. Written prices shall prevail over figures where applicable. All bids will be reviewed mathematically and corrected, if necessary, using these standards, prior to further evaluation.

13 CONFIDENTIALITY

13.1 Bidders should be aware that all submissions provided are subject to public disclosure and will **not** be afforded confidentiality, unless provided by Chapter 119 FL §.

13.2 If information is submitted with a bid that is deemed "Confidential" the bidder must stamp those pages of the submission that are considered confidential. The bidder must provide documentation as to validate why these documents should be declared confidential in accordance with Chapter 119, "Public Records," exemptions.

13.3 Lee County ***will not* reveal engineering estimates or budget amounts for a project** unless required by grant funding or unless it is in the best interest of the County. According to FL § 337.168: A document or electronic file revealing the official cost estimate of the department of a project is confidential and exempt from the provisions of s. 119.07(1) until the contract for the project has been executed or until the project is no longer under active consideration.

14 BID -- CONFLICT OF INTEREST

14.1 **Business Relationship Disclosure Requirement**: The award hereunder is subject to the provisions of Chapter 112, Public Officers and Employees: General Provisions, Florida Statues. All bidders must disclose with their submission the name of any officer, director or agent who is also an employee of the Lee County or any of its agencies. Further, all bidders must disclose the name of any County employee who owns directly or indirectly, an interest of five percent (5%) or more in the bidder's firm or any of its branches.

15 ANTI-LOBBYING CLAUSE (Cone of Silence)

15.1 Following FL § Section 287.057(23), Upon the issuance of the solicitation, prospective proposers/bidders or any agent, representative or person acting at the request of such proposer/bidder shall not have any contact, communicate with or discuss any matter relating in any way to the solicitation with any Commissioner, Evaluation Review Committee, agent or employee of the County other than the Procurement Management Director or their designee. This prohibition begins with the issuance of any solicitation, and ends upon execution of the final contract or when the solicitation has been cancelled. **If it is determined that improper communications were conducted, the Bidder/Proposer maybe declared non-responsible.**

16 DRUG FREE WORKPLACE

16.1 Lee County Board of County Commissioners encourages Drug Free Workplace programs.

17 DISADVANTAGED BUSINESS ENTERPRISE (DBE)

17.1 The County encourages the use of Disadvantaged Business Enterprise Bidder(s) as defined and certified by the State of Florida Department of Transportation (DBE).

17.2 As requested in the required forms the Bidder is required to indicate whether they and/or any proposed sub-contractor(s) are Disadvantaged Business Enterprises (DBE). Lee County encourages the utilization and participation of DBEs in procurements, and evaluation proceedings will be conducted within the established guidelines regarding equal employment opportunity and nondiscriminatory action based upon the grounds of race, color, sex or national origin. Interested certified Disadvantaged Business Enterprise (DBE) firms as well as other minority-owned and women-owned firms, as defined and certified by the State of Florida Office of Supplier Diversity (Minority), are encouraged to respond.

18 ANTI-DISCRIMINATION/EQUAL EMPLOYMENT OPPORTUNITY

18.1 The bidder agrees to comply, in accordance with FL § 287.134, 504 of the Rehabilitation Act of 1973 as amended, the Americans with Disabilities Act of 1990 (ADA), the ADA Amendments Act of 2008 (ADAAA) that furnishing goods or services to the County hereunder, no person on the grounds of race, religion, color, age, sex, national origin, disability or marital status shall be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination.

18.2 The bidder will not discriminate against any employee or applicant for employment because of race, religion, color, age, sex, national origin, disability or marital status. The bidder will make affirmative efforts to ensure that applicants are employed and that employees are treated during employment without regard to their race, religion, color, age, sex, national origin, disability or marital status.

18.3 The bidder will include the provisions of this section in every sub-contract under this contract to ensure its provisions will be binding upon each sub-contractor. The bidder will take such actions in respect to any sub-contractor, as the contracting agency may direct, as a means of enforcing such provisions, including sanctions for non-compliance.

18.4 An entity or affiliate who has been placed on the State of Florida's Discriminatory Vendor List (This list may be viewed by going to the Department of Management Services website at http://www.dms.myflorida.com) may not submit a bid on a contract to provide goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not award or perform work as a vendor, supplier, sub-contractor, or consultant under contract with any public entity, and may not transact business with any public entity.

19 SUB-CONTRACTOR

19.1 The use of sub-contractors under this solicitation requires prior written authorization from the County representative.

20 BID - PROJECT GUIDELINES (as applicable)

20.1 The County has established the following Guidelines, Criteria, Goals, Objectives, Constraints, Schedule, Budget and or Requirements which shall service as a guide to the bidder(s) in conforming to the provision of goods and/or services to be provided pursuant to this Agreement/Contract:

20.1.1 No amount of work is guaranteed upon the execution of an Agreement/Contract.

20.1.2 Rates and all other negotiated expenses will remain in effect throughout the duration of the Agreement/Contract period.

20.1.3 This contract does not entitle any bidder to exclusive rights to County Agreement/Contracts/contracts. The County reserves the right to perform any and all available required work in-house or by any other means it so desires.

20.1.4 In reference to vehicle travel, mileage and man-hours spent in travel time, is considered incidental to the work and not an extra compensable expense.

20.1.5 Lee County reserves the right to add or delete, at any time, and or all material, tasks or services associated with this Agreement/Contract.

20.1.6 Any Single Large Project: The County, in its sole discretion, reserves the right to separately solicit any project that is outside the scope of this solicitation, whether through size, complexity or the dollar value.

21 BID – TIEBREAKER

21.1 Whenever two or more Bids, which are equal with respect to price, quality and service, are received for procurement of commodities or contractual services, from Responsive and Responsible Bidders, the following steps shall be taken to establish the Award to the lowest Bidder. This method shall be used for all ties.

21.1.1 Step 1 - Local Bidder: Between a Local Bidder, and a non-Local Bidder, a Contract Award, or the first opportunity to negotiate, as applicable, shall be made to the Local Bidder. **If local preference is prohibited by the funding source then step 2 will replace step 1.**

21.1.2 Step 2 - Drug Free Workplace: At the conclusion of step 1, if all is equal, the Bidder with a Drug Free Workplace program shall be given preference over a Bidder with no Drug Free Workplace

program. The Contract Award, or the first opportunity to negotiate, as applicable, shall be made to the Bidder with the Drug Free Workplace program.

21.1.3 Step 3 - Coin Flip: At the conclusion of Step 1 and Step 2, if all is equal, the Contract Award, or the first opportunity to negotiate, as applicable, the final outcome shall be determined by the flip of a coin.

21.2 When the tie has been broken pursuant to the above procedures, the Contract Award, or the first opportunity to negotiate, as applicable, shall be furnished to the prevailing Bidder.

21.3 If an Award or negotiation is unsuccessful with the initial Bidder, Award or negotiations may commence with the next highest Bidder, utilizing the tiebreaker steps above to make the determination of next lowest Bidder, if necessary.

22 WITHDRAWAL OF BID

22.1 No bid may be withdrawn for a period of **180 calendar days** after the scheduled time for receiving submissions. A bid may be withdrawn prior to the solicitation opening date and time. Withdrawal requests must be made in writing to the Procurement Management Director, who will approve or disapprove the request.

22.2 A bidder may withdraw a submission any time prior to the opening of the solicitation.

22.3 After submissions are opened, but prior to award of the contract by the County Commission, the Procurement Management Director may allow the withdrawal of a bid because of the mistake of the bidder in the preparation of the submission document. In such circumstance, the decision of the Procurement Management Director to allow the submission withdrawal, although discretionary, shall be based upon a finding that the bidder, by clear and convincing evidence, has met each of the following four tests:

22.3.1 The bidder acted in good faith in submitting the bid,

22.3.2 The mistake in bid preparation that was of such magnitude that to enforce compliance by the bidder would cause a severe hardship on the bidder,

22.3.3 The mistake was not the result of gross negligence or willful inattention by the bidder; and

22.3.4 The mistake was discovered and was communicated to the County prior to the County Commission having formally awarded the Agreement/Contract.

23 PROTEST RIGHTS

23.1 Any bidder that has submitted a formal response to Lee County, and who is adversely affected by an intended decision with respect to the award, has the right to protest an intended decision posted by the County as part of the solicitation process.

23.2 "Decisions" are posted on the Lee County Procurement Management Division website. Bidders are solely responsible to check for information regarding the solicitation. (www.leegov.com/procurement)

23.3 Refer to the "Bid/Proposal Protest Procedure" section of the Lee County "Contracts Manual" for the complete protest process and requirements. The Manual is posted on the Lee County website or may be obtained by contacting the Procurement Management Director.

23.4 In order to preserve the right to protest, a written **"*Notice Of Intent To File A Protest*" must be filed with the Lee County Procurement Management Director by 4:00 PM on the 3rd working day after the decision** affecting your rights is posted on the Lee County website.

23.4.1 The notice must clearly state the basis and reasons for the protest.

23.4.2 The notice must be physically received by the Procurement Management Director with-in the required time frame. No additional time will be granted for mailing.

23.5 To secure the right to protest a **"Protest Bond"** and **written "*Formal Protest*"** document must be filed **within 10 calendar days** after the date of "*Notice of Intent to File a Protest*" is received by the Procurement Management Director.

23.6 **Failure to follow the protest procedures requirement within the time frames as prescribed herein and established by the Lee County Board of County Commissioners, Florida, shall constitute a waiver of the right to protest and bar any resulting claims.**

24 AUTHORITY TO UTILIZE BY OTHER GOVERNMENT ENTITIES

24.1 This opportunity is also made available to any government entity. Pursuant to their own governing laws, and subject to the Agreement/Contract of the vendor, other entities may be permitted to make purchases at the terms and conditions contained herein. Lee County Board of County Commissioners will not be financially responsible for the purchases of other entities from this solicitation.

25 CONTRACT ADMINISTRATION

25.1 **Designated Contact:**

25.1.1 The awarded bidder shall appoint a person(s) to act as a primary contact for all County departments. This person or back-up shall be readily available during normal working hours by phone or in person, and shall be knowledgeable of the terms and procedures involved.

25.1.2 Lee County requires the awarded bidder to provide the name of a contact person(s) and phone number(s) which will afford Lee County access 24 hours per day, 365 days per year, of this service in the event of major breakdowns or natural disasters.

25.2 **BID – Term:** (unless otherwise stated in the Scope of Work or Detailed Specifications)

25.2.1 Unless otherwise stated in the scope of work, specifications, or special conditions the default **contract term shall be one (1) year with three (3), one (1) year renewals for a total of four (4) years upon mutual written agreement of both parties**.

25.2.2 The County reserves the right to renew this Agreement/Contract (or any portion thereof) and to negotiate pricing as a condition for each.

25.2.3 The County's performance and obligation to pay under this contract, and any applicable renewal options, is contingent upon annual appropriation of funds.

25.3 **BID – Basis of Award:**

25.3.1 The bid is awarded under a system of sealed, competitive bidding to the lowest responsive and responsible bidder.

25.3.2 In the event the lowest responsible and responsive bid for a project exceeds the available funds the County may negotiate an adjustment of the bid price with the lowest responsible and responsive bidder, in order to bring the total cost of the project within the amount of available funds.

25.3.3 The County reserves the right to make award(s) by individual item, group of items, all or none, or a combination thereof. The County reserves the right to reject any and all bids or to waive any minor irregularity or technicality in the bids received. Award will be made to the lowest responsible and responsive bidder(s) within the category chosen for basis of award.

25.3.4 The County reserves the right to award to one or multiple bidders at the discretion of the requesting authority and approval of the Procurement Management Director.

25.4 **Agreement/Contracts/Contracts:**

25.4.1 The awarded bidder will be required to execute an Agreement/Contract as a condition of award. A sample of this document may be viewed on-line at http://www.leegov.com/procurement/forms.

25.5 **Records:**

25.5.1 Retention: The bidder shall maintain such financial records and other records as may be prescribed by Lee County or by applicable federal and state laws, rules and regulations. Unless otherwise stated in the specifications, the bidder shall retain these records for a period of five years after final payment, or until they are audited by Lee County, whichever event occurs first.

25.5.2 Right to Audit/Disclosure: These records shall be made available during the term of the contract as well as the retention period. These records shall be made readily available to County personnel with reasonable notice and other persons in accordance with the Florida General Records Schedule. Awarded Bidder/Proposer(s) are hereby informed of their requirement to comply with FL §119 specifically to:

25.5.2.1 Keep and maintain public records required by the County to perform the service.

25.5.2.2 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 or as otherwise provided by law.

25.5.2.3 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.

25.5.2.4 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 County's custodian of public records, in a format that is compatible with the information technology systems of the County.

25.5.3 Public Record: **IF THE VENDOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE VENDOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THE CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT 239-533-2221, 2115 SECOND STREET, FORT MYERS, FL 33901, http://www.leegov.com/publicrecords.**

25.5.4 Ownership: It is understood and agreed that all documents, including detailed reports, plans, original tracings, specifications and all data prepared or obtained by the successful bidder in connection with its services hereunder, include any documents bearing the professional seal of the successful bidder, and shall be delivered to and become the property of Lee County, prior to final payment to the successful bidder or the termination of the Agreement/Contract. This includes any electronic versions, such as CAD or other computer aided drafting programs.

25.6 **Termination:**

25.6.1 Any Agreement/Contract as a result of this solicitation may be terminated by either party giving **thirty (30) calendar days advance written notice**. The County reserves the right to accept or not accept a termination notice submitted by the vendor, and no such termination notice submitted by the vendor shall become effective unless and until the vendor is notified in writing by the County of its acceptance.

25.6.2 The Procurement Management Director may immediately terminate any Agreement/Contract as a result of this solicitation for emergency purposes, as defined by the Lee County Purchasing and Payment Procedures Manual (Purchasing Manual), (also known as Appendix "D" "AC-4-1.pdf".)

25.6.3 Any bidder who has voluntarily withdrawn from a solicitation without the County's mutual consent during the contract period shall be barred from further County procurement for a **period of 180 days**. The vendor may apply to the Board for a waiver of this debarment. Such application for waiver of debarment must be coordinated with and processed by the Procurement Management Department.

25.6.4 The County reserves the right to terminate award or contract following any of the below for goods or services over $1,000,000:

25.6.4.1 Contractor is found to have submitted a false certification as provided under FL § 287.135 (5);

25.6.4.2 Contractor 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 (FL §215.473);

25.6.4.3 Contractor has engaged in business operations in Cuba or Syria (FL § 215.471);

25.6.4.4 Contractor has been placed on the Scrutinized Companies that Boycott Israel List, or is engaged in a boycott of Israel. (FL § 215.4725)

25.6.4.5 The County reserves the right to review, on a case-by-case basis, and waive this stipulation if it is deemed to advantageous to the County.

26 WAIVER OF CLAIMS

26.1 Once this contract expires, or final payment has been requested and made, the awarded bidder shall have waived any claims against the County concerning this contract. After that period, the County will consider the bidder to have waived any right to claims against the County concerning this Agreement/Contract.

27 LEE COUNTY PAYMENT PROCEDURES

27.1 Unless otherwise noted, all vendors are requested to mail an original invoice to:
Lee County Finance Department
Post Office Box 2238
Fort Myers, FL 33902-2238

27.2 All invoices will be paid as directed by the Lee County payment procedure unless otherwise stated in the detailed specifications for this project.

27.3 Lee County will not be liable for requests for payment deriving from aid, assistance, or help by any individual, vendor, proposer, or bidder for the preparation of these specifications.

27.4 Lee County is generally a tax exempt entity subject to the provisions of the 1987 legislation regarding sales tax on services. Lee County will pay those taxes for which it is obligated, or it will provide a Certificate of Exemption furnished by the Department of Revenue. All bidders should include in their bids, all sales or use taxes, which they will pay when making purchases of material or sub-contractor's services.

28 SAFETY DATA SHEETS (SDS) (as applicable)

28.1 In accordance with Chapter 443 of the FL §, it is the vendor's responsibility to provide Lee County with Safety Data Sheets on bid materials, as may apply to this procurement.

29 DEBRIS DISPOSAL (as applicable)

29.1 Unless otherwise stated, the bidder shall be fully responsible for the lawful removal and disposal of any materials, debris, garbage, vehicles or other such items which would interfere with the undertaking and completion of the project. There shall not be an increase in time or price associated with such removal.

30 SHIPPING (as applicable)

30.1 Cost of all shipping to the site, including any inside delivery charges and all unusual storage requirements shall be borne by the bidder unless otherwise agreed upon in writing prior to service. It shall be the bidders responsibility to make appropriate arrangements, and to coordinate with authorized personnel at the site, for proper acceptance, handling, protection and storage (if available) of equipment and material delivered. All pricing to be F.O.B. destination.

30.2 The materials and/or services delivered under the bid shall remain the property of the seller until a physical inspection and actual usage of these materials and/or services is accepted by the County and is deemed to be in compliance with the terms herein, fully in accord with the specifications and of the highest quality.

31 BOND/SURETY (CONSTRUCTION)

31.1 Bonding/Surety is required for construction projects over $100,000.00 unless otherwise noted.

31.2 **Bid Bond/Security:** The bidder/vendor shall submit **not less than 5% of proposed dollar amount** (including applicable alternates) as bid security. One **ORIGINAL** Bid Bond/Security is to be submitted to the County with Bid Submission. The Bid Security of the bidder/vendor will be retained until the bidder/vendor has executed the contract, whereupon the Bid security may be returned. The bid Security of the bidder/vendor whom the County believes to have a reasonable chance of receiving the award may be retained by the County until the effective date of the Agreement/Contract, whereupon Bid Securities furnished by the bidder/vendor may be returned. The following types of Bid Security are acceptable:

31.2.1 **A Certified Check or a Cashier's Check** in the stated dollar amount of not less than 5% of proposed dollar amount. Any Certified Check or Cashier Check submitted in lieu of a Bid Bond Shall be drawn on a solvent bank or trust company, made payable to Lee County Board of County Commissioners and shall have all necessary documentary revenue stamps attached (if required by law); or

31.2.2 **A Bid Bond** may be submitted on a Lee County paper Bid Bond Form. Must be signed by all required parties, of not less than 5% of proposed dollar amount (including Alternate(s) as applicable) shall

accompany each submission. The Bid Bond shall be issued by a duly authorized surety authorized to do business and in good standing with the Florida Department of state.

31.3 **Payment and Performance Bond**: In accordance with F.S. 255.05 and Lee County Ordinance 95-2-102, a Public Payment and Performance Bond is to be issued in a sum equal to one-hundred (100%) percent of the total awarded contract amount by a surety company considered satisfactory by Lee County and otherwise authorized to transact business in the State of Florida shall be required from the successful bidder/vendor. This shall insure the faithful performance of the obligations imposed by the resulting contract and protect the County from lawsuits for non-payment of debts incurred during the successful bidder/vendor performance under such Contract.

31.3.1 A public Payment and Performance bond must be properly executed, by the Surety Company and successful bidder/vendor, and recorded with the Lee County Clerk of Court, within **seven calendar days** after notification by Lee County of the approval to award the Contract.

31.3.2 A **Clean Irrevocable Letter of Credit or Cash Bond** may be accepted by the County in lieu of the Public Payment and Performance Bond.

31.4 Only Lee County form(s) may be accepted. Forms are available at https://www.leegov.com/procurement/forms.

31.5 **Personal Checks are not acceptable to Lee County as a Bid Security.**

31.6 **Surety**: In order to be acceptable to the County, a Surety Company issuing Evidence of Bondability, Bid Guaranty Bonds or 100% Public Payment and Performance Bonds or Letters of Credit called for herein shall meet and comply with the minimum standards set forth in as part of the Contract Documents.
The surety company shall be authorized to do business and in good standing with the Florida Department of State. All such bonds shall be issued or countersigned by a local producing agent who is a Florida resident with satisfactory evidence of its authority to execute the bond being submitted.

32 INSURANCE (AS APPLICABLE)

32.1 Insurance shall be provided by the awarded bidder/vendor. Prior to execution of the Agreement/Contract a certificate of insurance (COI) complying with the bid documents shall be provided by the bidder/vendor.

End of Terms and Conditions Section

LEE COUNTY
SOUTHWEST FLORIDA

Lee County Insurance Requirements

Minimum Insurance Requirements: *Risk Management in no way represents that the insurance required is sufficient or adequate to protect the vendors' interest or liabilities. The following are the required minimums the vendor must maintain throughout the duration of this contract. The County reserves the right to request additional documentation regarding insurance provided*

a. **Commercial General Liability** - Coverage shall apply to premises and/or operations, products and completed operations, independent contractors, contractual liability exposures with minimum limits of:

   $1,000,000 per occurrence
   $2,000,000 general aggregate
   $1,000,000 products and completed operations
   $1,000,000 personal and advertising injury

b. **Business Auto Liability** - The following Automobile Liability will be required and coverage shall apply to all owned, hired and non-owned vehicles use with minimum limits of:

   $1,000,000 combined single limit (CSL)
   $500,000 bodily injury per person
   $1,000,000 bodily injury per accident
   $500,000 property damage per accident

c. **Workers' Compensation** - Statutory benefits as defined by FS 440 encompassing all operations contemplated by this contract or agreement to apply to all owners, officers, and employees regardless of the number of employees. Workers Compensation exemptions may be accepted with written proof of the State of Florida's approval of such exemption. Employers' liability will have minimum limits of:

   $500,000 per accident
   $500,000 disease limit
   $500,000 disease – policy limit

**The required minimum limit of liability shown in a. and b. may be provided in the form of "Excess Insurance" or "Commercial Umbrella Policies." In which case, a "Following Form Endorsement" will be required on the "Excess Insurance Policy" or "Commercial Umbrella Policy."*

LEE COUNTY
SOUTHWEST FLORIDA

Verification of Coverage:

1. Coverage shall be in place prior to the commencement of any work and throughout the duration of the contract. A certificate of insurance will be provided to the Risk Manager for review and approval. The certificate shall provide for the following:

   a. **The certificate holder shall read as follows:**

      Lee County Board of County Commissioners
      P.O. Box 398
      Fort Myers, Florida 33902

   b. ***"Lee County, a political subdivision and Charter County of the State of Florida, its agents, employees, and public officials"*** **will be named as an "Additional Insured" on the General Liability policy, including Products and Completed Operations coverage.**

Special Requirements:

1. An appropriate "Indemnification" clause shall be made a provision of the contract.

2. It is the responsibility of the general contractor to insure that all subcontractors comply with all insurance requirements.

End of Insurance Guide Section

SPECIAL CONDITIONS

These are conditions that are in relation to this solicitation only and have not been included in the County's standard Terms and Conditions or the Scope of Work.

1. **TERM**
From the Notice to Proceed or the Purchase Order date, whichever applies: **300** calendar days to substantial completion, **60** calendar days to final completion (total days **360**).

2. **LIQUIDATED DAMAGES**
In accordance with the terms set forth in the Agreement, for each consecutive calendar day of delay in achieving Completion as set forth herein, the Vendor shall be liable to the County for per diem liquidated damages in the amount as specified in the below table based on the overall project costs.

Estimated Project Cost Over	Estimated Project Cost But Less than	Daily Charge Per Calendar Day
$0.00	$50,000.00	$645.00
$50,000.00	$250,000.00	$760.00
$250,000.00	$500,000.00	$970.00
$500,000.00	$2,500,000.00	$1,500.00
$2,500,000.00	$5,000,000.00	$2,400.00
$5,000,000.00	$10,000,000.00	$3,300.00
$10,000,000.00	$15,000,000.00	$4,600.00
$15,000,000.00	$20,000,000.00	$4,300.00
$20,000,000.00 over		$5,700.00 plus .00005

End of Special Conditions Section

GENERAL CONDITIONS

1. Administration

The Consultant is the initial interpreter of the Contract Documents but is not the Judge between the COUNTY and the CONTRACTOR. The COUNTY reserves the right to make final decisions considering the Consultant's recommendations or interpretations of the Contract Documents. The Consultant does not have authority to obligate or commit the COUNTY to fund additional expenditures or approve extensions of time over the approved Contract time or price. However, the CONSULTANT'S interpretation as to the intent of his design shall be final and not subject to interpretation by the COUNTY'S staff.

1.1. **Copies of Documents**

The COUNTY shall furnish to the CONTRACTOR the number of copies specified in the Supplemental Information of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction which shall be paid by the CONTRACTOR.

1.2. **Before Starting Construction**

Before undertaking each phase of the Work, the CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. The CONTRACTOR shall promptly report in writing to the OWNER'S REPRESENTATIVE any conflict, error or discrepancy which the CONTRACTOR may discover or other information known to the CONTRACTOR and shall obtain a written interpretation or clarification from the OWNER'S REPRESENTATIVE before proceeding with any Work affected thereby. If the CONTRACTOR performs any construction activity knowing it involves a recognized error, inconsistency or omission in the Contract Documents without such notice to the OWNER'S REPRESENTATIVE, the CONTRACTOR shall assume responsibility for such performance and shall share in costs associated with correction; however, the CONTRACTOR shall not be liable to the COUNTY for failure to report any conflict, error or discrepancy in the Contract Documents, unless the CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

1.2.1. Within ten calendar days after the Effective Date of the Agreement (unless otherwise specified in the Contract Documents), the CONTRACTOR shall submit to the OWNER'S REPRESENTATIVE for review:

1.2.1.1. An estimated progress schedule indicating the starting and completion dates of the various stages of the Work:

1.2.1.2. Long lead item(s) shall be identified and scheduled accordingly.

1.2.1.3. A preliminary schedule of Shop Drawing submission; and

1.2.1.4. A preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction on form No. CMO:013. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work which will be confirmed in writing by the CONTRACTOR at the time of submission; and specify times for Application for Payment.

1.2.1.5. A plan of work for maintenance of traffic, when the Contract Documents require maintenance of traffic.

1.2.1.6. For informational purposes, a proposed listing of sub-contractors to be used for the project.

1.2.2. **Pre-Construction Conference**

Within fifteen calendar days after the Effective Date of the Agreement, but before the CONTRACTOR starts the Work at the site, a conference attended by the CONTRACTOR, the OWNER'S REPRESENTATIVE, the COUNTY, and Others as appropriate, will be held to discuss the items, to discuss procedures for handling Shop Drawings and other submittals and for processing Applications for Payment, and to establish an understanding among the parties as to the Work.

1.2.3 **Finalizing Schedules**

At least ten calendar days before submission of the first Application for payment, a conference attended by the CONTRACTOR, the OWNER'S REPRESENTATIVE, the COUNTY, and Others as appropriate, will be held to finalize the schedules submitted. The finalized progress schedule will be acceptable to the OWNER'S REPRESENTATIVE and the COUNTY as providing an orderly progression of the Work to completion within the Contract Time, but such acceptance will neither impose on the OWNER'S REPRESENTATIVE or the COUNTY responsibility for the progress or scheduling of the Work nor relieve the CONTRACTOR from full responsibility therefor. The finalized schedule of Shop Drawing submissions will be acceptable to the OWNER'S REPRESENTATIVE as providing a workable arrangement for processing the submissions. The finalized schedule of values will be acceptable to the OWNER'S REPRESENTATIVE and the COUNTY as to form and substance.

Definitions

The following definition of terms associated with this Contract is provided to establish a common understanding between both parties to this Contract as to the intended usage, application and interpretation of such terms pertaining to this Contract.

ADDENDUM means any additional Contract provisions in writing signed and sealed by the CONSULTANT, if applicable, issued by the COUNTY prior to the receipt of Bid which clarify, correct, change or interpret the Bidding Documents or the Contract Documents.

AGREEMENT means the written agreement between the COUNTY and the CONTRACTOR covering the Work to be performed; the Agreement is a part of the Contract Documents.

BIDDER is any individual, firm, partnership, joint venture, or corporation submitting a bid for this project, acting directly or through an authorized representative.

BID is a complete and properly signed proposal to do the Work or designated portion thereof for the sums stipulated therein, submitted in accordance with the Bidding Documents.

BID BOND is a security in the form and amount required by the COUNTY pledging that the BIDDER will enter into a Contract with the COUNTY on the terms stated in his Bid.

BID DOCUMENTS are the Invitation to Bid, the Notice to Bidders, the Invitation to Bid Terms and Conditions, sample forms, the Bid Proposal Form and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

CHANGE ORDERS are written order to the CONTRACTOR signed by the COUNTY, issued after execution of the Contract, authorizing a change in the Work or an adjustment in the Contract price or the Contract Time. The Contract Price and the Contract Time may be changed only by a Change Order.

A Change Order signed by the CONTRACTOR indicates his agreement therewith, including the adjustment in the Contract Price or the Contract Time.

COMPLETION (FINAL) means acceptance of the Project by the COUNTY as evidenced by its signature upon a final payment Certification and approval thereof by the Board of County Commissioners or their designee. The final payment Certification shall be signed only after the COUNTY has assured itself by tests, inspections, or otherwise that all of the provisions of the Contract have been carried out as required.

COMPLETION (SUBSTANTIAL) shall mean an acceptance of the Work by the COUNTY when construction is sufficiently complete in accordance with the Contract Documents so the COUNTY can occupy or utilize the Work or designated portion thereof for the use for which it is intended. A certificate of occupancy or compliance, when applicable, issued by the Building Official is required concurrent with or prior to issuance of the Certificate of Substantial Completion.

CONSTRUCTION is the erection, fabrication, assembly, remodeling, renovation, addition, modification, repair or demolition of any building or structure or any appurtenances connected or attached to such buildings or structures. The term applies but is not limited to the repair, replacement modification or construction of roads, bridges, sidewalks, traffic devices, parking lots, drainage, underground and overhead utilities.

CONSULTANT is the person lawfully licensed to practice Architecture or Engineering and registered in the State of Florida, or an entity lawfully practicing Architecture or Engineering, identified as such in the Construction Contract, and is referred to throughout the Contract Documents as if singular in number and masculine in genre. The term CONSULTANT means the Architect or Engineer or his authorized representative.

CONTRACT DOCUMENTS consist of the Invitation to Bid, Agreement, General and Special Conditions of the Contract, Specifications, the Plans, Supplemental Information, Addenda issued prior to execution of the Contract, all written modifications issued after execution of the Contract, all provisions required by law to be inserted in this Contract whether actually inserted or not, and a Contract Number issued by the COUNTY.

A *MODIFICATION* is:

(1) A written Amendment to the Contract.
(2) A Change Order.
(3) A written interpretation necessary for the proper execution or progress of the Work issued by the OWNER'S Representative.
(4) A Field Change Order.
(5) A Field Directive Change.

CONTRACT PRICE means the total monies payable to the CONTRACTOR under the Contract Documents.

CONTRACT TIME means the number of Calendar days stated in the Agreement for the purpose of establishing Substantial Completion and Final Completion dates.

CONTRACTOR is the person, firm, joint venture, or corporation with whom the COUNTY has contracted and who has the primary responsibility for performance of the work.

COUNTY means the Board of County Commissioners of Lee County, Florida, a political subdivision of the State of Florida, its successors and assigns. Also hereinafter referred to as OWNER.

DAYS - The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically designated. A calendar day constitutes twenty four hours measured from midnight to the next midnight.

DEFECTIVE - An adjective which when modifying the word "Work" refers to Work that is unsatisfactory, faulty or deficient, or 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 the OWNER'S REPRESENTATIVE recommendation of final payment.

EFFECTIVE DATE OF THE AGREEMENT means the date on which the agreement is signed and delivered by the latter of the two parties.

ENGINEER shall mean the Director of the Lee County Department of Transportation or his designated County Project Manager.

FIELD CHANGE ORDER is a written change order requested by the OWNER'S Representative, accepted by the CONTRACTOR, and approved by the PROJECT MANAGER for minor changes in the Work, not involving adjustments in the Contract Sum or an extension of Time, and not inconsistent with the overall intent of the Contract Documents.

FIELD DIRECTIVE CHANGE - A written directive to the CONTRACT, issued on or after the effective date of the Agreement ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed as defined elsewhere in these documents. A Field Directive Change may not change the Contract Price or the Contract Time, but is evidence that the parties expect that the change directed or documented by a Field Directive Change 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 the Contract Time.

FINAL ACCEPTANCE means acceptance of the Work by the COUNTY upon the expiration of the warranty period as stated in the Contract Documents.

MATERIALS - Anything used in the process of, but not limited to, constructing, demolishing, renovating or remodeling of any building, structure, road, bridge, recreational facility, transportation element and utility or any addition thereto utilized for this project.

NOTICE means written notice. Notice shall be served upon the CONTRACTOR either personally or by leaving the said Notice at his residence or with his agency in charge of the Work, or addressed to the CONTRACTOR at the residence or place of business stated in the Bid Proposal and deposited in a postpaid wrapper in any United States Mailbox.

NOTICE TO PROCEED is a written instrument issued by the COUNTY to the CONTRACTOR, authorizing the CONTRACTOR to commence Work on the Project. The NOTICE TO PROCEED shall include the effective date of Commencement.

NOTICE OF AWARD means the written Notice given by the COUNTY to the successful Bidder.

NOTICE OF TERMINATION is a written instrument issued in accordance with the Contract Documents by the COUNTY to the CONTRACTOR or by the CONTRACTOR to the COUNTY notifying the receiving party that the Contract is being terminated. The NOTICE shall clearly identify the effective date the Contract is to be terminated.

OWNER'S REPRESENTATIVE is the CONSULTANT contracted by the COUNTY for Professional Services during the construction phase of this project or a qualified person authorized as his official representative, or in the absence of such a contract, the project Manager will be considered the OWNER'S REPRESENTATIVE for the purpose of this Contract Document. The OWNER'S REPRESENTATIVE is not authorized to issue change orders to the contract sum, contract time or scope of work without express approval of the Board of County Commissioners.

PLANS AND/OR DRAWINGS are a graphic representation of the arrangement of the materials or parts of the construction of the project and are a portion of the Contract Documents.

PROCUREMENT MANAGEMENT shall mean the Director of Lee County's Procurement Management Department or designee.

PROJECT shall mean the entire improvement of which this contract forms a part.

PROJECT MANAGER is an employee or the Department or the COUNTY which requested the Contract and is a designee authorized by or for that Department who is the representative of the Board of County Commissioners in matters concerning the contractor of this project. The project manager will act as the OWNER'S REPRESENTATIVE in the absence of a contract with a CONSULTANT. The PROJECT MANAGER is not authorized to issue changes to the Contract Sum, Contract Time, or Scope of Work without express approval by the Department Director, County Manager, or Board of County Commissioners.

The PROJECT MANAGER, within the authority conferred by the Board of County Commissioners, acting as the COUNTY'S designated representative shall initiate written Change Orders, and notification to the CONTRACTOR of any and all changes approved by the COUNTY in the CONTRACTOR'S (1) compensation (2) time and/or schedule of service delivery; (3) any Amendment (s) or other change(s) relative to the WORK and ADDITIONAL SERVICES pursuant to this Contract, or AMENDMENTS, or CHANGE ORDERS pertaining thereto. Following COUNTY approval, the Project Manager shall coordinate assurance of any such documents. The PROJECT MANAGER or his designee shall be responsible for acting on the COUNTY'S behalf to administer, coordinate, interpret and otherwise manage the contractual provisions and requirements set forth in this Contract, or any AMENDMENT(S), or CHANGE ORDER(S) issued there under.

SPECIFICATIONS are written documents organized into divisions, sections, and articles which provide detailed instructions to the CONTRACTOR pertaining, but not limited to, materials, style, workmanship, fabrication, dimensions, colors, warranties, finishes, quality, manufacturer, grade and operational data of all components to be provided by the CONTRACTOR and incorporated into the Project.

SUB-CONTRACTOR is a person, firm, partnership, corporation, or entity who has a direct contract with the CONTRACTOR to perform any of the Work at the site. The term Sub-contractor does not include

those whose sole purpose is that of a supplier of materials. A supplier of materials shall be classified as a Sub-contractor if it enters into any agreement, whether written or verbal, for the installation of said materials. The term Sub-contractor means a Sub-contractor or its authorized representative.

SUPPLIER - A manufacturer, fabricator, distributor, materialmen or vendor.

SURETY is the surety company or individual that is bound by Contract bond with and for the CONTRACTOR who is primarily liable, and is responsible for CONTRACTOR'S acceptable performance of the Project and payment of all debts pertaining to the Contract Documents in accordance with Section 255.05, Florida Statutes.

UNDERGROUND FACILITIES - All pipeline, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

WORK is the construction required by the Contract Documents and includes all labor necessary to produce such construction, and all materials and equipment incorporated or to be incorporated in such construction.

2. Starting the Work

Written Notice to Proceed is contingent upon and will be done subsequent to the CONTRACTOR fully satisfying the COUNTY'S stated insurance and Bond submittal requirements. Until the CONTRACTOR receives the COUNTY'S written Notice to Proceed, the CONTRACTOR is advised that the COUNTY will not be liable for any expenses which the CONTRACTOR may incur relative to this Contract before the written Notice to Proceed is issued.

2.1. The Contract time shall commence to run from the date specified in the "Notice to Proceed".

2.2. The CONTRACTOR is required, before commencing the Work, to deliver to the COUNTY the Public Payment and Performance Bond issued by a surety insurer authorized to do business in the State of Florida as Surety. The Bond must state the name and principal business address of both the principal and the Surety and must contain a description of the project sufficient to identify it and post in conspicuous place at the project site.

2.3. The COUNTY will forward to the CONTRACTOR a Notice of Commencement along with a copy of the recorded Public Payment and Performance Bond with instructions to post in a conspicuous spot on the project site.

3. Interpretation Intent, Amending and Reuse of Contract Documents

It is the intent of the Specifications and Plans to describe a complete Project to be constructed in accordance with the Contract Documents.

3.1 The Contract Documents are complementary; what is called for by one is as binding as if called for by all. If the CONTRACTOR finds a conflict, error or discrepancy in the Contract Documents, he shall immediately call it to the attention of the OWNER'S REPRESENTATIVE in writing before proceeding with the Work affected thereby.

3.2 Any Work that may be reasonably inferred from the specifications or Drawings as being required to produce the intended result shall be supplied whether or not it is specifically called for.

3.3 Work, materials or equipment described in words which have a well-known technical or trade meaning, shall be deemed to refer to such recognized standards.

3.4 In resolving conflicts, errors, and discrepancies, the order of precedence of the Contract Document is as follows:

(1) Change Order
(2) Agreement
(3) Addenda
(4) Special Conditions
(5) General Conditions
(6) Specifications
(7) Supplemental Information
(8) Drawings
(9) Figure Dimensions
(10) Scale Dimensions (Large Scale Drawings supersede Small Scale Drawings)
(11) Terms and Conditions

3.5 Amending and Supplementing Contract Documents
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:

3.5.1 A formal Written Amendment,
3.5.2 A Change Order.
3.5.3 A Field Directive Change.

The Contract Price and the Contract Time may only be changed by a Change Order or Written Amendment.

3.6 In addition, the requirements of the Contract Documents may be supplemented and minor variations and deviations of the Work may be authorized, in one or more of the following ways:

3.6.1 A Field Change Order,
3.6.2 The OWNER'S REPRESENTATIVE approval of a Shop Drawing or sample, or
3.6.3 The OWNER'S REPRESENTATIVE written interpretation or clarification.

3.7 Reuse of Documents
Neither the CONTRACTOR nor any SUB-CONTRACTOR or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with the COUNTY shall 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 the CONSULTANT; and they shall not reuse any of them on extensions of the Project or any other project without written consent of the COUNTY or their CONSULTANT and the specific written verification or adaptation by the CONSULTANT.

4 Availability of Lands

The COUNTY will furnish, as indicated in the Contract Documents and not later than the date when needed by the CONTRACTOR, the lands upon which the Work is to be done, rights-of-way for access thereto, and such other lands which are designated for the use of the CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained by the COUNTY unless otherwise specified in the Contract Documents. If the CONTRACTOR believes that any delay in the COUNTY'S furnishing these lands or easements entitles him to an extension of the Contract Time, he may make a claim therefore. The CONTRACTOR will provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment unless designated otherwise. The OWNER'S REPRESENTATIVE will, upon request, furnish to the CONTRACTOR copies of all available boundary and topographic surveys as required and sub-surface tests. The CONTRACTOR shall be responsible for staging and storing equipment or materials. All parcels utilized for staging shall be secured. All parcels utilized for staging will be kept in a neat and orderly fashion and then restored to the landowner's satisfaction upon terminating the use of the staging area or improved as noted in the plans. The CONTRACTOR shall maintain on the job site written proof of authorization for the use of any private land. The COUNTY does not condone trespass on private property and will hold the CONTRACTOR liable for any such trespass. Right-of-way maps, if available, of the lands upon which the improvements will be made shall be provided upon request from the OWNER'S REPRESENTATIVE. The CONTRACTOR may use these lands for work associated with this contract only. The CONTRACTOR shall verify the availability of these lands with the Lee County D.O.T. project manager prior to the issuance of the notice to proceed.

4.1 Physical Conditions

Explorations and Reports: Reference is made to the Supplemental Information for identification of those reports of explorations and tests of subsurface conditions at the site that have been utilized by the CONSULTANT and/or the COUNTY in preparation of the Contract Documents. These reports are not part of the contract Documents. The CONTRACTOR may rely upon the accuracy of the technical data contained in such reports but not upon the non-technical data, interpretations or opinions contained therein for the completeness or accuracy thereof for the CONTRACTOR'S purposes of preparing or submitting a bid. Except as indicated in the immediately preceding sentence, the CONTRACTOR shall have full responsibility with respect to subsurface conditions at the site. The technical data which will be made available only at the CONTRACTOR'S request may not be sufficient for construction purposes. Additional investigations may be necessary for the purposes of carrying out the construction project.

4.2 Existing Structures: Reference is made to the Supplemental Information for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities) which are at or contiguous to the site that have been utilized by the CONSULTANT and/or the COUNTY in preparation of the Contract Documents. The CONTRACTOR may rely upon the accuracy of the technical data contained in such drawings but not for the completeness thereof for the purposes of preparing or submitting a bid. Except as indicated in the immediately preceding sentence, the CONTRACTOR shall have full responsibility with respect to physical conditions in or relating to such structures.

4.3 Unless otherwise stated, the CONTRACTOR shall be fully responsible for the removal of any materials, debris, garbage, vehicles or other such items which would interfere with the undertaking and completion of the project. By submission of a bid, the CONTRACTOR assumes full responsibility for the expenses associated with such removal. There shall not be an increase in time or price associated with such removal.

4.4 Report of Differing Conditions: If the CONTRACTOR believes that:

4.4.1.1 Any technical data on which the CONTRACTOR is entitled to is inaccurate, or

4.4.1.2 Any physical condition uncovered or revealed at the site differs materially from that indicated, reflected or referred to in the Contract Documents.

4.4.1.3 The CONTRACTOR shall, promptly after becoming aware thereof and before performing any Work in connection therewith (expect in an emergency as permitted) notify the OWNER'S REPRESENTATIVE in writing about the inaccuracy or difference.

4.5 OWNER'S REPRESENTATIVE Review: The OWNER'S REPRESENTATIVE will promptly review the pertinent conditions, determine the necessity of obtaining additional explorations or tests with respect thereto and advise the COUNTY in writing (with a copy to the CONTRACTOR) of the OWNER'S REPRESENTATIVE'S findings and conclusions.

4.6 Possible Document Change: If the OWNER'S REPRESENTATIVE and the COUNTY conclude that there is a material error in the Contract Documents and a change in the Contract Documents is required, a Field Directive Change, a Field Change or a Change Order will be issued as to reflect and document the consequences of the inaccuracy or difference.

4.7 Possible Price and Time Adjustments: In each case of a material error in the Contract Documents, an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, or any combination thereof, will be allowable to the extent that they are attributable to any such inaccuracy or difference.

4.8 Physical Conditions - Underground Facilities

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 the COUNTY or the CONSULTANT by the owners of such Underground facilities or by others. Unless it is otherwise expressly provided in the Supplemental Information:

4.8.1 The CONTRACTOR shall have full responsibility for reviewing and checking all such information and data, for locating all Underground Facilities shown or indicated in the Contract Documents, for coordination of the Work with the owners of such Underground Facilities during construction, for the safety and protection thereof and for repairing any damage thereto resulting from the Work, the cost of all of which will be considered as having been included in the Contract Price. The CONSULTANT and COUNTY shall not be responsible for the accuracy or completeness of any such information or data.

4.9 Not Shown or Indicated: If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents and which the CONTRACTOR could not reasonably have been expected to be aware of, the CONTRACTOR shall, promptly after becoming aware thereof and before performing any Work affected thereby (except in an emergency as permitted) identify the owner of such Underground Facility and give written notice thereof to that owner and to the OWNER'S REPRESENTATIVE. The OWNER'S REPRESENTATIVE will promptly review the Underground Facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the Underground Facility, and with the COUNTY'S approval, the Contract Documents will be amended or supplemented to the extent necessary. During such time, the CONTRACTOR shall be responsible for the safety and protection of such Underground Facility. The CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, to the extent that they are attributable to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and which the CONTRACTOR could not reasonably have been expected to be aware of. Locations of existing underground utilities are not field confirmed. In the case of a conflict between this or any other

utility and proposed improvements, it shall be the CONTRACTOR'S duty to coordinate with all utility company relocation activities whether shown or not shown in the plans. Coordination is to include efforts by the CONTRACTOR to minimize time lost due to unexpected utility relocation or modifications.

4.10 Reference Points

The COUNTY shall provide engineering surveys to establish reference points, as specified in the Supplemental Information, for construction which in the judgment of the COUNTY and the CONSULTANT are necessary to enable CONTRACTOR to proceed with the Work. The CONTRACTOR shall be responsible for laying out the Work (unless otherwise specified in the Technical Specifications), shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of the COUNTY. The CONTRACTOR shall report to the OWNER'S REPRESENTATIVE whenever any reference point 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 by professionally qualified personnel.

5 Bonds and Insurance

5.1 Public Payment and Performance Bond

The CONTRACTOR will execute the Public Payment and Performance Bonds included herein as security for the faithful performance and payment of all his obligations under the Contract Documents.

5.2 This Bond shall be in amounts at least equal to the Contract Price and in such form and with such securities as are acceptable to the COUNTY. Prior to execution of the Contract Documents, the COUNTY may require the CONTRACTOR to furnish such other bonds, in such form and with such sureties as it may require. If such bonds are required by written instructions given prior to opening of Bids, the Premiums shall be paid by the CONTRACTOR. If the Contract is increased by a Change Order, it shall be the CONTRACTOR'S responsibility to insure that the Public Payment and Performance Bond be amended accordingly and a copy of the amendment forwarded to PROCUREMENT MANAGEMENT.

5.3 If the surety on any bond furnished by the CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of Florida or it ceases to meet the requirements imposed by the Contract Documents, the CONTRACTOR shall within five calendar days thereafter substitute another Bond and Surety, both of which shall be acceptable to the COUNTY.

5.4 If the CONTRACTOR cannot obtain another bond and surety within five calendar days the COUNTY will accept and the CONTRACTOR shall submit an irrevocable letter of credit drawn on a Lee County, Florida bank until the bond and surety can be obtained.

6 Qualifications of Surety Companies

In order to be acceptable to the COUNTY, a surety company issuing Bid Guaranty Bonds or 100% Public Payment and Performance Bonds, called for in these specifications, shall meet and comply with the following minimum standards:

6.1 General

All Sureties for Lee County projects must be authorized to do business in the State of Florida and shall comply with the provisions of Florida Statute 255.05.

6.2 Attorneys-in-Fact who sign bid bonds or Public Payment and Performance Bonds for Lee County projects must file with such bond a certified copy of their Power of Attorney to sign such bond.

6.3 Agents of surety companies must list their name, address, and telephone number on all bonds.

6.4 The life of all bonds provided to Lee County shall extend twelve months beyond the date of final payment and shall contain a waiver of alteration to the terms of the Contract, extensions of time and/or forbearance on the part of the COUNTY.

6.5 To be acceptable to the OWNER on projects not in excess of $500,000.00, Surety shall comply with these minimum provisions of State Statute 287.0935 as follows:

6.5.1 Surety must have twice the minimum surplus and capital required by Florida Insurance Code at the time of bid solicitation.

6.5.2 Surety must be in compliance with all provisions of the Florida Insurance Code and hold a currently valid certificate of authority issued by the United States Department of the Treasury under SS.31 U.S.C. 9404-9308.

6.5.3 Sureties on projects in excess of $500,000.00 shall comply with the above minimum provisions as well as being rated thru A.M. Best Company and shall comply with the following provisions:

6.5.4 The Surety shall be rated as "A-" or better as to General Policyholders Rating and Class VII or better as to financial category by the most current Best's Key Rating Guide, published by A.M. Best Company.

6.5.5 Surety must have fulfilled all of its obligations on all other bonds previously given to the COUNTY.

6.5.6 Surety must have a minimum underwriting limitation of $5,000,000 published in the latest edition of the Federal Register for Federal Bonds (U.S. Dept. of Treasury).

6.6 Letter of Credit

At any time during the life of the letter of credit, should the rating of financial institution fall below both of the minimum ratings as indicated in the Contract Documents, or should the financial institution become insolvent, the CONTRACTOR must, within five calendar days after notification by the COUNTY:

6.6.1 Replace the existing letter of credit with a replacement letter of credit from a financial institution with either of the minimum ratings as specified in the Contract Documents, or

6.6.2 Have the existing letter of credit confirmed by a financial institution with either of the minimum ratings as specified in the Contract Documents.

6.6.3 At the COUNTY'S option, the letter of credit may be replaced by a Public Payment and Performance Bond in accordance with the COUNTY'S existing bond policies.

6.7 Failure to comply with this provision may result in any or all of the following actions by the COUNTY:

6.7.1 Suspension of the CONTRACTOR'S right to pull building permits and schedule inspections;

6.7.2 A stop work order; and/or Revocation of the Land Development Permit.

6.8 Financial Institutions/Letters of Credit

In order to be acceptable to the COUNTY, a financial institution issuing 100% Letters of Credit, called for in these specifications, shall meet and comply with the following minimum standards:

6.8.1 General

The face of the letter of credit must be in a format utilizing Lee County Standard Form and indicate the following:

6.8.1.1 The letter of credit is "clean" and "irrevocable";

6.8.1.2 An exact expiration date. The life of all letters of credit provided to Lee County shall extend twelve months beyond the date of final payment;

6.8.1.3 Statement of the purpose or project for which the letter of credit is issued;

6.8.1.4 A specific amount of the letter of credit, in U.S. dollars;

6.8.1.5 The method of disbursement of draws against the letter of credit;

6.8.1.6 The street address where draws against the letter of credit may be made; and

6.8.1.7 Venue in Lee County.

6.8.1.8 Verification of the status or certification of any financial institution may be made with:

Department of Insurance and Treasurer
Bureau of Collateral Securities
200 East Gaines Street
Tallahassee, FL 32377-0345
Phone (850) 922-3167

Or

Lee County Procurement Management
1500 Monroe Street, 4th Floor
Fort Myers, FL 33901
Phone (239) 533-8881

Or

Lee County Risk Management
2115 Second Street
Fort Myers, FL 33901
Phone (239) 533-2221

6.8.1.9 At the time of issuance of the letter of credit, the financial institution must have a minimum "peer group" rating of 50 in the latest Sheshunoff Quarterly Listing or a minimum rating of 125 in the latest IDC Bank Financial Quarterly Listing.

6.8.1.10 Letters of Credit from financial institutions which do not meet either of the minimum ratings indicated above must be confirmed by a financial institution with either of the minimum ratings indicated above.

6.8.1.11 All financial institutions which issue or confirm any Letter of Credit must be authorized by the Secretary of State to do business in the State of Florida, shall show proof of same upon request by COUNTY staff, and agree to venue in Lee County.

6.8.1.12 In addition to the institutions meeting the aforementioned requirements, the Federal Home Loan Bank of Atlanta is authorized to issue and confirm letters of credit which are in accordance with the provisions above and all subsequent sub-paragraphs.

6.8.1.13 These actions shall be in effect until a satisfactory replacement bond or letter of credit is accepted by the COUNTY. The CONTRACTOR agreement shall so provide for replacement or confirmation in accordance with this policy.

7 Contractor's Liability Insurance

7.1 The CONTRACTOR will purchase and maintain such insurance as will protect him from claims under Worker's Compensation laws, disability benefit laws or other similar employee benefit laws; from claims for damages because of bodily injury, occupational sickness or disease, or death of his employees including claims insured by usual personal injury, sickness and disease, or death

of any person other than his employees including claims insured by usual personal injury liability coverage; and from claims for injury to or destruction of tangible property including loss of use resulting there from any or all of which may arise out of or result from the CONTRACTOR'S operations under the Contract Documents, whether such operations be by himself or any Sub-contractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be legally liable. This insurance shall be written for no less than the limits of liability specified in the Contract Documents or required by law, whichever is greater, and shall include contractual liability insurance. As a prerequisite to the COUNTY signing the Contract, the CONTRACTOR will file with the COUNTY certificates of such insurance, acceptable to the COUNTY; these certificates shall contain a provision for cancellation.

7.2 Insurance Requirements

7.2.1 Before final execution of the Agreement and until acceptance of the Work by the COUNTY, the CONTRACTOR shall procure and maintain insurance of the types and the limits specified by the Insurance Guide included in the Solicitation.

7.2.2 All CONTRACTOR'S Certificates of Insurance must be approved by the Lee County Risk Manager (or designee) before the final execution of the agreement by the COUNTY.

7.2.3 An Insurance Certificate shall be required from the successful BIDDER. Such form must be properly executed and submitted by an authorized representative of the insurance company and successful BIDDER within seven calendar days after notification by Lee County of the Board of County Commissioners' approval to award the contract. Such certificate of insurance state that the coverage is primary, and shall be in the types and amounts stated in the Contract Documents. Certificate should include producers' phone number and reference the name of the project.

8 Contractor's Responsibilities

8.1 Supervision and Superintendence

8.1.1 The CONTRACTOR will supervise and direct the Work efficiently. He will be solely responsible for the means, methods, techniques, sequences, safety, and procedure of construction, unless otherwise specified. The CONTRACTOR will be responsible to see that the finished Work complies with the Contract Documents.

8.1.2 The CONTRACTOR will keep on the site at all times when work is being performed, a competent, resident superintendent who shall not be replaced without prior written notice to the OWNER'S REPRESENTATIVE. The superintendent will be the CONTRACTOR'S representative at the site and shall have authority to act on behalf of the CONTRACTOR. All communications given to the superintendent shall be binding as if given to the CONTRACTOR.

9 Labor Material and Equipment

9.1 The CONTRACTOR will provide competent, suitable, qualified personnel to lay out the Work and perform construction as required by the Contract Documents. He will at all times maintain good discipline and order at the site.

9.2 The CONTRACTOR will furnish all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, heat, light, telephone, water and sanitary facilities and incidentals necessary for the execution, testing, initial operation and completion of the Work unless otherwise specified. All materials and equipment such as concrete pipe, inlets,

manhole covers, etc., furnished by the CONTRACTOR shall be made by the same manufacturer, e.g., all pipe by one company, all inlets by one company, etc.

9.3 All materials and equipment will be new except as otherwise provided in the Contract Documents. If required by the OWNER'S REPRESENTATIVE, the CONTRACTOR will furnish satisfactory evidence as to the kind and quality of materials and equipment furnished.

9.4 All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturers, fabricator or processors except as otherwise provided in the Contract Documents.

9.5 In instances where the act is applicable due to the nature of the bid matter with which this bid package is concerned, all material, equipment, etc., as proposed and offered by CONTRACTOR must meet and conform to all O.S.H.A. requirements; the CONTRACTOR'S signature upon the bid proposal form being by this reference considered a certification of such fact.

10 Adjusting the Progress Schedule

10.1 The CONTRACTOR shall submit to the OWNER'S REPRESENTATIVE for acceptance of adjustments in the progress schedule to reflect the impact thereon of new developments; these will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the Contract Documents applicable thereto. The COUNTY reserves the right to reject the progress schedule from the CONTRACTOR which in its judgment does not appear to devote sufficient resources of manpower to enable the timely completion of the project. If the COUNTY requests the progress schedule to be adjusted, the CONTRACTOR shall do so and perform the work according to the adjusted schedule at no additional cost to the COUNTY.

11 Substitute Materials or Equipment

11.1 If it is indicated in the specifications that the CONTRACTOR may furnish or use a substitute that is equal to any material or equipment specified, and if the CONTRACTOR wishes to furnish or use a proposed substitute, he will, within thirty calendar days after the award of the Contract, make written application to the OWNER'S REPRESENTATIVE for approval of such a substitute, certifying in writing that the proposed substitute will perform adequately the duties imposed by the general design, be similar and of equal substance to that specified and be suited to the same use and capable of performing the same function as that specified. No substitute shall be ordered or installed without the written approval of the COUNTY who shall be the judge of quality. Whether or not the COUNTY accepts a proposed substitute, the CONTRACTOR shall reimburse the COUNTY for any charges or cost for evaluating any proposed substitute.

12 Concerning Sub-contractors

12.1 The CONTRACTOR will be fully responsible for all acts and omissions of his SUB-CONTRACTORS and of persons directly or indirectly employed by them and of persons for whose acts they may be liable to the same extent that they are employed by him. Nothing in the Contract Documents shall create any contractual relationship between any SUB-CONTRACTOR and the COUNTY. The COUNTY may, upon request, furnish to any SUB-CONTRACTOR, to the extent practicable, evidence of amounts paid to the CONTRACTOR on account of specific Work done.

12.2 The divisions and sections of the specifications and the identifications of any Drawings shall not control the CONTRACTOR in dividing the Work among SUB-CONTRACTORS or delineating the Work to be performed by any specific trade.

12.3 The CONTRACTOR agrees to bind specifically every SUB-CONTRACTOR to the applicable

terms and conditions of these Contract Documents for the benefit of the COUNTY.

12.4 All Work performed for the CONTRACTOR by a SUB-CONTRACTOR shall be pursuant to an appropriate agreement between the CONTRACTOR and the SUB-CONTRACTOR which shall contain provisions that waive all rights the contracting parties may have against one another for damages caused by fire or perils covered by insurance, except such rights as they may have to the proceeds of such insurance held by the COUNTY as trustee.

13 Patent Fees and Royalties

13.1 The costs involved in fees, royalties, or claims for any patented invention, article, process or method that may be used upon, or in a manner connected with the work under this contract, shall be paid by the CONTRACTOR. The CONTRACTOR and his sureties, together with his officers, agents, and employees, shall protect and hold the COUNTY harmless against any and all demands made for such fees or claims brought or made by holder of any invention or patent. Before final payment is made on the account of this Contract, the CONTRACTOR shall, if requested by the COUNTY, furnish acceptable proof of a proper release from all such fees or claims.

13.2 Should the CONTRACTOR, his agent, employee, or any of them be enjoined from furnishing or using any invention, article, material or plans supplied or required to be supplied or used under this contract, the CONTRACTOR shall promptly pay such royalties and secure the requisite licenses; or, subject to acceptance by the COUNTY, substitute other articles, materials or appliances in lieu thereof which are of equal efficiency, quality, finish, suitability and market value to those planned or required under the contract. Descriptive information of these substitutions shall be submitted to the OWNER'S REPRESENTATIVE for determination of general conformance to the design concept and the construction contract. Should the COUNTY elect to use the substitution, the CONTRACTOR agrees to pay such royalties and secure such valid licenses as may be requisite for the COUNTY, his officers, agents, and employees, or any of them, to use such invention, article, material, or appliance without being disturbed or in any way interfered with by any proceeding in law or equity on account thereof.

14 Permits

14.1 Unless otherwise specified herein, the CONTRACTOR will secure and pay for all permits, impact fees, and licenses and will pay all governmental charges and inspections' fees necessary for the prosecution of the Work which are applicable at the time of his bid. The CONTRACTOR will also pay all public utility charges and connection fees except as provided for in the Contract Documents. Permits and licenses of regulatory agencies which are necessary to be maintained after completion of the guarantee period shall be secured and paid for by the COUNTY.

14.2 Pursuant to the requirements of F.S. 218.80, the following County permits and fees are required to be obtained and paid for by the CONTRACTOR.

Permit	Agency	Cost
NPDES	FDEP	$400.00
Right-of-Way Permit	LCDOT	$250.00
Dewatering Permit	SFWMD	$100.00

14.2 This is a disclosure of permits and fees, required by Lee County, for this project and does not relieve the contractor of its responsibility to obtain and pay for permits required by other governmental entities as specified elsewhere in this document.

14.3 The CONTRACTOR will give all notices and comply with all laws, ordinances, rules and regulations applicable to the Work. If the CONTRACTOR observes that the Specifications or Drawings are at a variance therewith, he will give the OWNER'S REPRESENTATIVE prompt

written notice thereof, and any necessary changes shall be adjusted by an appropriate modification. If the CONTRACTOR performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations and without such notice to the OWNER'S REPRESENTATIVE, he will bear all cost arising therefrom; however, it shall not be his primary responsibility to make certain that the Drawings and Specifications are in accordance with such laws, ordinances, rules and regulations.

15 Licenses

15.1 The CONTRACTOR must be properly licensed, within the jurisdiction where the project is to be constructed, to perform the work specified in the Scope of Work at the time of bid submittal.

16 Use of Premises

16.1 The CONTRACTOR will confine his equipment, the storage of materials and equipment, and the operations of his workmen to the areas permitted by law, ordinances, permits or the requirements of the Contract Documents and shall not unreasonably encumber the premises with materials or equipment.

17 Record Drawings

17.1 The CONTRACTOR will keep one record copy of all Specifications, Drawings, Addenda, Modifications and Shop Drawings at the site in good order, and annotated to show all changes made during the construction process or addition and exact location of underground or otherwise concealed components such as, but not limited to, plumbing, air conditioning, electric, culverts, drainage structures, water main, force mains, service lines, wiring, traffic loops, pond or ditch bottoms and banks, signal poles, signs, and conduit which were not installed exactly as shown on the contract drawings. These shall be available to the OWNER'S REPRESENTATIVE and shall be verified by the OWNER'S REPRESENTATIVE at 30%, 60%, and 100% completion of the Project. The CONTRACTOR shall submit to the OWNER'S REPRESENTATIVE one complete set of all recorded changes made during Construction entitled "As-Built", and dated. Submittals shall be made in accordance with the above and shall be submitted at the time of substantial completion.

17.2 The sum of $5,000.00 shall be withheld from the final payment until written acceptance or all of the Record Drawings by the OWNER'S REPRESENTATIVE has occurred.

17.3 Certified "as-built" information, which the CONTRACTOR must show on marked-up copies of the design drawings, prints, and other materials as specified above shall include both authorized and unauthorized changes to horizontal pavement dimensions, finish pavement grades, finish dimensions, elevations and alignment of the items noted in Article 17.1, and any modifications to material types from that specified in the bid plans and specifications. As a prerequisite to any payments, the CONTRACTOR shall make available to the Engineer all "as-built" information pertinent to the design drawings each month prior to his submission of a monthly application for payment. The CONTRACTOR shall also obtain "as-built" cross-sections of the roadway, ditches, channels, and other drainage ways as shown in the Contract Documents at intervals not to exceed 100 ft. The CONTRACTOR shall set benchmarks on or within 100 ft. of each control structure constructed as part of this project. A complete description including elevation and location of each control structure benchmark shall be provided to the Engineer as part of the "as-built" information. The elevation shall be clearly and permanently indicated on each benchmark.

17.4 "As-built" dimensions and elevations shall be obtained by a Professional Land Surveyor registered in the State of Florida pursuant to Chapter 472, Florida Statutes. The "as-built" drawings shall be signed and sealed by the CONTRACTOR'S Professional Land Surveyor in accordance with Section 472.025, Florida Statutes.

17.5 All pertinent surveyors' field survey notes containing the "as-built" data shall be sealed and submitted to the Engineer for review and acceptance prior to authorization of the final payment.

17.6 "As-built" data shall be secured and the accuracy of measurements shall be 0.01 ft.

17.7 All sub-surface improvements considered part of the Work as shown in the Contract Documents shall be "as-built" by the CONTRACTOR prior to backfilling.

17.8 A final bench level circuit shall be secured indicating accuracy of vertical closure and a copy of these field notes shall be submitted to the Engineer before final acceptance of the project.

17.9 The CONTRACTOR shall annotate and show all "as-built" information on 11" x 17" prints of the bid plans during the course of the construction process. Upon completion of all contract work, but prior to authorization of the final payment by the Engineer, the CONTRACTOR shall deliver one (1) set of such annotated, in neat draftsman-like manner, "as-built" 11" x 17" prints to the Engineer for approval. Upon approval of such "as-built" plans, the CONTRACTOR shall forthwith provide two (2) sets of these drawings containing all "as-built" information, a CD of the "as-built" electronic files in AutoCAD or MicroStation format and data which have been sealed by a Professional Land Surveyor by the CONTRACTOR at the CONTRACTOR'S cost and forthwith become the property of the COUNTY.

17.10 The cost of preparing, maintaining, and providing "as-built" plans and documents as specified in this Article must be included in the Lump Sum payment for mobilization for each part of the Bid Schedule providing for Mobilization.

17.11 Shop drawing submittals processed by the Engineer shall not be construed as Change Orders; the purpose of a shop drawing is to demonstrate to the Engineer that the CONTRACTOR understands the design concept, and that his understanding is demonstrated by indicating the equipment and material to be furnished and installed. Corrections or changes indicated by the Engineer in the shop drawings do not constitute authorization to perform extra work.

17.12 The review of shop drawings and schedules shall be considered general and shall not be construed as permitting any departures from the contract requirements. The design drawings and contract specifications shall take precedence over the shop drawings in the event of deviations, discrepancy, or conflict.

18 Safety and Protection

18.1 The CONTRACTOR will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. He will take all necessary precautions for the safety of and will provide the necessary protection to prevent damage, injury or loss to:

18.1.1 All employees on the Project and other persons who may be affected thereby;

18.1.2 All the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site; and

18.1.3 Other property at the site or adjacent thereto including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

18.1.4 The CONTRACTOR will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. He will erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for safety and protection and, in addition, he will comply with all applicable recommendations of the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, Inc.; "Roadway and Traffic Design Standards" latest edition published by the Florida Department of Transportation, specifically Index 600-650; and Occupational Safety and Health Administration published by the United States Department of Labor. He will notify owners of

adjacent utilities when prosecution of the Work may affect them. All damage, injury or loss to any property caused directly or indirectly, in whole or in part by the CONTRACTOR, any SUB-CONTRACTOR, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable will be remedied by the CONTRACTOR; except any damage or loss attributable to the fault of the Drawings or the Specifications or to the acts or omissions of the COUNTY, and not attributable, directly or indirectly, in whole or in part, to the fault of negligence of the CONTRACTOR.

18.1.5 The CONTRACTOR will designate a member of his organization whose responsibility will be to plan for the prevention of accidents at the site. This person shall be the CONTRACTOR'S Superintendent unless otherwise designated in writing by the CONTRACTOR to the OWNER'S REPRESENTATIVE.

19 Emergencies

19.1 In emergencies affecting the safety of persons, the Work or property at the site or adjacent thereto, the CONTRACTOR, without special instruction or authorization from the COUNTY, is obligated to act at his discretion to prevent threatened damage, injury or loss. He will give the OWNER'S REPRESENTATIVE prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby. If the COUNTY and the OWNER'S REPRESENTATIVE determine that a change to the Contract Documents is required because of the action taken in response to an emergency, a Field Directive Change or Change Order shall thereupon be issued covering the changes and deviations involved.

20 Shop Drawings and Samples

20.1 After checking and verifying all field measurements, the CONTRACTOR will submit to the OWNER'S REPRESENTATIVE for approval, in accordance with the acceptable schedule of Shop Drawing submission, five copies (or at the option of the OWNER'S REPRESENTATIVE, one reproducible copy) of all Shop Drawings, which shall have been checked by and stamped with the approval of the CONTRACTOR and identified as the OWNER'S REPRESENTATIVE may require. The data shown on the Shop Drawings will be complete with respect to dimensions, design criteria, materials of construction and the like to enable the OWNER'S REPRESENTATIVE to review the information as required.

20.2 The CONTRACTOR will also submit to the OWNER'S REPRESENTATIVE for approval with such promptness as to cause no delay in the Work, all samples required by the Contract Documents. All samples will have been checked by and stamped with the approval of the CONTRACTOR, identified clearly as to material, manufacturer, any pertinent numbers and the use for which intended.

20.3 At the time of each submission, the CONTRACTOR will in writing call the OWNER'S REPRESENTATIVE'S attention to any deviations that the Shop Drawing or sample may have from the requirements of the Contract Documents and, in addition, shall cause a specific notation to be made on each shop drawing submitted for review and approval of each such variation.

20.4 The OWNER'S REPRESENTATIVE will review and approve with reasonable promptness Shop Drawings and Samples, but its review and approval shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The approval of a separate item as such will not indicate approval of the assembly in which the item functions. The CONTRACTOR will make any corrections required by the OWNER'S REPRESENTATIVE and will return the required number of corrected copies of Shop Drawings and re-submit new samples until approved. All cost incurred by the COUNTY for the review of a shop drawing in excess of two reviews shall be the CONTRACTORS responsibility. The

CONTRACTOR'S stamp of approval on any Shop Drawing or sample shall constitute a representation to the OWNER'S REPRESENTATIVE that the CONTRACTOR has either determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers and similar data or he assumes full responsibility for doing so, and that he has reviewed or coordinated each Shop Drawing or sample with the requirements of the Work and the Contract Document.

20.5 No work requiring a Shop Drawing or sample submissions shall be commenced until the submission has been approved by the OWNER'S REPRESENTATIVE. Any related Work performed prior to review and approval by the COUNTY of the pertinent submission will be the sole expense and responsibility of the CONTRACTOR. A copy of each approved Shop Drawing and each approved sample shall be kept in good order by the CONTRACTOR at the site and shall be available to the OWNER'S REPRESENTATIVE.

20.6 The OWNER'S REPRESENTATIVE approval of Shop Drawings or samples shall not relieve the CONTRACTOR from his responsibility for any deviations from the requirements of the Contract Documents, unless the CONTRACTOR has in writing called the OWNER'S REPRESENTATIVE attention to such deviation at the time of submission and the COUNTY and the OWNER'S REPRESENTATIVE have given written approval to the specific deviation; nor shall any approval by the OWNER'S REPRESENTATIVE relieve the CONTRACTOR from responsibility for errors or omissions in the Shop Drawings.

20.6.1 The CONTRACTOR shall, upon completion of the work, furnish to the Engineer two (2) complete sets of prints, neatly bound together, and in good condition, of all the CONTRACTOR'S, Subcontractors' and manufacturers' drawings as finally checked and reviewed by the Engineer with all modifications accepted by the Engineer subsequent thereto, showing the work as actually completed. Such "as-built" information for bridges, culverts, and similar structures shall also be provided by the CONTRACTOR.

21 Indemnification

21.1 The CONTRACTOR shall indemnify, save harmless and defend the COUNTY and all of its officers, agents, consultants and employees from and against all losses, claims, demands, payments, suits, actions, recoveries and judgments of every nature and description brought or recoverable against it or them by reason of any act or omission of the CONTRACTOR, his agent, consultants, employees, sub-contractors etc., in the execution of the work or in consequence of any negligence or carelessness in guarding the same and agrees to assume any related cost.

21.2 The CONTRACTOR shall assume all risk and bear any loss or injury to property or persons occasioned by neglect or accident during the progress of work until the same shall have been completed and accepted. The CONTRACTOR agrees to repair, restore or rebuild any damages he causes to any property of the COUNTY. He shall also assume all blame or loss by reason of neglect or violation of any state or federal law or municipal rule, regulation or order. The CONTRACTOR shall give to the proper authorities all required notices relating to the work, obtain all official permits and licenses and pay all proper fees. He shall repair any damage that may have occurred to any adjoining building, structure, utility or private property in the course of this work.

22 Cleaning Up

22.1 The CONTRACTOR will keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work; at the completion of the Work he will remove all waste materials, rubbish and debris from and about the premises as well as all tools, construction

equipment and machinery, and surplus materials, and will leave the site clean and ready for occupancy by the COUNTY. The CONTRACTOR will restore to their original condition those portions of the site not designated for alteration by the Contract Documents.

22.2 If the CONTRACTOR fails to clean up as provided in the Contract Documents, the COUNTY may do so and the cost thereof shall be deducted from the final retainage due the CONTRACTOR.

23 Continuing the Work

23.1 The CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes and disagreements with the COUNTY. No work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted (The COUNTY May Stop Work) or as the CONTRACTOR and the COUNTY may otherwise agree in writing.

24 Anti-Discrimination

24.1 The CONTRACTOR for itself, its successors in interest, and assignees, as part of the consideration thereof covenant and agree that:

24.2 In the furnishing of services to the COUNTY hereunder, no person on the grounds of race, religion, color, age, sex, national origin, handicap or marital status shall be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination.

24.3 The CONTRACTOR will not discriminate against any employee or applicant for employment because of race, religion, color, age, sex, national origin, handicap or marital status. The CONTRACTOR will make affirmative efforts to insure that applicants are employed and that employees are treated during employment without regard to their race, religion, color, age, sex, national origin, handicap or marital status. Such action shall include, but not be limited to, acts of employment, upgrading, demotion or transfer; recruitment advertising; layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeships.

24.4 CONTRACTOR agrees to post in a conspicuous place, available to employees and applicants for employment, notices setting forth the provisions of this anti-discrimination clause.

24.5 CONTRACTOR will provide all information and reports required by relevant regulations and/or applicable directives. In addition, the CONTRACTOR shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the COUNTY to be pertinent to ascertain compliance. The CONTRACTOR shall maintain and make available relevant data showing the extent to which members of minority groups are beneficiaries under these contracts.

24.6 Where any information required of the CONTRACTOR is in the exclusive possession of another who fails or refuses to furnish this information, the CONTRACTOR shall so certify to the COUNTY its efforts made toward obtaining said information. The CONTRACTOR shall remain obligated under this paragraph until the expiration of three years after the termination of this CONTRACT.

24.7 In the event of breach of any of the above anti-discrimination covenants, the COUNTY shall have the right to impose sanctions as it may determine to be appropriate, including withholding payment to the CONTRACTOR or canceling, terminating or suspending this CONTRACT, in whole or in part.

24.8 Additionally, the CONTRACTOR may be declared ineligible for further COUNTY contracts by rule, regulation or order of the Board of County Commissioners of Lee County, or as otherwise provided by law.

24.9 The CONTRACTOR will send to each labor union, or representative of workers with which the CONTRACTOR has a collective bargaining agreement or other contract of understanding, a notice informing the labor union or worker's representative of the CONTRACTOR'S commitments under this assurance, and shall post copies of the notice in conspicuous places

available to the employees and the applicants for employment.

24.10 The CONTRACTOR will include the provisions in every sub-contract under this contract to insure its provisions will be binding upon each Sub-contractor. The CONTRACTOR will take such action with respect to any Sub-contractor, as the contracting agency may direct, as a means of enforcing such provisions, including sanctions for non-compliance.

25 Work by Others

25.1 The COUNTY may perform additional Work related to the Project by itself, or it may let other direct contracts which shall contain General Conditions similar to these.

25.2 The CONTRACTOR will afford the other Contractors who are parties to such direct contracts (or the COUNTY, if it is performing the additional Work itself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of the Work, and shall properly connect and coordinate his work with theirs. Should the Contract entail relocation of facilities not a part of this Contract, the CONTRACTOR will coordinate and cooperate with the applicable entity responsible for this portion of the Work.

25.3 Water lines, gas lines, wire lines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cableways, signals, and all other utility appurtenances within the limits of the proposed construction which are to be relocated or adjusted are to be moved by the owners at their expense, unless otherwise provided in the Contract. It is understood and agreed that the CONTRACTOR has considered in his bid all of the permanent and temporary utility appurtenances in their present or relocated positions as shown on the plans and that no additional compensation will be allowed for any delays, inconveniences, or damage sustained to him due to any interference from the said utility appurtenances or the operation of moving them. If any part of the CONTRACTOR'S work depends (for proper execution) upon the Work of any such other Contractor (or the COUNTY), the CONTRACTOR will inspect and promptly report to the OWNER'S REPRESENTATIVE in writing, any defects, deficiencies or delays in such Work that render it unsuitable for such proper execution and results. His failure to report shall constitute an acceptance of the Work, except as to defects, deficiencies and delays which may appear in the other Work after the execution of his Work.

25.4 The CONTRACTOR will do all cutting, fitting and patching of his Work, which is consistent with the Contract Documents that may be required to make its several parts come together properly and fit it to receive or be received by such other Work. The CONTRACTOR will not endanger any Work of others by cutting, excavating or otherwise altering such other Work and will only cut or alter such other work with the written consent of the OWNER'S REPRESENTATIVE.

25.5 If the performance of additional Work by other Contractors or the COUNTY is not noted in the Contract Documents prior to the execution of the Contract, written notice thereof shall be given to the CONTRACTOR prior to starting any such additional Work.

25.6 The CONTRACTOR shall be responsible for coordination with all activities with adjacent projects.

26 Owner's Representative Status During Construction

26.1 County's Representatives

26.1.1 The COUNTY shall issue all communications to the CONTRACTOR through the OWNER'S REPRESENTATIVE.

26.2 Clarifications and Interpretations

26.2.1 The OWNER'S REPRESENTATIVE will issue with reasonable promptness, through the COUNTY, such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise)

as the COUNTY may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. If the CONTRACTOR believes that a written clarification or interpretation justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree to the amount or extent thereof, the CONTRACTOR may make a claim.

26.3 Authorized Variations in Work

26.3.1 The OWNER'S REPRESENTATIVE may authorize, with prior approval from the COUNTY 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 Time and are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Change Order and the CONTRACTOR shall perform the Work involved promptly. If the CONTRACTOR believes that a Field Change Order justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree as to the amount or extent thereof, the CONTRACTOR may make a claim.

27 Changes in Work

27.1 Without invalidating the Agreement, the COUNTY may unilaterally and at any time or from time to time order additions, deletions or revisions in the Work; these will be authorized by Change Orders or Field Directive Change. Upon receipt of a Change Order or Field Directive Change, the CONTRACTOR will proceed with the Work involved.

27.2 All such Work shall be executed under the applicable conditions of the Contract Documents.

27.3 If any Change Order or Field Directive Change causes an increase or decrease in the Contract Price or any extension or shortening of the Contract Time, an equitable adjustment will be made.

27.4 Additional Work performed by the CONTRACTOR without written authorization of a change in the form of an approved Change Order will not entitle him to an increase in the Contract Price or any extension of the Contract Time, except in the case of an emergency.

27.5 It is the CONTRACTOR'S responsibility to notify the Surety of any changes affecting the general scope of the Work or change of the Contract Price and the amount of the applicable Bonds shall be adjusted accordingly. The Surety's Acceptance must be submitted to the OWNER'S REPRESENTATIVE, by the CONTRACTOR, within ten calendar days of the initiation of the change.

28 Change of Contract Price

28.1 The Contract Price constitutes the total compensation payable to the CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by the CONTRACTOR shall be at his expense without change in the Contract Price.

28.2 The Contract Price may only be changed by a Change Order. Any claim for an increase or decrease in the Contract Price shall be in writing and delivered to the OWNER'S REPRESENTATIVE within fifteen calendar days of the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within sixty calendar days after such occurrence (unless COUNTY allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR'S written statement that the amount claimed covers all known amounts (direct, indirect, and consequential) to which the CONTRACTOR has reason to believe it is entitled as a result of the occurrence of said event. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance. All claims for adjustment in the Contract Price shall be reviewed by the OWNER'S

REPRESENTATIVE. Any change in the Contract Price shall be incorporated in a Change Order and approved by the COUNTY. No claim by the CONTRACTOR for an equitable adjustment hereunder shall be allowed if asserted after final payment under this Contract.

28.3 Where the Work involved is covered by unit prices contained in the Contract Documents or subsequently agreed upon, by application of unit prices to the quantities of the items involved.

28.4 By mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation.

28.5 By cost of the Work and mutually acceptable fixed amount for overhead and profit agreed upon by the parties.

28.6 If none of the above methods is agreed upon, the value shall be determined by the COUNTY on the basis of cost of the Work and a percentage for overhead and profit. Cost shall only include labor (payroll, payroll taxes, fringe benefits, worker's compensation, etc.), materials, equipment, and other incidentals directly related to the Work involved.

28.7 In such cases the CONTRACTOR will submit in the form prescribed by the COUNTY an itemized cost breakdown together with supporting data. The amount of credit to be allowed by the CONTRACTOR to the COUNTY for any such change which results in a net decrease in cost will be the amount of the actual net decrease as determined by the COUNTY. When both additions and credits are involved in any one change, the combined overhead and profit shall be figured on the basis of the net decrease, if any.

29 Cash Allowance

29.1 It is understood that the CONTRACTOR has included in the Contract Price any allowances so named in the Contract Documents and shall cause the Work so covered to be done by such materialmen, suppliers, or SUB-CONTRACTORS and for such sums within the limit of the allowances as the COUNTY may approve. Upon final payment, the Contract Price shall be adjusted as required and an appropriate Change Order issued. The CONTRACTOR agrees that the original Contract Price includes such sums as he deems proper for cost and profit on account of cash allowances. No demand for an additional sum for overhead or profit in connection therewith will be allowed.

29.2 Unit Price Work

29.2.1 Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the established unit prices 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.

29.2.2 Each unit price will be deemed to include an amount considered by the CONTRACTOR to be adequate to cover the CONTRACTOR'S overhead and profit for each separately identified item.

29.2.3 The unit price of an item of Unit Price Work shall be subject to revaluation and adjustment under the following conditions:

29.2.3.1 If the total cost of a particular item of Unit Price Work amounts to 5% or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by the CONTRACTOR differs by more than 15% from the estimated quantity of such item indicated in the Agreement; and,

29.2.3.2 If there is no corresponding adjustment with respect to any other item of Work; and

29.2.3.3 If the CONTRACTOR believes that it has incurred additional expense as a result thereof; or

29.2.3.4 If the COUNTY believes that the quantity variation entitles it to an adjustment in the unit price, either the COUNTY or the CONTRACTOR may make a claim for an adjustment in the Contract Price if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

30 Change of Contract Time

30.1 The Contract Time may only be changed by a Change Order. Any claim for an extension in the Contract Time shall be in writing and delivered to the OWNER'S REPRESENTATIVE within fifteen calendar days of the occurrence of the event giving rise to the claim and stating general nature of the claim. Notice of the extent of the claim with supporting data (analysis and documentation) shall be delivered within sixty calendar days after such occurrence (unless the OWNER'S REPRESENTATIVE allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR'S written statement that the adjustment claimed is the entire adjustment to which the CONTRACTOR has reason to believe it is entitled as a result of the occurrence of said event. If adverse weather conditions are the basis for a claim for additional time, such claim shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that the weather conditions had an adverse effect on the scheduled construction. No claim by the CONTRACTOR under this provision shall be allowed unless the CONTRACTOR has given the notice and the analysis and documentation required in this paragraph. All claims for adjustment in the Contract Time shall be determined by the OWNER'S REPRESENTATIVE. Any change in the Contract Time resulting from any such claim shall be incorporated in a Change Order.

30.2 The COUNTY shall not be responsible for any delay in the completion of the project where the delay is beyond the control or without fault or negligence on behalf of the COUNTY. The COUNTY shall not be held accountable for extra compensation or an extension of time due to default by the CONTRACTOR, SUB-CONTRACTORS, or suppliers in the furnishing of labor or materials for the project, or having to replace defective materials.

30.3 The CONTRACTOR shall be entitled to a claim for an extension of time when a delay or hindrance is caused by an act of God, or any act or omission on the part of the COUNTY, provided the CONTRACTOR gives notice to the OWNER'S REPRESENTATIVE within fifteen calendar days of the occurrence of the event giving rise to the claim and having stated the general nature of the claim. The CONTRACTOR'S sole remedy shall be an extension of Contract Time.

30.4 No extension of Contract Time or increases in Contract Price shall be granted for any delay caused either by (1) inadequate crewing, default or bankruptcy of lower tier contract, slow submittals, etc., or (2) by severe though not unusual weather conditions (other than hurricanes and tornadoes) or (3) any delay impacting a portion of the Work within the available total float or slack time and not necessarily preventing completion of the Work within the Contract Time unless otherwise agreed to by the COUNTY in its sole discretion or (4) for any delay which is caused by the CONTRACTOR having to replace defective material or equipment or (5) delays attributable to the lack of performance by Sub-contractors regardless of the reasons.

30.5 All time limits stated in the Contract Documents are of the essence of the Agreement. Shall not exclude recovery for damages (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court cost) for delay by either party.

31 Warranty and Guarantee: Acceptance of Defective Work

31.1 Warranty and Guarantee

31.1.1 The CONTRACTOR warrants and guarantees to the COUNTY that all materials and equipment will be new unless otherwise specified and that all Work will be of good quality, free from faults or defects and in accordance with the requirements of the Contract Documents and any inspections, test or approvals referred to in this Article. All unsatisfactory Work, all faulty Work, and all Work not conforming to the requirements of the Contract Documents or such inspections, tests or approvals shall be considered defective. Prompt notice of all defects shall be given to the CONTRACTOR. All defective Work, whether or not in place, may be rejected, corrected or accepted as provided herein. Contractor is to assign any and all warranties or guarantees on equipment, materials, etc. to the COUNTY.

31.2 Tests and Inspections

31.2.1 If the Contract Documents, laws, ordinances, rules, regulations or order of any public authority having jurisdiction require any Work to specifically be inspected, tested or approved by someone other than the CONTRACTOR, the CONTRACTOR will give the OWNER'S REPRESENTATIVE forty-eight (48) hours' notice of readiness therefore. The CONTRACTOR will furnish the OWNER'S REPRESENTATIVE with the required certificates of inspection, testing or approval. All such tests will be in accordance with the methods prescribed by the American Society for Testing and Materials or such other applicable organizations as may be required by law or the Contract Documents. If any such Work required to be inspected, tested or approved is covered without written approval of the OWNER'S REPRESENTATIVE, it shall, if requested by the OWNER'S REPRESENTATIVE, be uncovered for observation at the CONTRACTOR'S expense. The cost of all such inspections, tests and approvals shall be borne by the CONTRACTOR unless otherwise provided.

31.2.2 Project field testing of materials required by the specifications or the OWNER'S REPRESENTATIVE shall be provided by and at the expense of the COUNTY. The CONTRACTOR shall coordinate and schedule the required testing. The Contractor shall pay for all retests when the initial test result reveals that the materials failed to meet the requirements of the specifications. The CONTRACTOR shall notify the OWNER'S REPRESENTATIVE twenty-four (24) hours prior to conducting any test so the OWNER's REPRESENTATIVE may be present.

31.2.3 The OWNER'S REPRESENTATIVE shall have the right to require all materials to be submitted to tests prior to incorporation in the Work. In some instances, it may be expedient to perform these tests at the source of supply, and for this reason, it is required that the CONTRACTOR furnish the OWNER'S REPRESENTATIVE with the information concerning the location of his source before incorporating material into the Work. This does not in any way obligate the OWNER'S REPRESENTATIVE to perform tests for acceptance of material and does not relieve the CONTRACTOR of his responsibility to furnish satisfactory material. The CONTRACTOR shall furnish manufacturer's certificates of compliance with these specifications covering manufactured items incorporated in the Work.

31.2.4 Neither observations by the OWNER'S REPRESENTATIVE, nor inspections, tests or approvals by persons other than the CONTRACTOR shall relieve the CONTRACTOR from his obligations to perform the Work in accordance with the requirements of the Contract Documents.

31.2.5 Testing/Permits: The CONTRACTOR shall be responsible for performing any testing and the cost for all items that may be required as part of the NPDES, FDEP, USACOE

and SFWMD permits.

32 Close Out Procedure

32.1 General Operating/Maintenance Instructions & Manuals

32.1.1 The CONTRACTOR shall organize maintenance operating manual information into four suitable sets of manageable size, and bind into individual binders properly identified and indexed (thumb-tabbed). Emergency instructions, spare parts listing, warranties, wiring diagrams, recommended "turn around" cycles, inspection procedures, shop drawings, product data, and similar acceptable information shall be included. The CONTRACTOR shall bind each manual of each set in a heavy duty, 3-ring vinyl covered binder, and include pocket folders for folded sheet information. Mark identification on both front and spine of each binder.

32.1.2 Arrange for each installer of work requiring continuing maintenance (by the OWNER) or operation, to meet with the OWNER'S personnel, at the project site, to provide basic instructions needed for proper operation and maintenance of the entire work. Include instructions by manufacturer's representatives where installers are not expert in the required procedures. Review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuels, identification system, control sequences, hazards, cleaning and similar procedures and facilities. For operational equipment, demonstrate start-up, shut-down, emergency operations, noise and vibration adjustments, safety, economy/efficiency adjustments, and similar operations. Review maintenance and operations in relation with applicable guaranties, warranties, agreements to maintain, bonds, and similar continuing commitments.

33 Access to the Work

33.1 The COUNTY and the OWNER'S REPRESENTATIVE shall at all times have access to the Work. The CONTRACTOR shall provide proper facilities for such access and observation of the Work and also for any inspection or testing thereof by others.

34 Uncovering the Work

34.1 If any work has been covered which the OWNER'S REPRESENTATIVE has not specifically requested to observe prior to its being covered, or if the OWNER'S REPRESENTATIVE considers it necessary or advisable that covered Work be inspected or tested by others, the CONTRACTOR, at the OWNER'S REPRESENTATIVE'S request, will uncover, expose or otherwise make available for observation, inspection or testing as the OWNER'S REPRESENTATIVE 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, the CONTRACTOR will bear all the expense of such uncovering, exposure, observation, inspection and testing, and of satisfactory reconstruction. If, however, such Work is not found to be defective, the CONTRACTOR will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction, if he makes a claim therefore.

35 County May Stop Work

35.1 If the Work is defective, if the CONTRACTOR fails to supply sufficient skilled workmen or suitable materials or equipment, or if the CONTRACTOR fails to make prompt payments to SUB-CONTRACTORS for labor, materials or equipment: the COUNTY may order the CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the COUNTY to stop the work shall not give rise to

any duty on the part of the COUNTY to exercise this right for the benefit of the CONTRACTOR or any other party.

35.2 Notwithstanding Paragraph 35.1, the COUNTY may also issue a Stop Work Order for the following reasons:

35.2.1 Insufficient Maintenance of Traffic practices.

35.2.2 Failure to comply with permits regarding pollution control.

35.2.3 Insufficient construction materials or methods.

35.2.4 Failure to provide a safe working environment in accordance with the US Department of Labor Occupational Safety and Health Administration (OSHA).

35.3 Upon notice of the Stop Work Order, the CONTRACTOR shall cease all contracted work except for the activities required to correct the problem and as directed by the COUNTY.

35.4 If the CONTRACTOR fails to correct the problem causing the Stop Work Order and there is immediate threat to the public's health, safety, or environmental protection, the COUNTY may perform any remedial activities necessary to protect the public and environment. Any costs incurred by the County in the performance of this work shall be deducted from monies due the Contractor or paid by the Contractor to the County.

35.5 No increase in the Contract Price or extension of the Contract Time will be granted for any delays or loss of time due to a Stop Work Order.

36 Correction or Removal of Defective Work

36.1 If required by the OWNER'S REPRESENTATIVE prior to approval of final payment, the CONTRACTOR will, promptly, without cost to the COUNTY and as specified by the OWNER'S REPRESENTATIVE, either correct any defective Work whether or not fabricated, installed or completed or, if the Work has been rejected by the OWNER'S REPRESENTATIVE, remove it from the site and replace it with non-defective Work. If the CONTRACTOR does not correct such defective Work or remove and replace such rejected Work within ten calendar days, all as specified in a written notice from the OWNER'S REPRESENTATIVE, the OWNER'S REPRESENTATIVE may have the deficiency corrected or the rejected Work removed and replaced. All direct or indirect costs of such correction or removal and replacement shall be paid by the CONTRACTOR. The CONTRACTOR will also bear the expense of making good all Work of others destroyed or damaged by his correction, removal or replacement of his defective Work.

37 One Year Correction Period

37.1 If, after the approval of the final payment and prior to the expiration of one year after the date of Final Completion or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any Work is found to be defective, the CONTRACTOR will promptly, without cost to the COUNTY, and in accordance with the OWNER'S REPRESENTATIVE'S written instructions, either correct such defective Work or, if it has been rejected by the OWNER'S REPRESENTATIVE, remove it from the site and replace it with non-defective Work. If, within seven calendar days, the CONTRACTOR does not comply with the terms of such instructions, the Bonding Company shall be notified of default and requested to make repairs or replacement, the COUNTY may have the defective Work corrected or the rejected Work removed and replaced. All direct and indirect costs of such removal and replacement shall be paid by the CONTRACTOR.

38 Acceptance of Defective Work

38.1 If, instead of requiring correction or removal and replacement of defective Work, the COUNTY prefers to accept it, the COUNTY may do so. In such case, if acceptance occurs prior to approval of final payment, a Change Order shall be issued incorporating the appropriate revisions to the Contract Documents including an appropriate reduction in the Contract Price. If the acceptance occurs after approval of the final payment, an appropriate amount shall be paid by the CONTRACTOR to the COUNTY.

39 Neglected Work By Contractor

39.1 If the CONTRACTOR should neglect to prosecute the Work in accordance with the Contract Documents, including any requirements of the progress schedule, the COUNTY may, after three calendar days written notice to the CONTRACTOR and without prejudice to any other remedy it may have, make good such deficiency and the cost thereof shall be charged against the CONTRACTOR. A Change Order shall be issued incorporating the appropriate revision to the Contract Documents including an appropriate reduction in the Contract Price. If the payments then or thereafter due the CONTRACTOR are not sufficient to cover such amount, the CONTRACTOR shall pay the difference to the COUNTY.

40 Payment and Completion

40.1 Schedule of Values

40.1.1 Within ten (10) calendar days after the effective date of the Agreement, the CONTRACTOR must submit a schedule of values of the Work including quantities and unit prices totaling to the Contract Price. This schedule shall be satisfactory in form and substance to the COUNTY and shall subdivide the Work into sufficient detail to serve as the basis for progress payments during construction. Upon approval of the schedule of values by the OWNER'S REPRESENTATIVE, it shall be incorporated into the Estimate and Requisition for Payment prescribed by the COUNTY. Unit Price Contracts shall have the bid proposal prices incorporated into the Estimate and Requisition for Payment.

40.2 Application for Progress Payment

40.2.1 Bid proposal units and unit prices shall serve as the basis for progress payments during construction. The bid proposal process shall be incorporated into the Estimate and Requisition for Payment Form No. CSD:505(4) prescribed by the COUNTY.

40.2.2 Not more often than once a month, nor less often than specified in the approved payment schedule, and on a date established at the Project Pre-Construction Conference, the CONTRACTOR will submit to the OWNER'S REPRESENTATIVE for review the Estimate and Requisition for Payment form filled out and signed by the CONTRACTOR covering the Work completed as of the date of the Application and supported by such data as the OWNER'S REPRESENTATIVE may reasonably require. Also, 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 such supporting data, satisfactory to the OWNER'S REPRESENTATIVE, as will establish the COUNTY'S title to the material and equipment and protect its interest therein, including applicable insurance. All progress payments will be subject to the retainage percentage specified in the Contract Documents. Such retainage shall be paid and will be issued in the final payment after acceptance by the COUNTY of the Work.

41 Contractor's Warranty of Title

41.1 The CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by an application for progress payment, whether incorporated in the Project or not, will be passed to the COUNTY prior to the next making of application for progress payment, free and clear of all liens, claims, security interest and encumbrances; and that no Work, materials or equipment covered by an Application for Payment will have been acquired by the CONTRACTOR or by any other person performing the Work at the site or furnishing materials and equipment for the Project subject to an agreement under which an interest therein or encumbrance thereon is retained by the seller or otherwise imposed by the CONTRACTOR or such other person.

42 Approval of Payments

42.1 The OWNER'S REPRESENTATIVE will, within ten calendar days after receipt of each Application for Payment, either indicate his approval of payment and deliver the application to the COUNTY or return the Application to the CONTRACTOR indicating in writing the reason for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and re-submit the Application. The COUNTY will, within five calendar days after receipt of each approved application for payment, either indicate their approval of payment, and within fifteen calendar days pay the CONTRACTOR the amount approved, or return the application to the CONTRACTOR thru the OWNER'S REPRESENTATIVE indicating in writing the reason for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the application to the OWNER'S REPRESENTATIVE.

42.2 The OWNER'S REPRESENTATIVE'S approval of any payment requested in an Application for Payment shall constitute a representation by him to the COUNTY, based on the OWNER'S REPRESENTATIVE'S on-site observations of the Work in progress and on his review of the Application for Payment and the supporting data that the CONTRACTOR is entitled to payment of the amount approved.

42.3 The OWNER'S REPRESENTATIVE'S approval of final payment shall constitute an additional representation by him to the COUNTY that the conditions precedent to the CONTRACTOR'S being entitled to final payment as set forth have been fulfilled.

42.4 The OWNER'S REPRESENTATIVE may refuse to approve the whole or any part of any payment if in his opinion; he is unable to make such representations to the COUNTY. He may then refuse to approve any such payment because of subsequently discovered evidence or the results of subsequent inspections or test, nullify any such payment previously approved, to such extent as may be necessary in his opinion to protect the COUNTY from loss because:

42.4.1 The Work is defective;

42.4.2 A portion of such payment is the subject of a dispute or claim that has been filed;

42.4.3 The Contract Price has been reduced because of Modifications;

42.4.4 The COUNTY has been required to correct defective Work or complete the Work, or of unsatisfactory prosecution of the Work, including failure to clean up as required.

43 Substantial Completion

43.1 Prior to final payment, the CONTRACTOR shall, in writing to the OWNER'S REPRESENTATIVE, certify that the entire Project is substantially complete and request that the OWNER'S REPRESENTATIVE issue a Certificate of Substantial Completion. Within fourteen calendar days thereafter, the OWNER'S REPRESENTATIVE and the

CONTRACTOR will make an inspection of the Project to determine the status of completion. If the COUNTY does not consider the Project substantially complete, it will notify the CONTRACTOR in writing giving the reasons therefore. If the COUNTY considers the Project substantially complete, a Certificate of Substantial Completion will be issued. This certificate shall fix the date of Substantial Completion and the responsibilities between the COUNTY and the CONTRACTOR for maintenance, heat and utilities. The Certificate of Substantial Completion will also include a punch list of items to be completed or corrected, said time to be within the Contract Time. The COUNTY shall have the right to exclude the CONTRACTOR from the Project after the date of Substantial Completion but the COUNTY will allow the CONTRACTOR reasonable access to complete items on the punch list.

44 Partial Utilization

44.1 Prior to final payment, the OWNER'S REPRESENTATIVE may request the CONTRACTOR to permit the use of a specified part of the Project which the COUNTY believes it may use without significant interference with construction of the other parts of the Project. If the CONTRACTOR agrees, he will certify to the OWNER'S REPRESENTATIVE that said part of the Project is substantially complete and request the OWNER'S REPRESENTATIVE to issue a Certificate of Substantial Completion for that part of the Project. Within fourteen calendar days thereafter, the OWNER'S REPRESENTATIVE and the CONTRACTOR will make an inspection of that part of the Project to determine its status of completion. If the COUNTY considers that part of the Project to be substantially complete, the OWNER'S REPRESENTATIVE will deliver to the CONTRACTOR a certificate to that effect, fixing the date of Substantial Completion as to that part of the Project, and listing the punch list of items to be completed or corrected before final payment and fixing the responsibility between the COUNTY and the CONTRACTOR for maintenance, heat and utilities as to that part of the Project. The COUNTY shall have the right to exclude the CONTRACTOR from any part of the Project which is so certified to be substantially complete but the COUNTY will allow the CONTRACTOR reasonable access to complete or correct items on the punch list.

45 Final Inspection

45.1 Upon written notice from the CONTRACTOR that the Project is complete, the OWNER'S REPRESENTATIVE will make a final inspection with the CONTRACTOR and will notify the CONTRACTOR in writing of any particulars which this inspection reveals that the Work is defective. The CONTRACTOR shall immediately make such corrections as are necessary to remedy the defects within a reasonable time.

46 Final Inspection for Payment

46.1 After the CONTRACTOR has completed any such corrections to the satisfaction of the OWNER'S REPRESENTATIVE and delivered all maintenance and operating instructions, schedules, guarantees, bonds, Certificates of Inspection and other documents as required by the Contract Documents, he may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by legally effective final releases or waivers of liens from the CONTRACTOR and all SUB-CONTRACTORS which performed services for the CONTRACTOR pursuant to the Contract Documents and the consent of surety, if applicable to final payment.

47 Approval of Final Payment

47.1 If, on the basis of its observations and review of the Work during construction, its final inspection and its review of the final Estimate and Requisition for Payment, all as required by the Contract Documents, the OWNER'S REPRESENTATIVE is satisfied that the Work has been completed and the CONTRACTOR has fulfilled all of his obligations under the Contract Documents, it will, within ten calendar days after receipt of the final Application for Payment, indicate in writing its approval of payment and deliver the application to the COUNTY. Otherwise, it will return the Application to the CONTRACTOR, indicating in writing its reason for refusing to approve final payment, in which case the CONTRACTOR will make the necessary corrections and re-submit the Application. The COUNTY will, within fifteen calendar days after receipt of approved application for final payment, either indicate their approval of the estimate and requisition application for payment and within fifteen calendar days pay the CONTRACTOR the amount approved by the COUNTY and issue a Certificate of Final Completion or return the application thru the OWNER'S REPRESENTATIVE indicating in writing the reason for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the application to the OWNER'S REPRESENTATIVE.

47.2 If, after substantial Completion of the Work, final completion is materially delayed through no fault of the CONTRACTOR, and the OWNER'S REPRESENTATIVE so confirms, the COUNTY shall 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 for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required, 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 the CONTRACTOR to the OWNER'S REPRESENTATIVE, prior to certification of 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.

47.3 If liquidated damages are to be deducted from the final payment, the COUNTY shall so notify the CONTRACTOR in writing at least seven calendar days prior to the COUNTY'S submittal to Finance.

47.4 The Contractor will be required to submit with his final payment documents a DBE Participation Certification, indicating all DBE sub-contractor(s) and amount(s) utilized for the project.

47.5 If the CONTRACTOR did not utilize the DBE firm(s) listed on the Bid Proposal, a letter of justification, as to why shall be submitted along with the DBE Participation Certification.

47.6 At the final completion of the construction project if the county project manager experienced problems with the CONTRACTOR the project manager will prepare a Contractor Performance Evaluation, and forward to the Contractor for review, comment and signature.

47.7 Upon receipt of the Contractor Performance Evaluation the CONTRACTOR will have seven calendar days, from the date received, to review, comment, sign and return back to the project manager. If the evaluation has not been received back from the CONTRACTOR within the seven calendar days, the COUNTY will assume the CONTRACTOR fully agrees with and has no comments to the evaluation. The evaluation will then be placed on file with Lee County Procurement Management.

48 Contractor's Continuing Obligation

48.1 The CONTRACTOR'S obligation to perform the Work and complete the Project in accordance with the Contract Documents shall be absolute. Neither approval of any progress or final payment by the COUNTY, the issuance of the Certificates of Completion, any payment by the

COUNTY to the CONTRACTOR under the Contract Documents, any use or occupancy of the Project or any part thereof by the COUNTY, any act of acceptance by the COUNTY, any failure to do so, nor any correction of defective Work by the COUNTY shall constitute an acceptance of Work not in accordance with the Contract Documents.

49 Waiver of Claims

49.1 The making and acceptance of final payment shall constitute:

49.1.1 A waiver of all claims by the COUNTY against the CONTRACTOR other than those arising from unsettled liens, from defective Work appearing after final payment or from failure to comply with the requirements of the Contract Documents, or from the terms of any special guarantees specified therein, and,

49.1.2 A waiver of all claims by the CONTRACTOR against the COUNTY other than those previously made in writing and still unsettled.

50 Suspension of Work and Termination

50.1 County May Suspend Work

50.1.1 The COUNTY may at any time and without cause suspend the Work or any portion thereof for a period of not more than ninety calendar days by notice in writing to the CONTRACTOR. The COUNTY shall fix the date on which Work shall be resumed and the CONTRACTOR will resume the Work on the date so fixed. The CONTRACTOR will be allowed an increase in the Contract Price, an extension of the Contract Time or both, if such increases are justified and directly attributable to any COUNTY suspension and if he makes a claim thereof.

51 County May Terminate

51.1 If the CONTRACTOR is adjudged bankrupt or insolvent, if he makes a general assignment for the benefit of his creditors, if a trustee or receiver is appointed for the CONTRACTOR or for any of his property, if he files a petition to take advantage of any debtor's act or reorganizes under the bankruptcy or similar laws, if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, if he repeatedly fails to make prompt payments to SUB-CONTRACTORS for labor, materials or equipment, if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction, if he disregards the authority of the OWNER'S REPRESENTATIVE, or if he otherwise substantially violates any provisions of the Contract Documents, then the COUNTY may, without prejudice to any other right or remedy and after giving the CONTRACTOR and his surety seven (7) calendar days' written notice, terminate the services of the CONTRACTOR and take possession of the Project and all materials, equipment, tools, construction equipment and machinery thereon owned by the CONTRACTOR and finish the Work by whatever method the COUNTY may deem expedient or arrange with the Surety to complete the project. The CONTRACTOR, if notified by the COUNTY to do so, shall promptly remove any part of his equipment and supplies from the property of the COUNTY; failing, the COUNTY shall have the right to remove such equipment and supplies at the expense of the CONTRACTOR.

51.2 In such case the CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect cost of completing the Project, including compensation for additional professional services, such excess shall be paid to the CONTRACTOR. If such cost exceeds such unpaid balance, the CONTRACTOR will pay the difference to the COUNTY. Such cost incurred by the COUNTY will be determined by the COUNTY and incorporated in a Change Order.

51.3 Where the CONTRACTOR'S services have been so terminated by the COUNTY, said

termination shall not affect any rights of the COUNTY against the CONTRACTOR then existing or which may thereafter accrue.

51.4 If so terminated, any retention or payment of monies by the COUNTY due the CONTRACTOR will not release the CONTRACTOR from liability accruing under this Contract.

51.5 If after notice of termination of the CONTRACTOR'S right to proceed under the provisions of this clause, it is determined for any reason that the CONTRACTOR was not in default under the provisions or that the delay was excusable, the rights and obligations of the parties shall be the same as if the notice of termination had not been issued.

51.6 Upon thirty (30) calendar days' written notice to the CONTRACTOR, the COUNTY may without cause and without prejudice to any other right or remedy elect to abandon the Project and terminate the Agreement. In such case the CONTRACTOR shall be paid for all Work executed and any expense sustained plus a reasonable profit.

52 Contractor May Stop Work or Terminate The Contract

52.1 If through no fault of the CONTRACTOR, or a Sub-contractor, or their agents or employees or any other persons performing portions of the Work under Contract with the CONTRACTOR, the WORK is suspended for a period of more than ninety calendar days by the COUNTY or under an order of court or other public authority, or the OWNER'S REPRESENTATIVE has not issued a certificate for payment and has not notified the CONTRACTOR of the reason for withholding certification or because the COUNTY has not made payment on a certificate for payment within the time stated in the Contract Documents, then the CONTRACTOR may, upon seven calendar days written notice to the COUNTY and the OWNER'S REPRESENTATIVE, terminate the Agreement and recover from the COUNTY payment for all Work executed and proven loss with respect to materials, equipment, tools and construction equipment and machinery, including reasonable overhead, profit and damages.

52.2 In addition and in lieu of terminating the Agreement, if the OWNER'S REPRESENTATIVE has failed to act on an application for payment or the COUNTY has failed to make any payment as aforesaid, the CONTRACTOR may upon seven calendar days written notice to the COUNTY and the OWNER'S REPRESENTATIVE stop the Work until payment of all amounts then due. The provisions of this paragraph shall not relieve the CONTRACTOR of the obligation to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with the COUNTY.

53 Miscellaneous

53.1 General

53.1.1 All Specifications, Drawings and copies thereof furnished by the COUNTY, to the CONTRACTOR, shall remain the COUNTY'S property. They shall not be used on another Project.

53.1.2 The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder, and, in particular but without limitation, the warrants, guarantees and obligations imposed upon the CONTRACTOR and the rights and remedies available to the COUNTY thereunder shall be in addition to and not a limitation of any otherwise imposed or available by law, by special guarantee or other provisions of the Contract Documents.

53.1.3 Should the COUNTY or the CONTRACTOR suffer injury or damage to its person or property because of any error, omission or act of the other or any of his employees, agents, or others for whose acts he is legally liable, claim should be made in writing to the other party within seven calendar days of the first observance of such injury or damage.

53.1.4 The Contract Documents shall be governed by the laws of the State of Florida, the County of Lee, and the municipality in which the project is being done.

53.2 Right-of-Way Station Boards: The CONTRACTOR must establish and maintain throughout construction the right-of-way station boards at every even station within ten (10) days after the Notice to Proceed to assist and expedite construction and utility coordination. No additional compensation or separate pay item will be made for this work.

53.3 Abbreviations: Reference in the technical specifications to the specifications or requirements of technical societies, associated organization, or bodies shall mean their most current specifications. These groups are identified in the technical specifications.

53.4 Use of Public Streets: The use of public streets and roads shall be such as to minimize any inconvenience to the public and to other traffic. Any earth or other excavation materials spilled from trucks shall be removed by the CONTRACTOR and the streets and roads shall be cleaned by the CONTRACTOR to the satisfaction of the COUNTY.

53.5 Damage to Existing Property, Structures and Utilities: The CONTRACTOR shall be held responsible for and shall repair all damage to pavement beyond the limits of the contract or outside the right-of-way. Also, the CONTRACTOR shall repair if damaged buildings, telephone or other cables, poles, signs, mailboxes, irrigation piping, water pipes, sanitary pipes, or other structures which may be encountered, whether or not they are shown on the Drawings. Information shown on the Drawings as to the location of existing utilities has been prepared from the most reliable data available to the Engineer. However, this information is not guaranteed, and it shall be the CONTRACTOR'S responsibility to determine the location, character, and depth of any existing utilities. The CONTRACTOR shall assist the utility companies, by every means possible, to determine said locations. The CONTRACTOR shall exercise extreme caution to eliminate any possibility of any damage to utilities resulting from his activities.

53.5.1 At least two (2) business days prior to excavating any section of the Work, the CONTRACTOR shall call the utility companies noted on the plans and inform them that Work on the specific section is about to commence and request that they field locate their underground utilities.

53.5.2 When proceeding with the Work, the CONTRACTOR shall exercise due caution to protect all underground and overhead utilities and existing structures from damage. In keeping with the Trench Safety Act, the CONTRACTOR shall provide all sheeting, shoring, and bracing that may be required to properly protect adjacent property, structures and people. The CONTRACTOR shall repair, to the satisfaction of the OWNER, any surface or subsurface Improvement damaged during the course of the Work (unless such improvement is shown to be abandoned or removed) whether or not such improvement is shown on the Drawing. Should any utilities be encountered that are not shown on the Drawing, the CONTRACTOR shall immediately notify the OWNER'S REPRESENTATIVE and shall take all due caution necessary to protect the utility.

53.6 Adjustment of Grades: Adjustments of grades shown on Drawings may be necessary to conform to actual field conditions or to maintain cover under proposed future grades. Such adjustments shall be considered part of the job conditions and no extra compensation will be allowed for such changes, except where specifically otherwise noted in the plans or specifications. Such adjustments must be approved by the OWNER'S REPRESENTATIVE prior to being made.

53.7 Existing Drainage: Existing drainage shall be maintained at all times and drainage under construction shall be left open so as not to cause flooding due to blockage. Any damage to construction caused by this requirement shall be the responsibility of the CONTRACTOR.

53.8 Reference to Other Specifications

53.8.1 Reference to FDOT Specifications shall mean the State of Florida Department of Transportation Standard Specifications for Road and Bridge Construction dated July 2016 and supplements thereto unless specifically stated otherwise in the Contract Documents. Where an FDOT Specification section cites or contains references to other sections, they shall also be included as though cited herein. Where FDOT Specifications refer to the "Engineer", "Engineer of Test" or "Division of Test", it shall be understood to mean the OWNER'S REPRESENTATIVE or his designee. Where FDOT Specifications refer to the "Department", it shall mean the Department of Transportation of Lee County, Florida.

53.8.2 In case of conflict between the referenced FDOT Specifications and the Contract Documents, the Contract Documents shall govern.

53.8.3 Reference to AASHTO and ASTM are to the latest editions of published text of the American Association of Highway and Transportation Officials and the American Society for Testing and Materials, respectively.

53.9 Shoring

53.9.1 Unless trench banks are cut back on a stable slope, sheet and brace trenches shall be used as necessary to prevent caving or sliding, to provide protection for workmen and the pipe, and to protect adjacent structures and facilities. The CONTRACTOR shall not brace sheeting against the pipe, but shall brace it so that no concentrated loads of horizontal thrust are transmitted to the pipe. If portable metal box is used for bracing the slopes, the CONTRACTOR shall take care not to disturb the pipe when the box is removed.

53.9.2 The CONTRACTOR must comply with the Trench Safety Act, Florida Statutes Sections 553.60 – 553.64. Cost of compliance is not a separate pay item. Costs shall be included in the cost of pipe placement.

53.10 Dewatering: Dewatering of excavations, trenches, structures and utilities may be required. The CONTRACTOR shall be responsible for obtaining water use permits for dewatering operations, as necessary, from the South Florida Water Management District. No separate payment will be made for dewatering operations or procurement of dewatering permits. Costs shall be included in the cost of items as included in the Bid Form.

53.11 Excess Excavated Material: Unless otherwise specified, all excavated material in excess of the needs for backfill and area fill shall become the property of the CONTRACTOR, and the CONTRACTOR shall remove same from the project.

53.12 Asphalt Paving Conference: A pre-paving conference shall be held prior to any asphalt placement. The conference is intended to closely coordinate the CONTRACTOR'S plant and site personnel with the COUNTY'S plant and field inspectors and establish expected quality assurance procedures. The CONTRACTOR shall not perform any paving prior to this conference.

53.13 Rock Excavation: All excavations for the installation of pipes, structures, foundations, or other contract items shall be unclassified and no additional or separate payment for rock excavation shall be provided nor shall additional or separate payment be made for backfill required to compensate for excavated rock material that cannot be reused as backfill.

53.14 Permits

53.14.1 Copies of permits for this project other than for dewatering or NPDES will be provided by the COUNTY.

53.14.2 The CONTRACTOR shall abide by all conditions, statutes, and regulations issued by the jurisdiction authorities, boards and agencies of the COUNTY, State and Federal Governments. The CONTRACTOR shall be fully responsible for the execution and

adherence to all directives, instructions, conditions, issuance of notices, special conditions, and limiting conditions contained in permits specifically issued for this project and which pertain to or affect the construction phase of this project. Except as may be provided elsewhere in these documents, the cost of materials, supplies, labor testing, permit fees and other direct or indirect expenses required to abide by or execute conditions of the permits shall be paid for by the CONTRACTOR. There is no direct or specific payment item in the bid for cost due to compliance with said permits. The CONTRACTOR'S reimbursement for said costs shall be distributed within the various items of work and materials associated with the construction of the project.

53.15 Field Office: CONTRACTOR is not required to provide a field office within the project limits as long as CONTRACTOR has a field office within Lee, Collier or Charlotte County prior to bidding. If CONTRACTOR does not have an established office within Lee, Collier or Charlotte County, then the CONTRACTOR shall provide and staff a field office within the project limits for the entire project duration, per FDOT requirements. This item shall be compensated under the mobilization item and no separate payment will be made. The CONTRACTOR shall coordinate the location of this field office with the Lee County Project Manager prior to the issuance of the Notice to Proceed.

54 Computation of Time

54.1 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.

55 Maintenance of Records

55.1 The CONTRACTOR shall keep adequate records and supporting documents applicable to this contractual matter. Said records and documentation will be retained by the CONTRACTOR for a minimum of five years from the date of termination of this Contract. The COUNTY and its authorized agents shall have the right to audit, inspect and copy records and documentation as often as the COUNTY deems necessary during the period of this Contract and during the period of five years thereafter; provided, however, such activity shall be conducted only during normal business hours. The COUNTY, during the period of time expressed by the preceding sentence, shall also have the right to obtain a copy of, and otherwise inspect, any audit made at the direction of the CONTRACTOR as concerns the aforesaid records and documentation.

55.2 Vendor specifically acknowledges its obligations to comply with §119.0701, F.S., with regard to public records, and shall:

55.2.1 keep and maintain public records that ordinarily and necessarily would be required by the County in order to perform the services required under this Agreement;

55.2.2 provide the public with access to public records on the same terms and conditions that the County would provide the records and at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law;

55.2.3 ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed, except as authorized by law; and

55.2.4 meet all requirements for retaining public records and transfer, at no cost to the County, all public records in possession of Vendor upon termination of this Agreement and destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. All records stored electronically must be provided to the County in a format that is compatible with the information technology system of the County.

55.3 **IF THE VENDOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE VENDOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THE CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT 239-533-2221, 2115 SECOND STREET, FORT MYERS, FL 33901, http://www.leegov.com/publicrecords.**

56 Federal Requirements

56.1 In the event this Contract is paid in whole or in part from any Federal Governmental agency or source, the specific terms, regulations and requirements governing the disbursement of these funds are incorporated by reference and made a part of this Contract as if attached hereto and become a part of this clause.

End of General Conditions Section

LEE COUNTY, FLORIDA
DETAILED CONSTRUCTION SPECIFICATIONS AND SCOPE OF WORK
FOR
ORANGE GROVE BLVD FROM PONDELLA RD TO HANCOCK BRIDGE PKWY
WATER MAIN IMPROVEMENTS

1. SCOPE

1.1 Lee County Board of County Commissioners and the Utilities Department seek to contract with a qualified Contractor to provide necessary services to construct and install approximately 6,210 linear feet of potable water main including High Density Polyethylene (HDPE), Premature Ventricular Complex (PVC) and Ductile Iron Pipe (DIP) ranging from 4" to 12" in diameter. The work includes 1,303 linear feet of Directional Bore 12" DR-11 HDPE potable water main with 273 linear feet of 24" DR-11 HDPE casing. Additionally, included in the scope is maintenance of traffic, concrete sidewalk, milling and resurfacing, roadway repair, driveway repair, finish grading of Right of Way and sodding.

1.2 The scope of work is further defined and detailed within the attached specifications titled *Technical Specifications and Report of Geotechnical Exploration* affixed to this solicitation package as well as within the plans associated with this project. Bidders are responsible for reviewing all documentation associated with this project.

2. BASIS OF AWARD

2.1 The basis of award shall be determined by the lowest *Project Total Bid (Base + Alternate "A" or Alternate "B")* of the most responsive, responsible, and qualified Contractor meeting all bid specifications.

2.2 Bidders are required to bid on **ALL Base Bid Line Items and Optional Bid Line Items**. Bidders MUST also select to bid on all items under **EITHER** Alternate "A" or Alternate "B". Bidders shall not provide pricing for both alternate categories. Should a Bidder provide pricing for both alternate categories their bid shall be deemed non-responsive and therefore ineligible for award. Additionally, should a Bidder fail to bid all Base Bid + Optional work, their bid shall be deemed non-responsive and therefore ineligible for award.

2.3 The County reserves the right, at its sole discretion, to expand the contract of the awarded Contractor to include proposed optional work. Optional work is defined for purposes of this project as the 6" Concrete Sidewalk.

2.4 The County reserves the right to award to the Contractor whose prices, in its sole judgement, are the most realistic in terms of provision of the best services and in the best interest of the County. Additionally, the County reserves the right to reject any and all bids at any time, unconditionally, and without cause.

2.5 The County reserves the right to reject any bids or portion of the bid with just cause, which shall include, but not be limited to an "unbalanced bid", to the detriment of the County. An "unbalanced bid" shall include: excessive unit pricing, other unfair pricing for materials or labor, or a disproportionate allocation of cost to the County for the actual construction performed.

3. ADDITIONAL SPECIFICATON PROVISIONS

3.1 Contractor must provide an accurate as-built survey that shall include the entire horizontal directional drill path. Contractor must use a proven drill head tracking method to provide a continuous and accurate determination of the location of the drill head during drilling operation. The drill head must be able to track at the maximum depth required in any soil condition, with accuracy of +/- 5% of the vertical depth of the borehole and accurate within two (2) feet horizontally.

End of Specifications and Scope of Work Section

LEE COUNTY, FLORIDA
SUPPLEMENTAL INFORMATION
FOR
ORANGE GROVE BLVD FROM PONDELLA RD TO HANCOCK BRIDGE PKWY
WATER MAIN IMPROVEMENTS

The following Supplemental Information modifies the General Conditions of the Lee County Construction Contract found herein. Where a portion of the General Conditions is modified or deleted by the Supplemental Information, the unaltered portions of the General Conditions shall remain in effect.

None.

End of Supplemental Information Section

LEE COUNTY DOCUMENT MANAGEMENT FORM

For

B180248RJD, Orange Grove Blvd from Pondella Rd to Hancock Bridge Pkwy Water Main Improvements

These forms are required as indicated below and all required forms should be submitted with the Contractor's submission package. If it is determined that forms in this selection are not applicable to your company or solicitation they should be marked "N/A or Not Applicable" across the form in large letters and returned with your submission package. The original must be manually signed; digital signatures are not accepted.

FORM #	TITLE / DESCRITPION	REQUIRED STATUS (Required, Not Required, If Applicable)	VENDOR CHECK-OFF
1	Solicitation Response Form	Required	
1a	Bid/Proposal Form (Provided in Excel)	Required	
N/A	Business Relationship Disclosure Requirement	If Applicable	
2	Affidavit Certification Immigration Laws	Required	
3	Reference Survey – Three (3) Required *(Requested after opening of lowest Bidder only)*	Required	
4	Negligence or Breach of Contract Disclosure Form	Required	
5	Affidavit - Principal Place of Business	Required	
6	Sub-Contractor List	Required	
7	Public Entity Crime Form	Required	
8	Trench Safety	Required	
9	Bid Bond	Required	
10	Minimum Qualifications Form	Required	
11	Signatory Authorization Affidavit	Required	
*	Proposal Label	Required	

It is the Contractor's responsibility to review the submittal request in its entirety and ensure that all submittal requirements are included within their submission package. Failure to submit required forms may deem your company as non-responsive.

REQUIRED FORMS
INVITATION TO BID

These forms are required and should be submitted with all submissions. If it is determined that forms in this selection are not applicable to your company or solicitation they should be marked "N/A or Not Applicable" across the form in large letters and returned with your submission package. ***Note:*** If submitting via hard copy the original must be a manually signed original. Include additional copies, if specified, in the Solicitation documents.

Form # **Title/Description**

1 ***Solicitation Response Form***

All signatures must be by a corporate authorized representative, witnessed, and corporate and/or notary seal (as applicable.) The corporate or mailing address must match the company information as it is listed on the Florida Department of State Division of Corporations. Attach a copy of the web-page(s) from http://www.sunbiz.org as certification of this required information. Sample attached for your reference.
Verify that all addenda and tax identification number have been provided.

1a ***Bid/Proposal Form***

This form is used to provide itemization of project cost. A more detailed "schedule of values" may be requested by the County

1b ***Business Relationship Disclosure Requirement*** (as applicable)

Sections 112.313(3) and 112.313(7), FL §, prohibit certain business relationships on the part of public officers and employees, their spouses, and their children. If this **disclosure is applicable request form** *"INTEREST IN COMPETITIVE BID FOR PUBLIC BUSINESS" (Required by 112.313(12)(b),* FL § *(1983))* to be completed and **returned with solicitation response. It is the Bidder's responsibility to request form and disclose this relationship, failure to do so could result in being declared non-responsive.**
NOTICE: UNDER THE PROVISIONS OF FL § 112.317 (1983), A FAILURE TO MAKE ANY REQUIRED DISCLOSURE CONSTITUTES GROUNDS FOR AND MAY BE PUNISHED BY ONE OR MORE OF THE FOLLOWING: IMPEACHMENT, REMOVAL OR SUSPENSION FROM OFFICE OR EMPLOYMENT, DEMOTION, REDUCTION IN SALARY, REPRIMAND, OR A CIVIL PENALTY NOT TO EXCEED $5,000.00.

2 ***Affidavit Certification Immigration Laws***

Form is acknowledgement that the Bidder is in compliance in regard to Immigration Laws.

3 ***Reference Survey***

Provide this form to three (3) reference respondents. For Bids, this form will be **requested from the apparent low Bidder prior to the award. (not required to submit with bid)**

7 **Section 1**: Bidder/Proposer to complete with reference respondent's information prior to providing to them for their response. (This is **not** the Bidder/Proposer's information.)
8 **Section 2**: Enter the name of the Bidder/Proposer; provide the project information in which the reference respondent is to provide a response.
9 The reference respondent should complete "**Section 3.**"
10 **Section 4**: The reference respondent to print and sign name
11 **Reference responses** are to be provided upon request.
12 Failure to obtain reference surveys may make your company non-responsive.

4 ***Negligence or Breach of Contract Disclosure Form***

The form may be used to disclose negligence or breach of contract litigation that your company may have been a part of over the past ten (10) years. You may need to duplicate this form to list all history. If the Bidder has more than ten (10) lawsuits, you may narrow them to litigation of the company or subsidiary submitting the Solicitation Response. Include, at a minimum, litigation for similar projects completed in the State of Florida. Final outcome should include in whose favor the litigation was settled and whether a monetary amount was awarded. The settlement amount may remain anonymous.

If you have **no litigation, enter "None" in the first "type of incident" block** of the form. Please do not write N/A on this form.

5 ***Affidavit Principal Place of Business***

Certifies Bidder's location information.

6 ***Sub-Contractor List***

To be completed and returned when sub-contractors are to be utilized and are known at the time of the submission.

7 ***Public Entity Crime Form***

Any person or affiliate as defined by statute who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid or a contract to provide any goods or services to the County; may not submit a bid on a contract with the County for the construction or repair of a public building or a public work; may not submit bids or leases of real property to the County; may not be awarded or perform works as a contractor, supplier, subcontractor, or consultant under a contract with the County, and may not transact business with the County in excess of $25,000.00 for a period of 36 months from the date of being placed on the convicted vendor list.

8 ***Trench Safety***

Self explanatory

9 ***Bid Bond***

Self explanatory

10 ***Minimum Qualifications Form***

Self explanatory

11 ***Signatory Authorization Affidavit***

Self explanatory

Bid/Proposal Label

Self-explanatory. Please affix to the outside of the sealed submission documents.

Include any licenses or certifications requested

Local Business Tax Account (as applicable) issued by City and/or County entity. **This is necessary for all Florida vendors.**

It is the Bidder's responsibility to insure the Solicitation Response is mailed or delivered in time to be received no later than the specified opening date and time. (If solicitation is not received prior to deadline it cannot be considered or accepted.)

Form 1 – Solicitation Response Form

V09/12/2016

LEE COUNTY
SOUTHWEST FLORIDA

LEE COUNTY PROCUREMENT MANAGEMENT
SOLICITATION RESPONSE FORM

Date Submitted: _____ Deadline Date: 5/25/2018

SOLICITATION IDENTIFICATION: B180248RJD

SOLICITATION NAME: Orange Grove Blvd from Pondella Rd to Hancock Bridge Pkwy Water Main Improvements

COMPANY NAME: _____

NAME & TITLE: (TYPED OR PRINTED) _____

BUSINESS ADDRESS: (PHYSICAL) _____

CORPORATE OR MAILING ADDRESS:

☐ SAME AS PHYSICAL _____

ADDRESS MUST MATCH SUNBIZ.ORG _____

E-MAIL ADDRESS: _____

PHONE NUMBER: _____ FAX _____

NOTE **REQUIREMENT**: IT IS THE **SOLE RESPONSIBILITY OF THE BIDDER/PROPOSER TO CHECK LEE COUNTY PROCUREMENT MANAGEMENT WEB SITE** FOR ANY ADDENDA ISSUED FOR THIS PROJECT. THE COUNTY WILL POST ADDENDA TO THIS WEB PAGE, BUT WILL **NOT NOTIFY**.

By responding to this sealed solicitation, the Bidder/Proposer makes all representations required by the instructions and further warrants and represents that: Bidder/Proposer has examined copies of all the solicitation documents and of the following addenda:

No. _____ Dated: _____ No. _____ Dated: _____ No. _____ Dated: _____

No. _____ Dated: _____ No. _____ Dated: _____ No. _____ Dated: _____

Tax Payer Identification Number: _____

(1) Employer Identification Number -or- (2) Social Security Number:

** *Lee County collects your social security number for tax reporting purposes only*

Please submit a copy of your registration from the website www.sunbiz.org establishing your firm as authorized (including authorized representatives) to conduct business in the State of Florida, as provided by the *Florida Department of State, Division of Corporations. (a sample is attached for your reference)*

1 ***Collusion Statement:*** Lee County, Florida The undersigned, as Bidder/Proposer, hereby declares that no person or other persons, other than the undersigned, are interested in this solicitation as Principal, and that this solicitation is submitted without collusion with others; and that we have carefully read and examined the specifications or scope of work, and with full knowledge of all conditions under which the services herein is contemplated must be furnished, hereby bid/propose and agree to furnish this service according to the requirements set out in the solicitation documents, specifications or scope of work for said service for the prices as listed on the county provided price sheet or (CCNA) agree to negotiate prices in good faith if a contract is awarded.

2 ***Scrutinized Companies Certification:***
Section 287.135, FL §, "Prohibition against contracting with scrutinized companies." Prohibits agencies from contracting with companies, for goods or services over $1,000,000, that are on the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, Scrutinized Companies that Boycott Israel List, have been engaged in a boycott of Israel, or been engaged in business operations in Cuba or Syria. The County reserves the right to review, on a case-by-case basis, and waive this stipulation if it is deemed to advantageous to the County.
As the person authorized to sign on behalf of Respondent, I hereby certify that the company identified above is in compliance with Section 287.135, FL §. I understand that submission of a false certification may subject company to contract termination, civil penalties, attorney's fees, and/or costs.

Form#1 – Solicitation Form, Page 2

3 ***Business Relationship Disclosure Requirement:*** Sections 112.313(3) and 112.313(7), FL §, prohibit certain business relationships on the part of public officers and employees, their spouses, and their children. See Part III, Chapter 112, FL §, and/or the brochure entitled "A Guide to the Sunshine Amendment and Code of Ethics for Public Officers, Candidates and Employees" for more details on these prohibitions. However, Section 112.313(12), FL § (1983), provides certain limited exemptions to the above-referenced prohibitions, including one where the business is awarded under a system of sealed, competitive bidding; the public official has exerted no influence on bid negotiations or specifications; and where disclosure is made, prior to or at the time of the submission of the bid, of the official's or his spouse's or child's interest and the nature of the intended business. The Commission on Ethics has promulgated this form for such disclosure, if and when applicable to a public officer or employee.
If this disclosure is applicable request form *"INTEREST IN COMPETITIVE BID FOR PUBLIC BUSINESS" (Required by 112.313(12)(b),* FL § *(1983))* to be completed and returned with solicitation response. It is the bidder/proposer's responsibility to disclose this relationship, failure to do so could result in being declared non-responsive.

☐ ***Business Relationship Applicable (request form)*** ☐ ***Business Relationship NOT Applicable***

4 Disadvantaged Business Enterprise (DBE) bidder/proposer? If yes, please attach a current certificate. Yes No

ALL SUBMISSIONS MUST BE EXECUTED BY AN AUTHORIZED AUTHORITY OF THE BIDDER/PROPOSER, WITNESSED AND SEALED (AS APPLICABLE)

Company Name *(Name printed or typed)*

Authorized Representative Name *(printed or typed)*

(Affix Corporate Seal, as applicable)

Authorized Representative's Title *(printed or typed)*

Witnessed/Attested by: *(Witness/Secretary name and title printed or typed)*

Authorized Representative's Signature

Witness/Secretary Signature

Any blank spaces on the form(s), qualifying notes or exceptions, counter offers, lack of required submittals, or signatures, on County's Form may result in the submission being declared non-responsive by the County.

Detail by Entity Name

Florida Profit Corporation

Bill's Widget Corporation

Filing Information

Document Number	655555
FEI/EIN Number	5111111111
Date Filed	09/22/1980
State	FL
Status	ACTIVE
Last Event	AMENDED AND RESTATED ARTICLES
Event Date Filed	07/25/2006
Event Effective Date	NONE

Principal Address

555 N Main Street
Your Town, USA 99999

Changed 02/11/2012

Verify either Principal or Mailing address is on Form 1

Mailing Address

555 N Main Street
MYour Town, USA 99999

Changed 02/11/2012

Registered Agent Name & Address

My Registered Agent
111 Registration Road
Registration, USA 99999

Name Changed: 12/14/2006

Address Changed: 12/14/2006

Officer/Director Detail

Name & Address

Title P

President, First
555 AVENUE
Anytown, USA99999

Title V
President, Second
555 AVENUE
Anytown, USA99999

IMPORTANT:
For corporations, ALL documents must be signed by the president of the company or an authorized individual. For any individual other than the president, we will need one of the following to confirm their authority to sign:

1. a corporate resolution by the Board of Directors, or
2. an extract of minutes, or
3. an extract of Vote by the Board of Directors

If the company's articles of incorporation identify additional positions that have the power to bind the corporation, we will accept the articles of incorporation with verification from the president that a certain individual serves in that role (e.g., the president confirms that John Doe is the CEO, and the articles of incorporation provide that the CEO has the power to bind the company).
With respect to an LLC, the authority to bind a limited liability company is controlled by Florida statutes. Managers or managing members have inherent authority to bind an LLC.

If the president of a corporation or a manager/managing member of an LLC delegates their authority, such delegation must be sent to us on company letterhead with the President's or manager's/managing member's original, wet signature.

v01/03/2018

Sample Only

Form 1a – Bid/Proposal Form

LEE COUNTY
SOUTHWEST FLORIDA

Lee County Procurement Management
BID/PROPOSAL FORM

Company Name: _____

Solicitation # B180248RJD **Solicitation Name** Orange Grove Blvd from Pondella Rd to Hancock Bridge Pkwy Water Main Improvements

This page serves as a header/placeholder only. Please refer to the Excel document provided with the solicitation for the complete Bid Schedule. The Excel document contains formulas for convenience, however it is the Contractor's responsibility to verify all pricing and calculations are CORRECT. Lee County is not responsible for errors in formulas or calculations contained within Excel document(s).

REMINDERS:
In the event there is a discrepancy between the total quoted amount or the extended amounts and the unit prices quoted, the unit prices will prevail and the corrected sum will be considered the quoted price. Unit prices shall be rounded to the nearest whole penny.

The County will only accept bids submitted on bid forms provided by the County. Bids submitted on other forms, other than those provided by the County, will deem Bidder as non-responsive and ineligible for award.

Bidders may not adjust or modify data provided within the Bid Schedule. Bids received with modified data may deem the Bidder as non-responsive and ineligible for award.

PLEASE ENSURE you have provided a printed copy of the Bid Schedule with your hard copy submission packages and provided the excel version with your digital submission package.

Pricing shall be inclusive of all labor, equipment, supplies, overhead, profit, materials, and any other incidental costs required to perform and complete all work as specified herein.

LEE COUNTY
SOUTHWEST FLORIDA

AFFIDAVIT CERTIFICATION IMMIGRATION LAWS

SOLICITATION NO.: **B180248RJD** SOLICITATION NAME: **Orange Grove Blvd from Pondella Rd to Hancock Bridge Pkwy Water Main Improvements**

LEE COUNTY WILL NOT INTENTIONALLY AWARD COUNTY CONTRACTS TO ANY CONTRACTOR WHO KNOWINGLY EMPLOYS UNAUTHORIZED ALIEN WORKERS, CONSTITUTING A VIOLATION OF THE EMPLOYMENT PROVISIONS CONTAINED IN 8 U.S.C. SECTION 1324 a(e) {SECTION 274A(e) OF THE IMMIGRATION AND NATIONALITY ACT ("INA").

LEE COUNTY MAY CONSIDER THE EMPLOYMENT BY ANY CONTRACTOR OF UNAUTHORIZED ALIENS A VIOLATION OF SECTION 274A(e) OF THE INA. **SUCH VIOLATION BY THE RECIPIENT OF THE EMPLOYMENT PROVISIONS CONTAINED IN SECTION 274A(e) OF THE INA SHALL BE GROUNDS FOR UNILATERAL CANCELLATION OF THE CONTRACT BY LEE COUNTY.**

BIDDER/PROPOSER ATTESTS THAT THEY ARE FULLY COMPLIANT WITH ALL APPLICABLE IMMIGRATION LAWS (SPECIFICALLY TO THE 1986 IMMIGRATION ACT AND SUBSEQUENT AMENDMENTS).

Company Name:_____

_____

Signature Title Date

STATE OF _____
COUNTY OF _____

The foregoing instrument was signed and acknowledged before me this _____day of _____ 20_____, by _____who has produced
(Print or Type Name)
_____as identification.
(Type of Identification and Number)

_____
Notary Public Signature

_____
Printed Name of Notary Public

_____
Notary Commission Number/Expiration

The signee of this Affidavit guarantee, as evidenced by the sworn affidavit required herein, the truth and accuracy of this affidavit to interrogatories hereinafter made. ***LEE COUNTY RESERVES THE RIGHT TO REQUEST SUPPORTING DOCUMENTATION, AS EVIDENCE OF SERVICES PROVIDED, AT ANY TIME.***

LEE COUNTY
SOUTHWEST FLORIDA

Lee County Procurement Management

REFERENCE SURVEY

Solicitation # B180248RJD

Orange Grove Blvd from Pondella Rd to Hancock Bridge Pkwy Water Main Improvements

Section 1 Reference Respondent Information		Please return completed form to:
FROM:		**Bidder/Proposer:**
COMPANY:		**Due Date:**
PHONE #:		**Total # Pages:** 1
FAX #:		**Phone #:** **Fax #:**
EMAIL:		**Bidder/Proposer E-Mail:**

Section 2	Enter Bidder/Proposer Information , as applicable Similar Performed Project (Bidder/Proposer to enter details of a project performed for above reference respondent)		
Bidder/Proposer Name:			
Reference Project Name:	Project Address:	Project Cost:	
Summarize Scope:			

You as an individual or your company has been given as a reference on the project identified above. Please provide your responses in section 3 below.

Section 3	Indicate: "Yes" or "No"
1. Did this company have the proper resources and personnel by which to get the job done?	
2. Were any problems encountered with the company's work performance?	
3. Were any change orders or contract amendments issued, other than owner initiated?	
4. Was the job completed on time?	
5. Was the job completed within budget?	
6. On a scale of one to ten, ten being best, how would you rate the overall work performance, considering professionalism; final product; personnel; resources. Rate from 1 to 10. (10 being highest)	
7. If the opportunity were to present itself, would you rehire this company?	
8. Please provide any additional comments pertinent to this company and the work performed for you:	

Section 4

Reference Name (Print

Please submit non-Lee County employees as references

Reference Signature

REVISED 09/12/2016

LEE COUNTY
SOUTHWEST FLORIDA

ALLEGED NEGLIGENCE OR BREACH OF CONTRACT DISCLOSURE FORM

Please fill in the form below. Provide each incident in regard to alleged negligence or breach of contract that has occurred over the past 10 years. Please compete in chronological order with the most recent incident on starting on page 1.

Company Name: _____

Type of Incident *Alleged Negligence or Breach of Contract*	**Incident Date And Date Filed**	**Plaintiff** *(Who took action against your company)*	**Case Number**	**Court** *County/State*	**Project**	**Claim Reason** *(initial circumstances)*	**Final Outcome** *(who prevailed)*

Make as many copies of this sheet as necessary in order to **provide a 10 year history** of the requested information. If there is no action pending or action taken in the last 10 years, complete the **company name and write "NONE" in the first "Type of Incident" box** of this page and return with your submission package. This form should also include the primary partners listed in your submission. Do not include litigation with your company as the plaintiff. Final outcome should include who prevailed and what method of settlement was made. If a monetary settlement was made the amount may remain anonymous. **Please do not modify this form (expansion of spacing allowed) or submit your own variation.**

Page Number: _____ Of _____ Total pages

Update the page number to reflect the current page and the total number of pages. Example: Page 3, of 5 total submitted pages of this form.

LEE COUNTY
SOUTHWEST FLORIDA

AFFIDAVIT PRINCIPAL PLACE OF BUSINESS

Instructions: Please complete all information that is applicable to your firm

Company Name: _____

_____ _____
Printed name of authorized signer Title

⇒ _____ _____
Authorized Signature Date

The signee of this Affidavit guarantee, as evidenced by the sworn affidavit required herein, the truth and accuracy of this affidavit to interrogatories hereinafter made. ***LEE COUNTY RESERVES THE RIGHT TO REQUEST SUPPORTING DOCUMENTATION, AS EVIDENCE OF SERVICES PROVIDED, AT ANY TIME.***

Notary:
State of _____
County of _____
The foregoing instrument was signed and acknowledged before me this _____ day of _____

20 _____ _____ who has produced

_____ as identification (or personally known)
Type of ID and number

1. _____ _____
Notary Public Signature Notary Commission Number and expiration

1. Principal place of business is located within the boundaries of: _____ Lee County
   _____ Collier County
   _____ Non-Local

   Local Business Tax License # _____
2. Address of Principal Place of Business: _____
   _____
3. Number of years at this location ____ years
4. Have you provided goods or services to Lee County on a regular basis within the past 3 consecutive years ____ Yes* ____ No *If yes, attach contractual history for past 3 consecutive years
5. Number of available employees for this contract ____ _____
6. Does your company have a Drug Free Workplace Policy ____ Yes ____ No

Form 6-Sub-contractor List

LEE COUNTY
SOUTHWEST FLORIDA

SUB-CONTRACTOR LIST

Sub-contractor Name	Area Of Work	Point Of Contact Or Project Supervisor	Phone Number and Email	Qualified DBE Yes/No	Amount or Percentage of Total

Please include sub-contractors name, area of work (i.e. mechanical, electrical, etc.) and a **valid** phone number and email. Also include the dollar value or percentage that the sub-contractor will be performing. If sub-contractors qualify as Disadvantaged Business Enterprise (**DBE**) contractors, please attach a current certificate.

This form must be signed and sworn to in the presence of a notary public or other officer authorized to administer oaths.

1. This sworn statement is submitted to_____
(*Print name of the public entity*)

by_____
(*Print individual's name and title*)

for_____
(*Print name of entity submitting sworn statement*)

whose business address is_____

(If applicable) its Federal Employer Identification Number (FEIN) is _____

(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement: On the attached sheet.) Required as per IRS Form W-9.

2. I understand that a "public entity crime" as defined in Paragraph 287.133(1) (g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including but not limited to, and bid or contract for goods or services to be provided to any public entity or agency or political subdivision or any other state or of the Unites States, and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

3. I understate that "convicted" or "conviction" as defined in Paragraph 287.133(1) (b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

4. I understand that "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means:
    1. A predecessor or successor of a person convicted of a public entity crime:
    or:
    2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those offices, directors, executives, partners, shareholders, employees, members and agents who are active in the management of the affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not fair market value under an arm's length Agreement/Contract, shall be a facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

5. I understand that a "person" as defined in Paragraph 287.133(1) (c), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of the entity.

6. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting those sworn statement. (*Please indicate which statement applies.*)

_____ Neither the entity submitted this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity nor affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, member, or agents who are active in management of the entity, or an affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, member, or agents who are active in management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. However, there has been subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearing and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. (Attach a copy of the final order)

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUTES, FOR CATEGORY TWO OR ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

_____
(*Signature*)

_____
(*Date*)

STATE OF_____
COUNTY OF_____

PERSONALLY APPEARED BEFORE ME, the undersigned authority, _____
(*Name of individual signing*)
who, after first being sworn by me, affixed his/her signature in the space provided above on this_____ day of_____, 2____.

_____
(NOTARY PUBLIC)

My Commission Expires: _____

Form#8: Trench Safety

TRENCH SAFETY

Contractor/Vendor acknowledges that included in the appropriate solicitation items of the solicitation and in the Total solicitation price are costs for complying with the Florida Trench Safety Act (90-96, Laws of Florida) effective October 1, 1990. The contractor/vendor further identifies the costs of such compliance to be summarized below:

	Trench Safety Measure (Description)	Units of Measure (LF, SF)	Unit (Quantity)	Unit Cost	Extended Cost
A.					
B.					
C.					
D.					

TOTAL $_____

If applicable, the contractor/vendor certifies that all trench excavation done within his control in excess of five (5') feet in depth shall be in accordance with the Florida Department of Transportation's Special Provisions Article 125-1 and Sub-article 125-4.1 (TRENCH EXCAVATION SAFETY SYSTEM AND SHORING, SPECIAL-TRENCH EXCAVATION).

Failure to complete the above may result in the solicitation being declared non-responsive.

_____
(*Signature*)

_____
(*Company Name*)

STATE OF _____
COUNTY OF _____
The foregoing instrument was acknowledged before me this _____ day of _____ by _____ (*name and title of corporate officer*) of _____ (*name of corporation*), a _____ (*state or place of incorporation*) corporation, on behalf of the corporation. He/she is personally known to me or has produced _____ (*type of identification*) as identification.

_____
(*signature line for notary public*)

_____
(*name of notary typed, printed or stamped*)

_____
(*title or rank*)

My commission expires:

_____

_____
(*serial number, if any*)

Form 9: Bid Bond

BID BOND

Complete EITHER Lee County Paper Bid Bond OR provide cashier's check

KNOW ALL MEN BY THESE PRESENTS, that we

_____ as Principal, and
(BIDDER'S Name)

_____ a Corporation licensed to do
(Surety's Name)

business under the laws of the State of Florida as a Surety, are held and firmly bound unto LEE COUNTY BOARD OF COUNTY COMMISSIONERS, LEE COUNTY, FLORIDA, a Political Subdivision of the State of Florida,
in the SUM OF _____
for the payment whereof, well and truly to be made, we bind ourselves, our heirs, successors, personal representatives and assigns, jointly and severally, firmly, by these presents.

SIGNED AND SEALED this _____ day of _____, _____

WHEREAS, said Principal is herewith submitting a Bid/Proposal for the project known as:
B180248RJD, Orange Grove Blvd from Pondella Rd to Hancock Bridge Pkwy Water Main Improvements

NOW, THEREFORE, the condition of the above obligation is such that if said Principal shall be awarded the Contract upon said Bid/Proposal within the specified time and shall enter into a written Contract, satisfactory in form, provide an acceptable Public Payment & Performance Bond from a Surety acceptable to the COUNTY and provide other Insurance as may be required to the COUNTY within seven (7) calendar days after the written Notice of Award date, or within such extended period as the COUNTY may grant, then this obligation shall be null and void; otherwise said Principal and Surety shall pay to said COUNTY in money the difference between the amount of the Bid of said Principal and the amount for which said COUNTY may legally contract with another party to perform said work, if the latter amount be in excess of the former, together with any expenses and reasonable attorney's fees incurred by said COUNTY if suit be brought here on, but in no event shall said Surety's liability exceed the penal sum hereof plus such expenses and attorney's fees. For purposes of unsuccessful bid protests filed by the Principal herein, this obligation shall bind the Surety to pay costs and damages associated with the bid protest or delays to the project upon a finding from the Board of County Commissioners for Lee County that the bid protest was frivolous and/or lacked merit. The liability of the Surety shall not exceed the penal sum of the bid bond.

Witness as to Principal:

_____
(By)

_____ (SEAL)
(Principal)

_____
Printed Name

Witness as to Surety:

_____

_____ (SEAL)
(Surety's Name)

_____
(By-As Attorney-in-Fact, Surety)

Affix Corporate Seals and attach proper Power of Attorney for Surety.

Form 10: Minimum Qualifications Requirements

LEE COUNTY
SOUTHWEST FLORIDA

MINIMUM QUALIFICATION REQUIREMENTS
FOR
B180248RJD, Orange Grove Blvd from Pondella Rd to Hancock Bridge Pkwy Water Main Improvements

Bidder(s)/Proposer(s) must meet the minimum qualification requirements as specified in the following form to qualify for consideration of award. This form must be completed and returned with the proposal submittal along with any supporting documentation where requested and/or indicated herein.

The County reserves the right, in their sole judgment, to determine to its satisfaction whether the Bidder(s)/Proposer(s) has met the minimum qualification requirements as specified herein. The determination shall be based upon the examination of the Minimum Qualification Requirements form and associated supportive documentation (if any requested).

An affirmative determination shall be a prerequisite for award of the contract to the Bidder(s)/Proposer(s). A negative determination shall result in disqualification of the proposal, in which event the County shall exclude the proposal from the evaluation or consideration process and therefore deeming the Bidder(s)/Proposer(s) ineligible for award.

Due to the nature of this project Lee County desires to contract with a Contractor/Bidder that has a strong understanding and experience with utility projects such as the one to be completed through this contract. Such experience would include, but may not be limited to: utility projects within congested right-of-ways, coordination experience with Lee County DOT and other utility entities, implementation of appropriate and successful maintenance of traffic plans, restoration of sidewalks and driveways and experience with horizontal directional drills. As such minimum qualifications have been set forth in this solicitation package and shall be met, at the sole discretion of the County, by the Contractor to be considered for award.

CRITERIA 1 – EXPERIENCE WITH UTILITY CONSTRUCTION IN CONGESTED RIGHT-OF-WAY

Bidder shall be qualified and experienced in the construction and installation of various diameter utility mains of 4" thru 12" within congested right-of-ways. As such, Bidder must provide project details that document successful completion of at least 3 utility construction projects with greater than 5,000 LF of pipeline installed.

CRITERIA 1 – PROJECT 1

PROJECT NAME: _____

PROJECT START DATE: _____ **PROJECT COMPLETION DATE:** _____

CLIENT NAME: _____

CLIENT CONTACT NUMBER: _____ **CLIENT EMAIL:** _____

AMOUNT OF AWARD: _____

DIAMETER OF UTILITY MAIN _____ **LOCATION OF UTILITY MAIN INSTALL:** _____

AMOUNT OF PIPELINE INSTALLED (LF): _____

SCOPE OF WORK SUMMARY: _____

CRITERIA 1 – PROJECT 2

PROJECT NAME:			
PROJECT START DATE:		PROJECT COMPLETION DATE:	
CLIENT NAME:			
CLIENT CONTACT NUMBER:		CLIENT EMAIL:	
AMOUNT OF AWARD:			
DIAMETER OF UTILITY MAIN		LOCATION OF UTILITY MAIN INSTALL:	
AMOUNT OF PIPELINE INSTALLED (LF):			
SCOPE OF WORK SUMMARY:			

CRITERIA 1 – PROJECT 3

PROJECT NAME:			
PROJECT START DATE:		PROJECT COMPLETION DATE:	
CLIENT NAME:			
CLIENT CONTACT NUMBER:		CLIENT EMAIL:	
AMOUNT OF AWARD:			
DIAMETER OF UTILITY MAIN		LOCATION OF UTILITY MAIN INSTALL:	
AMOUNT OF PIPELINE INSTALLED (LF):			
SCOPE OF WORK SUMMARY:			

CRITERIA 2 – EXPERIENCE WITH HORIZONTAL DIRECTION DRILL (HDD) INSTALLATION:
Bidder shall be qualified and experienced in the successful completion of horizontal directional drills under county roads. As such, Bidder must provide project details that document successful completion of at least 2 horizontal direction drill installations of at least 24 inch diameter and greater than 300 LF of pipeline under a county road.

CRITERIA 2 – PROJECT 1

PROJECT NAME:	
PROJECT START DATE:	**PROJECT COMPLETION DATE:**
CLIENT NAME:	
CLIENT CONTACT NUMBER:	**CLIENT EMAIL:**
AMOUNT OF AWARD:	
DIAMETER OF MAIN:	**AMOUT OF PIPELINE UNDER COUNTY RD:**
NAME OF COUNTY ROAD WHERE WORK PERFORMED:	
DESCRIBE HORIZONTAL DIRECTIONAL DRILL ASPECT OF PROJECT:	

CRITERIA 2 – PROJECT 2

PROJECT NAME:	
PROJECT START DATE:	**PROJECT COMPLETION DATE:**
CLIENT NAME:	
CLIENT CONTACT NUMBER:	**CLIENT EMAIL:**
AMOUNT OF AWARD:	
DIAMETER OF MAIN:	**AMOUT OF PIPELINE UNDER COUNTY RD:**
NAME OF COUNTY ROAD WHERE WORK PERFORMED:	
DESCRIBE HORIZONTAL DIRECTIONAL DRILL ASPECT OF PROJECT:	

CRITERIA 3 - PERSONNEL:

Bidders must provide experienced personnel to manage the proposed project. As such, Bidder must provide details that depict the experience of the Project Manager and Superintendent to be assigned to this project and shows that each have successfully completed at least 1 major water system improvement project.

CRITERIA 3 – PROJECT MANAGER

PROJECT MANAGER NAME: _____
DESCRIBE EXPERIENCE WITH MAJOR WATER SYSTEM IMPROVEMENT: _____

CRITERIA 3 – SUPERINTENDENT

SUPERINTENDENT NAME: _____
DESCRIBE EXPERIENCE WITH MAJOR WATER SYSTEM IMPROVEMENT: _____

Projects may be utilized more than once to meet the qualification requirements. Bidder must be all criteria to be considered eligible for award.

LEE COUNTY
SOUTHWEST FLORIDA

Lee County Procurement Management
Signatory Authorization Affidavit

Date: May 25, 2018 **Solicitation No.:** B180248RJD

Solicitation Name: Orange Grove Blvd from Pondella Rd to Hancock Bridge Pkwy Water Main Improvements

AUTHORIZATION: The following individuals are hereby authorized, as representatives of the Bidder/Proposer, identified below, to execute legally binding documents on behalf of the Bidder/Proposer. The signee of this Affidavit guarantees, as evidenced by the sworn affidavit required herein, the truth and accuracy of this affidavit to interrogatories hereinafter made. Lee County reserves the right to request supporting documentation, as evidence of services provided, at any time.

INSTRUCTIONS: This Authorization Affidavit shall only be executed by the following:

- Corporation: President
- LLC: Managing Member
- Sole Proprietor: Owner

Attach corporate designation documentation, if applicable.

Bidder/Proposer Name: _____

Authorized Signatory Name	Title

By execution of this document, I hereby authorize the individuals shown above to execute legally binding documents on behalf of the Bidder/Proposer. I further acknowledge that it shall be my responsibility to provide an updated Signatory Authorization Affidavit upon any change in authorization to the Lee County Procurement Management Department, Attention: Procurement Management Director, 1500 Monroe Street, 4th Floor, Fort Myers, FL 33901.

_____ _____ _____
(Signature) *(Title: President, Managing Member, Owner)* *(Date)*

_____
(printed name)

STATE OF _____
COUNTY OF _____
The foregoing instrument was signed and acknowledged before me this _____ day of _____
20 who produced the following as identification _____
(type Identification and number or personally known)

_____ _____ _____
Notary Public Signature *Printed Name of Notary Public* *Commission Number/Expiration*

Page ___ of ____ *Duplicate this page for additional names. An original signature is required on each page.

Sealed Bid Label

Cut along the outer border and affix this label to your sealed solicitation envelope to identify it as a "Sealed Bid".

SEALED BID DOCUMENTS • DO NOT OPEN

BID NO.:	**B180248RJD**
BID TITLE:	**Orange Grove Blvd from Pondella Rd to Hancock Bridge Pkwy Water Main Improvements**
DATE DUE:	**Friday, May 25, 2018**
TIME DUE:	**Prior to: 2:30 PM**
SUBMITTED BY:	

(Name of Company)

e-mail address | Telephone

DELIVER TO: Lee County Procurement Management
1500 Monroe 4th Floor
Fort Myers FL 33901

Note: submissions received after the time and date above will not be accepted.



Lee County Procurement Management
1500 Monroe Street, 4th Floor
Fort Myers, FL 33901
(239) 533-8881
www.leegov.com/procurement

PLEASE PRINT CLEARLY

TECHNICAL SPECIFICATIONS
LEE COUNTY UTILITIES
ORANGE GROVE BOULEVARD
HANCOCK BRIDGE PARKWAY TO PONDELLA ROAD
TECHNICAL SPECIFICATIONS

REFERENCE DOCUMENTS

Contractor shall complete all work in conformance with the Lee County Utilities Design Manual, latest revision, and as provided herein these technical specifications. The latest version of the Design Manual is available at the Lee County website: http://www.leegov.com/utilities/design-manual

Contractor shall complete all applicable work in conformance with the latest version of the FDOT indices.
http://www.fdot.gov/design/standardplans/current/default.shtm

All utility related materials shall comply with Lee County Utility's Approved Materials List.

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SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Description of Work

B. Work by Others

C. CONTRACTOR's Use of Site

D. Work Sequence

E. Owner Occupancy

1.2 DESCRIPTION OF WORK

A. General: The work on this contract consists of Maintenance of Traffic, the installation of approximately 6,210 linear feet of Potable Water Main including HDPE, PVC and DIP ranging from 4" to 12" in diameter (includes1,303 linear feet of Directional Bore 12" DR-11 HDPE Potable Water Main with 273 linear feet of 24" DR-11 HDPE casing), Concrete Sidewalk, Milling and Resurfacing, Roadway Repair, Driveway Repair, Finish Grading of Right of Way and Sodding.

B. The Work includes:

1. Furnishing of all labor, material, superintendence, plant, power, light, heat, fuel, water, tools, appliances, equipment, supplies, services and other means of construction necessary or proper for performing and completing the Work.

2. Sole responsibility for adequacy of plant and equipment.

3. Maintaining the Work area and site in a clean and acceptable manner.

4. Maintaining existing facilities in service at all times except where specifically provided for otherwise herein.

5. Protection of finished and unfinished Work.

6. Repair and restoration of Work damaged during construction.

7. Furnishing as necessary proper equipment and machinery, of a sufficient capacity, to facilitate the Work and to handle all emergencies normally encountered in Work of this character.

8. Furnishing, installing, and protecting all necessary guides, track rails, bearing plates, anchor and attachment bolts, and all other appurtenances needed for the installation of the devices included in the equipment specified. Make anchor bolts of appropriate size, strength and material for the purpose intended. Furnish substantial templates and shop drawings for installation.

C. Implied and Normally Required Work: It is the intent of these Specifications to provide the OWNER with complete operable systems, subsystems and other items of Work. Any part or item of Work which is reasonably implied or normally required to make each installation satisfactorily and completely operable is deemed to be included in the Work and the Contract Amount. All miscellaneous appurtenances and other items of Work incidental to meeting the intent of these Specifications are included in the Work and the Contract Amount even though these appurtenances may not be specifically called for in these Specifications.

D. Quality of Work: Regard the apparent silence of the Contract Documents as to any detail, or the apparent omission from them of a detailed description concerning any Work to be done and materials to be furnished as meaning that only the best general practice is to prevail and that only materials and workmanship of the best quality are to be used. Interpretation of these specifications will be made upon this basis.

1.3 WORK BY OTHERS

A. Work on the Project, which may take place concurrently with this CONTRACT and which is excluded from this CONTRACT, is as follows:

Not Applicable.

1.4 CONTRACTOR'S USE OF SITE

A. In addition to the requirements of the General Conditions, limit use of site and premises for work and storage to allow for the following:

1. Coordination of the Work under this CONTRACT with the work of the other contractors where Work under this CONTRACT encroaches on the Work of other contractors.

2. OWNER occupancy and access to operate existing facilities.
3. Coordination of site use with ENGINEER.

4. Responsibility for protection and safekeeping of products under this CONTRACT.

5. Providing additional off site storage at no additional cost to OWNER as needed.

1.5 WORK SEQUENCE

A. Construct Work in stages to accommodate OWNER's use of premises during construction period and in accordance with the limitations on the sequence of construction specified. Coordinate construction schedules and operations with ENGINEER and the Florida Department of Transportation (FDOT).

B. Coordinate Work of all subcontractors.

1.6 OWNER OCCUPANCY

A. Work within the FDOT right-of-way shall be conducted and coordinated with the FDOT and the ENGINEER.

B. Conduct operations so as to inconvenience the general public in the least.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

A. Starting Work: Start Work within 10 working days following the date stated in the Notice to Proceed and execute with such progress as may be required to prevent delay to other contractors or to the general completion of the project. Execute Work at such items and in or on such parts of the project, and with such forces, material and equipment, as to complete the Work in the time established by the Contract. At all times, schedule and direct the Work so that it provides an orderly progression to completion within the specified time for completion.

END OF SECTION

SECTION 01026

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Explanation and Definitions

B. Measurement

C. Payment

D. Schedule of Values

E. Application for Payment

1.2 EXPLANATION AND DEFINITIONS

A. The following explanation of the Measurement and Payment for the bid form items is made for information and guidance. The omission of reference to any item in this description shall not, however, alter the intent of the bid form or relieve the CONTRACTOR of the necessity of furnishing such as a part of the Contract.

1.3 MEASUREMENT

A. The quantities set forth in the bid form are approximate and are given to establish a uniform basis for the comparison of bids. The OWNER reserves the right to increase or decrease the quantity of any class or portion of the work during the progress of construction in accord with the terms of the Contract.

B. All measurements for payment shall be measured/verified by The OWNER'S REPRESENTATIVE.

1.4 PAYMENT

A. Payment shall be made for the items listed on the Bid Form on the basis of the work actually performed and completed, such work including but not limited to, the furnishing and mobilization of all necessary labor, materials, equipment, transportation, clean up, restoration of disturbed areas, and all other appurtenances to complete the construction and installation of the work as shown on the drawings and described in the specifications.

B. Payment shall fully reimburse the Contractor for cooperating with and meeting all the requirements of the State of Florida Trench Safety Act (90-96).

C. Unit prices are used as a means of computing the final figures for bid and Contract purposes, for periodic payments for work performed, for determining value of additions or deletions and wherever else reasonable.

1.5 SCHEDULE OF VALUES

A. Approval of Schedule: Submit for approval a preliminary schedule of values, in duplicate, for all of the Work. Prepare preliminary schedule in accordance with the General Conditions. Submit preliminary schedule of values within 10 calendar days after the Effective Date of the Agreement. Submit final schedule of values in accordance with the General Conditions.

B. Refer to Article 14 of the General Conditions (Part G) and Supplementary General Conditions (Part H) of these Contract Documents for additional requirements.

1.6 APPLICATION FOR PAYMENT

A. Required Copies: Submit three (3) copies of each application on the “Estimate and Requisition for Payment” form CMO:013. Present required information in typewritten form or on electronic media printout.

B. Prepare the Application for Payment in accordance with Article 14 of the General Conditions (Part G) and Supplementary Conditions (Part H) of these Contract Documents. Execute certification by signature of authorized officer, with original signature on each copy of application for payment.

C. Use data from approved Schedule of Values.

D. Stored Materials: When payment for materials stored is permitted, submit a separate Schedule for Materials Stored showing line item, description, previous value received, value incorporated into the Work and present value.

E. Change Orders: List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount as for an original item of work.

F. Final Payment: Prepare Application for Final Payment as required in the General Conditions (Part G) of these Contract Documents.

G. Submit an updated construction schedule for each Application for Payment.

PART 2 EXECUTION

2.1 MEASUREMENT AND PAYMENT

A. Payment shall be made on the basis of work actually performed completing each item in the Bid, such work including, but not limited to:

1. the furnishing and mobilization of all necessary labor, materials, equipment, and transportation
2. test pits or other methods required to locate existing underground utilities and/or structures
3. Maintenance of Traffic
4. erosion and sedimentation control
5. excavation, backfilling, and compaction
6. sheeting, shoring and bracing
7. protection of existing structures, utilities, and customer service lines
8. de-watering
9. installation of watermain and appurtenances
10. grouting of existing AC watermain (in accordance with all state, county and federal rules and safety guidelines)
11. pressure testing and leakage testing
12. bacteriological sampling and clearing
13. reconstruction and regrading of pavement areas, road shoulders, and ditches or swales disturbed by construction activity
14. finish grading and disposal of surplus material, unsuitable material and all debris
15. cleanup and restorations
16. all other appurtenances to complete the construction and installation of the work to the configuration and extent as shown on the drawings and described in the specifications.

B. Retainage will be withheld from the final payment until written acceptance by the Owners Representative for all final clean up, restoration and Record Drawings / As-Builts.

C. PAYMENT ITEMS:

101-1 Mobilization/Demobilization: Payment for mobilization will be made at the contract lump sum price. This item shall include full compensation for mobilization, demobilization, pre-construction video, bonds & insurance, disposal of materials, clean up, restorations, erosion and sedimentation control and other miscellaneous items for a complete installation.

102-1 Maintenance of Traffic: Payment for maintenance of traffic will be made at the contract lump sum price. This item shall include all labor, equipment and traffic control devices as directed by the FDOT standard index. Maintenance of traffic shall be performed in accordance with the FDOT standard index and approval of MOT plans may be required by the FDOT and Lee County prior to implementation.

104-1 Erosion Control: Payment for erosion control will be made at the contract lump sum price. Erosion control shall be maintained throughout the duration of the

project. This item shall include all necessary labor, equipment and materials for the installation and removal of erosion control devices including but not limited to temporary turf, sandbags, rock bags, slope drains, sediment basins, berms, synthetic bales, temporary silt fence and staked turbidity barriers. Erosion control shall conform to the FDOT standard specifications.

110-1 Clearing and Grubbing: Payment for clearing and grubbing will be made at the contract lump sum price. This item includes all necessary labor, equipment and materials to clear and grub existing right of way conditions.

120-1 Finish Grading: Payment for finish grading will be made at the contract lump sum price. This item shall include full compensation for grading the Right of Way within the project limits to the designed elevations and shall be in accordance with the details of the Plans.

327-1 Milling of Existing Asphalt (1"): Payment for milling of existing asphalt will be made at the contract unit price per square yard. This item includes all necessary labor, equipment and materials for the complete milling of the existing pavement in accordance with the detail shown on the Plans.

331-1 Type S-III Asphalt (1"): Payment for paving one 1" lift of Type S-III Asphalt Pavement will be made at the contract unit price per square yard. This item includes all necessary labor, equipment and materials for the complete the paving of the milled areas in accordance with the detail shown on the Plans.

330-1 Full Depth Open Cut & Repair with Flowable Fill: Payment for removing street pavement surface and base will be made at the contract unit price per square yard. Repair Materials shall consist of Flowable Fill, 6" of Type B 12.5 Asphalt base and 3" of Type B 12.5 (two 1½" lifts) Asphalt and shall be replaced in accordance with the detail shown on the Plans.

330-2 Full Depth Open Cut Concrete: Payment for removing street pavement surface and base will be made at the contract unit price per square yard. Repair Materials shall consist of Embankment, 6" of Type B 12.5 Asphalt base and 3" of Type B 12.5 (two 1½" lifts) Asphalt and shall be replaced in accordance with the detail shown on the Plans.

520-1 Type "F" Curb (Remove and Replace): Payment for removing and replacing curb will be made at the contract unit price per linear foot. This item includes all necessary labor, equipment and materials to remove and replace curb and flume in accordance with the details in the Plans and also in accordance with FDOT standard specifications.

522-1 6" Concrete Sidewalk (Remove & Replace): Payment for removing and replacing concrete sidewalk will be made at the contract unit price per square yard. This item includes all necessary labor, equipment and materials to remove and replace 6" thick concrete sidewalk in accordance with the details in the Plans and also in accordance with FDOT standard specifications. Also, any and all ADA devices that were removed will be replaced in like kind and included in the price per square yard.

522-2 ADA Mats: Payment for furnishing and installing ADA Mats will be made at the contract unit price per each acceptably installed (anchored and inset). This item includes all necessary labor, equipment and materials to install ADA Mats in accordance with the FDOT standard index.

575-1 Sodding: Payment for sod will be made at the contract unit price per square yard. Sod shall be provided and installed in all disturbed areas caused by construction of this project in accordance with FDOT Specifications. Sod shall be replaced with like species at no additional compensation.

700-1 Signing and Marking (final): Payment for signing and marking will be made at the contract lump sum price. This item includes all necessary labor, equipment and materials to replace any damaged or removed existing traffic control signing, wheel stops, and pavement markings to original condition. Use only materials listed on the Qualified Products List (QPL) in accordance with FDOT standard specifications.

200 - 208 Furnish and Install Watermain Pipelines: Payment for furnishing and installing utility pipelines (various sizes and types) will be made at the contract unit price per linear foot for the pipe in place. This item includes all necessary labor, equipment and materials for the furnishing and laying of the pipe, locate tape, tracer wire, signs, dewatering, compaction, pipe bedding, backfilling, sheeting, restrained joint piping, polyethylene sleeve, clamps, harnessing, plugs and caps, adapters, excavation of all material encountered including rock, backfill, clearing and grubbing, sidewalks, mailboxes, culverts, storm sewers, and other surface materials not specifically designated in the Bid, clean-up, sterilization, and tests. Measurement of the pipe shall be to the nearest foot along the centerline including the lengths of valves and fittings. Lineal footage measurement shall be horizontal.

Payment for furnishing and installing fittings will be made at the contract unit price per linear foot price of waterline installation. All fittings installed in the work not shown on the plans and not ordered or approved by the ENGINEER in writing will not be measured for payment. No additional payment will be made for fittings. If earth, sand or stone is used for stabilizing the subgrade, no payment will be made under this item. Payment for earth, sand or stone materials used in stabilizing the subgrade shall be included in the price for installing pipe.

209 - 211 HDPE Directional Bore: Payment for furnishing and installing directional bore in crossings will be made at the contract unit price per linear foot of pipe installed (various sizes), measured horizontally along the top of the pipe. This item includes all necessary labor, equipment and materials for furnishing and installing the carrier pipe, maintenance of traffic, excavation pits, sheeting, de-watering, compaction, Directional Boring, necessary fittings and pipe restraints, Excavation of all material encountered including rock, back filling, restoration and any other items not specifically mentioned but are required for a complete installation. Measurement shall be to the nearest linear foot of pipe installed, as measured along the centerline. Directional bore carrier pipe will be paid based on quantity provided in plans and bid tabulation. No additional payment shall be made due to CONTRACTOR means and methods, equipment capabilities or presence of rock.

During the bid, the CONTRACTOR shall analyze the directional bore lengths to determine feasibility based upon site conditions, means and methods, equipment to be used, and the presence of rock. No additional payments shall be made for extensions beyond plan and bid lengths.

212 Fire Hydrant Assembly: Payment for furnishing and installing fire hydrant assemblies will be made at the contract unit price for each assembly installed. This item includes the tee installed on the utility main, all necessary fittings, valve, joint restraint from the valve to the tee and necessary piping from the tee to the hydrant location with the installation of barrel section to meet finished grade. All piping shall be six-inch (6") PVC C-900 DR-18 Minimum from the tee to hydrant. The CONTRACTOR shall be responsible to set the hydrant to grade in accordance with the detail shown on the Plans.

213 - 217 Furnish and Install Valves and Boxes: Payment for furnishing and installing valves will be made at the appropriate contract unit price per valve acceptably installed. This item includes the valve, box and all necessary labor, materials and equipment for installation, including valve stem and valve box extensions. This item also includes the installation of base material below the valve in accordance with the detail shown in the Plans.

218 - 220 Tapping Sleeve and Valve: Payment for furnishing and installing tapping sleeves and valves will be made at the appropriate contract unit price per assembly acceptably installed. This item includes the tapping sleeve, valve, box and all necessary labor, materials and equipment for installation, including valve stem and valve box extensions. This item also includes the installation of base material below the valve in accordance with the detail shown in the Plans.

221 Connect to Existing Water Main: Payment for furnishing and installing materials necessary to connect the newly installed water main to the existing water main. This item includes all labor, equipment and materials for furnishing and installing all necessary pipe, fittings, connections, temporary jumpers, protection of existing utilities and facilities, excavation, pipe bedding, dewatering, compaction, shutting down existing water main, assistance notifying customers of temporary shutdown, removal and replacement of grass, sod, shrubs, pavement, driveways, culverts and storm sewers, mailboxes, sidewalks and other surface materials not specifically designated in the Bid, cleanup, sterilization, testing and all other work for a complete installation.

222 Water Main Air Release Valves: Payment for furnishing and installing air release valves will be made at the appropriate contract unit price per air release valve installed. This item includes the piping, making pipe connections, valves, pedestal housing, corporation stop and all other work for a complete installation. All air release valves shall conform to the detail shown on the Plans.

223-224 Water Main Service and Connection: Payment for furnishing and installing materials necessary to install and reconnect the existing water services encountered and main connection throughout the project will be included in the contract unit price for each connection point. This item includes all labor, equipment and materials for furnishing and installing all necessary pipe, fittings,

connections, casing pipes, meter stops, meter box, tapping sleeves, saddles, protection of existing utilities and facilities, excavation, pipe bedding, dewatering, compaction, disconnecting existing water service line, assistance notifying customers of temporary shutdown, removal and replacement of grass, sod, shrubs, pavement, driveways, culverts and storm sewers, mailboxes, sidewalks and other surface materials not specifically designated in the Bid, cleanup, sterilization, testing and all other work for a complete installation.

225 Water Service Directional Bore (2" Carrier and 4" Casing): Payment for furnishing and installing directional bore in crossings will be made at the contract unit price per linear foot of installed (various sizes), measured horizontally along the top of the pipe. This item includes all necessary labor, equipment and materials for furnishing and installing the carrier and casing pipe, maintenance of traffic, excavation pits, sheeting, de-watering, compaction, Directional Boring, necessary fittings and pipe restraints, Excavation of all material encountered including rock, back filling, restoration and any other items not specifically mentioned but are required for a complete installation. Measurement shall be to the nearest linear foot of pipe installed, as measured along the centerline. Directional bore carrier pipe will be paid based on quantity provided in plans and bid tabulation. No additional payment shall be made due to CONTRACTOR means and methods, equipment capabilities or presence of rock. During the bid, the CONTRACTOR shall analyze the directional bore lengths to determine feasibility based upon site conditions, means and methods, equipment to be used, and the presence of rock. No additional payments shall be made for extensions beyond plan and bid lengths.

226 Remove and Dispose Existing Water Main: Payment for removal and disposal of existing water main pipe will be made at the contract unit price per lineal foot if required and approved by the COUNTY and the ENGINEER. This item shall include removing from service and removal (and disposal of removed materials) of all existing utility systems called to be removed in the drawings including pipelines, valves, and services.

227 Grout Existing Water Main 10" in Diameter or Smaller: Payment for furnishing and installing concrete grout will be made per linear foot of existing main grouted. All concrete grout shall conform to the technical specifications, FDOT Specifications and a Grouting Plan approved by the ENGINEER. This item includes all necessary labor, equipment and materials to perform the grouting, grout-fill access points, plugs, caps, blow-offs, and all other items necessary for a complete installation.

228 Remove and Return Existing Fire Hydrant: Payment for removal and return of existing fire hydrants will be made at the contract unit price per each. This item shall include removing the existing fire hydrant and storing it on-site to allow Lee County Utilities to inspect and pick up the fire hydrant. This item includes all necessary labor, equipment and materials to perform the removal and return of the existing fire hydrant.

END OF SECTION

SECTION 01035

CHANGE ORDER AND FIELD DIRECTIVE CHANGE PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Definitions

B. Change Orders

C. Field Directive Change

1.2 DEFINITIONS

A. Change Order: Refer to the Change Order definition in Article 2 of the General Conditions.

B. Field Directive Change: Field Directive Change is a written directive to the CONTRACTOR issued on or after the effective date of the agreement; signed by the OWNER, recommended by the ENGINEER ordering an addition, deletion, or revision in the Work. A Field Directive Change will subsequently be followed by the issuance of a Change Order.

C. Overhead: Overhead is defined as the cost of administration, field office and home office costs, general superintendence, office engineering and estimating costs, other required insurance, materials used in temporary structures (not including form work), additional premiums on the performance bond of the CONTRACTOR, the use of small tools, scheduling costs, and all other costs incidental to the performance of the change or the cost of doing business.

1.3 CHANGE ORDERS

A. Initiation of Proposals:

1. From time to time, the OWNER or the ENGINEER may issue a Request for a Change Order Proposal. The Request will contain a description of the intended change with supplementary or revised Drawings and Specifications as applicable, and the projected time for accomplishing the change.

2. The CONTRACTOR may propose a change in the Work by submittal of a Change Order Request to the ENGINEER describing the proposed change with a statement of the reason for the change and the effect on the Contract time and price, along with supporting documentation.

B. Execution of Change Order Proposal:

1. When a Proposal is requested for changed work, submit proposal within 15 days following receipt of the Request from OWNER or ENGINEER. State the increase or decrease, if any, in Contract Completion time and Contract Price.

2. Explain proposal in sufficient detail to permit review by OWNER.

3. For Omitted Work the decrease in the Contract Price will be determined by the ENGINEER and will include appropriate amounts for profit and overhead.

4. The OWNER and ENGINEER will review the Proposal and may request additional information and documentation. Provide these items upon request.

5. If the OWNER decides to proceed with the change, the OWNER will issue a Change Order for signature first by the CONTRACTOR and then by the OWNER.

6. The CONTRACTOR will promptly complete the approved change in the Work on receipt of the executed Change Order.

   a. Failure to sign the Change Order does not relieve the CONTRACTOR from performing the Work if the Change Order is signed by the OWNER.

C. Compute the cost of both additive and deductive changes in the Work in accordance with Article 11 of the General Conditions and as follows:

1. Include, the costs of labor, crew foreman and general foreman performing or directly supervising the changed Work on the site. Include travel and subsistence, but only to the extent incurred.

2. To the labor cost add all net premium for Workman's Compensation, taxes pursuant to the Federal Social Security Act, and payments required under State and Federal unemployment laws.

3. Add necessary extra materials, delivered at the site.

4. Include rent for plant and equipment at unit rental costs for similar rentals from an independent firm (i.e. a firm which is not owned in whole or in part by the CONTRACTOR). If equipment is owned by CONTRACTOR or rented from a firm in which the CONTRACTOR has an interest, calculate the rent in accordance with the applicable provisions and terms of the current "Cost Reference Guide for Construction Equipment" published by Dataquest.

5. Include Subcontractor's costs, determined by items 1 through 4 in the preceding subparagraphs, including a maximum of 10 percent overhead and 10 percent profit for the first $20,000; 7-1/2 percent overhead and 7-1/2 percent profit on the next $30,000; and 5 percent overhead and 5 percent profit on balance over $50,000.

6. For all subcontract work add 5 percent overhead and 5 percent profit to the subcontractor's costs as determined in paragraph 5. For work performed by the CONTRACTOR's own forces add a maximum of 10 percent overhead and 10 percent profit for the first $20,000; 7-1/2 percent overhead and 7-1/2 percent profit on the next $30,000; and 5 percent overhead and 5 percent profit on balance over $50,000.

1.4 FIELD DIRECTIVE CHANGE

A. Initiation by OWNER: OWNER may issue a Field Directive Change with a Notice to Proceed without a prior Request for a Change Order Proposal or the CONTRACTOR's signature.

B. Payment Determination: The OWNER will designate the method of determining the amount of compensation or credit, if any, based on one of the methods contained in Article 11 of the General Conditions.

C. Timing: Proceed with the change in the Work immediately upon receipt of the Field Directive Change.

D. Addition to Contract: The Field Directive Change will be incorporated into the Contract Documents via a Change Order at a later date.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01040

PROJECT MEETINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Coordination

B. Preconstruction Conference

C. Progress Meetings

1.2 COORDINATION

A. General: Coordinate scheduling, submittals, and Contract work to assure efficient and orderly sequence of installation of interdependent construction elements.

1.3 PRECONSTRUCTION CONFERENCE

A. General: Prior to commencement of the Work, in accordance with the General Conditions, the OWNER will conduct a preconstruction conference to be held at a predetermined time and place.

B. Delineation of Responsibilities: The purpose of the conference is to designate responsible personnel, to establish a working relationship among the parties and to identify the responsibilities of the OWNER, plant personnel and the CONTRACTOR/VENDOR. Matters requiring coordination will be discussed and procedures for handling such matters, established. The agenda will include:

1. Submittal procedures
2. Partial Payment procedures
3. Maintenance of Records
4. Schedules, sequences and maintenance of facility operations
5. Safety and First Aid responsibilities
6. Change Orders and Field Directive Changes
7. Use of site and coordination with FDOT
8. Housekeeping
9. Equipment delivery

C. Attendees: The preconstruction conference is to be attended by the representatives of the CONTRACTOR/VENDOR, the OWNER and plant personnel that will be associated with the project. Representatives of regulatory agencies, subcontractors, and principal suppliers may also attend when appropriate.

D. Chair and Minutes: The preconstruction conference will be chaired by the Owner who will also arrange for the keeping and distribution of minutes to all attendees.

1.4 PROGRESS MEETINGS

A. Meeting Frequency and Format: Schedule progress meetings on at least a bi-weekly basis or more frequently as warranted by the complexity of the Project, to review the Work, discuss changes in schedules, maintain coordination and resolve potential problems. Invite OWNER, ENGINEER and all subCONTRACTOR/VENDORs. Suppliers may be invited as appropriate. Minutes of the meeting will be maintained by CONTRACTOR/VENDOR and reviewed by ENGINEER prior to distribution by the CONTRACTOR/VENDOR. Distribute reviewed minutes to attendees within 7 calendar days after each meeting.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01041

PROJECT COORDINATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Work Progress

B. Private Land

C. Work Locations

D. Open Excavations

E. Test Pits

F. Maintenance of Traffic

G. Maintenance of Flow

1.2 WORK PROGRESS

A. Furnish personnel and equipment which will be efficient, appropriate and large enough to secure a satisfactory quality of work and a rate of progress which will allow the completion of the work within the time stipulated in the Bid of these Specifications. If at any time such personnel appears to the ENGINEER to be inefficient, inappropriate or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, he may order the CONTRACTOR to increase the efficiency, change the character or increase the personnel and equipment, and the CONTRACTOR shall conform to such order. Failure of the ENGINEER to give such order shall in no way relieve the CONTRACTOR of his obligations to secure the quality of the work and rate of progress.

1.3 PRIVATE LAND

A. Do not enter or occupy private land outside of road right-of-ways, except by permission of OWNER. Construction operations shall be conducted in accordance with Section 01500.

1.4 WORK LOCATIONS

A. Structures and pipelines shall be located substantially as indicated on the Drawings, but the ENGINEER reserves the right to make such modifications in locations as may

be found desirable to avoid interference noted on the Drawings, such notation is for the CONTRACTOR'S convenience and does not relieve him from laying and jointing different or additional items where required.

1.5 OPEN EXCAVATIONS

A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property. The CONTRACTOR shall, at his own expense, provide suitable and safe crossings for accommodating travel by the public and workmen. It shall be the CONTRACTOR'S responsibility to maintain a safe work zone at all times. Any closures to pedestrian facilities, driveways or roadways require advanced approval from the COUNTY, OWNER'S REPRESENTATIVE and FDOT.

1.6 TEST PITS

A. Test pits for the purpose of locating underground pipeline or structures in advance of the construction shall be excavated and backfilled by the CONTRACTOR. Test pits shall be backfilled immediately after their purpose has been satisfied and maintained in a manner satisfactory to the ENGINEER. The costs for such test pits shall be borne by the CONTRACTOR.

1.7 MAINTENANCE OF TRAFFIC

A. Maintenance of traffic shall be in accordance with Sections 01570 and 02230.

B. All projects and work on highways, roads, and streets, shall have a traffic control plan, (TCP), as required by Florida Statute and Federal regulations. All work shall be executed under the established plan and FDOT approved procedures. The TCP is the result of considerations and investigations made in the development of a comprehensive plan for accommodating vehicular and pedestrian traffic through the construction zone.

C. The complexity of the TCP varies with the complexity of the traffic problems associated with a project. Many situations can be covered adequately with reference to specific sections from the Manual on Uniform Traffic Control Devices (MUTCD), the Traffic Control Devices Handbook (TCDH), or Roadway and Traffic Design Standard Series 600.

1.8 MAINTENANCE OF FLOW

A. Provide for the flow of sewers, drains, courses interrupted during the progress of the work, and shall immediately cart away and remove all offensive matter. The entire procedure of maintaining existing flow shall be fully discussed with the ENGINEER well in advance of the interruption of any flow.

PART 2 PRODUCTS

2.1 PROTECTION OF CONSTRUCTION AND EQUIPMENT

A. All newly constructed work shall be carefully protected from damage in any way. No wheeling or walking or placing of heavy loads on it shall be allowed and all portions damaged shall be reconstructed by the CONTRACTOR at his own expense.

B. All structures shall be protected in a manner approved by the ENGINEER. Should any of the floors or other parts of the structures become heaved, cracked or otherwise damaged, all such damaged portions of the work shall be completely repaired and made good by the CONTRACTOR at his own expense and to the satisfaction of the ENGINEER. Special attention is directed to substructure bracing requirements, described in Section 02151. If, in the final inspection of the work, any defects, faults or omissions are found, the CONTRACTOR shall cause the same to be repaired or removed and replaced by proper materials and workmanship without extra compensation for the materials and labor required. The CONTRACTOR shall be fully responsible for the satisfactory maintenance and repair of the construction and other work undertaken herein, for at least the guarantee period described in the contract.

C. Take all necessary precautions to prevent damage to any structure due to water pressure during and after construction and until such structure is accepted and taken over by the OWNER.

PART 3 EXECUTION

3.1 PROTECTION OF CONSTRUCTION AND EQUIPMENT

A. Sequence and schedule work in a manner to preclude delays and conflicts between the work of various trades and contractors. Each trade shall keep informed as to the work of other trades on the project and shall execute their work in a manner that will not interfere with the work of other trades.

3.2 DIAGRAMMATIC NATURE OF DRAWINGS

A. Where layout is diagrammatic, such as pipelines, conduits, ductwork, etc., it shall be followed as closely as other work will permit. Changes from diagrams shall be made as required to conform to the construction requirements.

B. Before running lines, carefully verify locations, depths and sizes and confirm that lines can be run as contemplated without interfering with other construction. Any deviation shall be referred to the ENGINEER for approval before lines are run. Minor changes in location of the equipment, fixtures, piping, etc., from those shown on the Drawings, shall be made without extra charge if so directed by the ENGINEER before installation.

C. Determine the locations and sizes of equipment, fixtures, conduit, ducts, openings, etc., in order that there will be no interference in the installation of the work or delay in the progress of other work. In the event that interferences develop, the ENGINEER's decision regarding relocation of work will be final.

D. Any changes made necessary through failure to make proper arrangements to avoid interference shall not be considered as extras. Cooperate with those performing other work in preparation of interference drawings, to the extent that the location of piping, ductwork, etc., with respect to the installations of other trades shall be mutually agreed upon by those performing the work.

3.3 PROVISIONS FOR LATER INSTALLATION

A. Where any work cannot be installed as the construction is progressing, provide for boxes, sleeves, inserts, fixtures or devices as necessary to permit installation of the omitted work during later phases of construction. Arrange for chases, holes, and other openings in the masonry, concrete or other work and provide for subsequent closure after placing equipment. Arrangement for and closure of openings shall be subject to the approval of the ENGINEER and all costs therefor shall be included in the contract price for the work.

3.4 COORDINATION

A. The CONTRACTOR shall be fully responsible for the coordination of his work and the work of his employees, subcontractors, and suppliers with the OWNER, and regulatory agencies, and assure compliance with schedules.

END OF SECTION

SECTION 01045

CUTTING AND PATCHING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. General Requirements

B. Submittals

C. Scheduling of Shutdown

1.2 RELATED SECTIONS

A. Section 01010 - Summary of Work

B. Section 02575 – Pavement Repair and Restoration

1.3 GENERAL REQUIREMENTS

A. CONTRACTOR shall be responsible for all cutting, fitting and patching, including attendant excavation and backfill, required to complete the work or to:

1. Make its several parts fit together properly.
2. Uncover portions of the work to provide for installation of ill-timed work.
3. Remove and replace defective work.
4. Remove and replace work not conforming to requirements of Contract Documents.
5. Remove samples of installed work as specified for testing.
6. Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.

B. Coordination: Perform all cutting, fitting or patching of the Work that may be required to make the several parts thereof join in accordance with the Contract Documents. Perform restoration with competent workmen skilled in the trade.

C. Improperly Timed Work: Perform all cutting and patching required to install improperly timed work, to remove samples of installed materials for testing, and to provide for alteration of existing facilities or for the installation of new Work in the existing construction.

D. Limitations: Except when the cutting or removal of existing construction is specified or indicated, do not undertake any cutting or demolition which may affect the structural stability of the Work or existing facilities without the ENGINEER'S concurrence.

1.4 SUBMITTALS

A. Submit a written request to the ENGINEER well in advance of executing any cutting or alteration which affects:
   1. Work of the OWNER or any separate contractor.
   2. Structural value or integrity of any element of the project or work.
   3. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
   4. Efficiency, operational life, maintenance or safety of operational elements.
   5. Visual qualities of sight-exposed elements.

B. Request shall include:
   1. Identification of the work.
   2. Description of affected work.
   3. The necessity for cutting, alteration or excavation.
   4. Effect on work of OWNER or any separate contract, or on structural or weatherproof integrity of work.
   5. Description of proposed work:
      a. Scope of cutting, patching, alteration, or excavation.
      b. Trades who will execute the work.
      c. Products proposed to be used.
      d. Extent of refinishing to be done.
   6. Alternatives to cutting and patching.
   7. Cost proposal, when applicable.
   8. Written permission of any separate contractor whose work will be affected.

C. SUBMIT WRITTEN NOTICE TO THE ENGINEER DESIGNATING THE DATE AND THE TIME THE WORK WILL BE UNCOVERED.

1.5 SCHEDULING OF SHUTDOWN

A. Connections to Existing Facilities: If any connections, replacement, or other work requiring the shutdown of an existing facility is necessary, schedule such work at times when the impact on the OWNER's normal operation is minimal. Overtime, night and weekend work without additional compensation from the OWNER, may be required to make these connections, especially if the connections are made at times other than those specified.

B. Request for Shutdowns: It will be the CONTRACTOR’s responsibility to submit a written request for each shutdown to the OWNER, the ENGINEER and the Public Relations Personnel at least 7 (seven) Calendar days in advance of any required shutdown. This will allow the Public Involvement Personnel adequate time to notify any affected resident and/or business owner of said shut down.

PART 2 PRODUCTS

2.1 MATERIALS

A. Comply with specifications and standards for each specific product involved.

PART 3 EXECUTION

3.1 INSPECTION

A. Inspect existing conditions of projects, including elements subject to damage or to movement during cutting and patching.

B. After uncovering work, inspect conditions affecting installation of products, or performance of the work.

C. Report unsatisfactory or questionable conditions to the ENGINEER in writing; do not proceed with work until the ENGINEER has provided further instructions.

3.2 PREPARATION

A. Provide adequate temporary support as necessary to assure structural value or integrity or affected portion of work.

B. Provide devices and methods to protect other portions of project from damage.

C. Provide protection from elements for that portion of the project which may be exposed by cutting and patching work, and maintain excavations free from water.

D. Material Removal: Cut and remove all materials to the extent shown or as required to complete the Work. Remove materials in a careful manner with no damage to adjacent facilities. Remove materials which are not salvageable from the site.

3.3 PERFORMANCE

A. Execute cutting and demolition by methods which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs.

B. Execute excavating and backfilling by methods which will prevent settlement or damage to other work.

C. Employ original installer or fabricator to perform cutting and patching for:
   1. Weather-exposed or moisture-resistant elements.
   2. Sight-exposed finished surfaces.

D. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.

E. Restore work which has been cut or removed; install new products to provide completed work in accord with requirements of contract documents.

F. Fit work airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.

G. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:
   1. For continuous surfaces, refinish to nearest intersection.
   2. For an assembly, refinish entire unit.

3.4 PAVEMENT RESTORATION

A. Restore all pavement or roadway surfaces in accordance with Section 02575 – Pavement Repair and Restoration.

B. The restoration of existing street paving, including underdrains, if any are encountered, where damaged, shall be restored by the CONTRACTOR and shall be replaced or rebuilt using the same type of construction as was in the original. The CONTRACTOR shall be responsible for restoring all such work, including subgrade, base courses, curb and gutter or other appurtenances where present. The CONTRACTOR shall obtain and pay for at his own expense such local or other governmental permits as may be necessary for the opening of streets and shall satisfy himself as to any requirements other than those herein set forth which may effect the type, quality and manner of carrying on the restoration of surfaces by reason of jurisdiction of such governmental bodies.

C. This section does not describe the construction of new road surfaces or the complete resurfacing of existing pavements.

D. In all cases, the CONTRACTOR will be required to maintain, without additional compensation, all permanent replacement of street paving, done by him under this Contract for a period of 12 months after the acceptance of the Contract, including the removal and replacement of such work wherever surface depressions or underlying cavities result from settlement of trench backfill.

E. The CONTRACTOR shall do all the final resurfacing or repaving of streets or roads, over the excavations that he has made and he shall be responsible for relaying paving surfaces of roads that have failed or been damaged, at any time before the termination of the maintenance period on account of work done by him and he shall resurface or repave over any tunnel jacking, or boring excavation that shall settle or break the surface, shall be repaved to the satisfaction of the OWNER and at the CONTRACTOR's sole expense. Backfilling of trenches and the preparation of subgrades shall conform to the requirements of excavation and backfilling of pipeline trenches.

F. Where pipeline construction crosses paved streets, the CONTRACTOR may elect, at no additional cost to the OWNER, to place the pipe by the jacking or boring or tunneling method in lieu of cutting and patching of the paved surfaces if approved by the OWNER, ENGINEER and the FDOT.

END OF SECTION

SECTION 01051

LINES AND GRADES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. General

B. Surveys

C. Datum Plane

D. Protection of Survey Data

1.2 GENERAL

A. Construct all work in accordance with the lines and grades shown on the Drawings. Assume full responsibility for keeping all alignment and grade.

1.3 SURVEYS

A. Reference Points: The OWNER will provide reference points for the work as described in the General Conditions. Base horizontal and vertical control points will be designated by the ENGINEER and used as datum for the Work. Perform all additional survey, layout, and measurement work.

1. Keep ENGINEER informed, sufficiently in advance, of the times and places at which work is to be performed so that base horizontal and vertical control points may be established and any checking deemed necessary by ENGINEER may be done, with minimum inconvenience to the ENGINEER and at no delay to CONTRACTOR. It is the intention not to impede the Work for the establishment of control points and the checking of lines and grades set by the CONTRACTOR. However, when necessary, suspend working operations for such reasonable time as the ENGINEER may require for this purpose. Costs associated with such suspension are deemed to be included in the Contract Price, and no time extension or additional costs will be allowed.

2. Provide an experienced survey crew including an instrument operator, competent assistants, and any instruments, tools, stakes, and other materials required to complete the survey, layout, and measurement of work performed by the CONTRACTOR.

1.4 DATUM PLANE

A. All elevations indicated or specified refer to the Florida State Plane West Zone (1983/NSRS 2007) NAVD 1988 and are expressed in feet and decimal parts thereof, or in feet and inches. It shall be the CONTRACTOR's responsibility to ensure the established control matches plans datum.

1.5 PROTECTION OF SURVEY DATA

A. General: Safeguard all points, stakes, grade marks, known property corners, monuments, and bench marks made or established for the Work. Reestablish them if disturbed, and bear the entire expense of checking reestablished marks and rectifying work improperly installed.

B. Records: Keep neat and legible notes of measurements and calculations made in connection with the layout of the Work. Furnish copies of such data to the ENGINEER for use in checking the CONTRACTOR's layout. Data considered of value to the OWNER will be transmitted to the OWNER by the ENGINEER with other records on completion of the Work.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01090

REFERENCE STANDARDS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Abbreviations and Symbols

B. Reference Standards

C. Definitions

1.2 RELATED SECTIONS

A. Information provided in this section is used where applicable in individual Specification Sections, Divisions 2 through 16.

1.3 REFERENCE ABBREVIATIONS

A. Reference to a technical society, trade association or standards setting organization, may be made in the Specifications by abbreviations in accordance with the following list:

AABC	Associated Air Balance Council
AAMA	Architectural Aluminum Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ACI	American Concrete Institute
ADC	Air Diffusion Council
AFBMA	Anti-friction Bearing Manufacturers Association
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AHA	Association of Home Appliance Manufacturers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AMCA	Air Movement and Control Association, Inc.
ANSI	American National Standards Institute
APA	American Plywood Association
ARI	American Refrigeration Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineers

ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders' Hardware Manufacturers Association
BIA	Brick Institute of American
CABO	Council of American Building Officials
CAGI	Compressed Air and Gas Institute
CISPI	Cast Iron Soil Pipe Institute
CMAA	Crane Manufacturers Association of America
CRD	U.S. Corps of Engineers Specifications
CRSI	Concrete Reinforcing Steel Institute
CTI	Cooling Tower Institute
DHI	Door and Hardware Institute
DOH	Department of Health
DOT	Department of Transportation
Fed. Spec.	Federal Specifications
FDOT	Florida Department of Transportation
FGMA	Flat Glass Marketing Association
FM	Factory Mutual
HMI	Hoist Manufacturing Institute
HPMA	See HPVA
HPVA	Hardwood Plywood Veneer Association
ICEA	Insulated Cable Engineers Association
IEEE	Institute of Electrical and Electronics Engineers
IFI	Industrial Fasteners Institute
MIL	Military Specifications
MSS	Manufacturer's Standardization Society
NAAMM	National Association of Architectural Metal Manufacturers
NACM	National Association of Chain Manufacturers
NBS	National Bureau of Standards, See NIST
NEBB	National Environmental Balancing Bureau
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NETA	National Electrical Testing Association
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NFPA	National Fluid Power Association
NIST	National Institute of Standards and Technology
NLMA	National Lumber Manufacturers Association
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Act
PCI	Prestressed Concrete Institute
PDI	Plumbing and Drainage Institute
SAE	Society of Automotive Engineers
SCPRF	Structural Clay Products Research Foundation
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association

SPI	Society of the Plastics Industry
SSPC	Steel Structures Painting Council
STI	Steel Tank Institute
TCA	Tile Council of American
TIMA	Thermal Insulation Manufacturers' Association
UL	Underwriters' Laboratories, Inc.
USBR	U. S. Bureau of Reclamation
USBS	U. S. Bureau of Standards, See NIST

1.4 REFERENCE STANDARDS

A. Latest Edition: Construe references to furnishing materials or testing, which conform to the standards of a particular technical society, organization, or body, to mean the latest standard, code, or specification of that body, adopted and published as of the date of bidding this Contract. Standards referred to herein are made a part of these Specifications to the extent which is indicated or intended.

B. Precedence: The duties and responsibilities of the OWNER, CONTRACTOR or ENGINEER, or any of their consultants, agents or employees are set forth in the Contract Documents, and are not changed or altered by any provision of any referenced standard specifications, manuals or code, whether such standard manual or code is or is not specifically incorporated by reference in the Contract Documents. Any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority, to undertake responsibility contrary to the powers of the ENGINEER as set forth in the Contract Documents cannot be assigned to the ENGINEER or any of the ENGINEER's consultants, agents or employees.

1.5 DEFINITIONS

A. In these Contract Documents the words furnish, install and provide are defined as follows:

1. Furnish (Materials): to supply and deliver to the project ready for installation and in operable condition.

2. Install (services or labor): to place in final position, complete, anchored, connected in operable condition.

3. Provide: to furnish and install complete. Includes the supply of specified services. When neither furnish, install or provide is stated, provided is implied.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01092

ABBREVIATIONS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Abbreviations

B. Standards for Abbreviations

1.2 RELATED SECTIONS

A. Abbreviations provided in this section are used where applicable in individual Specification Sections, Divisions 2 through 16.

1.3 ABBREVIATIONS

A. Abbreviations which may be used in Divisions 1 through 16 for units of measure are as follows:

alternating current ..... ac
American wire gauge ..... AWG
ampere(s) ..... amp
ampere-hour(s) ..... AH
annual ..... ann
Ampere Interrupting Capacity ..... AIC
atmosphere(s) ..... atm
average ..... avg

biochemical oxygen demand ..... BOD
Board Foot ..... FBM
brake horsepower ..... bhp
Brinell Hardness ..... BH
British thermal unit(s) ..... Btu

calorie (s) ..... cal
carbonaceous biochemical oxygen demand ..... CBOD
Celsius (centigrade) C
Center to Center ..... C to C
centimeter(s) ..... cm
chemical oxygen demand ..... COD
coefficient, valve flow ..... C_v
cubic ..... cu
cubic centimeter(s) cc
cubic feet per day ..... cfd
cubic feet per hour ..... cfh
cubic feet per minute ..... cfm
cubic feet per minute, standard conditions ..... scfm
cubic feet per second ..... cfs
cubic foot (feet) ..... cu ft
cubic inch(es) ..... cu in
cubic yard(s) ..... cu yd

decibels ..... dB
decibels (A scale) ..... dBa
degree(s) ..... deg
dewpoint temperature ..... dpt
diameter ..... dia
direct current ..... dc
dissolved oxygen ..... DO
dissolved solids ..... DS
dry-bulb temperature ..... dbt

efficiency ..... eff
elevation ..... el
entering water temperature ..... ewt
entering air temperature ..... eat

equivalent direct radiation ..... edr

face area..... fa
face to face .....f to f
Fahrenheit..... F
feet per day..... fpd
feet per hour ..... fph
feet per minute..... fpm
feet per second .....fps
foot (feet) ..... ft
foot-candle .....fc
foot-pound..... ft-lb
foot-pounds per minute .....ft-lb/min
foot-pounds per second ..... ft-lb/sec
formazin turbidity unit(s).....FTU
frequency..... freq

gallon(s).....gal
gallons per day..... gpd
gallons per day per
cubic foot .....gpd/cu ft
gallons per day per
square foot.....gpd/sq ft
gallons per hour ..... gph
gallons per minute.....gpm
gallons per second.....gps
gas chromatography and
mass spectrometry.....GC-MS
gauge..... ga
grain(s) ..... gr
gram(s) ..... g
grams per cubic centimeter..... gm/cc

Heat Transfer Coefficient .....U
height..... hgt
Hertz ..... Hz
horsepower ..... hp
horsepower-hour.....hp-hr
hour(s) ..... hr
humidity, relative ..... rh
hydrogen ion concentration.....pH

inch(es).....in
inches per second.....ips
inside diameter.....ID

Jackson turbidity unit(s) .....JTU

kelvin ..... K
kiloamperes ..... kA
kilogram(s) ..... kg
kilometer(s) ..... km
kilovar (kilovolt-amperes
reactive) ..... kvar
kilovolt(s).....kV
kilovolt-ampere(s).....kVA
kilowatt(s).....kW
kilowatt-hour(s).....kWh

linear foot (feet) .....lin ft
liter(s) L

megavolt-ampere(s) ..... MVA
meter(s)..... m
micrograms per liter..... ug/L
miles per hour ..... mph
milliampere(s)..... mA
milligram(s)..... mg
milligrams per liter ..... mg/L
milliliter(s)..... mL
millimeter(s)..... mm
million gallons..... MG
million gallons per day..... mgd
millisecond(s) ..... ms
millivolt(s) ..... mV
minute(s) ..... min

mixed liquor suspended
solids..... MLSS

nephelometric turbidity
unit .....NTU
net positive suction head ..... NPSH
noise criteria..... nc
noise reduction coefficient ..... NRC
number.....no

ounce(s) ..... oz
outside air.....oa
outside diameter.....OD

parts per billion..... ppb
parts per million..... ppm
percent..... pct
phase (electrical) .... ph
pound(s)..... lb
pounds per cubic foot ..... pcf
pounds per cubic foot
per hour.....pcf/hr
pounds per day .....lbs/day

pounds per day per cubic foot ..... lbs/day/cu ft
pounds per day per square foot ..... lbs/day/sq ft
pounds per square foot ..... psf
pounds per square foot per hour ..... psf/hr
pounds per square inch ..... psi
pounds per square inch absolute ..... psia
pounds per square inch gauge ..... psig
portable changeable message signs ..... pcms
power factor ..... PF
pressure drop or difference ..... dp
pressure, dynamic (velocity) ..... vp
pressure, vapor ..... vap pr

quart(s) ..... qt

Rankine ..... R
relative humidity ..... rh
resistance ..... res
return air ..... ra
revolution(s) ..... rev
revolutions per minute ..... rpm
revolutions per second ..... rps
root mean squared ..... rms

safety factor ..... sf
second(s) ..... sec
shading coefficient ..... SC
sludge density index ..... SDI

Sound Transmission Coefficient ..... STC
specific gravity ..... sp gr
specific volume ..... Sp Vol
sp ht at constant pressure ..... Cp
square ..... sq
square centimeter(s) ..... sq cm
square foot (feet) ..... sq ft
square inch (es) ..... sq in
square meter(s) ..... sq m
square yard(s) ..... sq yd
standard ..... std
static pressure ..... st pr
supply air .... sa
suspended solids ..... SS

temperature ..... temp
temperature difference ..... TD
temperature entering ..... TE
temperature leaving ..... TL
thousand Btu per hour ..... Mbh
thousand circular mils ..... kcmil
thousand cubic feet ..... Mcf
threshold limit value ..... TLV
tons of refrigeration ..... tons
torque ..... TRQ
total dissolved solids ..... TDS
total dynamic head ..... TDH
total kjeldahl nitrogen ..... TKN
total oxygen demand ..... TOD
total pressure ..... TP
total solids ..... TS
total suspended solids ..... TSS
total volatile solids ..... TVS

vacuum ..... vac
viscosity ..... visc
volatile organic chemical ..... VOC
volatile solids ..... VS
volatile suspended solids ..... VSS
volt(s) V
volts-ampere(s) ..... VA
volume ..... vol

watt(s) ..... W
watthour(s) ..... Wh
watt-hour demand ..... WHD
watt-hour demand meter ..... WHDM
week(s) ..... wk
weight ..... wt
wet-bulb ..... WB
wet bulb temperature ..... WBT

yard(s) ..... yd
year(s) ..... yr

1.4 STANDARD FOR ABBREVIATIONS

A. Use ASME Y1.1-1989, "Abbreviations for use on Drawings and in Text" for abbreviations for units of measure not included in Paragraph 1.3.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Description of Requirements

B. Submittal Procedures

C. Specific Submittal Requirements

D. Action on Submittals

E. Repetitive Review

1.2 DESCRIPTION OF REQUIREMENTS

A. This section specifies procedural requirements for Shop Drawings, product data, samples, and other miscellaneous Work-related submittals.

B. Procedures concerning items such as listing of manufacturers, suppliers, subcontractors, construction progress schedule, schedule of Shop Drawing submissions, bonds, payment applications, insurance certificates, and schedule of values are specified elsewhere.

C. Work-Related Submittals:

1. Substitution or "Or Equal" Items:

a. Includes material or equipment CONTRACTOR requests ENGINEER to accept, after Bids are received, as substitute for items specified or described in Specifications by using name of a proprietary item or name of particular supplier.

2. Shop Drawings:

a. Includes technical data and drawings specially prepared for this Project, including fabrication and installation drawings, diagrams, actual performance curves, data sheets, schedules, templates, patterns, reports, instructions, design mix formulas, measurements, and similar information not in standard printed form.

b. Standard information prepared without specific reference to the Project is not considered a Shop Drawing.

3. Product Data:

a. Includes standard printed information on manufactured products, and systems that has not been specially prepared for this Project, including manufacturer's product specifications and installation instructions, catalog cuts, standard wiring diagrams, printed performance curves, mill reports, and standard color charts.

4. Samples:

N/A

5. Working Drawings:

a. When used in the Contract Documents, the term “working drawings” shall be considered to mean the CONTRACTOR’S plans for temporary structures such as temporary bulkheads, support of open cut excavation, support of utilities control systems, forming and falsework for underpinning; temporary by-pass pumping and for such other work as may be required for construction but does not become an integral part of the project.

b. Copies of working drawings shall be submitted to the ENGINEER at least fourteen (14) calendar days (unless otherwise specified by the ENGINEER) in advance of the required work.

c. Working drawings shall be signed by a registered Professional Engineer currently licensed to practice in the State of Florida and shall convey, or be accompanied by, calculation or other sufficient information to completely explain the structure, machine, or system described and its intended manner of use.

6. Miscellaneous Submittals:

a. Work-related submittals that do not fit in the previous categories, such as guarantees, warranties, certifications, experience records, maintenance agreements, Operating and Maintenance Manuals, workmanship bonds, survey data and reports, physical work records, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, and similar information, devices, and materials applicable to the Work.

1.3 SUBMITTAL PROCEDURES

A. Scheduling:

1. Submit for approval, a preliminary schedule of shop drawings and samples submittals, in duplicate, and in accordance with the General Conditions.

2. Prepare and transmit each submittal to ENGINEER sufficiently in advance of scheduled performance of related work and other applicable activities.

B. Coordination:

1. Coordinate preparation and processing of submittals with performance of work. Coordinate each submittal with other submittals and related activities such as substitution requests, testing, purchasing, fabrication, delivery, and similar activities that require sequential activity.

2. Coordinate submission of different units of interrelated work so that one submittal will not be delayed by ENGINEER's need to review a related submittal. ENGINEER may withhold action on any submittal requiring coordination with other submittals until related submittals are forthcoming.

C. Submittal Preparation:

1. Stamp and sign each submittal certifying to review of submittal, verification of products, field measurement, field construction criteria, coordination of information within submittal with requirements of the Work and the Contract Documents, coordination with all trades, and verification that product will fit in space provided.

2. Transmittal Form: In the transmittal form forwarding each specific submittal to the ENGINEER include the following information as a minimum.

a. Date of submittal and dates of previous submittals containing the same material.

b. Project title and number.

c. Submittal and transmittal number.

d. Contract identification.

e. Names of:

(1) Contractor
(2) Supplier
(3) Manufacturer

f. Identification of equipment and material with equipment identification numbers, model numbers, and Specification section number.

g. Variations from Contract Documents and any limitations which may impact the Work.

h. Drawing sheet and detail number as appropriate.

D. Resubmittal Preparation:

1. Comply with the requirements described in Submittal Preparation. In addition:

a. Identify on transmittal form that submittal is a resubmission.

b. Make any corrections or changes in submittals required by ENGINEER's notations on returned submittal.

c. Respond to ENGINEER's notations:

(1) On the transmittal or on a separate page attached to CONTRACTOR's resubmission transmittal, answer or acknowledge in writing all notations or questions indicated by ENGINEER on ENGINEER's transmittal form returning review submission to CONTRACTOR.

(2) Identify each response by question or notation number established by ENGINEER.

(3) If CONTRACTOR does not respond to each notation or question, resubmission will be returned without action by ENGINEER until CONTRACTOR provides a written response to all ENGINEER's notations or questions.

d. CONTRACTOR initiated revisions or variations:

(1) On transmittal form identify variations or revisions from previously reviewed submittal, other than those called for by ENGINEER.

(2) ENGINEER's responsibility for variations or revisions is established in the General Conditions.

1.4 SPECIFIC SUBMITTAL REQUIREMENTS

A. Specific submittals required for individual elements of work are specified in the individual Specification sections. Except as otherwise indicated in Specification

sections, comply with requirements specified herein for each indicated type of submittal.

B. Requests for Substitution or "Or Equal"

1. Collect data for items to be submitted for review as substitution into one submittal for each item of material or equipment in accordance with the General Conditions.

2. Submit with other scheduled submittals for the material or equipment allowing time for ENGINEER to evaluate the additional information required to be submitted.

3. If CONTRACTOR requests to substitute for material or equipment specified but not identified in Specifications as requiring submittals, schedule substitution submittal request in Submittal schedule and submit as scheduled.

C. Shop Drawings:

1. Check all drawings, data and samples before submitting to the ENGINEER for review. Each and every copy of the drawings and data shall bear CONTRACTOR's stamp showing that they have been so checked. Shop drawings submitted to the ENGINEER without the CONTRACTOR's stamp will be returned to the CONTRACTOR for conformance with this requirement. All shop drawings shall be submitted through the CONTRACTOR, including those from any subcontractors.

2. Submit newly prepared information, with graphic information at accurate scale. Indicate name of manufacturer or supplier (firm name). Show dimensions and clearly note which are based on field measurement; identify materials and products which are included in the Work; identify revisions. Indicate compliance with standards and notation of coordination requirements with other work. Highlight, encircle or otherwise indicate variations from Contract Documents or previous submittals.

3. Include on each drawing or page:

a. Submittal date and revision dates.

b. Project name, division number and descriptions.

c. Detailed specifications section number and page number.

d. Identification of equipment, product or material.

e. Name of CONTRACTOR and Subcontractor.

f. Name of Supplier and Manufacturer.

g. Relation to adjacent structure or material.

h. Field dimensions, clearly identified.

i. Standards or Industry Specification references.

j. Identification of deviations from the Contract Documents.

k. CONTRACTOR's stamp, initialed or signed, dated and certifying to review of submittal, certification of field measurements and compliance with Contract.

l. Physical location and location relative to other connected or attached material at which the equipment or materials are to be installed.

4. Provide 8-inch by 3-inch blank space for CONTRACTOR and ENGINEER stamps.

5. Submittals:

a. Submit 3 blue line or black line prints, or 2 reverse sepia reproducible and 1 blue or black line print. One reproducible or one print will be returned.

6. Distribution:

a. Do not proceed with installation of materials, products or systems until copy of applicable product data showing only approved information is in possession of installer.

b. Maintain one set of product data (for each submittal) at Project site.

c. Mark 5 additional copies with the date of approval and forward to the ENGINEER for use in field and for OWNER's records.

D. Product Data:

1. Preparation:

a. Collect required data into single submittal for each element of work or system. Where product data has been printed to include information on several similar products, some of which are not required for use on Project or are not included in submittal, mark copies to clearly show such information is not applicable.

b. Where product data must be specially prepared for required products, materials or systems, because standard printed data are not suitable for use, submit data as a Shop Drawing and not as product data.

2. Submittals:

a. Submittal is for information and record, and to determine that products, materials, and systems comply with Contract Documents. Submittal is final when returned by ENGINEER marked "Approved" or "Approved as Noted".

b. Submit 3 copies.

3. Distribution:

a. Do not proceed with installation of materials, products or systems until copy of applicable product data showing only approval information is in possession of installer.

b. Maintain one set of product data (for each submittal) at Project site, available for reference by ENGINEER and others.

c. Mark 5 additional copies with the date of approval and forward to the ENGINEER for use in field and for OWNER records.

E. Samples:

N/A

F. Mock-Ups:

N/A

G. Miscellaneous Submittals:

1. Inspection and Test Reports:

a. Classify each inspection and test report as being either "Shop Drawings" or "product data", depending on whether report is specially prepared for Project or standard publication of workmanship control testing at point of production. Process inspection and test reports accordingly.

2. Guarantees, Warranties, Maintenance Agreements, and Workmanship Bonds:

a. Refer to Specification sections for specific requirements. Submittal is final when returned by ENGINEER marked "Approved" or "Approved as Noted".

b. In addition to copies desired for CONTRACTOR's use, furnish 2 executed copies. Provide 2 additional copies where required for maintenance data.

3. Survey Data:

a. Refer to Specification sections for specific requirements on property surveys, building or structure condition surveys, field measurements, quantitative records of actual Work, damage surveys, photographs, and similar data required by Specification sections. Copies will not be returned.

(1) Survey Copies: Furnish 2 copies. Provide 10 copies of final property survey (if any).

(2) Condition Surveys: Furnish 2 copies.

4. Certifications:

a. Refer to Specification sections for specific requirement on submittal of certifications. Submit 7 copies. Certifications are submitted for review of conformance with specified requirements and information. Submittal is final when returned by ENGINEER marked "Approved".

5. Closeout Submittals:

a. Refer to Specification Section 01720 for specific requirements on submittal of closeout information, materials, tools, and similar items.

(1) Record Documents: Section 01720.

(2) Materials and Tools: Spare parts, extra and overrun stock, maintenance tools and devices, keys, and similar physical units to be submitted.

(3) Operating and maintenance data.

H. Operation and Maintenance Manuals:

1. Submit Operation and Maintenance Manuals in accordance with Section 01730.

I. General Distribution:

1. Unless required elsewhere, provide distribution of submittals to subcontractors, suppliers, governing authorities, and others as necessary for proper performance of work.

1.5 ACTION ON SUBMITTALS

A. ENGINEER's Action:

1. General:

a. Except for submittals for record and similar purposes, where action and return on submittals are required or requested, ENGINEER will review each submittal, mark with appropriate action, and return. Where submittal must be held for coordination, ENGINEER will also advise CONTRACTOR without delay.

b. ENGINEER will stamp each submittal with uniform, self-explanatory action stamp, appropriately marked with submittal action.

B. Action Stamp:

1. Approved:

a. Final Unrestricted Release: Where submittals are marked "Approved", Work covered by submittal may proceed PROVIDED IT COMPLIES WITH CONTRACT DOCUMENTS. Acceptance of Work will depend upon that compliance.

2. Approved As Noted:

a. When submittals are marked "Approved as Noted", Work covered by submittal may proceed PROVIDED IT COMPLIES WITH BOTH ENGINEER'S NOTATIONS OR CORRECTIONS ON SUBMITTAL AND WITH Contract Documents. Acceptance of Work will depend on that compliance. Re-submittal is not required.

3. Comments Attached - Confirm or Resubmit:

a. When submittals are marked "Examined and Returned for Correction", do not proceed with Work covered by submittal. Do not permit Work covered by submittal to be used at Project site or elsewhere where Work is in progress.

b. Revise submittal or prepare new submittal in accordance with ENGINEER's notations in accordance with Paragraph 1.3D of this section. Resubmit submittal without delay. Repeat if necessary to obtain different action marking.

1.6 REPETITIVE REVIEW

A. Cost of Subsequent Reviews: Shop Drawings and Operation and Maintenance Manuals submitted for each item will be reviewed no more than twice at the OWNER's expense. All subsequent reviews will be performed at times convenient to the ENGINEER and at the CONTRACTOR's expense based on the ENGINEER's then prevailing rates including all direct and indirect costs and fees. Reimburse the OWNER for all such fees invoiced to the OWNER by the ENGINEER.

B. Time Extension: Any need for more than one resubmission, or any other delay in ENGINEER's review of submittals, will not entitle CONTRACTOR to extension of the Contract Time.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

NOTE: Review this section carefully. If Project Scope is complex this Specification is to be used. If project is relatively simple and straightforward use Section 01310.

SECTION 01311

PROGRESS SCHEDULE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Scheduling Responsibilities

B. Submittals

C. Network Requirement

D. Cost Loading

E. Progress of the Work

F. Schedule Updates

1.2 SCHEDULING RESPONSIBILITIES

A. Format: Use the Critical Path Method to schedule and monitor job progress. Provide all information concerning sequencing logic and duration of all activities as well as the initial CPM logic network diagram and tabulated report data.

B. Initial Submittal: Within 30 days after the Notice to Proceed, submit the initial logic network diagram to the ENGINEER for review. Within 60 days submit final network diagram.

C. Updates: On a monthly basis, furnish to the ENGINEER updated information on logic, percent complete, actual start and finish date and direction changes. Distribute copies at Progress Meetings.

D. Adherence: Schedule and direct forces in a manner that will allow for completion of the Work within the Contract time specified.

E. Accuracy: Provide initial schedule and subsequent update information to reflect the best efforts of the CONTRACTOR and all subcontractors as to how they envision the Work to be accomplished. Similarly, all progress information must be an accurate representation of the CONTRACTOR's and subcontractor's actual performance.

Complete Work under this Contract in accordance with the established CPM schedule.

F. Cost of Revisions: At no additional cost to the OWNER, revise schedule when in the judgement of the ENGINEER, it does not accurately reflect the actual prosecution of the Work.

1.3 SUBMITTALS

A. General: Provide all submittals, including the following, as specified in Division 1 and the General Conditions.

B. CPM Schedule:

1. Within 30 days after the date stated in the Notice to Proceed, submit to the ENGINEER prints of a proposed CPM network diagram and tabular reports for the first 90 days of the Work. Draw initial logic diagram as described herein and submit on sheets 24 inches by 36 inches. Include both procurement and construction activities. Schedule a review meeting with the ENGINEER and the OWNER (or OWNER's Consultants) within 2 weeks of its submission. Revise and resubmit the 90 day schedule until it is acceptable to the ENGINEER.

2. Within 60 Days after the Notice to Proceed, submit to the ENGINEER 3 sets of the proposed CPM logic diagram and tabular reports for the entire Contract duration. Include both procurement and construction activities. Sort these tabular reports by total float and activity number. Provide a predecessor/successor report, resource loading report, and project calendar. Draw logic diagram as described.

3. Schedule review meeting with the ENGINEER and the OWNER within 2 weeks of its submission. If a review of the submitted CPM Schedule indicates a work plan which will not complete the Work within the time requirements stated in the Contract, reallocate resources, revise the CPM Schedule and resubmit it until it is acceptable. Failure by the CONTRACTOR to submit an acceptable schedule may, at the OWNER's sole discretion, be cause for the withholding of any partial payment otherwise due under the Contract.

4. Review of the Schedule by the ENGINEER will not constitute ENGINEER's representation that the Work can be completed as shown on the Schedule.

C. Submittals Schedule: In addition to the above scheduling requirements, submit a complete and detailed listing of anticipated submittals during the course of the Contract. Coordinate these submittals with those of subcontractors and suppliers. Identify each submittal by Contract drawing number and Specification section number. Show the anticipated submission due date for each submittal along with the date on which its return is required. For planning purposes, <u>average</u> turn-around time for shop drawings will be 14 Calendar Days after receipt. Longer durations for review may be required and will not be considered a basis for a claim for additional time or

compensation. For submittals on the critical path, at the time of submission mark transmittal in red with the words "Critical Path".

1. Submit Submittal schedule within 10 Days from the Notice to Proceed. Revise as required and incorporate the dates and review durations into the CPM Schedule.

1.4 NETWORK REQUIREMENTS

A. Diagram: Show in the network diagram the order and interdependence of activities and the sequence in which the Work is to be accomplished. The purpose of the network analysis diagram is to show how the start of a given activity is dependent on the completion of preceding activities and its completion restricts the start of succeeding activities. Follow a time scaled precedence format. Time scale the detailed network diagram showing a continuous flow from left to right.

B. Develop the schedule activities into two major groups; procurement activities; and construction activities:

1. Include the following procurement activities as a minimum:

a. Permits
b. Easements
c. Submittal items
d. Approval of submittal items
e. Fabrication and delivery of submittal items.

Tie each of the above procurement items logically to the correct construction activity in the overall CPM construction schedule.

2. Under construction activities section utilize physical work activities to describe how the job will be constructed.

C. Activity Durations: Break the work into activities with durations of 1 to 20 Days each, except for nonconstruction activities, such as procurement of materials and delivery of equipment, and other activities which may require longer durations. To the extent feasible, group activities related to a specific physical area of the project on the network for ease of understanding and simplification. The ENGINEER and OWNER will review the selection and number of activities.

1. For each activity on the network indicate the following:

a. A single duration, no longer than 20 Days (i.e., the single best estimate of the expected elapsed time considering the scope of work involved in the activity) expressed in Days. Include normal holidays and weather delay. Show critical path for the schedule.

b. Assign an activity I.D. number to each activity. The I.D. number will be numeric with a maximum of 5 digits.

c. Include a brief description of the activity. If this description is not definitive, a separate listing of each activity and a descriptive narrative may be required.

d. Cost load each activity, except for procurement activities, to indicate the total estimated costs of the activity. No activity shall exceed $60,000 except for equipment items. Assign material costs to delivery activities.

e. Load each activity with the estimated work hours to be expended on each activity.

D. Incomplete Schedule: Failure to include on the network any element of work required for the performance of this Contract does not excuse the CONTRACTOR from completing all Work required within the applicable completion time, notwithstanding the network review by the ENGINEER or the OWNER and OWNER's Authorized Representative.

1.5 COST LOADING

A. Schedule of Values: Allocate a dollar value to each activity on the construction schedule as specified. Include in dollar value the cost of labor, equipment, and material, and a pro rata contribution to overhead and profit. The sum of the activities cost shall be equal to the total contract price. In submitting cost data the CONTRACTOR certifies that it is not unbalanced and that the value assigned to each activity represents the CONTRACTOR's estimate of the actual costs of performing that activity.

B. Documentation: If, in the opinion of the ENGINEER, the cost data does not meet the requirements for a balanced Contract Price breakdown, present documentation to the ENGINEER substantiating any cost allocation. If an activity on the construction schedule has been assigned a disproportionate allocation of direct costs, overhead and profit the cost allocations will be considered unbalanced.

1.6 PROGRESS OF THE WORK

A. Delays to Critical Path: Whenever it becomes apparent from the current monthly CPM Schedule update that delays to the critical path have resulted and these delays are through no fault of the OWNER, and hence, that the Contract completion date will not be met, or when so directed by the OWNER, take one or more of the following actions to improve the Completion Date at no additional cost to the OWNER.

1. Increase construction labor in such quantities and crafts as will substantially eliminate the backlog of Work.

2. Increase the number of working hours per shift, shifts per day, or days per week; the amount of construction equipment; the forms for concrete work; etc., or any combination of the foregoing to substantially eliminate the backlog of Work.

3. Reschedule activities to achieve maximum practical concurrence of accomplishment of activities, and comply with the revised schedule.

4. Submit to the ENGINEER, the OWNER or OWNER's Authorized Representatives for review, a written statement of the steps proposed to be taken to remove or arrest the delay to the schedule. Failure to submit a written statement of the steps to be taken or failure to take such steps as required by the Contract, may result in the OWNER directing the level of effort in labor (trades), equipment, and work schedule (overtime, weekend and holiday work, etc.) to be employed by the CONTRACTOR in order to remove or arrest the delay to the critical path in the accepted schedule. Promptly provide such level of effort at no additional cost to the OWNER. In addition, should schedule delays persist, the CONTRACTOR's surety will be asked to attend meetings at which schedule is updated.

5. If the requirements of this provision are not complied with, the OWNER at the OWNER's sole discretion, will withhold, partially or in total, payments otherwise due for work performed under this Contract. Any withholding of monies is not a penalty for noncompliance, but is an assurance to the OWNER that funds will be available to implement these requirements should the CONTRACTOR fail to do so.

1.7 SCHEDULE UPDATES

A. Monthly Meetings: If determined by the OWNER, a monthly Schedule Update Meeting will be held 1 week prior to the progress meeting at the construction site to review and update the CPM Schedule. The Schedule Update Meeting will be chaired by the ENGINEER and attended by the OWNER and the CONTRACTOR. Actual progress of the previous month will be recorded and future activities will be reviewed. The duration of activities and their logical connections may be revised as needed. Decisions made at these meetings and agreed to by all parties are binding with the exception that no contract completion dates will be modified without formal written requests and acceptance as specified herein. In the event a monthly Schedule Update Meeting is not required by the ENGINEER, the CONTRACTOR shall submit the update information to the OWNER and the update worksheets provided with each previous update. In either case the CONTRACTOR must provide the following information for each update at a minimum:

1. Actual start and finished dates for all completed activities.

2. Actual start dates for all started but uncompleted activities including remaining durations.

B. Withholding of Payments: Failure to provide specified updated information or failure to attend progress meetings may result in the withholding of progress payments.

C. Time Extensions: If in accordance with the provisions of Article 12 of the General Conditions, the OWNER or ENGINEER finds that the CONTRACTOR is entitled to any extension of the Contract completion date under the provisions of the Contract, the OWNER's determination as to the total number of Days extension will be based upon the current accepted and updated CPM Schedule and on all data relevant to the extension. Such data shall be included in the next monthly updating of the schedule. Actual delays in activities which, according to the CPM Schedule, do not affect any contract completion date shown by the critical path in the network, do not have any effect on the Contract completion date or dates and therefore, will not be the basis for a change in Contract completion time.

D. Schedule Adjustments: From time to time it may be necessary for the Contract schedule and completion time to be adjusted by the OWNER to reflect the effects of job conditions, acts or omissions of other contractors not directly associated with this Contract, weather, technical difficulties, strikes, unavoidable delays on the part of the OWNER or OWNER's representatives, and other unforeseeable conditions. Under such conditions, the OWNER will direct the CONTRACTOR to reschedule the Work to reflect the changed conditions and will grant, in writing, schedule extensions affecting the Contract completion time. No additional compensation will be made to the CONTRACTOR for such schedule adjustments.

E. Acceleration Costs: Additional compensation will be made to the CONTRACTOR in the event the OWNER requires the project completion prior to the completion date shown on the CONTRACTOR's accepted schedule. The OWNER, therefore, has the right to accelerate the schedule and the CONTRACTOR will be compensated for such acceleration as long as such acceleration is not required through fault of the CONTRACTOR. Available total float in the CPM Schedule may be used by the OWNER and OWNER's representatives as well as by the CONTRACTOR.

F. Float: Without obligation to extend the overall completion date or any intermediate completion dates set out in the CPM network, the OWNER may initiate changes to the Contract Work that absorb float time only. OWNER-initiated changes that affect the critical path on the CPM network shall be the sole grounds for extending (or shortening) said completion dates. CONTRACTOR initiated changes that encroach on the float time identified in the CPM network may be accomplished with the OWNER's concurrence. Such changes, however, shall give way to OWNER-initiated changes competing for the same float time.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 01400

QUALITY CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Submittals

B. Inspection Services

C. Inspection of Materials

D. Quality Control

E. Costs of Inspection

F. Acceptance Tests

G. Failure to Comply with Contract

1.2 RELATED SECTIONS

A. Section 01300 - Submittals: Specific Submittal Requirements

1.3 SUBMITTALS

A. General: Provide all submittals, including the following, as specified in Division 1.

B. Certificate Submittals: Furnish the ENGINEER authoritative evidence in the form of Certificates of Manufacture that the materials and equipment to be used in the Work have been manufactured and tested in conformity with the Contract Documents. Include copies of the results of physical tests and chemical analyses, where necessary, that have been made directly on the product or on similar products of the manufacturer.

1.4 INSPECTION SERVICES

A. OWNER's Access: At all times during the progress of the Work and until the date of final completion, afford the OWNER, ENGINEER and FDOT every reasonable, safe, and proper facility for inspecting the Work at the site. The observation and inspection of any work will not relieve the CONTRACTOR of any obligations to perform proper and satisfactory work as specified. Replace work rejected due to faulty design, inferior, or defective materials, poor workmanship, improper installation, excessive wear, or nonconformity with the requirements of the Contract Documents, with

satisfactory work at no additional cost to the OWNER. Replace as directed, finished or unfinished work found not to be in strict accordance with the Contract, even though such work may have been previously approved and payment made therefor.

B. Rejection: The OWNER, the OWNER's Authorized Representatives and FDOT have the right to reject materials and workmanship which are defective or require correction. Promptly remove rejected work and materials from the site.

C. Inferior Work Discoveries: Failure or neglect on the part of the OWNER or the OWNER's Authorized Representatives to condemn or reject bad or inferior work or materials does not imply an acceptance of such work or materials. Neither is it to be construed as barring the OWNER or the OWNER's Authorized Representatives at any subsequent time from recovering damages or a sum of money needed to build anew all portions of the Work in which inferior work or improper materials were used.

D. Removal for Examination: Should it be considered necessary or advisable by the OWNER or the OWNER's Authorized Representatives, at any time before final acceptance of the Work, to make examinations of portions of the Work already completed, by removing or tearing out such portions, promptly furnish all necessary facilities, labor, and material, to make such an examination. If such Work is found to be defective in any respect, defray all expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the cost of examination and restoration of the Work will be considered a change in the Work to be paid for in accordance with applicable provisions of the Contract.

E. Operation Responsibility: Assume full responsibility for the proper operation of equipment during tests and instruction periods. Make no claim for damage which may occur to equipment prior to the time when the OWNER accepts the Work.

F. Rejection Prior to Warranty Expiration: If at anytime prior to the expiration of any applicable warranties or guarantees, equipment is rejected by the OWNER, repay to the OWNER all sums of money received for the rejected equipment on progress certificates or otherwise on account of the Contract lump sum prices, and upon the receipt of the sum of money, OWNER will execute and deliver a bill of sale of all its rights, title, and interest in and to the rejected equipment. Do not remove the equipment from the premises of the OWNER until the OWNER obtains from other sources, equipment to take the place of that rejected. The OWNER hereby agrees to obtain other equipment within a reasonable time and the CONTRACTOR agrees that the OWNER may use the equipment furnished by the CONTRACTOR without rental or other charge until the other new equipment is obtained.

1.5 INSPECTION OF MATERIALS

A. Premanufacture Notification: Give notice in writing to the ENGINEER sufficiently in advance of the commencement of manufacture or preparation of materials especially manufactured or prepared for use in or as part of the permanent construction. When required, notice to include a request for inspection, the date of commencement, and

the expected date of completion of the manufacture or preparation of materials. Upon receipt of such notice, ENGINEER will arrange to have a representative present at such times during the manufacture or testing as may be necessary to inspect the materials, or will notify CONTRACTOR that the inspection will be made at a point other than the point of manufacture or testing, or that the inspection will be waived. Comply with these provisions before shipping any materials. Such inspection will not constitute a release from the responsibility for furnishing materials meeting the requirements of the Contract Documents.

1.6 QUALITY CONTROL

A. Testing

1. Field and Laboratory

a. Provide personnel to assist the ENGINEER in performing the following periodic observation and associated services.

(1) Soils: Observe and test excavations, placement and compaction of soils. Determine suitability of excavated material. Observe subgrade soils and foundations.

(2) Concrete: Observe forms and reinforcement; observe concrete placement; witness air entrainment tests, facilitate concrete cylinder preparation and assist with other tests performed by ENGINEER.

(3) Masonry: Sample and test mortar, bricks, blocks and grout; inspect brick and block samples and sample panels; inspect placement of reinforcement and grouting.

b. When specified in Divisions 2 through 16 of the Contract Documents, provide an independent laboratory testing facility to perform required testing. Qualify the laboratory as having performed previous satisfactory work. Prior to use, submit to the ENGINEER for approval.

c. Cooperate with the ENGINEER and laboratory testing representatives. Provide at least 24 hours notice prior to when specified testing is required. Provide labor and materials, and necessary facilities at the site as required by the ENGINEER and the testing laboratory.

d. Provide an independent testing agency, a member of the National Electrical Testing Association, to perform inspections and tests specified in Division 16 of these Specifications.

2. Equipment: Coordinate and demonstrate test procedures as specified in the Contract Documents or as otherwise required during the formal tests.

3. Pipeline and Other Testing: Conform to test procedures and requirements specified in the appropriate Specification Section.

B. Reports

1. Certified Test Reports: Where transcripts or certified test reports are required by the Contract Documents, meet the following requirements:

a. Before delivery of materials or equipment submit and obtain approval of the ENGINEER for all required transcripts, certified test reports, certified copies of the reports of all tests required in referenced specifications or specified in the Contract Documents. Perform all testing in an approved independent laboratory or the manufacturer's laboratory. Submit for approval reports of shop equipment tests within thirty days of testing. Transcripts or test reports are to be accompanied by a notarized certificate in the form of a letter from the manufacturer or supplier certifying that tested material or equipment meets the specified requirements and the same type, quality, manufacture and make as specified. The certificate shall be signed by an officer of the manufacturer or the manufacturer's plant manager.

2. Certificate of Compliance: At the option of the ENGINEER, or where not otherwise specified, submit for approval a notarized Certificate of Compliance. The Certificates may be in the form of a letter stating the following:

a. Manufacturer has performed all required tests

b. Materials to be supplied meet all test requirements

c. Tests were performed not more than one year prior to submittal of the certificate

d. Materials and equipment subjected to the tests are of the same quality, manufacture and make as those specified

e. Identification of the materials

1.7 COSTS OF INSPECTION

A. OWNER's Obligation: Initial inspection and testing of materials furnished under this Contract will be performed by the OWNER or his authorized Representatives or inspection bureaus without cost to the CONTRACTOR, unless otherwise expressly specified. If subsequent testing is necessary due to failure of the initial tests or because of rejection for noncompliance, reimburse the OWNER for expenditures incurred in making such tests.

B. CONTRACTOR's Obligation: Include in the Contract Price, the cost of all shop and field tests of equipment and other tests specifically called for in the Contract Documents.

C. Reimbursements to OWNER:

1. Materials and equipment submitted by the CONTRACTOR as the equivalent to those specifically named in the Contract may be tested by the OWNER for compliance. Reimburse the OWNER for expenditures incurred in making such tests on materials and equipment which are rejected for noncompliance.

2. Reimburse OWNER for the costs of any jobsite inspection between the hours of 7:00 p.m. and 6:00 a.m.

3. Reimburse OWNER for all costs associated with Witness Tests which exceed 5 Calendar Days per kind of equipment.

1.8 ACCEPTANCE TESTS

A. Preliminary Field Tests: As soon as conditions permit, furnish all labor and materials and services to perform preliminary field tests of all equipment provided under this Contract. If the preliminary field tests disclose that any equipment furnished and installed under this Contract does not meet the requirements of the Contract Documents, make all changes, adjustments and replacements required prior to the acceptance tests.

B. Final Field Tests: Upon completion of the Work and prior to final payment, subject all equipment, piping and appliances installed under this Contract to specified acceptance tests to demonstrate compliance with the Contract Documents.

1. Furnish all labor, fuel, energy, water and other materials, equipment, instruments and services necessary for all acceptance tests.

2. Conduct field tests in the presence of the ENGINEER. Perform the field tests to demonstrate that under all conditions of operation each equipment item:

a. Has not been damaged by transportation or installation
b. Has been properly installed
c. Has been properly lubricated
d. Has no electrical or mechanical defects
e. Is in proper alignment
f. Has been properly connected
g. Is free of overheating of any parts
h. Is free of all objectionable vibration
i. Is free of overloading of any parts
j. Operates as intended

C. Failure of Tests: If the acceptance tests reveal defects in material or equipment, or if the material or equipment in any way fails to comply with the requirements of the Contract Documents, then promptly correct such deficiencies. Failure or refusal to correct the deficiencies, or if the improved materials or equipment, when tested again, fail to meet the guarantees or specified requirements, the OWNER, notwithstanding its partial payment for work and materials or equipment, may reject said materials or equipment and may order the CONTRACTOR to remove the defective work from the site at no addition to the Contract Price, and replace it with material or equipment which meets the Contract Documents.

1.9 FAILURE TO COMPLY WITH CONTRACT

A. Unacceptable Materials: If it is ascertained by testing or inspection that the material or equipment does not comply with the Contract, do not deliver said material or equipment, or if delivered remove it promptly from the site or from the Work and replace it with acceptable material without additional cost to the OWNER. Fulfill all obligations under the terms and conditions of the Contract even though the OWNER or the OWNER's Authorized Representatives fail to ascertain noncompliance or notify the CONTRACTOR of noncompliance.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. General Requirements

B. Temporary Utilities

C. Temporary Construction

D. Barricades and Enclosures

E. Fences

F. Security

G. Temporary Controls

H. Traffic Regulation

1.2 GENERAL REQUIREMENTS

A. Plant and Facilities: Furnish, install, maintain and remove all false work, scaffolding, ladders, hoistways, braces, pumping plants, shields, trestles, roadways, sheeting, centering forms, barricades, drains, flumes, and the like, any of which may be needed in the construction of any part of the Work and which are not herein described or specified in detail. The CONTRACTOR shall accept responsibility for the safety and efficiency of such works and for any damage that may result from their failure or from their improper construction, maintenance or operation.

B. First Aid: Maintain a readily accessible, completely equipped first aid kit at each location where work is in progress.

C. Safety Responsibility: Accept sole responsibility for safety and security at the site. Indemnify and hold harmless the OWNER and the OWNER's Authorized Representatives, including the ENGINEER, for any safety violation, or noncompliance with governing bodies and their regulations, and for accidents, deaths, injuries, or damage at the site during occupancy or partial occupancy of the site by CONTRACTOR's forces while performing any part of the Work.

D. Hazard Communication: Furnish two copies of the CONTRACTOR's Hazard Communication Program required under OSHA regulations before beginning on site activities. Furnish two copies of amendments to Hazard Communications Program as they are prepared.

1.3 TEMPORARY UTILITIES

A. Water: Provide all necessary and required water without additional cost, unless otherwise specified. If necessary, provide and lay water lines to the place of use; secure all necessary permits; pay for all taps to water mains and hydrants and for all water used at the established rates.

B. Light and Power: Provide without additional cost to the OWNER temporary lighting and power facilities required for the proper construction and inspection of the Work. If, in the ENGINEER's opinion, these facilities are inadequate, do NOT proceed with any portion of the Work affected thereby. Maintain temporary lighting and power until the Work is accepted.

C. Heat: Provide temporary heat, whenever required, for work being performed during cold weather to prevent freezing of concrete, water pipes, and other damage to the Work or existing facilities.

D. Sanitary Facilities: Provide sufficient sanitary facilities for construction personnel. Prohibit and prevent nuisances on the site of the Work or on adjoining property. Discharge any employee who violates this rule. Abide by all environmental regulations or laws applicable to the Work.

E. Connections to Existing Utilities:

1. Unless otherwise specified or indicated, make all necessary connections to existing facilities including structures, drain lines, and utilities such as water, sewer, gas, telephone, and electricity. In each case, obtain permission from the OWNER or the owning utility prior to undertaking connections. Protect facilities against deleterious substances and damage.

2. Thoroughly plan in advance all connections to existing facilities. Have on hand at the time of undertaking the connections, all material, labor and required equipment. Proceed continuously to complete connections in minimum time. Arrange for the operation of valves or other appurtenances on existing utilities, under the direct supervision of the owning utility.

1.4 TEMPORARY CONSTRUCTION

A. Bridges: Design and place suitable temporary bridges where necessary for the maintenance of vehicular and pedestrian traffic. Assume responsibility for the sufficiency and safety of all such temporary work or bridges and for any damage which may result from their failure or their improper construction, maintenance, or

operation. Indemnify and save harmless the OWNER and the OWNER's representatives from all claims, suits or actions, and damages or costs of every description arising by reason of failure to comply with the above provisions.

1.5 BARRICADES AND ENCLOSURES

A. Protection of Workmen and Public: Effect and maintain at all times during the prosecution of the Work, barriers and lights necessary for the protection of Workmen and the Public. Provide suitable barricades, lights, "danger" or "caution" or "street closed" signs and watchmen at all places where the Work causes obstructions to normal traffic, excavation sites, or constitutes in any way a hazard to the public.

B. Barricades and Lights:

1. Protect all streets, roads, highways, excavations and other public thoroughfares which are closed to traffic; use effective barricades which display acceptable warning signs. Locate barricades at the nearest public highway or street on each side of the blocked section.

2. Statutory Requirements: Install and maintain all barricades, signs, lights, and other protective devices within highway rights-of-way in strict conformity with applicable statutory requirements by the authority having jurisdiction.

1.6 FENCES

A. Existing Fences: Obtain written permission from the OWNER prior to relocating or dismantling fences which interfere with construction operations. Reach agreements with the fence owner as to the period the fence may be left relocated or dismantled. Install adequate gates where fencing must be maintained. Keep gates closed and locked at all times when not in use.

B. Restoration: Restore all fences to their original or better condition and to their original location on completion of the Work.

1.7 SECURITY

A. Preservation of Property:

1. Preserve from damage, all property along the line of the Work, in the vicinity of or in any way affected by the Work, the removal or destruction of which is not called for by the Drawings. Preserve from damage, public utilities, trees, lawn areas, building monuments, fences, pipe and underground structures, and public streets. Note: Normal wear and tear of streets resulting from legitimate use by the CONTRACTOR are not considered as damage. Whenever damages occur to such property, immediately restore to its original condition. Costs for such repairs are incidental to the Contract.

2. In case of failure on the part of the CONTRACTOR to restore property or make good on damage or injury, the OWNER may, upon 24 hours written notice, proceed to repair, rebuild, or otherwise restore such property as may be deemed necessary, and the cost thereof will be deducted from any moneys due or which may become due the CONTRACTOR under this Contract. If removal, repair or replacement of public or private property is made necessary by alteration of grade or alignment authorized by the OWNER and not contemplated by the Contract Documents, the CONTRACTOR will be compensated, in accordance with the General Conditions, provided that such property has not been damaged through fault of the CONTRACTOR or the CONTRACTOR's employees.

B. Public Utility Installations and Structures:

1. Public utility installations and structures include all poles, tracks, pipes, wires, conduits, vaults, manholes, and other appurtenances and facilities, whether owned or controlled by public bodies or privately owned individuals, firms or corporations, used to serve the public with transportation, gas, electricity, telephone, storm and sanitary sewers, water, or other public or private utility services. Facilities appurtenant to public or private property which may be affected by the Work are deemed included hereunder.

2. The Contract Documents contain data relative to existing public utility installations and structures above and below the ground surface. Existing public utility installations and structures are indicated on the Drawings only to the extent such information was made available to, or found by, the ENGINEER in preparing the Drawings. These data are not guaranteed for completeness or accuracy, and the CONTRACTOR is responsible for making necessary investigations to become fully informed as to the character, condition, and extent of all public utility installations and structures that may be encountered and that may affect the construction operations.

3. Contact utility locating service sufficiently in advance of the start of construction to avoid damage to the utilities and delays to the completion date.

4. Remove, replace, relocate, repair, rebuild, and secure any public utility installations and structures damaged as a direct or indirect result of the Work under this Contract. Costs for such work are incidental to the Contract. Be responsible and liable for any consequential damages done to or suffered by any public utility installations or structures. Assume and accept responsibility for any injury, damage, or loss which may result from or be consequent to interference with, or interruption or discontinuance of, any public utility service.

5. Repair or replace any water, electric, sewer, gas, or other service connection damaged during the Work with no addition to the Contract price.

6. At all times in performance of the Work, employ proven methods and exercise reasonable care and skill to avoid unnecessary delay, injury, damage, or destruction to public utility installations and structures. Avoid unnecessary interference with, or interruption of, public utility services. Cooperate fully with the owners thereof to that end.

7. Give written notice to the owners of all public utility installations and structures affected by proposed construction operations, sufficiently in advance of breaking ground in any area or on any unit of the Work, to obtain their permission before disrupting the lines and to allow them to take measures necessary to protect their interests. Advise the Chiefs of Police, Fire and Rescue Services of any excavation in public streets or the temporary shut-off of any water main. Provide at least 24 hours notice to all affected property owners whenever service connections are taken out of service.

C. Work on Private Property: Work on this project will require operations on private property, rights of way or easements. The OWNER has secured the appropriate easements or rights of entry from the affected property owners. Comply with all easement or rights of entry provisions including the following:

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Conduct operations along rights-of-way and easements through private property to avoid damage to the property and to minimize interference with its ordinary use. Upon completion of the Work through such property, restore the surface and all fences or other structures disturbed by the construction as nearly as possible to the preconstruction conditions. Do not remove any material from private property without the consent of the property owner or responsible party in charge of such property. Save the OWNER harmless from any claim or damage arising out of or in connection with the performance of work across and through private property.

D. Miscellaneous Structures: Assume and accept responsibility for all injuries or damage to culverts, building foundations and walls, retaining walls, or other structures

of any kind met with during the prosecution of the Work. Assume and accept liability for damages to public or private property resulting therefrom. Adequately protect against freezing all pipes carrying liquid.

E. Protection of Trees and Lawn Areas:

1. Protect with boxes, trees and shrubs, except those ordered to be removed. Do not place excavated material so as to cause injury to such trees or shrubs. Replace trees or shrubs destroyed by accident or negligence of the CONTRACTOR or CONTRACTOR's employees with new stock of similar size and age, at the proper season, at no additional cost to the OWNER.

2. Leave lawn areas in as good condition as before the start of the Work. Restore areas where sod has been removed by seeding or sodding.

1.8 TEMPORARY CONTROLS

A. During Construction:

1. Keep the site of the Work and adjacent premises free from construction materials, debris, and rubbish. Remove this material from any portion of the site if such material, debris, or rubbish constitutes a nuisance or is objectionable.

2. Remove from the site all surplus materials and temporary structures when they are no longer needed.

3. Neatly stack construction materials such as concrete forms and scaffolding when not in use. Promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids, and cleaning solutions from surfaces to prevent marring or other damage.

4. Properly store volatile wastes in covered metal containers and remove from the site daily.

5. Do not bury or burn on the site or dispose of into storm drains, sanitary sewers, streams, or waterways, any waste material. Remove all wastes from the site and dispose of in a manner complying with applicable ordinances and laws.

B. Smoke Prevention:

1. Strictly observe all air pollution control regulations.

2. Open fires will be allowed only if permitted under current ordinances.

C. Noises:

1. Maintain acceptable noise levels in the vicinity of the Work. Limit noise production to acceptable levels by using special mufflers, barriers, enclosures, equipment positioning, and other approved methods.

2. Supply written notification to the OWNER sufficiently in advance of the start of any work which violates this provision. Proceed only when all applicable authorizations and variances have been obtained in writing.

D. Hours of Operation:

1. Operation of construction equipment between the hours of 7:00 p.m. and 6:00 a.m. the following day is prohibited. For operation of this equipment during this period obtain written consent from the OWNER.

2. Do not carry out nonemergency work, including equipment moves, on Sundays without prior written authorization by the OWNER.

E. Dust Control:

1. Take measures to prevent unnecessary dust. Keep earth surfaces exposed to dusting moist with water or a chemical dust suppressant. Cover materials in piles or while in transit to prevent blowing or spreading dust.

2. Adequately protect buildings or operating facilities which may be affected adversely by dust. Protect machinery, motors, instrument panels, or similar equipment by suitable dust screens. Include proper ventilation with dust screens.

F. Temporary Drainage Provisions:

1. Provide for the drainage of stormwater and any water applied or discharged on the site in performance of the Work. Provide adequate drainage facilities to prevent damage to the Work, the site, and adjacent property.

2. Supplement existing drainage channels and conduits as necessary to carry all increased runoff from construction operations. Construct dikes as necessary to divert increased runoff from entering adjacent property (except in natural channels), to protect the OWNER's facilities and the Work, and to direct water to drainage channels or conduits. Provide ponding as necessary to prevent downstream flooding.

3. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

G. Pollution: Prevent the pollution of drains and watercourses by sanitary wastes, sediment, debris, and other substances resulting from construction activities. Do not

permit sanitary wastes to enter any drain or watercourse other than sanitary sewers. Do not permit sediment, debris, or other substances to enter sanitary sewers. Take reasonable measures to prevent such materials from entering any drain or watercourse.

1.9 TRAFFIC REGULATION

A. Parking: Provide and maintain suitable parking areas for the use of all construction workers and others performing work or furnishing services in connection with the Contract, to avoid any need for parking personal vehicles where they may interfere with public traffic or construction activities.

B. Access: Conduct Work to interfere as little as possible with public travel, whether vehicular or pedestrian. Provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel. Whenever it is necessary to cross, obstruct, or close roads, driveways, and walks, whether public or private, give reasonable notice to owners of private drives before interfering with them. Such maintenance of traffic will not be required when the CONTRACTOR has obtained permission from the owner or tenant of private property, or from the authority having jurisdiction over the public property involved, to obstruct traffic at the designated point.

1.10 FIELD OFFICES AND SHEDS

A. CONTRACTOR's Office: Erect, furnish, and maintain a field office with a telephone. Have an authorized agent present at this office at all times while the Work is in progress. Keep readily accessible copies of the Contract Documents, required record documents, and the latest approved shop drawings at this field office.

B. Material Sheds and Temporary Structures: Provide material sheds and other temporary structures of sturdy construction and neat appearance.

C. Location: Coordinate location of field offices, material sheds and temporary structures with ENGINEER and OWNER.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 01570

TRAFFIC REGULATION

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. General Requirements

B. Traffic Control

1.2 RELATED SECTIONS

A. Section 01041 – Project Coordination

B. Section 02230 – Roadway Crossings by Open Cut

1.3 GENERAL REQUIREMENTS

A. The CONTRACTOR shall be responsible for providing safe and expeditious movement of traffic through construction zones. A construction zone is defined as the immediate areas of actual construction and all abutting areas which are used by the CONTRACTOR and which interfere with the driving or walking public.

B. Remove temporary equipment and facilities when no longer required, restore grounds to original, or to specified conditions.

C. The requirements specified herein are in addition to the plan for Maintenance of Traffic as specified in Sections 01041 and 02230.

1.4 TRAFFIC CONTROL

A. The necessary precautions shall include, but not be limited to, such items as proper construction warning signs, portable changeable message signs, signals, lighting devices, marking, barricades, channelization, and hand signaling devices. The CONTRACTOR shall be responsible for installation and maintenance of all devices and requirements for the duration of the Construction period in accordance with FDOT Specifications and direction received from FDOT personnel and/or the ENGINEER.

B. The CONTRACTOR shall provide at least 72 hours notification to the State and County Department of Transportation of the necessity to close any portion of a roadway carrying vehicles or pedestrians so that the final approval of such closings can be obtained at least 48 hours in advance. At no time will more than one (1) lane

of roadway be closed to vehicles and pedestrians. With any such closings adequate provision shall be made for the safe expeditious movement of each.

C. The CONTRACTOR shall also be responsible for notifying Police, Fire, and other Emergency Departments, and Public Involvement Personnel whenever construction is within roadways and of the alternate routes. Monthly status reports shall be provided to these Departments, as a minimum.

D. The CONTRACTOR shall be responsible for removal, relocation, or replacement of any traffic control device in the construction area which exists as part of the normal pre-construction traffic control scheme. Any such actions shall be performed by the CONTRACTOR under the supervision, and in accordance with the Specifications, of the Owner, unless otherwise specified.

E. The CONTRACTOR shall immediately notify the Owner of any vehicular or pedestrian safety or efficiency problems incurred as a result of the construction of the project.

F. The CONTRACTOR shall be responsible for notifying all residents of any road construction and limited access at least 72 hours in advance.

G. The CONTRACTOR shall not close both lanes of Roadway, driveway or business access unless there is more than one entrance. If there is more than one entrance the CONTRACTOR will be allowed to close both lanes of the Southern Entrance as long as the North Entrance remains open. The CONTRACTOR shall not close both lanes to the North Entrance at the same time regardless of the South Entrance. A Lane of the North Entrance must remain open at all times to allow ease of access by vehicular traffic.

H. The CONTRACTOR shall be responsible for installing Business Access Signs according to the FDOT Standard Specifications for Road and Bridge Construction, 2010 and the FDOT Standard Index, 2010.

PART 2 PRODUCTS

NOT USED.

PART 3 EXECUTION

NOT USED.

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Description

B. Substitutions

C. Manufacturer's Written Instructions

D. Transportation and Handling

E. Storage, Protection and Maintenance

F. Manufacturer's Field Quality Control Services

G. Post Startup Services

H. Special Tools and Lubricating Equipment

I. Lubrication

1.2 DESCRIPTION

A. Proposed Manufacturers List: Within 15 calendar days of the date of the Notice to Proceed, submit to the ENGINEER a list of the names of proposed manufacturers, materialmen, suppliers and subcontractors, obtain approval of this list by OWNER prior to submission of any working drawings. Upon request submit evidence to ENGINEER that each proposed manufacturer has manufactured a similar product to the one specified and that it has previously been used for a like purpose for a sufficient length of time to demonstrate its satisfactory performance.

B. Furnish and install Material and Equipment which meets the following:

1. Conforms to applicable specifications and standards.

2. Complies with size, make, type, and quality specified or as specifically approved, in writing, by ENGINEER.

3. Will fit into the space provided with sufficient room for operation and maintenance access and for properly connecting piping, ducts and services, as applicable. Make the clear spaces that will be available for operation and

maintenance access and connections equal to or greater than those shown and meeting all the manufacturers' requirements. Make all provisions for installing equipment furnished at no increase in Contract Price.

4. Manufactured and fabricated in accordance with the following:

   a. Design, fabricate, and assemble in accordance with best engineering and shop practices.

   b. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.

   c. Provide two or more items of same kind identical, by same manufacturer.

   d. Provide materials and equipment suitable for service conditions.

   e. Adhere to equipment capabilities, sizes, and dimensions shown or specified unless variations are specifically approved, in writing, in accordance with the Contract Documents.

   f. Adapt equipment to best economy in power consumption and maintenance. Proportion parts and components for stresses that may occur during continuous or intermittent operation, and for any additional stresses that may occur during fabrication or installation.

   g. Working parts are readily accessible for inspection and repair, easily duplicated and replaced.

5. Use material or equipment only for the purpose for which it is designed or specified.

1.3 SUBSTITUTIONS

A. Substitutions:

1. CONTRACTOR's requests for changes in equipment and materials from those required by the Contract Documents are considered requests for substitutions and are subject to CONTRACTOR's representations and review provisions of the Contract Documents when one of following conditions are satisfied:

   a. Where request is directly related to an "or equal" clause or other language of same effect in Specifications.

   b. Where required equipment or material cannot be provided within Contract Time, but not as result of CONTRACTOR's failure to pursue Work promptly or to coordinate various activities properly.

c. Where required equipment or material cannot be provided in manner compatible with other materials of Work, or cannot be properly coordinated therewith.

2. CONTRACTOR'S Options:

a. Where more than one choice is available as options for CONTRACTOR's selection of equipment or material, select option compatible with other equipment and materials already selected (which may have been from among options for other equipment and materials).

b. Where compliance with specified standard, code or regulation is required, select from among products which comply with requirements of those standards, codes, and regulations.

c. "Or Equal": For equipment or materials specified by naming one or more equipment manufacturer and "or equal", submit request for substitution for any equipment or manufacturer not specifically named.

B. Conditions Which are Not Substitution:

1. Requirements for substitutions do not apply to CONTRACTOR options on materials and equipment provided for in the Specifications.

2. Revisions to Contract Documents, where requested by OWNER or ENGINEER, are "changes" not "substitutions".

3. CONTRACTOR's determination of and compliance with governing regulations and orders issued by governing authorities do not constitute substitutions and do not constitute basis for a Change Order, except as provided for in Contract Documents.

1.4 MANUFACTURER'S WRITTEN INSTRUCTIONS

A. Instruction Distribution: When the Contract Documents require that installation, storage, maintenance and handling of equipment and materials comply with manufacturer's written instruction's, obtain and distribute printed copies of such instructions to parties involved in installation, including six copies to ENGINEER.

1. Maintain one set of complete instructions at jobsite during storage and installation, and until completion of work.

B. Manufacturer's Requirements: Store, maintain, handle, install, connect, clean, condition, and adjust products in accordance with manufacturer's written instructions and in conformity with Specifications.

1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult ENGINEER for further instructions.

2. Do not proceed with work without written instructions.

C. Performance Procedures: Perform work in accordance with manufacturer's written instructions. Do not omit preparatory steps or installation procedures, unless specifically modified or exempted by Contract Documents.

1.5 TRANSPORTATION AND HANDLING

A. Coordination with Schedule: Arrange deliveries of materials and equipment in accordance with Construction Progress Schedules. Coordinate to avoid conflict with work and conditions at site.

1. Deliver materials and equipment in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.

2. Protect bright machined surfaces, such as shafts and valve faces, with a heavy coat of grease prior to shipment.

3. Immediately upon delivery, inspect shipments to determine compliance with requirements of Contract Documents and approved submittals and that material and equipment are protected and undamaged.

B. Handling: Provide equipment and personnel to handle material and equipment by methods recommended by manufacturer to prevent soiling or damage to materials and equipment or packaging.

1.6 STORAGE, PROTECTION, AND MAINTENANCE

A. On-site storage areas and buildings:

1. Coordinate location of storage areas with ENGINEER and OWNER.

2. Arrange on site storage areas for proper protection and segregation of stored materials and equipment with proper drainage. Provide for safe travel around storage areas and safe access to stored materials and equipment.

3. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.

4. Store materials such as pipe, reinforcing and structural steel, and equipment on pallets, blocks or racks, off ground.

5. PVC Pipe may be damaged by prolonged exposure to direct sunlight and the CONTRACTOR shall take necessary precautions during storage and installation to avoid this damage. Pipe shall be stored under cover, and installed with sufficient backfill to shield it from the sun.

6. Store fabricated materials and equipment above ground, on blocking or skids, to prevent soiling or staining. Cover materials and equipment which are subject to deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.

B. Interior Storage:

1. Store materials and equipment in accordance with manufacturer's instructions, with seals and labels intact and legible.

2. Store materials and equipment, subject to damage by elements, in weathertight enclosures.

3. Maintain temperature and humidity within ranges required by manufacturer's instructions.

C. Off-Site Storage:

1. FDOT may require construction equipment and materials to be stored off-site due to limiting factors within the ROW. If directed, the CONTRACTOR will store said equipment and materials at an off-site location at no additional expense to the OWNER.

D. Accessible Storage: Arrange storage in a manner to provide easy access for inspection and inventory. Make periodic inspections of stored materials or equipment to assure that materials or equipment are maintained under specified conditions and free from damage or deterioration.

1. Perform maintenance on stored materials of equipment in accordance with manufacturer's instructions, in presence of OWNER or ENGINEER.

2. Submit a report of completed maintenance to ENGINEER with each Application for Payment.

3. Failure to perform maintenance, to notify ENGINEER of intent to perform maintenance or to submit maintenance report may result in rejection of material or equipment.

E. OWNER's Responsibility: OWNER assumes no responsibility for materials or equipment stored in buildings or on-site. CONTRACTOR assumes full responsibility for damage due to storage of materials or equipment.

F. CONTRACTOR's Responsibility: CONTRACTOR assumes full responsibility for protection of completed construction. Repair and restore damage to completed Work equal to its original condition.

1.7 MANUFACTURER'S FIELD QUALITY CONTROL SERVICES

RESERVED

1.8 POST START-UP SERVICES

RESERVED

1.9 SPECIAL TOOLS AND LUBRICATING EQUIPMENT

RESERVED

1.10 LUBRICATION

RESERVED

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01710

CLEANING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. General Requirements

B. Disposal Requirements

1.2 GENERAL REQUIREMENTS

A. Execute cleaning during progress of the work and at completion of the work.

1.3 DISPOSAL REQUIREMENTS

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

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 DURING CONSTRUCTION

A. Execute daily cleaning to keep the work, the site, and adjacent properties free from accumulations of waste materials, rubbish, and windblown debris, resulting from construction operations.

B. Provide onsite containers for the collection of waste materials, debris and rubbish. All waste materials including containers, food debris and other miscellaneous materials must be disposed of daily in onsite containers.

C. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal areas away from the site.

3.2 FINAL CLEANING

A. Requirements: At the completion of work and immediately prior to final inspection, clean the entire project as follows:

1. Thoroughly clean, sweep, wash, and polish all work and equipment provided under the Contract, including finishes. Leave the structures and site in a complete and finished condition to the satisfaction of the ENGINEER.

2. Direct all subcontractors to similarly perform, at the same time, an equivalent thorough cleaning of all work and equipment provided under their contracts.

3. Remove all temporary structures and all debris, including dirt, sand, gravel, rubbish and waste material.

4. Should the CONTRACTOR not remove rubbish or debris or not clean the buildings and site as specified above, the OWNER reserves the right to have the cleaning done at the expense of the CONTRACTOR.

B. Employ experienced workers, or professional cleaners, for final cleaning.

C. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

D. In preparation for substantial completion or occupancy, conduct final inspection of sight-exposed interior and exterior surfaces, and of concealed spaces.

E. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior finished surfaces. Polish surfaces so designated to shine finish.

F. Repair, patch, and touch up marred surfaces to specified finish, to match adjacent surfaces.

G. Handle materials in a controlled manner with as few handlings as possible. Do not drop or throw materials from heights.

H. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly-painted surfaces.

I. Clean interior of all panel cabinets, pull boxes, and other equipment enclosures.

J. Perform touch-up painting.

K. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.

L. Remove erection plant, tools, temporary structures and other materials.

M. Remove and dispose of all water, dirt, rubbish or any other foreign substances.

3.3 FINAL INSPECTION

A. After cleaning is complete the final inspection may be scheduled. The inspection will be done with the OWNER and ENGINEER.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 01720

CONTRACT CLOSE OUT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Warranties and Bonds

B. Record Drawings

C. Special Tools

1.2 WARRANTIES AND BONDS

Prior to final payment deliver to the OWNER the original and one copy of all bonds, warranties, guarantees and similar documents, including those customarily provided by manufacturers and suppliers which cover a period greater than the one year correction period. Show OWNER as beneficiary of these documents.

1.3 RECORD DRAWINGS

At the site keep and maintain one record copy of all Contract Documents, reference documents and all technical documents submitted in good order. As the work progresses the Engineer or his designated representative shall record on one set of reproducible drawings all changes and deviations from the original Plans. He shall record the exact location of all changes in vertical and horizontal alignment by offsets and ties at each; sewer, water, electric, gas, communication and other services by off-set distance to permanent improvements such as building and curbs.

Prior to acceptance of the project and before final payment is made, the Engineer shall submit one (1) set of reproducible drawings, two (2) sets of blueline or blackline prints, all marked "Drawings of Record". These Record Drawings must be certified by the Florida Registered Professional Engineer, who prepared the plans and signs and seals these plans, and submits AutoCAD compatible diskette copy of the drawings, and other applicable related records to the Department of Lee County Utilities.

These Record Drawings must be certified by the Florida Registered Professional Engineer, who prepared the plans and signs and seals these plans. The Record Drawings shall include vertical and horizontal alignment of all water lines, force main lines, valves, tees, bends, reducers, adapters, hydrants, service connections, meter boxes and/or pads, and other pertinent structures. Pipeline runs in excess of 100', without fittings shall include vertical alignment information at 100' intervals. Said alignment shall be tied to permanent improvements, such as roadway and/or railroad centerlines and rights-of-way, building and property corners, and shall be certified by

a Professional Land Surveyor, licensed in the State of Florida. The Professional Land Surveyor can coordinate with the Contractor to install the necessary appurtenances on buried utilities to facilitate the survey after construction is completed. In addition, property strap numbers and street names shall be shown on the plan.

On a case by case basis, Lee County Utilities may waive the requirement for certification by a Professional Land Surveyor, licensed in the State of Florida. However, prior consent must first be obtained from Lee County Utilities. The County shall withhold final acceptance of the project until the requirement for record drawings and related records has been met. Record Drawings without detailed field verified horizontal and vertical locations of all facilities shown will be rejected.

1.4 SPECIAL TOOLS

Special tools are considered to be those tools which, because of their limited use, are not normally available but which are necessary for maintenance of particular equipment.

For each type of equipment provided under this CONTRACT, furnish a complete set of all special tools including grease guns and other lubricating devices, which may be needed for the adjustment, operation, maintenance, and disassembly of such equipment. Furnish only tools of high grade, smooth forged alloy tool steel. Manufacture grease guns of the lever type.

Furnish and erect one or more neat and substantial steel wall cases or cabinets with flat key locks and clips or hooks to hold each special tool in a convenient arrangement.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01740

WARRANTIES AND BONDS

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

A. Compile specified warranties and bonds, as in Articles 6 and 13 of the General Conditions.

B. Co-execute submittals when so specified.

C. Review submittals to verify compliance with Contract Documents.

D. Submit to the ENGINEER for review and transmittal to OWNER.

1.2 SUBMITTAL REQUIREMENTS

A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors.

B. Two original signed copies are required.

C. Table of Contents. Neatly typed in orderly sequence. Provide complete information for each items.

1. Product or work item.
2. Firm, with name of principal, address and telephone number.
3. Scope.
4. Date of beginning warranty, bond or service and maintenance contract.
5. Duration of warranty, bond or service maintenance contract.
6. Provide information for OWNER's personnel:
    a. Proper procedure in case of failure.
    b. Instances which might affect the validity of warranty or bond.
7. CONTRACTOR, name of responsible principal, address and telephone number.

1.3 FORM OF SUBMITTALS

A. Prepare in duplicate packets.

B. Format:

1. Size 8-1/2" x 11", punch sheets for standard 3-post binder.
    a. Fold larger sheets to fit into binders.

2. Cover: Identify each packet with typed or printed title “WARRANTIES AND BONDS” list:
   a. Title of Project
   b. Name of CONTRACTOR

C. Binders: Commercial quality, three-post binder, with durable and cleanable plastic covers and maximum post width of 2 inches.

1.4 WARRANTY SUBMITTAL REQUIREMENTS

A. For all major pieces of equipment, submit a warranty from the equipment manufacturer. The manufacturer’s warranty period shall be concurrent with the CONTRACTOR’s for one (1) year, unless otherwise specified, commencing at the time of substantial completion.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 02110

SITE CLEARING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Requirements for clearing of all areas within the Contract limits and other areas shown, including work designated in permits and other agreements, in accordance with the requirements of Division 1.

B. Related Work Specified in Other Sections Includes:

1. Section 02222 - Excavation - Earth and Rock
2. Section 02223 - Backfilling
3. Section 02400 – Lawn Restoration

1.2 DEFINITIONS

A. Clearing: Clearing is the removal from the ground surface and disposal, within the designated areas, of trees, brush, shrubs, down timber, decayed wood, other vegetation, rubbish and debris as well as the removal of fences.

B. Grubbing: Grubbing is the removal and disposal of all stumps, buried logs, roots larger than 1-1/2 inches, matted roots and organic materials.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 TREE REMOVAL

A. No tree removal without authorization from the COUNTY and the ENGINEER.

1. Grub and remove tree stumps and shrubs felled within the property limits (right-of-way) to an authorized disposal site only as required to install the proposed water main or force main. Fill depressions created by such removal with material suitable for backfill as specified in Section 02223.

B. Tree Removal Outside Property Limits: Do not cut or damage trees outside the (right-of-way) (property limits) unless shown to be removed or unless written permission has been obtained from the property owner. Furnish three copies of the written permission before removal operations commence.

3.2 TREES AND SHRUBS TO BE SAVED

A. Protection: Protect trees and shrubs within the construction site (right-of-way) (construction strip).

1. Work within the limits of the tree drip line with extreme care using either hand tools or equipment that will not cause damage to trees.

a. Do not disturb or cut roots unnecessarily. Do not cut roots 1-1/2 inches and larger unless approved.

b. Immediately backfill around tree roots after completion of construction in the vicinity of trees.

c. Do not operate any wheeled or tracked equipment within drip line.

2. Protect vegetation from damage caused by emissions from engine-powered equipment.

3. During working operations, protect the trunk, foliage and root system of all trees to be saved with boards or other guards placed as shown and as required to prevent damage, injury and defacement.

a. Do not pile excavated materials within the drip line or adjacent to the trunk of trees.

b. Do not allow runoff to accumulate around trunk of trees.

c. Do not fasten or attach ropes, cables, or guy wires to trees without permission. When such permission is granted, protect the tree before making fastening or attachments by providing burlap wrapping and softwood cleats.

d. The use of axes or climbing spurs for trimming will not be permitted.

e. Provide climbing ropes during trimming.

4. Remove shrubs to be saved, taking a sufficient earth ball with the roots to maintain the shrub.

a. Temporarily replant if required, and replace at the completion of construction in a condition equaling that which existed prior to removal.

b. Replace in kind if the transplant fails.

5. Have any tree and shrub repair performed by a tree surgeon properly licensed by the State of Florida and within 24 hours after damage occurred.

3.3 CLEARING AND GRUBBING

A. Clearing: Clear all items specified to the limits shown and remove cleared and grubbed materials from the site.

B. Grubbing: Clear and grub areas to be excavated, areas receiving less than 3 feet of fill and areas upon which structures are to be constructed.

1. Remove stumps and root mats in these areas to a depth of not less than 12 inches below the bottom of the utility trench.

2. Fill all depressions made by the removal of stumps or roots with material suitable for backfill as specified in Section 02223.

C. Dispose of all material and debris from the clearing and grubbing operation by hauling such material and debris away to an approved dump. The cost of disposal (including hauling) of cleared and grubbed material and debris shall be considered a subsidiary obligation of the Contractor; the cost of which shall be included in the prices bid for the various classes of work.

3.4 TOPSOIL

RESERVED

3.5 PRESERVATION OF DEVELOPED PRIVATE PROPERTY

A. The CONTRACTOR shall exercise extreme care to avoid unnecessary disturbance of private property along the route of the construction. Trees, shrubbery, gardens, lawns, and other landscaping, which in the opinion of the ENGINEER must be removed, shall be replaced and replanted to restore the construction easement to the condition existing prior to construction.

B. All soil preservation procedures and replanting operations shall be under the supervision of a nursery representative experienced in such operations.

C. Improvements to the land such as fences, walls, outbuildings, and other structures which of necessity must be removed, shall be replaced with equal quality

materials and workmanship. No such removal should take place prior to authorization from the ENGINEER.

D. Clean up the construction site across developed private property directly after construction is completed upon approval of the ENGINEER.

E. Any commercial signs, disturbed or removed, shall be restored to their original condition within 24 hours.

3.6 PRESERVATION OF PUBLIC PROPERTY

A. The appropriate paragraphs of Articles 3.5 and 3.6 of these Specifications shall apply to the preservation and restoration of public lands, parks, rights-of-way, easements, and all other damaged areas.

END OF SECTION

SECTION 02151

SHORING, SHEETING AND BRACING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Work required for protection of an excavation or structure through shoring, sheeting, and bracing.

B. Related Work Specified In Other Sections Includes:

1. Section 02222 - Excavation - Earth and Rock
2. Section 02223 - Backfilling

1.2 SUBMITTALS

A. General: Provide all submittals, including the following, as specified in Division 1.

B. CONTRACTOR's Submittals: All sheeting and bracing shall be the responsibility of the CONTRACTOR to retain qualified design services for these systems, and to be completed with strict adherence to OSHA Regulations. Submit complete design calculations and working drawings of proposed shoring, sheeting and bracing which have been prepared, signed and sealed by a Licensed Professional Engineer experienced in Structural Engineering and registered in the State of Florida, before starting excavation for jacking pits and structures. Use the soil pressure diagram shown for shoring, sheeting and bracing design. ENGINEER's review of calculations and working drawings will be limited to confirming that the design was prepared by a licensed professional engineer and that the soil pressure diagram shown was used.

1.3 REFERENCES

A. Design: Comply with all Federal and State laws and regulations applying to the design and construction of shoring, sheeting and bracing.

B. N.B.S. Building Science Series 127 "Recommended Technical Provisions for Construction Practice in Shoring and Sloping Trenches and Excavations.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements: Do work in accordance with the U.S. Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety Act of 1970 (PL 91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL 91-54), and the Florida Trench Safety Act. The

CONTRACTOR shall also observe 29 CFR 1910.46 OSHA's regulation for Confined Space Entry.

PART 2 PRODUCTS

2.1 MANUFACTURERS AND MATERIALS

A. Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted.

B. Material Recommendations: Use manufacturers and materials for shoring, sheeting and bracing as recommended by the Licensed Professional Engineer who designed the shoring, sheeting, and bracing.

1. Wood Materials: Oak, or treated fir or pine for wood lagging.

PART 3 EXECUTION

3.1 SHORING, SHEETING AND BRACING INSTALLATION

A. General: Provide safe working conditions, to prevent shifting of material, to prevent damage to structures or other work, to avoid delay to the work, all in accordance with applicable safety and health regulations. Properly shore, sheet, and brace all excavations which are not cut back to the proper slope and where shown. Meet the general trenching requirements of the applicable safety and health regulations for the minimum shoring, sheeting and bracing for trench excavations.

1. CONTRACTOR's Responsibility: Sole responsibility for the design, methods of installation, and adequacy of the shoring, sheeting and bracing.

B. Arrange shoring, sheeting and bracing so as not to place any strain on portions of completed work until the general construction has proceeded far enough to provide ample strength.

C. If ENGINEER is of the opinion that at any point the shoring, sheeting or bracing are inadequate or unsuited for the purpose, resubmission of design calculations and working drawings for that point may be ordered, taking into consideration the observed field conditions. If the new calculations show the need for additional shoring, sheeting and bracing, it should be installed immediately.

D. Monitoring: Periodically monitor horizontal and vertical deflections of sheeting. Submit these measurements for review.

E. Accurately locate all underground utilities and take the required measures necessary to protect them from damage. All underground utilities shall be kept in service at all times as specified in Division 1.

F. Driven Sheeting: Drive tight sheet piling in that portion of any excavation in paved or in State and County highways below the intersection of a one-on-one slope line from the nearest face of the excavation to the edge of the existing pavement or surface.

G. Sheeting Depth: In general drive or place sheeting for pipelines to a depth at elevation equal to the top of the pipe as approved.

1. If it is necessary to drive sheeting below that elevation in order to obtain a dry trench or satisfactory working conditions, cut the sheeting off at the top of the pipe and leave in place sheeting below the top of the pipe.

2. Cut off sheeting not designated as "Sheeting Left in Place".

3. Do not cut the sheeting until backfill has been placed and compacted to the top of the pipe.

H. Sheeting Removal: In general, remove sheeting and bracing above the top of the pipe as the excavation is refilled in a manner to avoid the caving in of the bank or disturbance to adjacent areas or structures. Sheeting shall be removed as backfilling progresses so that the sides are always supported or when removal would not endanger the construction of adjacent structures. When required to eliminate excessive trench width or other damages, shoring or bracing shall be left in place and the top cut off at an elevation 2.5 feet below finished grade, unless otherwise directed.

1. Carefully fill voids left by the withdrawal of the sheeting by jetting, ramming or otherwise.

2. No separate payment will be made for filling of such voids.

I. Permission for Removal: Obtain permission before the removal of any shoring, sheeting or bracing. Retain the responsibility for injury to structures or to other property or persons from failure to leave such shoring, sheeting and bracing in place even though permission for removal has been obtained.

J. Preload internal braces to 50 percent of the design loads.

K. Proof test tie backs to 133 percent of the design loads and lock off tie backs at 75 percent of the design loads.

3.2 SHEETING LEFT IN PLACE FOR PROTECTION

A. Ordered Left in Place: In addition to sheeting specified or shown to be left in place, the ENGINEER may order, in writing, any or all other shoring, sheeting or bracing to be left in place for the purpose of preventing injury to the structures, pipelines or to other property or to persons.

1. Cutoff sheeting left in place at the elevation shown or ordered, but, in general, at least 2.5 feet below the final ground surface.

2. Drive up tight any bracing remaining in place.

B. Right to Order: Do not construe the right to order shoring, sheeting and bracing left in place as creating any obligation to issue such orders.

C. Payment: Shoring, sheeting and bracing left in place, by written order, will be paid for under the appropriate Contract Items or where no such items exist, as changes in the work.

END OF SECTION

SECTION 02222

EXCAVATION - EARTH AND ROCK

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Requirements for performing opencut excavations to the widths and depths necessary for constructing structures, pipelines and conduits including excavation of any material necessary for any purpose pertinent to the construction of the Work.

B. Related Work Specified In Other Sections Includes:

1. Section 02110 - Site Clearing
2. Section 02151 - Shoring, Sheeting and Bracing
3. Section 02223 - Backfilling
4. Section 03311 – Concrete for Non-Plant Work

1.2 DEFINITIONS

A. Earth: "Earth" includes all materials which, in the opinion of the ENGINEER, do not require blasting, barring, wedging or special impact tools for their removal from their original beds, and removal of which can be completed using standard excavating equipment. Specifically excluded are all ledge and bedrock and boulders or pieces of masonry larger than one cubic yard in volume.

B. Rock: "Rock" includes all materials which, in the opinion of the ENGINEER, require blasting, barring, wedging and/or special impact tools such as jack hammers, sledges, chisels, or similar devices specifically designed for use in cutting or breaking rock for removal from their original beds and which have compressive strengths in their natural undisturbed state in excess of 300 psi. Boulders or masonry larger than one cubic yard in volume are classed as rock excavation.

1.3 SUBMITTALS

A. General: Provide all submittals, including the following, as specified in Division 1.

B. Dewatering Excavation Plan: The CONTRACTOR shall Develop an excavation dewatering plan and obtain a Water Use Permit from The South Florida Water Management District if required. The Dewatering Plan Water Use Permit must take into consideration existing drainage patterns within the FDOT and County R.O.W. and groundwater conditions, the type and arrangement of the equipment to be used and the proper method of groundwater disposal. Maintain one copy of the dewatering plan and Water Use Permit at the project site to be available for inspection while all

dewatering operations are underway. No off-site discharge of dewatered effluent is allowed unless approved under a dewatering permit issued by the appropriate agency.

1.4 SITE CONDITIONS

A. A geotechnical investigation report is not part of the Contract Documents.

B. Actual Conditions: Make any geotechnical investigations deemed necessary to determine actual site conditions.

C. Underground Utilities: Locate and identify all existing underground utilities prior to the commencement of Work.

D. Quality and Quantity: Make any other investigations and determinations necessary to determine the quality and quantities of earth and rock and the methods to be used to excavate these materials.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 GENERAL

A. Clearing: Clear opencut excavation sites of obstructions preparatory to excavation. Clearing in accordance with Section 02110, includes removal and disposal of vegetation, trees, stumps, roots and bushes, except those specified to be protected during trench excavation.

B. Banks: Shore or slope banks to the angle of repose to prevent slides or cave-ins in accordance with Section 02151.

C. Safety: Whenever an excavation site or trench is left unattended by the CONTRACTOR or when an area is not within 100 feet of observation by the CONTRACTOR, the excavation site or trench shall be filled and/or, at the OWNER's discretion, protected by other means to prevent accidental or unauthorized entry. Such protection shall include barricades and other protection devices requested by the ENGINEER or OWNER, including temporary fencing, snow fencing, or temporary "structure" tape. Such safety items shall not relieve the CONTRACTOR of any site safety requirements or liabilities established by Federal, State and local laws and agencies, including OSHA, but is intended as additional safety measures to protect the general public.

D. Hazardous Materials: If encountered, take care of hazardous materials not specifically shown or noted.

E. During excavation and any site work, storm water pollution prevention measures shall be taken to ensure that water quality criteria are not violated in the receiving water body and all state and local regulatory requirements are met.

3.2 RESERVED

3.3 TRENCH EXCAVATION

A. Preparation: Properly brace and protect trees, shrubs, poles and other structures which are to be preserved. Unless shown or specified otherwise, preserve all trees and large shrubs. Hold damage to the root structure to a minimum. Small shrubs may be preserved or replaced with equivalent specimens.

B. Adequate Space: Keep the width of trenches to a minimum, however provide adequate space for workers to place, joint and backfill the pipe properly.

1. The minimum width of the trench shall be equal to the outside diameter of the pipe at the joint plus 8-inches for unsheeted trench or 12 inches for sheeted trench.

   The maximum width of trench, measured at the top of the pipe, shall not exceed the outside pipe diameter plus 2 feet, unless otherwise shown on the drawing details or approved by the ENGINEER. Trench walls shall be maintained vertical from the bottom of the trench to a line measured one foot above the top of the pipe. From one foot above the top of the pipe to the surface the trench walls shall conform with OSHA Regulations.

2. In sheeted trenches, measure the clear width of the trench at the level of the top of the pipe to the inside of the sheeting.

3. Should the maximum trench widths specified above be exceeded without written approval, provide concrete cradle or encasement for the pipe as directed. No separate payment will be made for such concrete cradle or encasement.

C. Depth:

1. Standard trench grade shall be defined as the bottom surface of the utility to be constructed or placed within the trench. Trench grade for utilities in rock or other non-cushioning material shall be defined as additional undercuts backfilled with #57 stone compacted in 6-inch lifts, below the standard 8-inches minimum trench undercut. Excavation below trench grade that is not ordered in writing by the ENGINEER shall be backfilled to trench grade and compacted.

D. Unstable or Unsuitable Materials: If unstable or unsuitable material is exposed at the level of the bottom of the trench excavation, the CONTRACTOR shall remove the material and replace with specified bedding material.

1. Material shall be removed for the full width of the trench and to the depth required to reach suitable foundation material.

2. When in the judgment of the ENGINEER the unstable or unsuitable material extends to an excessive depth, the ENGINEER may advise, in writing, the need for stabilization of the trench bottom with additional select fill material, crushed stone, washed shell, gravel mat or the need to provide firm support for the pipe or electrical duct by other suitable methods.

3. Crushed stone, washed shell and gravel shall be as specified in Section 02223.

4. No additional payment for such trench stabilization.will be made under the Contract Items. Refer to Standard Detail No. 9.4 Lee County Utilities Trench Cross Section. The CONTRACTOR shall SOLELY be responsible for complying with all applicable trench safety standards set forth by the TRENCH SAFETY ACT.

E. Length of Excavation: Keep the open excavated trench preceding the pipe operation and the unfilled trench, with pipe in place, to a minimum length which causes the least disturbance. Provide ladders for a means of exit from the trench as required by applicable safety and health regulations.

F. Excavated Material: Excavated material to be used for backfill shall be neatly deposited at the sides of the trenches where space is available. Where stockpiling of excavated material is required, the Contractor shall be responsible for obtaining the sites to be used and shall maintain his operations to provide for natural drainage and not present an unsightly appearance.

G. Water: Allow no water to rise in the trench excavation until sufficient backfill has been placed to prevent pipe flotation.

3.4 SHORT TUNNEL EXCAVATION

A. Short Tunnel Requirements: In some instances, trees, shrubs, utilities, sidewalks and other obstructions may be encountered, the proximity of which may be a hindrance to opencut trench excavation. In such cases, excavate by means of short tunnels in order to protect such obstructions against damage.

1. Construct the short tunnel by hand, auger or other approved method approximately 6 inches larger than the diameter of pipe bells.

2. Consider such short tunnel work incidental to the construction of pipelines or conduits and all appurtenances. The need for short tunnels will not be grounds for additional payment.

3.5 EXCAVATION FOR JACKING AND AUGERING

A. Jacking and Augering Requirements: Allow adequate length in jacking pits to provide room for the jacking frame, the jacking head, the reaction blocks, the jacks, auger rig, and the jacking pipe. Provide sufficient pit width to allow ample working space on each side of the jacking frame. Allow sufficient pit depth such that the invert of the pipe, when placed on the guide frame, will be at the elevation desired for the completed line. Tightly sheet the pit and keep it dry at all times.

3.6 ROCK EXCAVATION

A. Rock Excavation: Excavate rock within the boundary lines and grades as shown, specified or required.

1. Rock removed from the excavation becomes the property of the CONTRACTOR. Transport and dispose of excavated rock at an off site disposal location. Obtain the off site disposal location.

2. Remove all shattered rock and loose pieces.

B. Trench Depth: For trench excavation in which pipelines are to be placed, excavate the rock to a minimum depth of 8 inches below the bottom of the pipe. Provide a cushion of sand or suitable crushed rock. Refill the excavated space with pipe bedding material in accordance with Section 02223. Include placing, compacting and shaping pipe bedding material in the appropriate Contract Items.

3.7 FINISHED EXCAVATION

A. Finish: Provide a reasonably smooth finished surface for all excavations, which is uniformly compacted and free from irregular surface changes.

B. Finish Methods: Provide a degree of finish which is ordinarily obtainable from blade-grade operations, except as otherwise specified in Section 02223.

3.8 PROTECTION

A. Traffic and Erosion: Protect newly graded areas from traffic and from erosion.

B. Repair: Repair any settlement or washing away that may occur from any cause, prior to acceptance. Re-establish grades to the required elevations and slopes.

C. It shall be the CONTRACTOR's responsibility to acquaint himself with all existing conditions and to locate all structures and utilities along the proposed utility alignment in order to avoid conflicts. Where actual conflicts are unavoidable, work shall be

coordinated with the facility owner and performed so as to cause as little interference as possible with the service rendered by the facility disturbed. Facilities or structures damaged in the prosecution of the work shall be repaired and/or replaced immediately, in conformance with current standard practices of the industry, or according to the direction of the owner of such facility, at the CONTRACTOR's expense.

D. Other Requirements: Conduct all Work in accordance with the environmental protection requirements specified in Division 1.

3.9 RESERVED

3.10 RESERVED

3.11 RESERVED

3.12 REMOVAL OF WATER

A. Water Removal: At all times during the excavation period and until completion and acceptance of the WORK at final inspection, provide ample means and equipment with which to remove promptly and dispose of properly all water entering any excavation or other parts of the WORK.

B. Dry Excavations: Keep the excavation dry.

C. Discharge of Water: Dispose of water pumped or drained from the Work in a safe and suitable manner without damage to adjacent property or streets or to other work under construction. If off-site discharge is required, the CONTRACTOR must obtain an Off-Site Discharge Permit with F.D.E.P. and any other responsible agency.

D. Protection: Provide adequate protection for water discharged onto streets. Protect the street surface at the point of discharge.

E. Repair: Promptly repair any and all damage caused by dewatering the Work.

END OF SECTION

SECTION 02223

BACKFILLING

PART 1 GENERAL

1.1 RESERVED

PART 2 PRODUCTS

2.1 RESERVED

2.2 RESERVED

2.3 RESERVED

2.4 RESERVED

2.5 UTILITY PIPE BEDDING

A. Class A (special utility bedding). Should special bedding be required due to depth of cover, impact loadings or other conditions, Class A bedding shall be installed, as shown in Section 9 of the Lee County Utilities Operations Manual.

B. Class B (minimum utility bedding). The bottom of the trench shall be shaped to provide a firm bedding for the utility pipe. The utility shall be firmly bedded in undisturbed firm soil or hand shaped unyielding material. The bedding shall be shaped so that the pipe will be in continuous contact therewith for its full length and shall provide a minimum bottom segment support for the pipe equal to 0.3 times the outside diameter of the barrel.

PART 3 EXECUTION

3.1 RESERVED

3.2 RESERVED

3.3 RESERVED

3.4 TRENCH BACKFILL

A. General: Backfill material shall be clean earth fill composed of sand, clay and sand, sand and stone, crushed stone, or an approved combination thereof. Backfilling shall be accomplished under two specified requirements: First Lift, from trench grade to a point 12 inches above the top of the utility, and, Second Lift, from the top of the First Lift to the ground surface. Where thrust blocks, encasements, or other below-grade concrete work have been installed, backfilling shall not proceed until the concrete has obtained sufficient strength to support the backfill load.

B. First Lift: Fine material shall be carefully placed and tamped around the lower half of the utility. Backfilling shall be carefully continued in compacted and tested layers not exceeding 6 inches in thickness for the full trench width, until the fill is 12 inches above the top of the utility, using the best available material from the excavation, if approved. The material for these first layers of backfill shall be lowered to within 2 feet above the top of pipes before it is allowed to fall, unless the material is placed with approved devices that protect the pipes from impact. The "First Lift" shall be thoroughly compacted and tested before the "Second Lift" is placed. Unless otherwise specified, compaction shall equal 98% of maximum density, as determined by ASSHTO T-180. The "First Lift" backfill shall exclude stones, or rock fragments larger than the following:

Pipe Type	(Greatest Dimension-Inches) Fragment Size (Inches)
Steel	2
Concrete	2
Ductile Iron	2
Plastic	1
Fiberglass	1

C. Second Lift: The remainder of the trench, above the "First Lift", shall be backfilled and tested in layers not exceeding 6 inches. The maximum dimension of a stone, rock, or pavement fragment shall be 6 inches. When trenches are cut in pavements or areas to be paved, compaction, as determined by ASSHTO T-180, shall be equal to 98% of maximum density.

As an alternative, or if required under roadways, Flowable Fill may be substituted. If Flowable Fill is to be used, a fabric mesh shall be installed between the “first lift” and the Flowable Fill. Flowable Fill shall be in accordance with Section 4.7.AH of the Lee County Utilities Operations Manual.

D. Compaction Methods: The above specified compaction shall be accomplished using accepted standard methods (powered tampers, vibrators, etc.), with exception that the first two feet of backfilling over the pipe shall be compacted by hand-operated tamping devices. Flooding or puddling with water to consolidate backfill is not acceptable, except where sand is the only material utilized and encountered and the operation has been approved by the OWNER.

E. Density Tests: Density tests for determination of the above specified compaction shall be made by an independent testing laboratory and certified by a Florida Registered, Professional ENGINEER at the expense of the CONTRACTOR. Test locations will be determined by the OWNER but in any case, shall be spaced not more than 100 feet apart where the trench cut is continuous. If any test results are unsatisfactory, the CONTRACTOR shall re-excavate and re-compact the backfill at his expense until the desired compaction is obtained. Additional compaction tests shall be made to each site of an unsatisfactory test, as directed, to determine the extent of re-excavation and re-compaction if necessary.

Copies of all density test results shall be furnished on a regular basis by the ENGINEER, to Lee County Utilities. Failure to furnish these results will result in the project not being recommended for acceptance by Lee County

F. Dropping of Material on Work: Perform trench backfilling work in such a way as to prevent dropping material directly on top of any conduit or pipe through any vertical distance greater than 2 feet. Do not allow backfilling material from a bucket to fall directly on a structure or pipe and, in all cases, lower the bucket so that the shock of falling earth will not cause damage.

G. Distribution of Large Materials: Break lumps up and distribute any stones, pieces of crushed rock or lumps which cannot be readily broken up, throughout the mass so that all interstices are solidly filled with fine material.

3.5 STRUCTURE BACKFILL

A. Use of Select Fill: Use select fill underneath all structures, and adjacent to structures where pipes, connections, electrical ducts and structural foundations are to be located within this fill. Use select fill beneath all pavements, walkways, and railroad tracks, and extend to the bottom of pavement base course or ballast.

1. Place backfill in uniform layers not greater than 8 inches in loose thickness and thoroughly compact in place with suitable approved mechanical or pneumatic equipment.

2. Compact backfill to not less than 98 percent of the maximum dry density as determined by AASHTO T-180.

B. Use of Common Fill: Use common granular fill adjacent to structures in all areas not specified above, unless otherwise shown or specified. Select fill may be used in place of common granular fill at no additional cost.

1. Extend such backfill from the bottom of the excavation or top of bedding to the bottom of subgrade for lawns or lawn replacement, the top of previously existing ground surface or to such other grades as may be shown or required.

2. Place backfill in uniform layers not greater than 8 inches in loose thickness and thoroughly compact in place with suitable equipment, as specified above.

3. Compact backfill to not less than 98 percent of the maximum dry density as determined by AASHTO T-180.

3.6 RESERVED

3.7 COMPACTION EQUIPMENT

A. Equipment and Methods: Carry out all compaction with suitable approved equipment and methods.

1. Compact clay and other cohesive material with sheep's-foot rollers or similar equipment where practicable. Use hand held pneumatic tampers elsewhere for compaction of cohesive fill material.

2. Compact low cohesive soils with pneumatic-tire rollers or large vibratory equipment where practicable. Use small vibratory equipment elsewhere for compaction of cohesionless fill material.

3. Do not use heavy compaction equipment over pipelines or other structures, unless the depth of fill is sufficient to adequately distribute the load.

3.8 BORROW

A. Should there be insufficient material from the excavations to meet the requirements for fill material, borrow shall be obtained from pits secured and tested by the CONTRACTOR and approved by the OWNER at no additional cost to the OWNER. Copies of all test results shall be submitted to Lee County Utilities.

3.9 ROCK EXCAVATION

A. Rock may be encountered while performing excavations and underground installations. Therefore, the CONTRACTOR should consider the increased cost of all underground work activities while preparing their bid. No extra compensation or time extension will be allowed for additional work directly associated with the splitting, excavation, crushing, disposal, replacement or handling of the rock/rock-like material.

3.10 RESPONSIBILITY FOR AFTERSETTLEMENT

A. Aftersettlement Responsibility: Take responsibility for correcting any depression which may develop in backfilled areas from settlement within one year after the work is fully completed. Provide as needed, backfill material, pavement base replacement, permanent pavement, sidewalk, curb and driveway repair or replacement, and lawn replacement, and perform the necessary reconditioning and restoration work to bring such depressed areas to proper grade as approved.

3.11 INSPECTION AND TESTING OF BACKFILLING

A. Sampling and Testing: Provide sampling, testing, and laboratory methods in accordance with the appropriate ASSHTO Standard Specification. Subject all backfill to these tests.

B. Compaction density tests shall be made at all such backfill areas with spacing not to exceed 100 feet apart and on each 6-inch compacted layer.

C. Correction of Work: Correct any areas of unsatisfactory compaction by removal and replacement, or by scarifying, aerating or sprinkling as needed and recompaction in place prior to placement of a new lift.

END OF SECTION

SECTION 02224

FLOWABLE FILL

PART 1 GENERAL

1.1 DESCRIPTION OF REQUIREMENTS

Furnish and pressure grout existing utility to be abandoned. It is intended the CONTRACTOR shall expose, break in "windows" and completely fill all existing utilities to be abandoned in place. It shall be the CONTRACTOR's responsibility to expose and "window" as many locations as necessary to completely fill the utility to be abandoned. Payment shall be made per linear foot of existing main grouted as per Contract Pay Item 218 – Grout Existing 10" Water Main or Smaller.

1.2 MATERIALS

Meet the following FDOT requirements:

Fine Aggregate*..... Section 902
Portland Cement (Types I, II or III)..... Section 921
Water..... Section 923
Air Entraining Admixtures** ..... Section 924
Fly Ash, Slag and other Pozzolanic Materials..... Section 929

* Any clean fine aggregate with 100% passing a 3/8 inch mesh sieve and not more than 15% passing a No. 200 sieve may be used.

** High air generators or foaming agents may be used in lieu of conventional air entraining admixtures and may be added at jobsite and mixed in accordance with manufacturer's recommendation.

1.3 MIX DESIGN

Flowable Fill is a mixture of Portland cement, fly ash, fine aggregate, air entraining admixture and water. Flowable fill contains a low cementitious content for reduced strength development.

Submit mix designs to the ENGINEER for approval. The following are suggested mix guides for excavatable and non-excavatable flowable fill:

	Excavatable	Non-Excavatable
Cement Type 1	75-100 lb/yd^3	75-150 lb/yd^3
Fly Ash	None	150-600 lb/yd^3
Water	*	*
Air**	5-35%	5-15%
28 Day Compressive Strength**	Maximum 100 psi	Minimum 125 psi
Unit Weight (Wet)**	90-100 lb/yd^3	100-125 lb/yd^3

* Mix designs shall produce a consistency that will result in a flowable self-leveling product at time of placement.

** The requirements for percent air, compressive strength and unit weight are for laboratory designs only and are not intended for jobsite acceptance requirements.

Fine Aggregate shall be proportioned to yield 1 yd^3.

1.4 PRODUCTION AND PLACING

Use flowable fill manufactured at a production facility that meets the requirements of FDOT Section 347-3.

Deliver flowable fill using concrete construction equipment. Revolution counter are waived. Place flowable fill by chute, pumping or other methods approved by the ENGINEER. Tremie flowable fill through water.

1.5 CONSTRUCTION REQUIREMENTS

Use straps, soil anchors or other approved means of restraint to ensure correct alignment when flowable fill is used as backfill for pipe or where flotation or misalignment may occur.

Protect flowable fill from freezing for a period of 36 hours after placement.

Place flowable fill to the designated fill line without vibration or other means of compaction. Do not place flowable fill during inclement weather, e.g. rain or ambient temperatures below 40°F. Take all necessary precautions to prevent any damages caused by the hydraulic pressure of the fill during placement prior to hardening. Provide the means to confine the material within the designated space.

1.6 ACCEPTANCE

Acceptance of flowable fill will be based on the following documentations and a minimum temperature of flowable fill at the point of delivery of 50°F.

Furnish a delivery ticket to the ENGINEER for each load of flowable fill delivered to the worksite. Ensure that each ticket contains the following information:

(1) Project designation
(2) Date
(3) Time
(4) Class and quantity of flowable fill
(5) Actual batch proportions
(6) Free moisture content of aggregates
(7) Quantity of water withheld.

Leave the fill undisturbed until the material obtains sufficient strength. Sufficient strength is 35 psi penetration resistance as measured using a hand held penetrometer in accordance with ASTM C 403. Provide a hand held penetrometer to measure the penetration resistance of the hardened flowable fill.

END OF SECTION

SECTION 02230

ROADWAY CROSSINGS BY OPEN CUT

PART 1 GENERAL

1.1 SCOPE OF WORK

The CONTRACTOR shall provide all labor, materials, equipment, supervision and incidentals required to install the pipeline as shown on the Drawings and in accordance with FDOT Standard Specifications in Lee County Streets by method of open cut.

1.2 SUBMITTAL

A. Submit shop drawings to the ENGINEER for review.

B. Before starting work, the CONTRACTOR shall submit to the Lee County Department of Transportation, with copy to the ENGINEER, a detailed schedule of his operations a minimum of fourteen (14) days prior to beginning work for approval. This shall include, but not be limited to, type and extent of temporary paving, and drawings and lists describing materials and traffic control methods to be used. Approval shall not relieve the CONTRACTOR of his obligation to provide a safe and proper crossing.

C. The CONTRACTOR shall engage the services of a Professional Engineer who is registered in the State of Florida to design all cofferdam and sheeting and bracing systems which the CONTRACTOR feels necessary for the execution of his work. The CONTRACTOR's Engineer shall submit to the ENGINEER a signed statement that he has been employed by the CONTRACTOR to design all sheeting and bracing systems. After the systems have been installed, the CONTRACTOR's Engineer shall furnish to the ENGINEER an additional signed statement that the cofferdams and sheeting and bracing systems have been installed in accordance with his design.

D. If a detour is required, a traffic control plan shall be submitted for approval to Lee County and/or the Florida Department of Transportation.

E. A plan for maintenance of traffic in accordance with Index 600 through 650 of the Florida Department of Transportation Specifications shall be submitted by the CONTRACTOR.

PART 2 PRODUCTS

2.1 MATERIALS

Materials shall meet those specified in other applicable portions of this Specification.

PART 3 EXECUTION

3.1 GENERAL

A. Trench dimensions for open cutting of road crossings are shown on the Drawings.

B. Unless otherwise directed, the CONTRACTOR will be limited to a 24-hour period to complete each open-cut crossing. The road surface shall be repaved, with temporary pavement, if necessary, at the end of the 24-hour period.

C. Work requiring lane closures shall be done between the hours of 7:00PM and 5:00AM. Lane closures will begin at 7:00PM with ALL lanes being reopened to TRAFFIC by 5:00AM the following morning.

D. The CONTRACTOR shall notify Lee County DOT and the FDOT 48 hours in advance of starting construction.

3.2 INSTALLATION

A. Temporary Roadways

1. Temporary roadways required for traffic relocation shall be constructed of materials meeting the requirements of the FDOT. Temporary roadways shall be used when crossing a state highway right-of-way or at the direction of the ENGINEER.

2. Temporary roadways shall be maintained in good condition throughout their use. Temporary roadways must be approved by the ENGINEER.

3. Drainage shall be maintained through all existing ditches by the use of culvert pipe as necessary.

4. Where detours are permitted, the CONTRACTOR shall provide all necessary barricades and signs as required to divert the flow of traffic. While traffic is detoured, the CONTRACTOR shall expedite construction operations and periods when traffic is being detoured will be strictly controlled by the ENGINEER.

5. Lee County DOT and or FDOT will inspect all work being done.

6. All work at the roadway crossing shall be performed and completed in a manner fully satisfactory to Lee County DOT and FDOT.

B. Maintenance of Traffic

1. The requirements specified herein are in addition to the plan for Maintenance of Traffic as specified in Sections 01041 and 01570.

2. The CONTRACTOR shall furnish during construction and any subsequent maintenance within State secondary road right-of-ways and Lee County streets,

proper signs, signal lights, flagmen, and other warning devices for the protection of traffic all in conformance with the latest Manual on Uniform Traffic Control and Safe Streets and Highways, and the Florida Manual of Traffic Control and Safe Practices for Street and Highway Construction, Maintenance and Utility Operations. Information as to the above may be obtained from FDOT Division engineers. The ENGINEER, County Engineer, or FDOT Manager of the right-of-way of their representatives reserves the right to stop any work for non-compliance.

3. The CONTRACTOR shall take precautions to prevent injury to the public due to open trenches. Night watchmen may be required where special hazards exist, or police protection provided for traffic while work is in progress. The CONTRACTOR shall be fully responsible for damage or injuries whether or not police protection has been provided.

4. Unless permission to close a County street is received in writing from the proper authority, all excavated material shall be placed so that vehicular and pedestrian traffic may be maintained at all times. If the CONTRACTOR's operations cause traffic hazards, he shall repair the road surface, provide temporary ways, erect wheel guards or fences, or take other measures for safety satisfactory to the ENGINEER.

5. The CONTRACTOR shall be fully responsible for the installation of adequate safety precautions, for maintenance of the channelization devices, and for the protection of the traveling public.

6. At all open cut crossings, a minimum of one-way traffic shall be maintained during the daylight hours, and two-way traffic at night. Structural spanning devices such as metal sheeting or plates shall not be used as a temporary traffic control method per FDOT direction.

C. Installation of Pipeline

1. Pavement removal, sheeting, shoring and bracing, excavation and backfill, and dewatering shall meet the requirements of the applicable portions of this Specification.

2. The pipe shall be installed in accordance with Division 2 of these Specifications.

3. The trench shall be backfilled in accordance with the requirements of Section 02223.

4. Pavement replacement shall be in accordance with Section 02575 of this Specification.

END OF SECTION

SECTION 02276

TEMPORARY EROSION AND SEDIMENTATION CONTROL

PART 1 GENERAL

1.1 DESCRIPTION

A. The work specified in this Section consists of designing, providing, maintaining and removing temporary erosion and sedimentation controls as necessary and in accordance with the FDEP NOI permit obtained by the CONTRACTOR.

B. Temporary erosion controls include, but are not limited to, grassing, mulching, setting, watering, and reseeding onsite surfaces and spoil and borrow area surfaces and providing interceptor ditches at ends of berms and at those locations which will ensure that erosion during construction will be either eliminated or maintained within acceptable limits as established by the OWNER.

C. Temporary sedimentation controls include, but are not limited to; silt dams, traps, barriers, and appurtenances at the foot of sloped surfaces which will ensure that sedimentation pollution will be either eliminated or maintained within acceptable limits as established by the OWNER.

D. CONTRACTOR is responsible for providing effective temporary erosion and sediment control measures during construction or until final controls become effective.

1.2 REFERENCE DOCUMENTS

A. Florida Department of Environmental Protection.

B. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, 2010.

C. South Florida Water Management District.

PART 2 PRODUCTS

2.1 EROSION CONTROL

A. Seeding and Sodding is specified in Section 02400.

B. Netting - fabricated of material acceptable to the OWNER.

2.2 SEDIMENTATION CONTROL

A. Bales - clean, seed free cereal hay type.

B. Netting - fabricated of material acceptable to the OWNER.

C. Filter Stone - crushed stone conforming to Florida Department of Transportation specifications.

D. Concrete Block - hollow, non-load-bearing type.

E. Concrete - exterior grade not less than one inch thick.

F. Synthetic Bales – provide and install according to Section 104-6.4.7 of FDOT Standard Specifications for Road and Bridge Construction, 2010

PART 3 EXECUTION

3.1 EROSION CONTROL

A. Minimum procedures for grassing are:

1. Scarify slopes to a depth of not less than six inches and remove large clods, rock, stumps, roots larger than 1/2 inch in diameter and debris.

2. Sow seed within twenty-four (24) hours after the ground is scarified with either mechanical seed drills or rotary hand seeders.

3. Apply mulch loosely and to a thickness of between 3/4 inch and 1-1/2 inches.

4. Apply netting over mulched areas on sloped surfaces.

5. Roll and water seeded areas in a manner which will encourage sprouting of seeds and growing of grass. Reseed areas which exhibit unsatisfactory growth. Backfill and seed eroded areas.

3.2 SEDIMENTATION CONTROL

A. Install and maintain silt dams, traps, barriers, and appurtenances as shown on the approved descriptions and working drawings, hay bales which deteriorate and filter stone which is dislodged shall be replaced.

3.3 PERFORMANCE

A. Should any of the temporary erosion and sediment control measures employed by the CONTRACTOR fail to produce results which comply with the requirements of the

State of Florida, CONTRACTOR shall immediately take whatever steps are necessary to correct the deficiency at his own expense.

END OF SECTION

SECTION 02300

DIRECTIONAL DRILLING

PART 1 GENERAL

1.1 DESCRIPTION OF REQUIREMENTS

A. Provide all necessary tools, materials and equipment to successfully complete the installation of directionally, drilled piping as specified herein and shown on the drawings. The CONTRACTOR shall be responsible for the final constructed product, and for furnishing the qualified labor and superintendence necessary for this method of construction.

B. Furnish all items necessary to perform the horizontal directional drilling operation and construct the pipe to the lines and grade shown on the drawings.

C. Boring must use techniques of creating or directing a borehole along a predetermined path to a specified target location. This must involve use of mechanical and hydraulic deviation equipment to change the boring course and must use instrumentation to monitor the location and orientation of the boring head assembly along a predetermined course.

D. Drilling must be accomplished with fluid-assist mechanical cutting. Boring fluids shall be a mixture of bentonite and water or polymers and additives. Bentonite sealants and water will be used to lubricate and seal the mini-tunnel. It is mandatory that minimum pressures and flow rates be used during drilling operation as not to fracture the sub-grade material around and or above the bore.

E. The mobile drilling system shall utilize small diameter fluid jets to fracture and mechanical cutters to cut and excavate the soil as the head advances forward.

F. Steering shall be accomplished by the installation of an offset section of drill stem that causes the cutterhead to turn eccentrically about its centerline when it is rotating. When steering adjustments are required, the cutterhead offset section is rotated toward the desired direction of travel and the drill stem is advanced forward without rotation.

G. The mobile drilling system must be capable of being launched from the surface at an inclined angle and drilling a 2 inch to 3 inch diameter pilot hole. The pilot hole will then be enlarged with reamers as required.

H. The size of the back reamer bit or pilot bit, if no back reaming is required, will be limited relative to the product pipe diameter to be installed as follows:

Maximum Pilot or Back-Reamer Bit Diameter When Rotated 360 Degrees	
Nominal Inside Pipe Diameter Inches	Bit Diameter Inches
2	4
3	6
4	8
6	10
8	12
10	14
12 and Greater	Maximum Product Pipe OD plus 6

1.2 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials (AASHTO).

B. Occupational Safety and Health Administration (OSHA).

1.3 DEFINITIONS

A. CONTRACTOR's Construction Drawings shall be defined as drawings by which the CONTRACTOR proposes to construct, operate, build, etc., the referenced item. The submission of these drawings shall be required for the sole purpose of providing the sufficient details to verify that the CONTRACTOR's work in progress is in accordance with the intent of the design.

1.4 SUBMITTALS

A. The ENGINEER will base the review of submitted details and data on the requirements of the completed work, safety of the work in regards to the public, potential for damage to public or private utilities and other existing structures and facilities, and the potential for unnecessary delay in the execution of the work. Such review shall not be construed to relieve the CONTRACTOR in any way of his responsibilities under the contract. CONTRACTOR shall not commence work on any items requiring CONTRACTOR's construction drawings or other submittals until the drawings and submittals are reviewed and accepted by the ENGINEER. The CONTRACTOR shall submit any proposed deviations from the Contract plans and design bore path with the shop drawing submittals.

B. The CONTRACTOR shall:

1. Submit for review complete construction drawings in plan and profile view and/or complete written description identifying details of the proposed method of construction and the sequence of operations to be performed during construction only if deviations from the Contract plans are proposed. The drawings and descriptions shall be sufficiently detailed to demonstrate to the ENGINEER whether the proposed materials and procedures will meet the requirements of this specification. CONTRACTOR shall submit arrangement drawings and technical specifications of the machine and trailing equipment

(including any modifications), three-year experience record with this type of machine and a copy of the manufacturer's operation manual for the machine. The CONTRACTOR shall also submit calculations confirming the stressed imposed during installation and in-service (after installation) are within the allowable limits (i.e., allowable pullback force, deflection and buckling) of the selected pipe materials. Calculations shall utilize the equations presented in ASTM F 1962 (Latest Edition).

2. CONTRACTOR's construction drawings shall be submitted on the following items only if deviations from the Contract plans are proposed

   a. Complete details of the equipment, methods and procedures to be used, including but not limited to primary lining installation, timing of installation in relation to the excavation plan and sequence, bulkheads, etc.

   b. Grouting techniques, including equipment, pumping procedures, pressure grout types, mixtures and plug systems.

   c. Method of controlling line and grade of excavation.

   d. Details of muck removal, including equipment type, number, and disposal location.

   e. Proposed contingency plans for critical phases and areas of directional drilling.

   f. Any proposed deviations from the Contract plans.

   g. Any proposed deviations from the Contract construction specifications.

C. Quality Control Methods. CONTRACTOR shall submit a description of his quality control methods he proposes to use in his operations to the ENGINEER. The submittal shall describe:

   1. Procedures for controlling and checking line and grade.

   2. Equipment specifications for checking line and grade.

   3. Field forms for establishing and checking line and grade.

D. Safety. Procedures including, but not limited to, monitoring for gases encountered shall be submitted.

E. Hazardous chemical list as well as all MSDS and technical data sheets.

1.5 JOB CONDITIONS

A. Safety Requirements

1. Perform work in a manner to maximize safety and reduce exposure of men and equipment to hazardous and potentially hazardous conditions, in accordance with applicable safety standards.

2. Whenever there is an emergency or stoppage of work which is likely to endanger the excavation or adjacent structures, operate a full work force for 24 hours a day, including weekends and holidays, without intermission until the emergency or hazardous conditions no longer jeopardize the stability and safety of the work.

B. Air Quality.

1. Conduct directional drilling operations by methods and with equipment, which will positively control dust, fumes, vapors, gases or other atmospheric impurities in accordance with applicable safety requirements.

1.6 PERMITS

A. Obtain any and all other permits required for prosecution of the work.

PART 2 PRODUCTS

2.1 GENERAL

A. Refer to Section 02620 for HDPE pipe material.

PART 3 EXECUTION

3.1 GENERAL

A. The CONTRACTOR shall be responsible for his means and methods of directional drilling construction and shall ensure the safety of the work, the CONTRACTOR's employees, the public, and adjacent property, whether public or private.

B. Anticipate that portions of the drilled excavation will be below the groundwater table.

C. Comply with all local, state and federal laws, rules and regulations at all times to prevent pollution of the air, ground and water.

3.2 EQUIPMENT

A. Diesel, electrical, or air-powered equipment will be acceptable, subject to applicable federal and state regulations.

B. Any method or equipment that the CONTRACTOR can demonstrate will produce the specified results will be considered.

C. Employ equipment that will be capable of handling the various anticipated ground conditions. In addition, the equipment shall:

1. Be capable of minimizing loss of ground ahead of and around the machine and providing satisfactory support of the excavated face at all times.

2. Provide a system to indicate whether the amount of earth material removed is equivalent to that displaced by the advance of the machine such that the advance rate may be controlled accordingly.

D. Provide adequate secondary containment for any and all portable storage tanks.

3.3 DIRECTIONAL DRILLING DATA

A. Daily logs of construction events and observations shall be submitted on at least the following:

1. Location and elevation of significant soil strata boundaries and brief soil descriptions.

2. Jacking pressures and torsional forces, if applicable.

3.4 CONTROL OF THE TUNNEL LINE AND GRADE

A. Construction Control.

1. Establish and be fully responsible for the accuracy of his own control for the construction of the entire project, including structures, tunnel line and grade.

2. Establish control points sufficiently far from the tunnel operation not to be affected by construction operations.

3. Maintain daily records of alignment and grade and shall submit three copies of these records to the ENGINEER. However, the CONTRACTOR remains fully responsible for the accuracy of his work and the correction of it, as required.

4. Check control for the bore alignment against an above ground undisturbed reference at least once each hour and once for each 50 feet of tunnel constructed, or more often as needed or directed by the ENGINEER. The

CONTACTOR is to immediately report bore alignment location the ENGINEER after each control check. The location shall be reported based on the approved bore alignment, i.e. horizontal distance and direction from approved bore alignment length from the entry or exit point along the bore path, and horizontal distance from the entry and exit point.

5. The pilot hole shall be drilled on bore path with no deviations greater than 2 (two) percent of depth of the bore path as shown on the plans or approved CONTRACTOR submittal drawings. In the event that pilot hole does deviate from the bore path more than 2 (two) percent of depth, the CONTRACTOR will notify the ENGINEER and the ENGINEER may require the CONTRACTOR to pull-back and re-drill from the location along the bore path before the deviation. The depth of the bore path is the vertical distance from the drill head to the surface of the earth, i.e. ground, pavement, water surface. An example would be if the bore is to be 20 feet in depth at a particular location then the drill head should be between 20.4 and 19.6 feet in depth. Any deviations greater than 2 percent must be approved by the ENGINEER. Less strict deviations may be requested by the CONTRACTOR and approved by the COUNTY.

6. Pilot hole shall be drilled on bore path with no deviations greater than 0.5 percent of horizontal location shown on the plans or approved CONTRACTOR submittal drawings over the length of the pipe from the entry or exit point. In the event that pilot hole does deviate from the bore path more than 0.5 percent of horizontal location shown on the plans or CONTRACTOR submittal drawings over the length of the pipe from the entry or exit point, the CONTRACTOR will notify the ENGINEER and the ENGINEER may requires the CONTRACTOR to pull-back and re-drill from the location along the bore path before the deviation. A bore 200 feet in length should have a maximum horizontal deviation of 0.5 feet in the center and a maximum of 0.25 feet horizontal deviation 50 feet from either the entry or exit point, whichever is closer. Any deviations greater than 0.5 percent must be approved by the ENGINEER. Less strict deviations may be requested by the CONTRACTOR and approved by the COUNTY.

3.5 DISPOSAL OF EXCESS MATERIAL

A. Where such effort is necessary, cost for groundwater control during the course of the tunnel work shall be included in the unit contract price for the work.

B. Dewatering required during the course of the project to lower water table, to remove standing water, surface drainage seepage, or to protect ongoing work against rising waters or floods shall be considered incidental to the work being performed.

3.6 DOCUMENTATION REQUIREMENTS OF AS-BUILT PLANS

A. Provide the ENGINEER a complete set of As-Built Plans showing all bores (successful and failed) within 30 Calendar days of completing the work. Ensure that the plans are dimensionally correct copies of the Contract plans and include utility and/or topography plan and profile, cross-section, boring location and subsurface

conditions as directed by the ENGINEER. The plans must show appropriate elevations and be referenced to a USGS grid system and datum, or a specific control point location designated on the Contract plans. Plans must be same scale in black ink on white paper, of the same size and weight as the Contract plans. Submittal of electronic plans data in additions to hard copy plans is required and must be compatible with the industry standard CAD software. As-Built Plans must be signed and sealed by a Professional Land Surveyor licensed in the State of Florida. Specific plans content requirements include but may not be limited to the following:

1. The Contract plan view shows the center line location of each facility installed or installed and placed out of service, to an accuracy of 0.1 feet at the ends and other points physically observed in accordance with the bore path report.

2. As directed by the ENGINEER, provide a plan and profile for each bore path. Show the ground or pavement surface and center line elevation of each facility installed, or installed and placed out of service, to an accuracy of within o.1 feet at the ends and other exposed locations. Each bore path shall be depicted on the Contract plans using the same datum as the Contract plans.

3. If, during boring, an obstruction is encountered which prevents completion of the installation in accordance with the design location and specification, and the product is left in place and taken out of service, show the failed bore path along with the final bore path on the plans. Note the failed bore path as “Failed Bore Path – Taken Out of Service”. Also show the name of the Utility Owner, location and length of the drill head and any drill stems not removed from the bore path.

4. Show the top elevation, diameter and material type of all utilities encountered and physically observed during the subsoil investigation. For all other obstructions encountered during a subsoil investigation or the installation, show the type of material, horizontal and vertical location, top and lowest elevation observed, and note if the obstruction continues below the lowest point observed.

5. Include bore notes on each plan stating the final bore path diameter, product diameter, drilling fluid composition, composition of any other materials used to fill the annular void between the bore path and the product, or facility placed out of service. Note if the product is a casing as well as the size and type of carrier pipe placed within the casing as part of the Contract work.

END OF SECTION

SECTION 02400

LAWN RESTORATION

PART 1 GENERAL

1.1 DESCRIPTION OF REQUIREMENTS

A. The work in this section consists of furnishing all labor, material and equipment to replace and maintain all areas disturbed during construction by establishing a stand of grass, within the areas called for by the furnishing and placing grass sod, or seeding, or seeding and mulching.

1.2 REFERENCE DOCUMENTS

A. The materials used in this work shall conform to the requirements of Florida Department of Transportation Standard Specifications for Road and Bridge Construction, 2010 as follows:

1. Sod - Section 981-3
2. Fertilizer - Section 982
3. Water - Section 983

1.3 SUBMITTALS

A. Submit certifications and identification labels for all sodding supplied as specified in Section 01300.

PART 2 PRODUCTS

2.1 SODDING

A. Types: Sod may be of either St. Augustine or Argentine Bahia grass or as that disturbed, as established prior to construction. It shall be well matted with roots. When replacing sod in areas that are already sodded, the sod shall be the same type as the existing sod.

B. Sod shall be provided as required in accordance with Florida Department of Transportation Specifications 575 and 981. The CONTRACTOR shall furnish sod equal to and similar in type as that disturbed. Placement and watering requirements shall be in accordance with FDOT Specifications Section 575 (with no compensation).

C. The sod shall be taken up in commercial-size rectangles, preferably 12-inch by 24-inch or larger, except where 6-inch strip sodding is called for.

D. The sod shall be sufficiently thick to secure a dense stand of live grass. The sod shall be live, fresh and uninjured at the time of planting. It shall have a soil mat of sufficient thickness adhering firmly to the roots to withstand all necessary handling. It shall be reasonably free of weeds and other grasses. It shall be planted as soon as possible after being dug and shall be shaded and kept moist from the time it is dug until it is planted.

E. Sod should be handled in a manner to prevent breaking or other damage. Sod shall not be handled by pitch forks or by dumping from trucks or other vehicles. Care shall be taken at all times to retain the native soil on the roots of each sod roll during stripping and handling. Sod that has been damaged by handling during delivery, storage or installation will be rejected.

2.2 FERTILIZER

A. Fertilizers shall comply with the State fertilizer laws. Chemical fertilizer shall be supplied in suitable bags with the net weight certification of the shipment. Fertilizer shall also comply with Section 982 of the FDOT Standard Specification for Road and Bridge Construction, 2010.

B. The numerical designations for fertilizer indicate the minimum percentages (respectively) of (1) total nitrogen, (2) available phosphoric acid and (3) water soluble potash, contained in the fertilizer. At least 50% of the nitrogen shall be from a slow-release source.

2.3 EQUIPMENT

A. The device for spreading fertilizer shall be capable of uniformly distributing the material at the specified rate.

2.4 NETTING

A. Netting is fabricated of material similar to Geoscope Landscape Fabric or approved equal.

2.5 GRASSING

A. The CONTRACTOR shall grass all unpaved areas disturbed during construction which do not require sod within 14 calendar days or sooner as directed by the ENGINEER. All grassing shall be completed in conformance with FDOT Specifications Sections 570 and 981. The grassed areas shall be mulched and fertilized in accordance with FDOT Specifications.

B. Grass seed shall be Argentine Bahia, 60 #/acre March 1 to November 1, 50 #/acre with 20 #/acre of rye grass seed November 1 to March 1. Argentine Bahia seed shall be a scarified seed having a minimum active germination of 40% and total of 85%.

C. Mulch material shall be free of weeds and shall be oat straw or rye, Pangola, peanut, Coastal Bermuda, or Bahia grass hay.

2.6 TOPSOIL

A. Topsoil stockpiled during excavation may be used. If additional topsoil is required to replace topsoil removed during construction, it shall be obtained off site at no additional cost to the OWNER. Topsoil shall be fertile, natural surface soil, capable of producing all trees, plants, and grassing specified herein.

2.7 RESERVED

2.8 WATER

A. It is the CONTRACTOR'S responsibility to supply all water to the site, as required during seeding and sodding operations and through the maintenance period and until the work is accepted. The CONTRACTOR shall make whatever arrangements may be necessary to ensure an adequate supply of water to meet the needs for his work. He shall also furnish all necessary hose, equipment, attachments, and accessories for the adequate irrigation of lawns and planted areas as may be required. Water shall be suitable for irrigation and free from ingredients harmful to plant life (the cost of watering shall be included in the Pay Item for Grass; no additional payment shall be made for watering).

PART 3 EXECUTION

3.1 SOD BED PREPARATION

A. Areas to be sodded and/or seeded shall be cleared no all rough grass, weeds, and debris, and brought to an even grade.

B. The soil shall then be thoroughly tilled to a minimum 8-inch depth.

C. The areas shall then be brought to proper grade, free of sticks, stones, or other foreign matter over 1-inch in diameter or dimension. The surface shall conform to finish grade, less the thickness of sod, free of water-retaining depressions, the soil friable and of uniformly firm texture.

3.2 INSPECTION

A. Verify that soil preparation and related preceding work has been completed.

B. Do not start work until conditions are satisfactory.

3.3 SOD HANDLING AND INSTALLATION

A. During delivery, prior to planting, and during the planting of sod areas, the sod panels shall at all times be protected from excessive drying and unnecessary exposure of the roots to the sun. All sod shall be stacked during construction and planting so as not to be damaged by sweating or excessive heat and moisture.

B. After completion of soil conditioning as specified above, sod panels shall be laid tightly together so as to make a solid sodded lawn area. On mounds and other slopes, the long dimension of the sod shall be laid perpendicular to the slope. Immediately following sod laying the lawn areas shall be rolled with a lawn roller customarily used for such purposes, and then thoroughly watered.

C. Sod shall be placed at all areas where sod existed prior to construction, on slopes of 3 horizontal on 1 vertical (3:1) or greater, in areas where erosion of soils will occur, and as directed by the ENGINEER. On areas where the sod may slide, due to height and slope, the ENGINEER may direct that the sod be pegged, with pegs driven through the sod blocks into firm earth, at suitable intervals.

3.4 RESERVED

3.5 SOD MAINTENANCE

A. The sod shall produce a dense, well established growth. The CONTRACTOR shall be responsible for the repair and re-sodding of all eroded or bare spots until project acceptance. Repair to sodding shall be accomplished as in the original work.

B. Sufficient watering shall be done by the CONTRACTOR to maintain adequate moisture for optimum development of the seeded and sodded areas. Sodded areas shall receive no less than 1.5 inches of water per week for at least 2 weeks. Thereafter, the CONTRACTOR shall apply water for a minimum of 60 days as needed until the sod takes root and starts to grow or until final acceptance, whichever is latest.

3.6 CLEANING

A. Remove debris and excess materials from the project site.

END OF SECTION

SECTION 02485

SEEDING AND SODDING

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Furnish all labor, materials, and equipment necessary to satisfactorily return all construction areas to their original conditions or better.

B. Work includes furnishing and placing seed or sod, fertilizer, planting, watering, and maintenance until acceptance by the Owner.

1.02 QUALITY ASSURANCE

A. Requirements

It is the intent of this specification that the Contractor is obliged to deliver a satisfactory strand of grass as specified. If necessary, the Contractor shall repeat any or all of the work, including grading, fertilizing, watering, and seeding or sodding at no additional cost to the owner until a satisfactory strand is obtained.

B. Satisfactory Strand

For purposes of grassing, a satisfactory strand of grass is herein defined as a full lawn cover over areas to be seeded or sodded, with grass free of weeds, alive and growing, leaving no bare spots larger than 3/4 sq. yd. within a radius of 10 ft.

PART 2 - PRODUCTS

2.01 Materials

A. Fertilizer

Fertilizers shall comply with the State Fertilizer Laws. Refer to Section 982 of the FDOT Standard Specifications for Road and Bridge Construction, 2010.

B. Grassing

The Contractor shall grass all unpaved areas disturbed during construction which do not require sod within 14 calendar days or sooner as directed by the ENGINEER. All grassing shall be completed in conformance with FDOT Specifications Sections 570 and 981. The grassed areas shall be mulched and fertilized in accordance with FDOT Specifications.

C. Sodding

Sod shall be provided as required in accordance with FDOT Specifications 575 and 981. The Contractor shall furnish sod equal to and similar in type as that disturbed. Placement and watering requirements shall be in accordance with FDOT Specifications Section 575.

D. Topsoil

Topsoil stockpiled during excavation may be used. If additional topsoil is required to replace topsoil removed during construction, it shall be obtained off site at no additional cost to the Owner. Topsoil shall be fertile, natural surface soil, capable of producing all trees, plants, and grassing specified herein.

E. Mulch

Mulch shall be fresh cypress mulch. Rate of application specified herein shall correspond to depth not less than 1" or more than 3" according to texture and moisture content of much material.

F. Water

It is the Contractor's responsibility to supply all water to the site, as required during seeding and sodding operations and through the maintenance period and until the work is accepted. The Contractor shall make whatever arrangements may be necessary to ensure an adequate supply of water to meet the needs for his work. He shall also furnish all necessary hose, equipment, attachments, and accessories for the adequate irrigation of lawns and planted areas as may be required. Water shall be suitable for irrigation and free from ingredients harmful to plant life.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Time of Seeding and Sodding

When the trench backfill has stabilized sufficiently, the Contractor shall commence work on lawns and grassed areas, including fine grading as required.

B. Finish Grading

Areas to be seeded or sodded shall be finish graded, raked, and debris removed. Soft spots and uneven grades shall be eliminated; the Engineer shall approve the finish grade of all areas to be seeded or sodded prior to application of seed or sod.

C. Protection

Seeded and sodded areas shall be protected against the traffic or other use by placing warning signs or erecting barricades as necessary. Any areas damaged prior to actual acceptance by the Owner shall be repaired by the Contractor as directed by the Engineer.

D. Mowing

All grasses within the Project Limits shall be mowed at least once every two weeks to maintain aesthetics for residents and/or business owners. No additional payment will be made for mowing and such costs shall be included in the unit cost of sodding and/or seeding.

3.01 CLEANUP

A. Soil, mulch, seed, or similar materials spilled onto paved areas shall be removed promptly, keeping those areas as clean as possible at all times. Upon completion of seeding and sodding operations, all excess soil, stones, and debris remaining shall be removed from the construction areas.

3.02 LANDSCAPE MAINTENANCE

A. Any existing landscape items damaged or altered during construction by the Contractor shall be restored or replaced as directed by the Engineer.

B. Maintain landscape work for a period of 90 days immediately following complete installation of work or until Owner accepts project. Watering, seeding, cultivating, restoration of grade, mowing and trimming grass, protection from insects and diseases, fertilizing and similar operations as needed to ensure normal growth and good health for live plant material shall be the responsibility of the Contractor and at no additional cost to the Owner.

3.03 REPAIRS TO LAWN AREAS DISTURBED BY CONTRACTOR'S OPERATIONS

A. Lawn areas planted under this Contract and all lawn areas damaged by the Contractor's operation shall be repaired at once by proper soil preparation, fertilizing, and reseeding or sodding, in accordance with these Specifications.

END OF SECTION

SECTION 02523

SIDEWALKS, DRIVEWAYS AND CURBS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Sidewalks, sidewalk ramps, driveways, curbs and drive approaches complete with concrete materials, concrete curing compounds, joint materials, field quality control and appurtenances.

1.2 REFERENCES

A. Reference Standards: Conform the work for this Section to the applicable portions of the following standard Specifications.

1. ASTM - American Society of Testing and Materials
2. AASHTO - American Association of State Highway and Transportation Officials
3. FDOT - Florida Department of Transportation - Standard Specifications for Road and Bridge Construction 2010.
4. FAC - Florida Accessibility Code.
5. ADAAG - American with Disabilities Act Accessibility Guidelines
6. UFAS - Uniform Federal Accessibility Standards

1.3 SUBMITTALS

A. Reports: Written permission for the use of all local disposal sites Furnish copies to the ENGINEER.

B. Test Reports:

1. Thickness and Compressive Strength: Provide the ENGINEER with two (2) certified copies of the test results. Perform the tests by a laboratory approved by the ENGINEER.

1.4 JOB CONDITIONS

A. Environmental Requirements:

1. Temperature: Comply with the requirements for concrete installation due to outside ambient air temperatures as specified under Article 3.3.I of this Section.

B. Protection:

1. Protection Against Rain: Comply with the requirements for protecting new work against damage from Rain, as specified under Article 3.3.I of this Section.

2. Protection Against Cold Weather: Comply with the requirements for protecting new work against damage from cold weather, as specified under Article 3.3.I of this Section.

PART 2 PRODUCTS

2.1 MATERIALS

A. Concrete: Use 2,500 psi concrete except as modified herein.

B. Ready-Mixed Concrete: Use ready-mixed concrete which conforms to ASTM C94, Alternate 2.

C. Water: Use water for mixing and curing concrete reasonably clean and free from oil, salt, acid, alkali, chlorides, sugar, vegetable, or other substances injurious to the finished product. Waters from sources approved by the local Health Department as potable may be used without test. Test water requiring testing in accordance with the current Method of Test for Quality of Water to be Used in Concrete, AASHTO T-26.

D. Concrete Curing Compounds: Use white membrane curing compound for curing concrete which conforms to AASHTO M148, Type 1 clear, or Type 2 while per FDOT Section 925.

E. Premolded Joint Filler: Use fiber joint filler which conforms to ASTM D1751. Use filler of the thickness, as specified herein, or as directed by the ENGINEER.

F. Steel Hook Bolts: Use hook bolts which conform to ASTM A706, or for Grade 60 of ASTM A615, A616, or A617. Use 5/8-inch diameter hook bolts self tapping.

G. Joint Sealant: Use hot-poured type joint sealant which conforms to ASTM D1190.

PART 3 EXECUTION

3.1 CONTRACTOR'S VERIFICATION

A. Excavation and Forming: Prior to the installation of any concrete, examine the excavation and forms for the proper grades, lines, and levels required to receive the new work. Ascertain that all excavation and compacted subgrades are adequate to receive the concrete to be installed.

1. Correct all defects and deficiencies before proceeding with the work.

B. Existing Improvements: Investigate and verify location of existing improvements to which the new work is to be connected.

1. Making necessary adjustment in line and grade to align the new work with the existing improvements must be approved by the ENGINEER prior to any change.

3.2 PREPARATION

A. Forms: Use wood or metal forms, straight and free from warp, clean, and sufficient strength to resist springing during the process of depositing concrete against them.

1. Use full depth of the concrete forms.

3.3 INSTALLATION

A. Sidewalks, Sidewalk Ramps, Driveways and Driveway Approach Repairs: Construct Sidewalks, Sidewalk Ramps, Driveways, Driveway Approach Repairs and Curb per FDOT Standard Specifications for Road and Bridge Construction, 2010 Sections 520 and 522. Construct all sidewalks and sidewalk ramps four (4) inches thick except at driveways and alleys. Construct thickness of the sidewalks six (6) inches at driveways and alleys. Construct sidewalks five (5) feet wide unless otherwise noted on the Plans or directed by the ENGINEER, and slope 1/4-inch per foot towards the center of the road. Normally, sidewalks will be located within the right-of-way, parallel the property lines, at a distance of 1-foot from the property line.

1. Construct alleys, driveways and approaches six (6) inches thick. Construct the width of the driveways and driveway approaches as shown on the Plans or as directed by the ENGINEER.

B. Removal of Existing Curb for Sidewalk Ramps and Driveway Approaches: Conform construction of sidewalk ramps within street intersections where curbed pavement existing to the current FDOT Roadway and Traffic Design Standards.

1. Saw cut, to full depth of pavement, and remove a minimum of an 18-inch wide curb and gutter section where there is no proper curb drop for the sidewalk ramp or driveway approach. When mountable curbs are present, remove a 24-inch wide curb and gutter section for the construction of sidewalk ramps, as specified above.

2. Remove curb and gutter as determined by the ENGINEER in the field but remove curb and gutter at least as wide as the proposed sidewalk ramp plus 1-foot on each side.

3. Replace the removed curb and gutter section with materials, equal to what was removed and seal joint with hot poured rubber asphalt.

C. Install 5/8 inch diameter self tapping hook bolts, in the existing concrete pavement as indicated on the Plans prior to placing concrete for the removed curb and gutter section.

D. Placement of Forms: Use wood forms, straight and free from warp, of nominal depth for sidewalk sections less than 25 feet in length.

1. Stake forms to line and grade in a manner that will prevent deflection and settlement.

2. When unit slab areas are to be poured, place slab division forms such that the slab division joints will be straight and continuous.

3. Set forms for sidewalk ramps to provide a grade toward the centerline of the right-of-way in accordance with current standards. Use a uniform grade, except as may be necessary to eliminate short grade changes.

4. Oil forms before placing concrete. Leave forms in place at least 12 hours after the concrete is placed. Place forms ahead of the pouring operations to maintain uninterrupted placement of concrete.

5. The use of slip form pavers can be allowed when approved by the ENGINEER in lieu of the construction system described above.

E. Joints: Construct transverse and longitudinal expansion and plane-of-weakness joints at the locations specified herein, or as indicated on the Plans or as directed by the ENGINEER.

1. Place the transverse expansion joints for the full width and depth of the new work. Use transverse expansion joints placed against an existing pavement a minimum of six (6) inches deep but no less than the thickness of the concrete being placed.

2. Conform longitudinal expansion joints to the requirements as transverse expansion joints.

3. Construct joints true to line with their faces perpendicular to the surface of the sidewalk. Install the top slightly below the finished surface of the sidewalk. Construct transverse joints at right angles to the centerline of the sidewalk and construct longitudinal joints parallel to the centerline or as directed by the ENGINEER.

4. Place transverse expansion joints, 1/2-inch thick, through the sidewalk at uniform intervals of not more than 50 feet and elsewhere as shown on the Plans, or as directed by the ENGINEER.

5. Place expansion joints, 1/2-inch thick, between the sidewalk and back of abutting parallel curb, buildings or other rigid structures, concrete driveways and driveway approaches. When directed by the ENGINEER, place the expansion joint between sidewalks and buildings 1-foot from the property line and parallel to it.

6. Form plane-of-weakness joints every five (5) feet. Form joints by use of slab divisions forms extending to the full depth of the concrete or by cutting joints in the concrete, after floating, to a depth equal to 1/4 the thickness on the sidewalk. Construct cut joints not less than 1/8-inch or more than 1/4-inch in width and finish smooth and at right angles to the centerline on the sidewalk.

F. Placing and Finishing Concrete: Place all concrete on a prepared unfrozen, smooth, leveled, rolled and properly compacted base. Place concrete on a moist surface with no visible water present.

1. Deposit the concrete, in a single layer to the depth specified. Spade or vibrate and compact the concrete to fill in all voids along the forms and joints. Strike off the concrete with a strike board until all voids are removed and the surface has the required grade and cross section as indicated on the Plans, or as directed by the ENGINEER.

2. Float the surface of the concrete just enough to produce a smooth surface free from irregularities. Round all edges and joints with an edger having a 1/4-inch radius.

3. Broom the surface of sidewalks, driveways and approaches to slightly roughen the surface.

4. Texture the surface of the sidewalk ramps with a coarse broom transversely to the ramp slope, and coarser roughen than the remainder of the sidewalk. Contract the ramp slope in color (using a brick-red dye or approved equal) from the remainder of the sidewalk. Comply with minimum color contract and slope requirements from FAC, UFAS, ADAAG, Local Government Standards, or as directed by the ENGINEER.

G. Curing: After finishing operations have been completed and immediately after the free water has left the surface, completely coat and seal the surface of the concrete (and sides if slip-forming is used) with a uniform layer of white membrane curing compound. Do not thin the curing compound. Apply the curing compound at the rate of one gallon per 200 square feet of surface.

H. Barricades: Place suitable barricades and lights around all newly poured sidewalks, sidewalk ramps, driveways, driveway approaches and curb and gutter sections in order to protect the new work from damage from pedestrians, vehicles and others until the concrete has hardened.

1. Leave barricades in place for a minimum of two (2) days, except for driveway approaches and curb and gutter sections. Leave barricades in place for a minimum of three (3) days.

2. Remove and replace any concrete that suffers surface or structural damage at no additional cost.

I. Protection:

1. Against Rain: Protect new concrete from the effects of rain before the concrete has sufficiently hardened. Have available on the job site at all times enough burlap or 6-mil thick polyurethane film to cover and protect one day's work. Stop work and cover completed work when rain appears eminent. As soon as the rain ceases, uncover the concrete and burlap drag the surface where necessary. Apply curing compound to any areas where the compound has been disturbed or washed away.

2. Against Cold Weather: If concrete is placed between December 15 and February 15, have available on the site sufficient amount of clean, dry straw or hay to cover one (1) day's production. If the temperature reaches 40 degrees F and is falling, place the hay or straw 12 inches thick, immediately after the curing compound is applied.

3. Concrete Temperature Limitations: Do not place concrete when the temperature of the concrete at the point of placement is above 90 degrees F.

J. Cleanup: After the concrete has gained sufficient strength, but no sooner than within 12 hours, remove the fixed forms and backfill the spaces on both sides with sound earth of topsoil quality. Compact, level and leave backfill in a neat condition.

K. Gutters and Curbs: Construct gutters and curbs in accordance with Section 520 FDOT Standard Specifications for Road and Bridge Construction, latest edition, including supplements.

3.4 FIELD QUALITY CONTROL

A. Concrete Delivery Ticket: Use a ticket system for recording the transportation of concrete from the batching plant to point of delivery. Issue this ticket to the truck operator at the point of loading and give to the ENGINEER upon delivery.

B. Concrete Delivery Rejection: Remove concrete not permitted for inclusion in the work by the ENGINEER from the site. Rejection of concrete will be determined through Field Quality Control and elapsed time from mixer charging to delivery.

C. Concrete Testing at Placement: Perform tests of each batch of concrete delivered, each 50 cubic yards, or whenever consistency appears to vary. The sampling and testing of slump, air content and strength will be performed at no cost to the COUNTY.

1. Sampling: Secure composite samples in accordance with the Method of Sampling Fresh Concrete, ASTM C172.

2. Slump Test: Test in accordance with ASTM C143. Use the least slump possible consistent with workability for proper placing of the various classifications of concrete.

    a. Place structural concrete for walls and slabs, by means of vibratory equipment, with a slump of four (4) inches.

    b. A tolerance of up to 1-inch above the indicated maximum will be allowed for individual batches provided the average for all batches or the most recent ten (10) batches tested, whichever is fewer, does not exceed the maximum limit.

3. Air Content: Determine air content of normal weight concrete in accordance with Method of Test for Air Content of Freshly Mixed Concrete by the Pressure Method, ASTM C23 1, or by the volumetric method, ASTM C 173, for each strength test.

4. Compressive Strength: Make two (2) strength tests of three (3) samples each for each 50 cubic yards, or fraction thereof, of each mix design of concrete placed in any one (1) day.

    a. Handling Samples: Mold and cure three (3) specimens from each sample in accordance with Method of Making and Curing Concrete Test Specimens in the Field, ASTM C31. Record any deviations from the requirements of this Standard in the test report.

    b. Testing: Test specimens in accordance with Method of Test for Compressive Strength of Cylindrical Concrete Specimens, ASTM C39. Test one (1) specimen at seven (7) days for information and test two (2) at 28 days for acceptance. Use the average of the strengths of the two (2) specimens tested at 28 days. Discard results if one (1) specimen in a test manifests evidence of improper sampling, molding or testing, and use the strength of the remaining cylinder. Should both specimens in test show any of the above defects, discard the entire test.

    c. Acceptance of Concrete: The strength level of the concrete will be considered satisfactory so long as the averages of all sets of three consecutive strength test results equal or exceed the specified 28-day strength and no individual strength test results falls below the specified 28-day strength by more than 500 psi. If the strength test is not acceptable, perform further testing to qualify the concrete.

    d. Concrete Temperature: Determine the temperature of concrete sample for each strength test.

D. Reductions due to deficiencies in thickness or compressive strength are additive, that is, if an area is deficient by 3/8 inch and under strength by 200 psi, the total reduction is 20% plus 02% or 40% reduction.

END OF SECTION

SECTION 02530

GROUNDWATER CONTROL FOR OPEN CUT EXCAVATION

PART 1 GENERAL

1.1 DESCRIPTION OF REQUIREMENTS

A. This section provides for furnishing all labor, materials, equipment, power and incidentals for performing all operations necessary to dewater, depressurize, drain and maintain excavations as described herein and as necessary for installation of pipeline and appurtenances. Included are installing, maintaining, operating and removing dewatering systems and other approved devices for the control of surface and groundwater during the construction of open cut excavations, directional drilling, pipelines and appurtenances, and protecting work against rising waters and repair of any resulting damage.

1.2 CONTRACTOR'S RESPONSIBILITY

A. It is the sole responsibility of the CONTRACTOR to identify groundwater conditions and to provide any and all labor, material, equipment, techniques and methods to lower, control and handle the groundwater as necessary for his construction methods and to monitor the effectiveness of this installed system and its effect on adjacent facilities. If a dewatering permit is required for the proposed installation, it shall be the CONTRACTOR’s responsibility to prepare and obtain all required permits.

B. Operate, maintain and modify the system(s) as required to conform to these Specifications. Upon completion of the Construction, CONTRACTOR shall remove the system(s). The development, drilling and abandonment of all wells used in the dewatering system shall comply with regulations of the Florida Department of Environmental Protection and the governing Water Management District.

C. Assume sole responsibility for dewatering systems and for all loss or damage resulting from partial or complete failure of protective measures and any settlement or resultant damage caused by the dewatering operation.

1.3 PLANS AND OTHER DATA TO BE SUBMITTED

A. Prior to commencement of work, submit complete drawings, details and layouts showing the proposed dewatering plans in accordance with Section 01300. The submittals shall be sufficiently detailed (i.e., general arrangements, procedures to be used, etc.) to allow the ENGINEER to evaluate the proposed dewatering systems. Include the following, as required by the CONTRACTOR's proposed operation:

1. Names of equipment suppliers.

2. Names of installation subcontractors.

3. Plan for dewatering at access shafts and control of surface drainage.

4. Plan for dewatering for cut-and-cover excavations, or otherwise controlling groundwater.

5. Eductor system layout and details.

6. Deep well locations and details.

7. Well point system layout and details.

8. Installation reports for eductors, deep wells and well points.

9. Water level readings from piezometers or observation wells, and method of maintenance.

10. As part of his request for approval of a dewatering system, demonstrate the adequacy of the proposed system and well point filler sand by means of a test installation.

PART 2 PRODUCTS

A. Select equipment including but not limited to pumps, eductors, well points and piping and other material desired.

PART 3 EXECUTION

3.1 DEWATERING EXCAVATIONS

A. Furnish, install, operate and maintain all necessary equipment for dewatering the various parts of the Work and for maintaining free of water the excavations and such other parts of the Work as required for Construction operations. Dewatering system should provide for continuous operation including nights, weekends, holidays, etc. Appropriate backup shall be provided if electrical power is primary energy source for dewatering system.

B. Continue dewatering in all required areas, until the involved work is completed, including the placing and compaction of backfill materials in the dry.

C. Provide a uniform diameter for each pipe drain run constructed for dewatering. Remove the pipe drain when it has served its purpose. If removal of the pipe is

impractical, provide grout connections at 50-foot intervals, and fill the pipe with clay grout or cement and sand grout when the pipe has served its purpose.

3.2 DEWATERING TRENCH

A. No pipeline shall be laid in a trench in the presence of water. All water shall be removed from the trench sufficiently ahead of the pipeline placing operation. The ENGINEER shall have full and final authority to require dewatering of the trench to ensure a dry, firm bed on which to place the pipeline. As a minimum, water levels shall be maintained at least 6 inches below the bottom of the trench. Trench shall continue to be dewatered until trench backfilling operations have been completed.

B. Removal of water may be accomplished by pumping or pumping in connection with well point installation as the particular situation may warrant.

C. If the soils encountered at the trench grade are suitable for the passage of water, without destroying the sides or utility foundation of the trench, sumps may be provided at intervals at the side of the main trench excavation. Pumps shall be used to lower the water level by taking their suction from said sumps.

3.3 REQUIREMENTS FOR EDUCTOR, WELL POINTS OR DEEP WELLS

A. Eductor, well points or deep wells, where used, must be furnished, installed and operated by a reputable CONTRACTOR regularly engaged in this business, and approved.

B. Submit the design criteria of the dewatering system and a certification that the system was designed according to that criteria.

C. Install sufficient piezometers or observation wells to show that all trench excavation in sandy material is predrained prior to excavation. Install piezometers or observation wells not less than 1 week in advance of beginning of nearest excavation.

D. Dewatering may be omitted for portions of underdrains or other trenches, only where auger borings and piezometers or observation wells show that the soil is predrained by an exterior system.

3.4 MAINTENANCE AND OBSERVATION

A. Maintenance and observation of piezometers or observation wells is the responsibility of the CONTRACTOR and shall consist of keeping them in good condition and observing and recording the elevation of the water level daily, as long as the dewatering system is in operation, and weekly thereafter until the work is completed or the piezometers or wells are removed.

B. Submit a record of the water level to the ENGINEER each day.

C. Replace damaged and destroyed piezometers or observation wells, unless otherwise accepted by the ENGINEER, with new piezometers or wells within 48 hours, at no additional cost to the County.

D. Cut off piezometers or observation wells in excavation areas, where exposed, as excavation proceeds, and continue to maintain and make observations as specified.

E. Remove, backfill or grout piezometers or observation wells inside or outside the excavation area, as approved by the ENGINEER.

3.5 RESERVED

3.6 RESERVED

3.7 DISCHARGE OF WATER

A. Do not discharge pumped drainage water into the sanitary sewer system or inhibit pedestrian or vehicular traffic with the groundwater control system.

B. If Permitted by FDOT, discharge pumped drainage water into the storm sewer system or drainage ditch by direct means (i.e., discharge hose to inlet, burying header, etc.). Monitor the discharged water to determine that soil particles are not being removed.

C. All discharge shall be in conformance with regulatory permits and if discharged into receiving waters, shall not exceed 29 N.T.U.=s above background.

3.8 REPAIR OF DAMAGE

A. Assume full responsibility for all loss and damage due to flooding, rising water or seepage resulting from dewatering operations in any part of the work. Repair any damage to partially completed work from these or other causes, including the removal of slides, repair of foundation beds and performance of any other work necessitated by lack of adequate dewatering or drainage facilities.

END OF SECTION

SECTION 02575

PAVEMENT REPAIR AND RESTORATION

PART 1 GENERAL

1.1 SCOPE OF WORK

A. Furnish all labor, materials, equipment, and incidentals required and remove and replace pavements over trenches excavated for installation of pipelines as shown on the drawings and/or specified herein.

1.2 GENERAL

A. All damage, as a result of work under this project, done to existing pavement, driveways, paved areas, curbs and gutters, sidewalks, shrubbery, grass, trees, utility poles, utility pipe lines, irrigation lines, conduits, drains, catch basins, or stabilized areas or driveways and including all obstructions not specifically named herein, shall be repaired in a manner satisfactory to the ENGINEER. Bid prices shall include the furnishing of all labor, materials, equipment, and incidentals necessary for the cutting, repair, and restoration of the damaged areas unless pay items for specific types of repair are included in the Bid Form.

B. Keep the surface of the backfilled area of excavation in a safe condition and level with the remaining pavement until the pavement is restored in the manner specified herein. All surface irregularities that are dangerous or obstructive to traffic are to be removed. The repair shall conform to applicable OWNER or State requirements for pavement repair and as described herein.

C. All materials and workmanship shall be first class and nothing herein shall be construed as to relieve the CONTRACTOR from this responsibility. The OWNER reserves the right to require soil bearing or loading tests or materials tests, should the adequacy of the foundation or the quality of materials used be questionable. Costs of these tests shall be borne by the OWNER, if found acceptable; the costs of all failed tests shall be borne by the CONTRACTOR.

D. All street and road repair shall be made in accordance with the details indicated on the drawings and in accordance with the applicable requirements of these Specifications and meeting the permit requirements and approval of the governing Department of Transportation agencies.

E. Pavement or roadway surfaces cut or damaged shall be replaced by the CONTRACTOR in equal or better condition than the original, including stabilization, base course, surface course, curb and gutter or other appurtenances. The CONTRACTOR shall obtain the necessary permits prior to any roadway work.

Additionally, the CONTRACTOR shall provide advance notice to the appropriate authority, as required, prior to construction operations.

1. Roadway Restoration (within Lee County DOT and FDOT jurisdiction): Restoration shall be in accordance with the requirements set forth in the "Right-of-Way Utility Construction Activities Policy" and these Standards. The materials of construction and method of installation, along with the proposed restoration design for items not referred or specified herein, shall receive prior approval from Lee County DOT.

    a. Where existing pavement is to be removed, the surface shall be mechanical saw cut prior to trench excavation, leaving a uniform and straight edge parallel or perpendicular to the roadway centerline with minimum disturbance to the remaining adjacent surfacing. The width of cut for this phase of existing pavement removal shall be minimal.

    b. Immediately following the specified backfilling and compaction, a temporary sand seal coat surface shall be applied to the cut areas. This temporary surfacing shall provide a smooth traffic surface with the existing roadway and shall be maintained until final restoration. Said surfacing shall remain for a minimum of ten (10) days in order to assure the stability of the backfill under normal traffic conditions. Thirty (30) days following this period and prior to sixty (60) days after application, the temporary surfacing shall be removed and final roadway surface restoration accomplished.

    c. In advance of final restoration, the temporary surfacing shall be removed and the existing pavement mechanically sawed straight and clean to the stipulated dimensions, if needed. Following the above operation, the CONTRACTOR shall proceed immediately with final pavement restoration in accordance with the requirements set forth by Lee County DOT and/or FDOT.

2. Roadway Restoration (outside Lee County Department of Transportation jurisdiction) – Work within the rights-of-way of public thoroughfares which are not under jurisdiction of Lee County, shall conform to the requirements of the Governmental agency having jurisdiction or the Florida Department of Transportation. Work within State Highway right-of-way shall be in full compliance with all requirements of the permit drawings, and to the satisfaction of the Florida Department of Transportation.

1.3 QUALITY ASSURANCE

A. Applicable provisions of the latest version of the Florida Department of Transportation "Standard Specifications for Road and Bridge Construction", and Supplemental Specifications hereunder govern the work under this Section. The Florida Department of Transportation will hereafter be referred to as FDOT.

PART 2 PRODUCTS

2.1 MATERIALS

A. All materials utilized in flexible base pavement and base course shall be as specified in the latest version of the Florida Department of Transportation "Standard Specifications for Road and Bridge Construction".

PART 3 EXECUTION

3.1 CUTTING PAVEMENT

A. Cut and remove pavement as necessary for installing the new pipelines and appurtenances and for making connections to existing pipelines.

B. Before removing pavement, the pavement shall be marked for cuts nearly paralleling pipelines and existing street lines. Asphalt pavement shall be cut along the markings with a jackhammer, rotary saw, or other suitable tool, leaving a uniform and straight edge with minimum disturbance to the remaining adjacent surface.

C. No pavement shall be machine pulled until completely broken and separated along the marked cuts.

D. The pavement adjacent to pipeline trenches shall neither be disturbed nor damaged. If the adjacent pavement is disturbed or damaged, irrespective of cause, remove the damaged pavement and shall replace it at his own expense.

3.2 GENERAL RESTORATION

A. The restoration of existing street paving, driveways, etc., shall be restored, replaced or rebuilt using the same type of construction as was in the original. Be responsible for restoring all such work, including sub-grade and base courses where present. Obtain and pay for such local or other governmental permits as may be necessary for the opening of streets. Meet any requirements other than those herein set forth which may effect the type, quality and manner of carrying on the restoration of surfaces by reason of jurisdiction of such governmental bodies.

B. In all cases, maintain, without additional compensation, all permanent replacement of street paving, done by him under this Contract until accepted by the OWNER, including the removal and replacement of such work wherever surface depressions or underlying cavities result from settlement of trench backfill.

C. Complete all the final resurfacing or re-paving of streets or roads, over the excavations and relay paving surfaces of roadbed that have failed or been damaged prior to acceptance by the OWNER. Backfilling of trenches and the preparation of sub-grades shall conform to the requirements of Section 02223.

D. All re-paving or resurfacing shall be done in accordance with Florida Department of Transportation Specifications, to which the following requirement of trench backfill will be added: Where pipeline construction crossed paved areas such as streets, the top 24 inches of trench below the road bases or concrete slabs shall be backfilled with compacted A-4 or better matter that will provide a bearing value of not less than 75 when tested by the Florida Department of Transportation Soil Bearing Test Methods.

3.3 PRIME AND TACK COATS

A. The work shall consist of the application of bituminous prime and tack coats on the previously prepared base course in accordance with Section 300 of the FDOT Specifications.

3.4 WEARING COURSE

A. The work shall consist of the construction of plant-mixed hot bituminous pavement to the thickness indicated in the drawings conforming to the details in the plans and in accordance with FDOT Standard Specifications for Road and Bridge Construction. The requirements for plant and equipment are specified in Section 320 and the general construction requirements for asphaltic concrete pavement are contained in Section 330 of the FDOT specifications.

3.5 TESTING

All field testing shall be performed by an independent laboratory employed by the CONTRACTOR. All materials shall be tested and certified by the producer.

3.6 MISCELLANEOUS RESTORATION

A. Sidewalks cut or damaged by construction shall be restored in full sections or blocks to a minimum thickness of four inches. Concrete curb or curb gutter shall be restored to the existing height and cross section in full sections or lengths between joints. Concrete shall be as specified on the drawings. Grassed yards, shoulders and parkways shall be restored to match the existing sections with grass seed or sod of a type matching the existing grass.

3.7 CLEANUP

A. After all repair and restoration or paving has been completed, all excess asphalt, dirt, and other debris shall be removed from the roadways. All existing storm sewers and inlets shall be checked and cleaned of any construction debris.

END OF SECTION

SECTION 02620

HIGH DENSITY POLYETHYLENE PIPE AND FITTINGS

PART 1 GENERAL

1.1 SCOPE OF WORK

A. Furnish all labor, materials, equipment, and incidentals required to install High Density Polyethylene (HDPE) pressure pipe, fittings, and appurtenances as shown on the Drawings and specified in the Contract Documents.

B. High Density Polyethylene (HDPE) – Lee County Utilities has the option of approving the use of HDPE for water main crossings of roadways, ditches, canals, and environmentally sensitive lands. HDPE water mains shall have the same equivalent internal diameter and equivalent pressure class rating as the corresponding PVC pipe, unless otherwise approved by Lee County Utilities. For all roadway crossings a steel or HDPE casing pipe must be provided. The Department of Transportation having jurisdiction of said road and right-of-way must grant specific approval.

1.2 REFERENCED STANDARDS

A. All standard specifications, i.e., Federal, ANSI, ASTM, etc., made a portion of these Specifications by reference, shall be the latest edition and revision thereof.

1.3 QUALIFICATIONS

A. All HDPE pipe, fittings, and appurtenances shall be furnished by a single manufacturer who is fully experienced, reputable and qualified in the manufacture of the items to be furnished.

1.4 SUBMITTALS

A. Submit to the ENGINEER, a list of materials to be furnished, the names of the suppliers, and the appropriate shop drawings for all HDPE pipe and fittings.

B. Submit the pipe manufacturer's certification of compliance with the applicable sections of the Specifications.

C. Submit shop drawings showing installation method and the proposed method and specialized equipment to be used.

1.5 INSPECTIONS AND TESTS

A. All work shall be inspected by an Authorized Representative of the OWNER who shall have the authority to halt construction if, in his opinion, these specifications or standard construction practices are not being followed. Whenever any portion of

these specifications is violated, the ENGINEER or his authorized representative, shall, by written notice, order further construction to cease until all deficiencies are corrected.

1.6 WARRANTY AND ACCEPTANCE

A. Warrant all work to be free from defects in workmanship and materials for a period of one year from the date of completion of all construction. If work meets these specifications, a letter of acceptance, subject to the one year warranty period, shall be given at the time of completion. A final acceptance letter shall be given upon final inspection at the end of the one year warranty period, provided the work still complies with these specifications. In the event deficiencies are discovered during the warranty period, they shall be corrected by the CONTRACTOR without additional charge to the OWNER before final acceptance. During the warranty period, the ENGINEER shall determine if warranty repairs or replacement work shall be performed by the CONTRACTOR. The decision of the ENGINEER shall be binding upon the CONTRACTOR.

PART 2 PRODUCTS

2.1 POLYETHYLENE PIPE AND FITTINGS

A. Polyethylene pressure pipe shall be manufactured from PE3408 polyethylene and shall meet AWWA C906 standards. When specified by the ENGINEER on the construction drawings, as an alternate to PVC, HDPE, Ductile iron pipe sized (DIPS) piping can be used for buried applications. Iron pipe sized (IPS) HDPE piping can be used for above-ground applications. HDPE (IPS) DR-11 Hydrostatic Design Basis (HDB) piping shall be used for the riser pipes from the pump discharge and manifold as shown on the drawings.

B. Where HDPE pipe is joined to HDPE pipe, it shall be by thermal butt fusion. Thermal fusion shall be accomplished in accordance with the pipe manufacturer and fusion equipment supplier specifications. The CONTRACTOR installing thermal butt fused HDPE pipe shall have a minimum of five years experience performing this type of work.

C. Qualification of Manufacturer: The Manufacturer shall have manufacturing and quality control facilities capable of producing and assuring the quality of the pipe and fittings required by these specifications. The Manufacturer's production facilities shall be open for inspection by the OWNER or his authorized representative. Qualified manufacturers shall be approved by the OWNER.

D. Approved Manufacturer: Manufacturers that are qualified and approved are listed below:

- Perfomance Pipe (A Division of Chevron Phillips Chemical Co. LLP)
  - DriscoPLex ® PE 3408
  - DriscoPLex ® 4100

- DriscoPlex ® 4300
- Poly Pipe
- JM Eagle
- Independent Pipe Products, Inc. (HDPE to DIP adapters)

Materials: Materials used for the manufacture of polyethylene pipe and fittings shall be PE3408 high density polyethylene meeting cell classification 345434C or 345434E per ASTM D 3350; and meeting Type III, Class B or Class C, Category 5, Grade P34 per ASTM D 1248; and shall be listed in the name of the pipe and fitting manufacturer in PPI (Plastics Pipe Institute) TR-4, Recommended Hydrostatic Strengths and Design Stresses for Thermoplastic Pipe and Fittings Compounds, with a standard grade rating of 1600 psi at 73°F. The Manufacturer shall certify that the materials used to manufacture pipe and fittings meet these requirements.

E. Interchangeability of Pipe and Fittings: Polyethylene pipe and fittings shall be produced by the same Approved Manufacturer. Products made by subcontractor's or Manufacturer's distributor are not acceptable. Pipe and fittings from different Approved Manufacturers shall not be interchanged.

F. Polyethylene Pipe: Polyethylene pipe shall be manufactured in accordance with ASTM F 714, Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter or ASTM D 3035, Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter and shall be so marked. Each production lot of pipe shall be tested for (from material or pipe) melt index, density, % carbon, (from pipe) dimensions and either quick burst or ring tensile strength (equipment permitting).

G. Color Identification: HDPE must have at least three equally spaced horizontal colored marking stripes. Permanent identification of piping service shall be provided by adhering to the following colors (in accordance with the coloring code in Section 9900).

Blue – potable water
Green – wastewater, sewage
Pantone Purple – reuse or reclaimed water

H. Polyethylene Fittings and Custom Fabrications: Polyethylene fittings and custom fabrications shall be molded or fabricated by the pipe manufacturer. Butt fusion outlets shall be made to the same outside diameter, wall thickness, and tolerances as the mating pipe. All fittings and custom fabrications shall be fully rated for the same internal pressure as the mating pipe. Pressure de-rated fabricated fittings are prohibited.

I. Molded Fittings: Molded fittings shall be manufactured in accordance with ASTM D 3261, Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing, and shall be so marked. Each production lot of molded fittings shall be subjected to the tests required under ASTM D 3261.

J. X-Ray Inspection: The Manufacturer shall submit samples from each molded fittings production lot to x-ray inspection for voids, and shall certify that voids were not found.

K. Fabricated Fittings: Fabricated fittings shall be made by heat fusion joining specially machined shapes cut from pipe, polyethylene sheet stock, or molded fittings. Fabricated fittings shall be rated for internal pressure service equivalent to the full service pressure rating of the mating pipe. Directional fittings 16" IPS and larger such as elbows, tees, crosses, etc., shall have a plain end inlet for butt fusion and flanged directional outlets. Part drawings shall be submitted for the approval of the ENGINEER.

L. Polyethylene Flange Adapters: Flange adapters shall be made with sufficient through-bore length to be clamped in a butt fusion joining machine without the use of a stub-end holder. The sealing surface of the flange adapter shall be machined with a series of small v-shaped grooves to provide gasketless sealing, or to restrain the gasket against blow-out.

M. Back-up Rings and Flange Bolts: Flange adapters shall be fitted with lap joint flanges pressure rated equal to or greater than the mating pipe. The lap joint flange bore shall be chamfered or radiused to provide clearance to the flange adapter radius. Flange bolts and nuts shall be Grade 2 or higher.

2.2 MANUFACTURER'S QUALITY CONTROL

A. The pipe and fitting manufacturer shall have an established quality control program responsible for inspecting incoming and outgoing materials. Incoming polyethylene materials shall be inspected for density, melt flow rate, and contamination. The cell classification properties of the material shall be certified by the supplier, and verified by Manufacturer's Quality Control. Incoming materials shall be approved by Quality Control before processing into finished goods. Outgoing materials shall be checked for:

- Outside diameter, wall thickness, and eccentricity as per ASTM D2122 at a frequency of at least once/hour or once/coil, whichever is less frequent.
- Out of Roundness at frequency of at least once/hour or once/coil, whichever is less frequent.
- Straightness, inside and outside surface finish, markings and end cuts shall be visually inspected as per ASTM F714 on every length of pipe.

Quality Control shall verify production checks and test for:

- Density as per ASTM D1505 at a frequency of at least once per extrusion lot.
- Melt Index as per ASTM D1238 at a frequency of at least once per extrusion lot.
- Carbon content as per ASTM D1603 at a frequency of at least once per day per extrusion line.
- Quick burst pressure (sizes thru 4-inch) as per ASTM D1599 at a frequency of at least once per day per line.
- Ring Tensile Strength (sizes above 4-inch equipment permitting) as per ASTM D2290 at a frequency of at least once per day per line.
- ESCR (size permitting) as per ASTM F1248 at a frequency of at least once per extrusion lot.

X-ray inspection shall be used to inspect molded fittings for voids, and knit line strength shall be tested. All fabricated fittings shall be inspected for joint quality and alignment.

2.3 COMPLIANCE TESTS

A. In case of conflict with Manufacturer's certifications, the CONTRACTOR, ENGINEER, or OWNER may request re-testing by the manufacturer or have re-tests performed by an outside testing service. All re-testing shall be at the requestor's expense, and shall be performed in accordance with the Specifications.

B. Installation shall be in accordance with Manufacturer's recommendations and this specification. All necessary precautions shall be taken to ensure a safe working environment in accordance with the applicable codes and standards.

PART 3 EXECUTION

3.1 INSTALLATION OF HIGH DENSITY POLYETHYLENE PRESSURE PIPE AND FITTINGS

A. All high density polyethylene (HDPE) pressure pipe shall be installed by direct bury, directional bore, or a method approved by the OWNER/ENGINEER prior to construction. If directional bore is used, or if directed by the OWNER/ENGINEER, the entire area of construction shall be surrounded by silt barriers during construction.

Installation shall be in accordance with Manufacturer's recommendations, and this specification. All necessary precautions shall be taken to ensure a safe working environment in accordance with the applicable codes and standards.

3.2 HEAT FUSION JOINING

A. Joints between plain end pipes and fittings shall be made by butt fusion, and joints between the main and saddle branch fittings shall be made using saddle fusion using only procedures that are recommended by the pipe and fitting Manufacturer. Ensure that persons making heat fusion joints have received training and certification for heat fusion in the Manufacturer's recommended procedure. Maintain records of trained personnel, and shall certify that training was received not more than 12 months before commencing construction. External and internal beads shall not be removed.

3.3 MECHANICAL JOINING

A. Polyethylene pipe and fittings may be joined together or to other materials by means of flanged connections (flange adapters and back-up rings) or mechanical couplings designed for joining polyethylene pipe or for joining polyethylene pipe to another material. Mechanical couplings shall be fully pressure rated and fully thrust restrained such that when installed in accordance with manufacturer's recommendations, a longitudinal load applied to the mechanical cooling will cause the pipe to yield before the mechanical coupling disjoins. External joint restraints shall not be used in lieu of fully restrained mechanical couplings.

3.4 BRANCH CONNECTIONS

A. Branch connections to the main shall be made with saddle fittings or tees. Polyethylene saddle fittings shall be saddle fused to the main pipe.

3.5 EXCAVATION

A. Trench excavations shall conform to this specification, Section 2222, the plans and drawings, as otherwise authorized in writing by the ENGINEER or his approved representative, and in accordance with all applicable codes. Excess groundwater shall be removed by the CONTRACTOR. Where necessary, trench walls shall be shored or reinforced.

3.6 LARGE DIAMETER FABRICATED FITTINGS

A. Fabricated directional fittings 16" IPS and larger shall be butt fused to the end of a pipe. The flanged directional outlet connections shall be made up in the trench.

3.7 MECHANCIAL JOINT AND FLANGE INSTALLATION

A. Mechanical joints and flange connections shall be installed in accordance with the Manufacturer's recommended procedure. Flange faces shall be centered and aligned to each other before assembling and tightening bolts. In no case shall the flange bolts be used to draw the flanges into alignment. Bolt threads shall be lubricated, and flat washers shall be fitted under the flange nuts. Bolts shall be evenly tightened according to the tightening pattern and torque step recommendations of the Manufacturer. At least one hour after initial assembly, flange connections shall be re-tightened following the tightening pattern and torque step recommendations of the Manufacturer. The final tightening torque shall be 100 ft-lbs or less as recommended by the Manufacturer.

3.8 FOUNDATION AND BEDDING

A. Pipe shall be laid on grade and on a stable foundation in accordance with Section 2223.

3.9 PIPE HANDLING

A. When lifting with slings, only wide fabric choker slings shall be used to lift, move, or lower pipe and fittings. Wire rope or chain shall not be used. Slings shall be of sufficient capacity for the load, and shall be inspected before use. Worn or defective equipment shall not be used.

3.10 TESTING

A. Butt Fusion Testing: On every day butt fusions are to be made, the first fusion of the day shall be a trial fusion. The trial fusion shall be allowed to cool completely, then fusion test straps shall be cut out. The test strap shall be 12 inches (min) or 30 times

the wall thickness in length with the fusion in the center, and 1 inch (min) or 1.5 times the wall thickness in width. Bend the test strap until the ends of the strap touch. If the fusion fails at the joint, a new trial fusion shall be made, cooled completely, and tested. Butt fusion of pipe to be installed shall not commence until a trial fusion has passed the bent strap test.

Perform all butt fusion joints in the presence of the ENGINEER or his representative. Record the temperature and corresponding time for each fusion joint.

B. Hydrostatic Pressure Testing: HDPE pipes shall be pressure tested in a similar manner as for PVC force main in accordance with Section 02676.

END OF SECTION

SECTION 02623

POLYVINYL CHLORIDE (PVC) WATER MAIN PIPE

PART 1 GENERAL

1.1 SCOPE OF WORK

A. Furnish all labor, materials, equipment, and incidentals required, and install polyvinyl chloride (PVC) waterline, fittings, service connections and appurtenances as shown on the Drawings and as specified herein.

B. All water mains less than or equal to 12 inches in diameter shall be constructed of PVC, unless otherwise approved by Lee County Utilities.

1.2 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. This standard references the documents listed below. They form a part of this standard to the extent specified herein. In any case of conflict, the requirements of this standard shall prevail.

1. ASTM D1598 - Standard Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure.

2. ASTM D1599 - Test Method for Short-Time Hydraulic Failure Pressure of Plastic Pipe, Tubing, and Fittings.

3. ASTM D1784 - Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.

4. ASTM D2122 - Standard Method of Determining dimensions of Thermoplastic Pipe and Fittings.

5. ASTM D2152 - Standard Test Method for Degree of Fusion of Extruded Poly (Vinyl Chloride) (PVC) Pipe and Molded Fittings by Acetone Immersion.

6. ASTM D2241 - Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure Rated Pipe (SDR Series).

7. ASTM D2412 - Standard Test Method for Determination of External Loading characteristics of Plastic Pipe by Parallel-Plate Loading.

8. ASTM D2774 - Recommended Practice for underground Installation of Thermoplastic Pressure Piping.

9. ASTM D2837 - Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.

10. ASTM D3139 - Specifications for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.

11. ASTM F477 - Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

12. AWWA M23 - PVC Pipe - Design and Installation.

13. NSF 14 - Plastics Piping System Components and Related Materials.

14. PPI TR3 - Policies and Procedures for Developing Recommended Hydrostatic Design Stresses for Thermoplastic Pipe Materials.

1.3 SUBMITTAL

A. Submit to the Engineer within fourteen days after receipt of Notice-to-Proceed a list of materials to be furnished, the names of the suppliers and the date of delivery of materials to the site.

B. Submit for approval, as provided in the Supplement to the General Conditions, complete, detailed shop drawings of all PVC pipe and fittings.

C. Submit and shall comply with pipe manufacturer's recommendations for handling, storing, and installing pipe and fittings.

PART 2 PRODUCTS

2.1 WATER MAIN

A. Polyvinyl Chloride (PVC) Pipe

1. All 4-inch through 12-inch diameter PVC pipe shall be rated per AWWA, C900, DR18, Class 150. Water mains larger than 12 inches shall be constructed of Ductile Iron Pipe.

2. PVC pipe less than 4-inches in diameter shall be Schedule 80 with a pressure rating of 200 psi solvent welded, including blow-off assemblies. PVC pipe will be acceptable for pipe diameters of 12 inches or less.

3. The potable water mains shall be blue in color.

4. All pipe shall be manufactured in the United States.

5. The following manufacturers are acceptable for use on this project:

   - Diamond
   - North American
   - JM Eagle

B. Steel Encasement Pipe: Conform to ASTM Designation A252, Grade 2. Joints shall be welded completely around the pipe by a certified welder. Pipe shall meet all AASHTO standards and Florida DOT requirements.

C. Fittings:

1. PVC Pipe: Fittings shall be ductile iron mechanical joint, with a working pressure of 250 psi and conforming to AWWA Specifications C110 or C153.

2. PVC fittings for 2-inch and smaller diameter pipe shall be threaded or glued and shall be Schedule 80 and conform to the requirements of ASTM D-2464. Threaded joints shall be used only with Schedule 80 pipe or stronger. At threaded joints between PVC and metal pipes, the metal shall contain a threaded socket and the PVC threaded spigot end. A metal spigot shall not, under any circumstances be screwed into a PVC socket.

   PVC fittings 4 inches and larger in diameter shall meet the requirements of applicable AWWA C900 and C905 specifications. Fittings shall be manufactured entirely of PVC meeting ASTM D1784, shall be formed by a thermal-form process and be of one-piece construction, able to withstand 755 psi quick burst pressure-tested in accordance with ASTM D1599 and withstand 500 psi for a minimum of 1,000 hours tested in accordance with ASTM D1598. Bells shall be gasketed push on type conforming to ASTM D3139 with gaskets conforming to ASTM F477. Fittings shall be as manufactured by the Harrington Corporation, or approved equal. Cement lined ductile iron fittings with mechanical or push on joints conforming to AWWA C153 or C110 may be approved as alternative when PVC pressure fittings of the required sizes are not available. Tapping Sleeves: Sleeve shall be stainless steel, mechanical joint type, with working pressure rating of 250 PSI, and conform to AWWA Standard C110.

3. All fittings shall be manufactured in the United States.

D. Joint Restraining Devices: Restraining joints shall be placed at all bends, tees, plugs, reducers, and other fittings to provide lateral support, and shall conform to the details shown on the drawings in Section 9 of the Lee County Utilities Operations Manual. Concrete thrust blocks may be utilized as additional restraint if approved by Lee County Utilities. Joint Restraining Devices acceptable and approved are:

1. Ductile Iron Mechanical Joint Fittings:
   - EBBA Iron, Inc.
   - Megalug ®, Series 1100
   - Star Pipe Products LP
   - Uniflange, Series 1300

2. Bell Joint Restraint:
   - EBBA Iron, Inc.
   - Megalug ®, Series 1700
   - Star Pipe Products LP

3. DIP Fittings shall be cement or Polybond Plus lined and come from the following manufacturers:
   - American
   - US Pipe
   - McWayne

E. Joint Design: PVC pipe 4 inches in diameter or larger shall have provisions for expansion and contraction provided in the joints. All joints shall be designed for push-on make-up connections. Push-on joint may be a coupling manufactured as an integral part of the pipe barrel consisting of a thickened section with an expanded bell with a groove to retain a rubber sealing ring of uniform cross section, similar and equal to John's Mannville ring-type and Ethyl Bell Ring or may be made with a separate twin gasketed coupling similar and equal to Certainteed Fluid-Type.

1. Push-on gaskets allowed are:
   - Tyton
   - Fastite
   - Superbelltite
   - Alltite

2.2 IDENTIFICATION

A. Pipe shall bear identification markings that will remain legible after normal handling, storage, and installation. Markings shall be applied in a manner that will not weaken or damage the pipe. Marking shall be applied at intervals of not more than 5 feet on the pipe. Marking on the pipe shall include the following:

1. Nominal size and OD base.

2. PVC

3. Dimension ration

4. AWWA pressure rating.

5. AWWA designation.

6. Manufacturer's name and trademark.

7. Manufacturer's production code, including day, month, year, shift, plant, and extruder of manufacturer.

8. All PVC water pipe shall be color-coded blue.

PART 3 EXECUTION

3.1 WATER MAIN INSTALLATION

A. Polyvinyl Chloride (PVC) water pipe shall be installed in accordance with the manufacturer's recommendation, as shown on the drawings, and as specified herein.

B. The Contractor shall use care in handling, storage, and installation of pipe and fittings. Storage of pipe on the job site shall be done in accordance with the pipe manufacturer's recommendation. Under no circumstances shall pipe or fittings be dropped into the trench.

C. Pipe shall be laid to lines and grade shown on the drawings with bedding and backfill as shown on the drawings. Blocking under the pipe will not be permitted.

D. When laying is not in progress, or the potential exists for dirt or debris to enter the pipe, the open ends of the pipe shall be closed with plug or by other approved means.

3.2 SERVICE CONNECTIONS

A. All potable service taps shall be located in open/green areas unless specifically approved by Lee County Utilities. Any service taps that are approved within a paved area, a 2-inch cast iron body gate valve shall be used in lieu of a corporation stop.

B. Service connections shall be installed at the locations and in the manner shown on the Drawings.

C. Service clamps for PVC mains shall be full-circle bearing types as shown on the details in Section 9 of the Lee County Utilities Operations Manual.

D. Corporation stops and curb stops shall be fitted with a compression connection outlet with split-lock devices for polyethylene or copper pipe. Approved Corporation stops are:
- Mueller Model H-15029
- Clow Corp.
- Ford

E. On curbed streets the exact location for each installed service shall be marked by etching or cutting a “W” in the concrete curb; where no curb exists or is planned, locations shall be adequately marked by a method approved by Lee County Utilities.

F. Service connection shall not be installed on pipelines 16 inches and larger unless extenuating conditions exist and said connection is approved by Lee County Utilities.

G. When practical, in new residential, commercial, or/and industrial subdivisions, the corporation stop shall be located at the intersecting property line or in the center of the lot.

1. Copper Pipe Copper pipe for 3/4-inch to 1-inch service line installations shall be American manufactured, Type K, and conform to the requirements of ASTM designation B88. Brass compression couplings with screw-clamp fittings shall be used with copper pipe.

2. Polytubing Polyethylene Tubing will be acceptable in sizes from 1-1/2 inches to 2 inches in diameter. Tubing for service lines shall be of a type approved by the National Sanitation Foundation for use in transmitting fluids for human consumption. The tubing shall be designed for a minimum burst pressure of 630 psi for water at 23ºC, and shall be manufactured in accordance with the requirements of ASTM D2737 and shall be blue in color. Approved Water Services with Poly Tubing are:
   - N DOT
   - Charter Plastics

3.3 CLEANING

A. At the conclusion of the work, the Contractor shall thoroughly clean all of the new pipe lines by flushing with water and pigged to remove all dirt, stones, pieces of wood, or other material which may have entered during the construction period. Debris cleaned from the lines shall be removed from the job site. If, after this cleaning, any obstructions remain, they shall be removed at the Contractor’s expense.

3.4 TESTING AND DISINFECTION

A. Test completed water pipeline in accordance with Section 02676. Disinfect completed water pipeline in accordance with Section 02675.

END OF SECTION

SECTION 02630

DUCTILE IRON PIPE AND FITTINGS

PART 1 GENERAL

1.1 SCOPE OF WORK

A. Furnish all labor, materials, equipment, and incidentals required, and install ductile iron pipe, fittings and appurtenances as shown on the Drawings and as specified herein.

B. NOTE: No buried ductile iron pipe shall be acceptable for sanitary force main construction. All water mains larger than 12 inches shall be constructed of Ductile Iron Pipe and shall be used for all vertical deflections ditch crossings, subaqueous crossings, and all paved surfaces unless otherwise approved by Lee County Utilities.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02650 - Laying and Jointing Buried Pipe

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Commercial Standards: (Latest Revision)

1. ANSI/AWWA C104/A21.4 Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.

2. ANSI/AWWA C105/A21.5 Polyethylene Encasement for Ductile-Iron Piping for Water and Other Liquids.

3. ANSI/AWWA C110/A21.10 Ductile-Iron Fittings, 3 in. Through 48 Inches, for Water and Other Liquids. (C110 2-48 inches).

4. ANSI/AWWA C111/A21.11 Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

5. ANSI/AWWA C115/A21.15 Flanged Ductile-Iron Pipe with Threaded Flanges.

6. ANSI/AWWA C150/A21.50 Thickness Design of Ductile-Iron Pipe.

7. ANSI/AWWA C151/A21.51 Ductile-Iron Pipe, Centrifugally Cast for Water or Other Liquids.

8. ANSI/AWWA C153/A21.53 Ductile-Iron Compact Fittings, 3 inches through 16 inches, for Water and Other Liquids.

9.	AWWA C600	Installation of Ductile Iron Water Mains and Their Appurtenances.
10.	AWWA F477	Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Material

1.4 CONTRACTOR SUBMITTALS

A. Shop Drawings: Submit shop drawings of pipe and fittings in accordance with the requirements in the General Conditions, the requirements of the referenced standards and the following supplemental requirements as applicable:

1. Certified dimensional drawings of all valves, fittings, and appurtenances.
2. For pipe 48 inches in diameter and larger, a line layout and marking diagram shall indicate the specific number and location (station) of each fitting.
3. In all cases, a line layout to indicate the limits of each reach of restrained joints, or of concrete encasement shall be supplied.

B. Certifications: Furnish a certified affidavit of compliance for all pipe and other products or materials furnished under this Section of the Specifications, which indicates that all tests have been made and that all results comply with the requirements of AWWA C151, including but not necessarily limited to the following:

1. Acceptance Tests.
2. Hydrostatic Tests.
3. Low Temperature Impact Tests.

C. Additional Documentation: Foundry records shall be furnished in the form of written transcripts upon request.

D. All expenses incurred for certification, testing, and data submittal shall be borne by the CONTRACTOR or the Supplier.

1.5 QUALITY ASSURANCE

A. Inspection: All pipe shall be available for inspection at the place of manufacture prior to shipping in accordance with the provisions of the referenced standards. Notify the ENGINEER in writing not less than 10 calendar days prior to the shipping of the pipe.

B. The ENGINEER shall be given access to all areas where manufacturing and testing is performed and shall be permitted to make all inspections necessary to confirm manufacturer compliance with these Specifications.

C. Tests: Except as modified herein, all materials used in the manufacture of the pipe shall be tested in accordance with the requirements of the referenced standards as applicable.

D. Provide data on material tests at no additional cost to the OWNER.

E. In addition to those tests specifically required, the ENGINEER may request additional samples of any material including lining and coating samples for testing by the OWNER. The additional samples shall be furnished at no additional cost to the OWNER.

1.6 CORROSION PROTECTION

A. The allowed force main pipe materials are polyvinyl chloride (PVC) or high density polyethylene (HDPE) or fiberglass. Use of ductile iron pipe (DIP) and DIP fittings are not allowed without the specific approval of Lee County Utilities. Where a force main is expected to flow full pipe at all times, DIP may be used after specific approval by Lee County Utilities. The DIP pipe will be required to have a Polybond Plus lining or approved equal. The Polybond Plus lining consist of a minimum of 60 mils thick polyethylene lining with a fusion bonded epoxy primer layer to the DIP pipe. This lining must extend through the bell of the pipe to a point under the sealing gasket. To ensure a holiday-free lining, documentation must be provided, prior to shipment, showing each section of the lined pipe has passed the holiday testing at production per ASTM G62 with a minimum of 10,000 volt charge.

B. If specifically approved by Lee County Utilities for use, exterior protection shall be provided for underground ductile iron pipe and fittings within areas of severe corrosive conditions. This shall be accomplished by the installation of polyethylene encasement through the area of concern. The soil test evaluation to determine the necessity for extra protection in suspect areas shall be those set forth in ANSI Standard A21.5. Additionally, where other existing utilities are known to be cathodically protected, ductile iron pipe crossing said utility shall be protected for a distance of 20 feet to each side. If ductile iron pipe is to be installed parallel to and within 10 feet of cathodically protected pipe, then protection shall be provided for the entire length. Steel pipe shall not be installed in severe corrosion areas.

PART 2 PRODUCTS

2.1 GENERAL

A. Cement mortar lined ductile iron pipe shall conform to ANSI/AWWA C151 and C104, subject to the following supplemental requirements. The pipe shall be of the diameter and class shown, shall be furnished complete with rubber gaskets as indicated in the Contract Documents, and all specials and fittings shall be provided as required under the Contract Documents.

B. Markings: Legibly mark specials 48 inches in diameter and larger in accordance with the laying schedule and marking diagram. All fittings shall be marked at each end with top field centerline.

C. Handling and Storage: The pipe shall be handled by wide slings, padded cradles, or other devices designed and constructed to prevent damage to the pipe and its lining. The use of equipment or handling, which might injure the pipe and its lining, will not be permitted. Stockpiled pipe shall be suitably supported and shall be secured to prevent accidental rolling. All other pipe handling equipment and methods shall be acceptable to the ENGINEER.

D. Laying lengths: Maximum pipe laying lengths shall be 20 feet.

E. Finish: The pipe shall have smooth dense interior surfaces and shall be free from fractures, excessive interior surface crazing and roughness, in accordance with ANSI/AWWA C104.

F. Closures and Correction Pieces: Closures and correction pieces shall be provided as required so that closures may be made due to different headings in the pipe laying operation and so that correction may be made to adjust the pipe laying to conform to pipe stationing shown on the Drawings or line layouts where applicable.

2.2 PIPE DESIGN CRITERIA

A. General: Ductile Iron pipe shall be designed in accordance with the requirements of ANSI/AWWA C150 as applicable and as modified in this Section.

B. Pipe Wall Thickness for Internal Pressure: The pipe shall be designed with a net thickness to withstand the design internal pressure in accordance with the hoop stress formula. In addition to the requirements of the Section, the minimum wall thickness shall be in accordance with the minimum thickness wall depicted in table 50.5 of ANSI/AWWA C150.

C. Ductile Iron Pipe shall be a minimum of Class 50 or pressure Class 250 and will be accepted in any diameter for use within the water distribution system.

D. All aboveground water main pipe shall be painted blue. The pipe wall thickness shall not be less than that required by a working pressure of 250 psi in laying condition Type 4 “B” with 5-foot cover in conformance with ANSI Standard A21.50.

2.3 MATERIALS

A. Ductile Iron Pipe: Pipe materials shall conform to the requirements of ANSI/AWWA C151.

B. Cement: Cement for mortar lining shall conform to the requirements of ANSI/AWWA C104; provided that cement for mortar lining shall by Type II or V. A fly ash or pozzolan shall not be used.

C. Adapters to connect ductile iron pipe or fittings to pipe or fittings of dissimilar materials shall be supplied by the CONTRACTOR in accordance with the pipe manufacturer recommendations, and as approved by the ENGINEER.

2.4 SPECIALS AND FITTINGS

A. Fittings for ductile iron pipe shall conform to the requirements of ANSI/AWWA C153/A21.53 or ANSI/AWWA C110/A21.10 for diameters 3 inches through 48 inches and shall have a minimum pressure rating of 250 psi. Ductile iron fittings shall be cement lined, seal coated and outside coated as specified. Ductile Iron fittings larger than 48 inches shall conform to the above referenced standard with the necessary modifications for the larger size manufacturer's standard.

2.5 DESIGN OF PIPE

A. General: The pipe furnished shall be ductile iron pipe, mortar-lined, with rubber gasketed joints.

B. The pipe shall be designed, manufactured, tested, inspected, and marked according to applicable requirements previously stated and except as hereinafter modified, shall conform to ANSI/AWWA C151.

C. Pipe Dimensions: The pipe shall be of the diameter and class shown. The minimum wall thickness for each pipe size shall be as specified herein or shown on the Drawings.

D. Fitting Dimensions: The fittings shall be of the diameter shown and class specified.

E. Joint Design: Ductile Iron pipe and fittings shall be furnished with mechanical joints, push-on joints and flanged joints as follows:

1. For buried pipe applications, unless otherwise indicated, mechanical and push-on joints shall conform to ANSI/AWWA C111/A21.11, with the minimum pressure rating of 250 psi.
2. For above-ground or buried vault applications, unless otherwise indicated, flanged joints shall conform to ANSI/AWWA C115/A21.15, with the minimum pressure rating of 250 psi. All above-ground fittings shall be painted blue.

F. Restraining Devices: Restraining joints shall be placed at all bends, tees, plugs, reducers, and other fittings to provide lateral support, and shall conform to the details shown on the drawings in Sections 9 of the Lee County Utilities Operations Manual. Concrete thrust blocks may be utilized as additional restraint if approved by Lee County Utilities.

1. Joint restraint devices for ductile iron mechanical joint pipe and ductile iron mechanical joint fittings to ductile iron pipe shall be EBAA Iron Inc., Series 1100 Megalug (R), Star Pipe Products, L.P., or approved equal.
2. Bell joint restraint devices for ductile iron push joint pipe shall be EBAA Iron Inc., Series 1700 Megalug (R) for bell restraint, Star Pipe Products L.P., or approved equal.

G. For bell-and-spigot ends with rubber gaskets, the clearance between the bells and spigots shall be such that when combined with the gasket groove configuration and the gasket itself will provide watertight joints under all operating conditions when properly installed. Require the pipe manufacturer to submit details complete with significant dimensions and tolerances and also to submit performance data indicating that the proposed joint has performed satisfactorily under similar conditions. In the absence of a history of field performance, the results of a test program shall be submitted.

H. Gaskets shall be a Buna N, Neoprene, or a Nitryl-based rubber product approved by the County. Gaskets shall have clean tips unless otherwise specified. Elastomeric gaskets conforming to ASTM F-477 shall also be acceptable.

I. Shop-applied interior linings and exterior coatings shall be applied evenly to the nominal thickness specified. Holiday free cement is not possible to manufacture. Exterior coatings: asphalt coating for buried pipe or primed pipe cannot be furnished holiday free.

2.6 CEMENT-MORTAR LINING

A. Cement-Mortar Lining For Shop Application: Except as otherwise provided herein, interior surfaces of all ductile iron pipe shall be cleaned and lined in the shop with cement-mortar lining applied centrifugally in conformity with ANSI/AWWA C104. Ductile-Iron pipefittings need not have the cement-mortar lining applied centrifugally. The lining machines shall be of a type that has been used successfully for similar work. Every precaution shall be taken to prevent damage to the lining. If lining is damaged or found faulty at delivery site, the damaged or unsatisfactory portions shall be repaired in the filed in accordance with ANSI/AWWA C104.

B. The nominal wet lining thickness shall be as follows:

Nominal Factory Nominal Replacement		
Nominal Pipe Diameter (in.)	Applied Lining Thickness (in.)	Lining Thickness (in.)
3-12	1/8	1/8
14-24	3/16	3/16
30-64	1/4	1/4

C. Protection of Pipe Lining/Interior: All shop-applied cement mortar lining shall be given a seal coat of asphaltic material in conformance with ANSI/AWWA C104.

2.7 EXTERIOR COATING OF PIPE

A. Exterior Coating of Exposed Piping: The exterior surfaces of pipe which will be exposed to the atmosphere inside structures or above ground shall be thoroughly cleaned and then given a shop coat of rust-inhibitive primer conforming to the

requirements of Section 09900, “Painting and Coating”. All above-ground pipe shall be painted blue.

B. Exterior Coating of Buried Piping: The exterior coating shall be an asphaltic coating approximately 1 mil thick, conforming to ANSI/AWWA C151.

PART 3 EXECUTION

3.1 INSTALLATION OF PIPE

A. Handling and Storage: All pipe, fittings, etc., shall be carefully handled and protected against damage, impact shocks, and free fall and in accordance with ANSI/AWWA C600. Pipe shall not be placed directly on rough rocky ground but in such instances shall be supported in a manner which will protect the pipe against injury whenever stored at such trench site or elsewhere. No pipe shall be installed where the lining or coating show defects that may be harmful as determined by the ENGINEER. Such damaged lining or coating shall be repaired, or a new undamaged pipe shall be furnished and installed.

B. All pipe damaged prior to Substantial Completion or during warrantee period shall be repaired or replaced by the CONTRACTOR.

C. Inspect each pipe and fitting prior to installation to insure that no damaged portions of the pipe get installed.

D. Before placement of pipe in the trench, each pipe or fitting shall be thoroughly cleaned of any foreign substance, which may have collected therein and shall be kept clean at all times thereafter. For this purpose, the openings of all pipes and fittings in the trench shall be closed during any interruption to the work.

E. Pipe Laying: The pipe shall be installed in accordance with ANSI/AWWA C600.

F. Pipe shall be laid directly on the bedding material. No blocking will be permitted, and the bedding shall be such that it forms a continuous, solid bearing for the full length of the pipe. Excavations shall be made as needed to facilitate removal of handling devices after the pipe is laid. Bell holes shall be formed at the ends of the pipe to prevent point loading at the bells or couplings. Excavation shall be made as needed outside the normal trench section at field joints to permit adequate access to the joints for field connection operations and for application of coating on field joints.

G. Where necessary to raise or lower the pipe due to unforeseen obstructions or other causes, the ENGINEER may change the alignment and/or the grades. Such change shall be made by the deflection of joints, by the use of bevel adapters, or by the use of additional fittings. However, in no case shall the deflection in the joint exceed 70 percent of the maximum deflection recommended by the pipe manufacturer. No joint shall be misfit any amount which will be detrimental to the strength and water tightness of the finished joint.

H. Pipe and Specials Protection: The openings of all pipe and specials shall be protected with suitable bulkheads to prevent unauthorized access by persons, animals, water, or any undesirable substance. At all times, means shall be provided to prevent the pipe from floating.

I. Pipe Cleanup: As pipe laying progresses, keep the pipe interior free of all debris. Completely clean the interior of the pipe of all sand, dirt, mortar splatter and any other debris following completion of pipe laying, pointing of joints, and any necessary interior repairs per ANSI/AWWA C600 and C602 prior to testing and disinfecting the completed pipeline. Pipe larger than 12" diameter will utilize a polyurethane foam plug "Poly Pig" to remove all debris from main.

3.2 RUBBER GASKETED JOINTS

A. Rubber Gasketed Joints: Immediately before jointing pipe, the bell end of the pipe shall be thoroughly cleaned, and a clean rubber gasket shall be placed in the bell groove. The bell and spigot end of push-on joint pipe shall be carefully cleaned and lubricated with a vegetable-based lubricant or per manufacturer's recommendation. The spigot end of the pipe section shall then be inserted into the bell of the previously laid joint and telescoped into its proper position. Tilting of the pipe to insert the spigot into the bell will not be permitted.

3.3 INSTALLATION OF PIPE APPURTENANCES

A. Installation of Valves: All valves shall be handled in a manner to prevent any injury or damage to any part of the valve. All joints shall be thoroughly cleaned and prepared prior to installation. Adjust all stem packing and operate each valve prior to installation to insure proper operation.

B. All valves shall be installed so that the valve stems are plumb and in the location shown on the Drawings.

C. Mechanical joints consisting of bell, socket, gland, gasket, bolts, and nuts shall conform to ANSI Standard A21.11. Bolts and nuts shall be high strength, low alloy, Cor-Ten, T-Head Type having hexagonal nuts. Bolts and nuts shall be machined through and nuts shall be tapped at right angles to a smooth bearing surface. Single sealed gasket push-on type joints shall conform to the requirements of ANSI A21.11 and shall be Tyton, Fastite, Superbelltite, Alltite, or approved equal.

D. Mechanical joint retainer glands may be used to restrain mechanical joint pipe and fittings to the plain end of ductile iron pipe and fittings when used in conjunction with thrust blocks of reduced size. The Utilities ENGINEER must approve thrust block size. Joint flexibility shall be maintained.

3.4 TESTING AND DISINFECTION

A. Test completed water pipeline in accordance with Section 02676. Disinfect completed water pipeline in accordance with Section 2675.

END OF SECTION

SECTION 02645

HYDRANTS

PART 1 GENERAL

1.1 DESCRIPTION OF REQUIREMENTS

A. Furnish and install fire hydrants where shown on the Drawings or directed by the ENGINEER.

1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS

A. Section 15100 – Water Valves and Appurtenances

B. Section 03311 – Concrete for Non-Plant Work

C. Section 09900 – Painting and Coating

1.3 QUALITY ASSURANCE

A. Install hydrants to meet current requirements of Lee County Utilities.

B. Provide manufacturer's certificate those products meet or exceed minimum requirements as specified.

1.4 SUBMITTALS

A. Submit manufacturer's certificates on conformance.

B. Shop Drawings: Submit manufacturer's drawings and data sheets for material to be supplied under this Section. Indicate sizes and types to be installed.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. During loading, transportation and unloading, exercise care to prevent damage to materials.

B. Handling: Fire hydrants should be unloaded carefully. The hydrant should be carefully lowered from the truck to the ground, not dropped. Only hoists and slings with adequate load capacity to handle the weight of the hydrant shall be used.

C. Storage: Should be stored in the fully closed position to prevent entry of foreign material that could cause damage to the seating surfaces. Whenever practical, hydrants should be stored indoors. If outside storage is required, means should be provided to protect the operating mechanism. In outside storage, parts and flanges should be protected from the weather and foreign materials.

PART 2 PRODUCTS

2.1 FIRE HYDRANTS

A. Fire hydrants shall be of the compression type with break away upper sections capable of ready replacement without loss in the event of traffic damage. Each hydrant shall have a 6" bottom inlet connection and valve opening at least 5-1/4 inches in diameter. Hydrants shall turn to the left (counter clockwise) to open. Each hydrant shall be fitted with one 4-1/2-inch pumper connection and two 2-1/2 inch hose connections, both having threads that conform to the Fire Division Standard for the area. Hose caps shall be chained to the hydrant barrel and fitted with nuts similar to the hydrant operating nuts. Each hydrant shall have a barrel of sufficient length to bring the bottom of the 6" pipe connection 3 feet below the surface of the finished ground. Each hydrant shall be made in at least two sections bolted together. All interior working parts of the hydrant shall be removable from the top of the hydrant to allow repairs without removing the hydrant barrel after it has been installed. Hydrants shall have renewable O-ring stem seals. Hydrant barrels shall be painted AWWA Safety Yellow. They shall be designed for a working pressure of 150 psi and will conform to AWWA Standard C502, "Fire Hydrants for Ordinary Water Works Service".

B. Hydrant shall have no drain parts. If parts exist, they shall be plugged with a threaded plug.

C. Operating stem shall be equipped with anti-friction thrust bearing to reduce operating torque and assure easy opening. Stops shall be provided to limit stem travel. Stem threads shall be enclosed in a permanently sealed lubricant reservoir with O-ring seals.

D. Hydrants shall be designated for 150 psi working pressure and shop tested to 300 psi pressure with main valve both opened and closed. Under test the valve shall not leak, the automatic drain shall function and there shall be no leakage into the bonnet.

E. Hydrant guard posts (bollards) shall be 6-inch diameter Class 50 ductile iron pipe.

F. The following manufacturers/models are acceptable for use on this project::

1. Kennedy K81A
2. American Darling LCU 884B
3. Clow Medallion

PART 3 EXECUTION

3.1 INSTALLATION

A. Hydrants shall be set plumb and in true alignment with mains. They shall utilize concrete thrust blocks or restrained joints and Grade-Lok adapters as shown in details in Section 9 of the Lee County Utilities Operations Manual. Backfilling around hydrants shall be carefully done so as not to disturb the hydrant and shall be

thoroughly compacted so as to support the hydrant securely. The hydrants shall have between 18" and 24" clearance measured from finish grade to the center of pumper connection.

B. Hydrant guard posts (bollards) shall be 6 feet long, buried 3 feet below finished grade, filled with 2500 psi concrete and painted AWWA safety yellow as shown on the Lee County Standard Details.

END OF SECTION

SECTION 02650

LAYING AND JOINTING BURIED PIPELINES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Installation of all underground pipelines. Provide pipeline materials, coatings and linings as specified and pipe of the types, sizes and classes shown or specified.

1. Use proper and suitable tools and appliances for the safe and convenient cutting, handling, and laying of the pipe and fittings.

2. Use suitable fittings where shown and at connections or where grade or alignment changes require offsets greater than those recommended and approved.

3. Lay all underground pipelines not supported on piles or concrete cradle in select fill bedding material.

4. Close off all lines with bulkheads when pipe laying is not in progress.

B. Related Work Specified in Other Sections Includes:

1. Section 02222 – Excavation - Earth and Rock
2. Section 02223 – Backfilling
3. Section 02622 – Polyvinyl Chloride (PVC) Force Main Pipe
4. Section 02623 – Polyvinyl Chloride (PVC) Water Main Pipe
5. Section 02630 – Ductile Iron Pipe and Fittings
6. Section 02675 – Disinfection
7. Section 02676 – Leakage Tests

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. ASTM D 2774 - Practice for Underground Installation of Thermoplastic Pressure Piping

2. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances

3. ASTM A 307 - Specification for Carbon Steel Bolts and Studs, 60000 psi Tensile

4. ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings, C25, 125, 250, 800

5. ASME B16.21 - Nonmetallic Flat Gaskets for Pipe Flanges

6. AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings

7. AWWA C115/A21.15 - Flanged Ductile-Iron Pipe With Threaded Flanges

8. ASTM E 165 - Practice for Liquid Penetrant Examination

9. ASTM E 709 - Practice for Magnetic Particle Examination

1.3 DELIVERY, STORAGE AND HANDLING

A. General: Deliver, store and handle all products and materials as specified in Division 1 and as follows:

B. Transportation and Delivery: Take every precaution to prevent injury to the pipe during transportation and delivery to the site.

C. Loading and Unloading: Take extreme care in loading and unloading the pipe and fittings.

1. Work slowly with skids or suitable power equipment, and keep pipe under perfect control at all times.

2. Under no condition is the pipe to be dropped, bumped, dragged, pushed, or moved in any way that will cause damage to the pipe or coating.

D. Sling: When handling the pipe with a crane, use a suitable sling around the pipe.

1. Under no condition pass the sling through the pipe.

2. Use a nylon canvas type sling or other material designed to prevent damage to the pipe and coating.

3. When handling reinforced concrete pipe or uncoated steel or ductile iron pipe, steel cables, chain or like slings are acceptable.

E. Damaged Piping: If in the process of transportation, handling, or laying, any pipe or fitting is damaged, replace or repair such pipe or pipes.

F. Blocking and Stakes: Provide suitable blocking and stakes installed to prevent pipe from rolling.

1. Obtain approval for the type of blocking and stakes, and the method of installation.

G. Storage for Gaskets: Store gaskets for pipe joints in a cool place and protect gaskets from light, sunlight, heat, oil, or grease until installed.

1. Do not use any gaskets showing signs of checking, weathering or other deterioration.

2. Do not use gasket material stored in excess of six months without approval.

1.4 FIELD CONDITIONS

A. Repair of Sanitary Sewers and Services: Rebed, in compacted select fill material, sanitary sewers which cross over the new pipe or which cross under the new pipe with less than 12 inches clear vertical separation. Compact the bedding to densities required for new pipeline construction and extend bedding below the sewer to undisturbed earth. Reconstruct sewers damaged by pipeline construction.

1. Furnish and install all materials and do all work necessary for the reconstruction or repairs of sanitary sewers and services.

2. Provide pipe for reconstruction of sanitary sewers and services meeting the appropriate specification requirements.

3. Provide pipe of the same size as the existing sewer or when the same size is not available, use the next larger size of pipe. Obtain approval of joints made between new pipe and existing pipe.

PART 2 PRODUCTS

A. The materials allowed for buried sewer pipes are PVC, HDPE or fiberglass. Use of ductile iron pipe is not allowed for sewer construction without specific approval of Lee County Utilities.

PART 3 EXECUTION

3.1 PREPARATION

A. Dry Trench Bottoms: Lay pipe only in dry trenches having a stable bottom.

1. Where groundwater is encountered, make every effort to obtain a dry trench bottom.

2. If a dry trench bottom has not been obtained due to improper or insufficient use of all known methods of trench dewatering, then the order to excavate below

grade and place sufficient select fill material, crushed stone, or 2500 psi concrete over the trench bottom may be given.

3. If all efforts fail to obtain a stable dry trench bottom and it is determined that the trench bottom is unsuitable for pipe foundation, obtain an order, in writing, for the kind of stabilization to be constructed.

4. Perform trench excavation and backfill in accordance with Sections 02222 and 02223.

3.2 INSTALLATION

A. General: Install all piping in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1. Where pipe deflections are used, do not exceed 80 percent of the maximum deflection limits shown in AWWA C600.

1. Arrange miscellaneous pipelines, which are shown in diagram form on the Plans, clear of other pipelines and equipment.

B. Code Requirements: Provide pipeline installations complying with AWWA C600 for iron pipe, AWWA Manual M11 for steel pipe, ASTM D 2774 for thermoplastic pressure piping, and as modified or supplemented by the Specifications.

C. Pipe Laying - General:

1. For pipelines intended for gravity flow, begin pipeline laying at the low end of a run and proceed upgrade.

2. Generally, lay all pipe with bells pointing ahead.

3. Carefully place each pipe and check for alignment and grade.

4. Make adjustments to bring pipe to line and grade by scraping away or filling in select fill material under the body of the pipe.

5. Wedging or blocking up the pipe barrel is not permitted.

6. Bring the faces of the spigot ends and the bells of pipes into fair contact and firmly and completely shove the pipe home.

7. As the work progresses, clean the interior of pipelines of all dirt and superfluous materials of every description.

8. Keep all lines absolutely clean during construction.

9. Lay pipelines accurately to line and grade.

10. During suspension of work for any reason at any time, a suitable stopper shall be placed in the end of the pipe last laid to prevent mud or other material from entering the pipe.

D. Pipe Laying - Trenches:

1. Lay all pipelines in trench excavations on select fill bedding, concrete cradle or other foundations as shown, specified or ordered in writing.

2. Properly secure the pipe against movement and make the pipe joints in the excavation as required.

3. Carefully grade and compact pipe bedding.

4. Bell Holes:

a. Cut out bell holes for each joint as required to permit the joint to be properly made and allow the barrel of the pipe to have full bearing throughout its length.

b. Thoroughly tamp bell holes full of select fill material following the making of each joint.

E. Other Foundations: Install pipelines laid on other types of foundations as specified for such other foundations or as ordered in writing.

F. Ductile Iron Pipe Mechanical Joints:

1. Assembly: In making up mechanical joints, center the spigot in the bell.

a. Thoroughly brush the surfaces with which the rubber gasket comes in contact with a wire brush just prior to assembly of the joint.

b. Brush lubricant over the gasket just prior to installation.

c. Place the gasket and gland in position, bolts inserted, and the nuts tightened finger tight.

d. Tighten the nuts with a torque wrench so that the gland is brought up toward the pipe evenly. Torque wrenches shall be set as specified in AWWA C111. Spanner type wrenches not loner than specified in AWWA C111 may be used with the permission of Lee County Utilities.

e. Prime all bolts by dipping with a bituminous coating, except the threads. Coat threads immediately prior to installation of nuts.

2. Torques: Apply the following range of bolt torques:

Size Inches	Range of Torque - ft. lbs
5/8	45 - 60
3/4	75 - 90
1	85 - 100
1-1/4	105 - 120

3. Remaking of Joints: If effective sealing is not obtained at the maximum torque listed above, disassemble and reassemble the joint after thorough cleaning.

G. Ductile Iron Pipe Rubber Gasket Joints:

1. Assembly: In making up the rubber gasket joint, brush the gasket seat in the socket thoroughly with a wire brush and wipe the gasket with a cloth.

   a. Place the gasket in the socket with the large round end entering first so that the groove fits over the bead in the seat.

   b. Apply a thin film of lubricant to the inside surface of the gasket that will come in contact with the entering pipe.

   c. Brush the plain end of the pipe to be entered thoroughly with a wire brush and place it in alignment with the bell of the pipe to which it is to be joined.

   d. Exert sufficient force on the entering pipe so that its plain end is moved past the gasket until it makes contact with the base of the socket to make the joint.

2. Positioning: Before proceeding with backfilling, feel completely around the joint using a feeler gauge to confirm that the gasket is in its proper position.

   a. If the gasket can be felt out of position, withdraw the pipe and examine the gasket for cuts or breaks.

   b. If the gasket has been damaged, replace it with a new one before re-installing the pipe.

3. Optional Mechanical Joints: Use mechanical joint fittings that meet the requirements of Section 02630 with the rubber gasket joint pipe when specified or when rubber gasket fittings are not available.

H. Temporary Bulkheads: Provide temporary bulkheads at the ends of sections where adjoining pipelines have not been completed, and in connections built into pipelines where adjoining pipelines or structures have not been completed and are not ready to be connected.

1. Remove bulkheads encountered in connecting sewers or structures included in this Contract, or in pipelines or structures previously built, when they are no longer needed or when ordered.

I. Sleeve Type Couplings: For sleeve type couplings, equally tighten diametrically opposite bolts on the connection so that the gaskets will be brought up evenly all around the pipe.

1. Torque Wrenches: Do the final tightening with torque wrenches set for the torque recommended by the coupling manufacturer.

J. Concrete Encasement: Concrete encasement shall be constructed in accordance with Lee County standard details when:

1. A waterline crosses at a depth which provides less than 18 inches clear distance from sewer lines. Encasement shall extend a minimum 10 feet on each side of the point of crossing. Encase the sewer main unless specifically approved by Lee County Utilities.

2. A waterline running parallel to a sewer line provides less than 10 feet separation. Encase the sewer main unless specifically approved by Lee County Utilities.

3. The Engineer has ordered the line encased.

The points of beginning and ending of pipe encasement shall be not more than 6 inches from a pipe joint to protect the pipe from cracking due to uneven settlement of its foundation or the effects of superimposed live loads.

K. Valve Box Setting: Install valve boxes vertical and concentric with the valve stem.

1. Satisfactorily reset any valve box which is moved from its original position, preventing the operation of the extension valve stem.

2. Replace any extension valve stem which has been damaged so that it can be operated.

L. Jacking:

1. General: Perform jacking as shown. After jacking is completed, seal the ends of the casing pipe with brick masonry.

a. Jacking Pit: Provide jacking pit of adequate length to provide room for the jacking frame, the jacking head, reaction block, the jacks, rig, and jacking pipe.

b. Construct the pit to be sufficiently wide to allow ample working space on each side of the jacking frame and sufficiently deep so that the invert of

the pipe will be at the elevation desired for the completed line when placed on the guide frame.

c. Tightly sheet the pit and keep it dry at all times.

d. Provide adequate protective railings at the top of the pit at all times.

2. Jacking Frame: Design the jacking frame so that it applies a uniform pressure over the entire pipe wall area of the pipe to be jacked.

3. Reaction Blocks: Adequately design the reaction blocks to carry the thrust of the jacks to the soil without excessive soil deflection in a manner which avoids any disturbance of adjacent structures or utilities.

4. Hydraulic Jacks: Use hydraulic jacks in the jacking operation, and take extreme care to hold the casing pipe to exact line and grade.

5. Advance Excavation: Advance excavation by augering.

6. Casing Pipe: Furnish steel casing pipe, unless otherwise specified, conforming to ASTM A 139 with wall thicknesses and pipe diameters shown on the Plans. Provide full penetration butt welded pipe joints.

7. Fill Material: Use fill material, consisting of 1-1/4 pounds of Bentonite per gallon of water, during jacking to fill any voids between the casing pipe and the earth.

M. Identification:

1. Identification Tape: For all types of pipe to be installed, 3-inch detectable marking tape, of appropriate color, shall be placed along the entire pipe length. In all cases, marking tape shall be installed 12 inches to 18 inches below the finished grade during backfill operations. All PVC pipe, PVC fittings, and identification tape shall be color-coded per standards outlined in the Utility Location and Coordinating Council's Uniform Color Code as specified in Section 4 of the Lee County Utilities Operations Manual.

2. Locating Wire: A locating tracing wire shall also be installed with PVC, HDPE and fiberglass pipes and shall be a continuous No. 12 insulated copper tracing wire laid in the trench on top of the utility pipe and attached to the pipe at ten (10) foot intervals. This continuous tracing wire shall run along the entire pipe and be stubbed out at valves, pressure clean-outs and air release valves.

3.3 FIELD QUALITY CONTROL

A. Testing: Test pipelines in accordance with Section 02676.

1. Test valves in place, as far as practicable, and correct any defects in valves or connections.

B. Inspection: Clean, inspect, and examine each piece of pipe and each fitting and special for defects before it is installed.

1. Cut away any lumps or projections on the face of the spigot end or the shoulder.

2. Do not use any cracked, broken, or defective pieces in the work.

3. If any defective piece should be discovered after having been installed, remove and replace this piece with a sound piece in a satisfactory manner at no increase in Contract Amount.

3.4 CLEANING

A. General: Thoroughly clean all pipe before it is laid and keep it clean until it is accepted in the completed work.

B. Removal of Materials: Exercise special care to avoid leaving bits of wood, dirt, and other foreign particles in the pipe. If any particles are discovered before the final acceptance of the work, remove and clean the pipe.

3.5 DISINFECTION

A. General: Disinfect all pipelines that are to carry potable water in accordance with Section 02675.

END OF SECTION

SECTION 02675

DISINFECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Disinfection of all pipelines, tanks, structures, conduits and equipment which are to store, handle or carry potable water. Furnish all labor, water, chemicals and equipment, including taps, corporation stops, temporary pumps and other items necessary to perform the Work, except as otherwise specified.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. AWWA C651 - Disinfecting Water Mains
2. AWWA C652 - Disinfection of Water-Storage Facilities

1.3 QUALITY ASSURANCE

A. Disinfection Standards: Disinfect in accordance with AWWA C651 for water mains and AWWA C652 for water storage facilities and equipment.

B. Chlorinated Water Disposal: Dispose of old highly chlorinated water in accordance with applicable regulations.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 WATER MAIN DISINFECTION

A. Following acceptable pressure testing, disinfect all sections of the water distribution system and receive approval thereof from the appropriate agencies, prior to placing in service. Advance notice of 24 hours shall be provided to the County before disinfecting procedures start. The disinfection shall be accomplished in accordance with the applicable provisions of AWWA Standard C601, "Disinfecting Water Main" and all appropriate approval agencies.

B. The disinfecting agent shall be free chlorine in aqueous solution with sustained concentration for 12 hours or more of not less than 50 parts per million. Chlorine may

be derived from Chlorine gas, or 70% (high test) calcium hypochlorite (HTH or Perchloron, or equal). Administration may be by any of the several methods described in AWWA Standard C601 as proposed by the CONTRACTOR and approved by the ENGINEER. Proposals as to method must be made prior to commencement of the disinfection process.

C. Following contact with chlorine solution, the system shall be thoroughly flushed out. Samples shall then be taken using sterile containers obtained from the County Health Department. Samples shall be taken by the CONTRACTOR and delivered by him to the County Health Department or approved laboratory for analysis.

D. If samples do not demonstrate satisfactory results, the disinfection procedure shall be repeated until two series of satisfactory samples are obtained, the period between such series of samples to be a minimum of 24 hours.

3.2 RESERVED

END OF SECTION

SECTION 02676

LEAKAGE TESTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Testing for any signs of leakage in all pipelines and structures required to be watertight.

1. Test all pipelines with water under the specified pressures.

B. Operation of Existing Facilities: Conduct all tests in a manner to minimize as much as possible any interference with the day-to-day operations of existing facilities or other contractors working on the site.

1.2 PERFORMANCE REQUIREMENTS

A. Written Notification of Testing: Provide written notice when the work is ready for testing, and make the tests as soon thereafter as possible.

1. Personnel for reading meters, gauges, or other measuring devices, will be furnished.

2. Furnish all other labor, equipment, air, water and materials, including meters, gauges, smoke producers, blower, pumps, compressors, fuel, water, bulkheads and accessory equipment.

1.3 REFERENCES

A. Codes and standards referred to in this Section are:

1. AWWA C 600 - Installation of Ductile-Iron Water Mains and Their Appurtenances
2. AWWA C 605 - Installation of PVC and PVCO Pressure Pipe and Fittings

1.4 RESERVED

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 LEAKAGE TESTING

A. All new water pipelines installed shall be tested for leakage. The test used will be Hydrostatic Testing for pressure lines. Tests to be performed will be indicated by the ENGINEER and witnessed by the ENGINEER and the Lee County Utilities representatives.

1. Flushing

a. All mains shall be flushed to remove all sand and other foreign matter. The velocity of the flushing water shall be at least 4 fps. Flushing shall be terminated at the direction of the ENGINEER. dispose of the flushing water without causing a nuisance or property damage.

b. Temporary flush out connections shall be installed on all dead end water mains at the locations shown on the Drawings and in accordance with the detail shown in Section 9 of the Lee County Utilities Operations Manual.

2. Hydrostatic Testing

Perform hydrostatic testing of the system as set forth in the following, and shall conduct said tests in the presence of representatives from the COUNTY and other authorized agencies, with 48 hours advance notice provided.

Piping and appurtenances to be tested shall be within sections between valves unless alternate methods have received prior approval from the COUNTY. Testing shall not proceed until concrete thrust blocks are in place and cured, or other restraining devices installed. All piping shall be thoroughly cleaned and flushed prior to testing to clear the lines of all foreign matter. While the piping is being filled with water, care shall be exercised to permit the escape of air from extremities of the test section, with additional release cocks provided if required.

Hydrostatic testing shall be performed with a sustained pressure for a minimum of two (2) hours at 150 psi pressure or 2-1/2 times working pressure, whichever is higher, unless otherwise approved by Lee County Utilities, for a period of not less than two (2) hours. Testing shall be in accordance with the applicable provisions as set forth in the most recent edition of AWWA Standard C600. The allowable rate of leakage shall be less than the number of gallons per hour determined by the following formula:

$$L = \frac{SD\,(P)^{1/2}}{133{,}200}$$

Where,

L = Allowable leakage in gallons per hour;
S = Length of pipe tested in feet;
D = Nominal diameter of the pipe in inches;
P = Average test pressure maintained during the leakage test in pounds per square inch

For 150 psi, $L = (9.195 \times 10^{-5}) SD$

The testing procedure shall include the continued application of the specified pressure to the test system, for the one hour period, by way of a pump taking supply from a container suitable for measuring water loss. The amount of loss shall be determined by measuring the volume displaced from said container.

Should the test fail, necessary repairs shall be accomplished by the CONTRACTOR and the test repeated until results are within the established limits. The CONTRACTOR shall furnish the necessary labor, water, pumps, and gauges at specified location(s) and all other items required to conduct the required testing and perform necessary repairs.

END OF SECTION

SECTION 02998

EXISTING PIPE REMOVAL AND DISPOSAL

PART 1 GENERAL

1.1 DESCRIPTION OF REQUIREMENTS

A. The work covered by this section consists of the removal and disposal of all existing pipe as required by the plans or as directed by the COUNTY or the ENGINEER.

B. Existing pipe shall be removed when so designated on the plans or as directed by the COUNTY or the ENGINEER. When existing pipe is encountered which is not shown on the plans, it shall not be removed until the COUNTY or ENGINEER has been notified.

C. Existing pipe shall be removed in such a manner that any nearby facilities will not be damaged.

D. The area disturbed by the removal of an existing pipe shall be backfilled in accordance with the sections of these specifications applicable to the adjacent construction.

E. Salvage pipe shall become the property of the CONTRACTOR unless indicated otherwise in the drawings. In the event that hazardous pipe materials are encountered (Asbestos or Other), handling and disposal methods shall be in conformance with all LOCAL, STATE and FEDERAL rules and regulations, including but not limited to those of OSHA, EPA and FDOT Section 100-9.5 Hazardous Material/Waste. The COUNTY reserves the right to request manifest documentation. No additional payment shall be made due to the hazardous pipe being encountered or removed

END OF SECTION

SECTION 02999

MISCELLANEOUS WORK AND CLEANUP

PART 1 GENERAL

1.1 SCOPE OF WORK

A. This Section includes operations which cannot be specified in detail as separate items but can be sufficiently described as to the kind and extent of work involved. Furnish all labor, materials, equipment and incidentals to complete the work under this Section.

B. The work of this Section includes, but is not limited to, the following:

1. Restoring of sidewalks, driveways, curbing and gutters.
2. Crossing utilities.
3. Relocation of existing water lines, low pressure, gas lines, telephone lines, electric lines, cable TV lines and storm drains as necessary, all as shown on the drawings.
4. Restoring easements and rights-of-ways.
5. Cleaning up.
6. Incidental work.

1.2 WORK SPECIFIED UNDER OTHER SECTIONS

A. All work shall be completed in a workmanlike manner by competent workmen in full compliance with all applicable sections of these Specifications.

PART 2 PRODUCTS

2.1 MATERIALS

A. Materials required for this Section shall be of at least the same type and quality as materials that are to be restored. Where possible, reuse existing materials that are removed and then replaced, with the exception of paving and roadway base materials.

PART 3 EXECUTION

3.1 RESTORING OF CURBING, FENCES, AND GUARD RAILS

A. Existing curbing shall be protected. If necessary, curbing shall be removed from joint to joint and replaced after backfilling. Curbing which is damaged during construction shall be replaced with curing of equal quality and dimension.

3.2 CROSSING UTILITIES

A. This item shall include any extra work required in crossing culverts, water courses, drains, water mains, and other utilities, including all sheeting and bracing, extra excavation and backfill, or any other work required for the crossing, whether or not shown on the drawings.

3.3 RELOCATIONS OF EXISTING GAS LINES, TELEPHONE LINES, ELECTRIC LINES, AND CABLE TV LINES

A. Notify the proper authority of the utility involved when relocation of these lines is required. Coordinate all work by the utility so that the progress of construction will not be hampered.

3.4 PROTECTION AND RESTORATION OF PROPERTY

A. Protection and Restoration of Property: During the course of construction, take special care and provide adequate protection in order to minimize damage to vegetation, surfaced areas, and structures within the construction right-of-way, easement or site, and take full responsibility for the replacement or repair thereof. Immediately repair any damage to private property created by encroachment thereon. Should the removal or trimming of valuable trees, shrubs, or grass be required to facilitate the installation within the designated construction area, this work shall be done in cooperation with the County and/or local communities which the work takes place. Said valuable vegetation, removed or damaged, shall be replanted, if possible, or replaced by items of equal quality, and maintained until growth is re-established. Top soil damaged in the course of work shall be replaced in kind with suitable material, graded to match existing grade. Following construction completion, the work area along the route of the installation shall be finish grade to elevations compatible with the adjacent surface, with grassing or hand raking required within developed areas.

B. Existing lawn surfaces damaged by construction shall be re-graded and re-sodded or re-seeded. These areas shall be maintained until all work under this Contract has been completed and accepted.

3.5 CLEANING UP

A. Remove all construction material, excess excavation, buildings, equipment and other debris remaining on the job as a result of construction operations and shall render the site of the work in a neat and orderly condition.

B. Work site clean-up shall follow construction operations without delay and in accordance with Section 01710.

3.6 INCIDENTAL WORK

A. Do all incidental work not otherwise specified, but obviously necessary for the proper completion of the Contract as specified and as shown on the drawings.

END OF SECTION

SECTION 03311

CONCRETE FOR NON-PLANT WORK

PART 1 GENERAL

1.1 DESCRIPTION OF REQUIREMENTS

A. The extent of concrete work is shown on the drawings.

1.2 CODES AND STANDARDS

A. FDOT Standard Specifications for Road and Bridge Construction, 2010 Section 347 “Portland Cement Concrete – Class NS”, ACI 347 "Recommended Practice for Concrete Formwork"; ACI 304 "Recommended Practice for measuring, Mixing, Transporting, and Placing Concrete"; comply with applicable provisions.

B. Reference to standard specifications herein shall be construed as to be in reference to the latest revision or edition.

1.3 STORAGE

A. Immediately upon receipt at the site, cement that is to be site mixed shall be stored in a dry, weather tight building, properly ventilated and with provisions for prevention of moisture absorption.

B. Reinforcing shall be protected from the weather.

PART 2 PRODUCTS

2.1 CONCRETE MATERIALS

A. Cement: Cement shall conform to standard specifications for "Portland Cement", ASTM C150, Type I for concrete not exposed to sewage and ASTM C150, Type II or ASTM C150, Type I with sulfide resistant properties equal to Type II for concrete exposed to sewage.

B. Aggregate: Concrete aggregate shall conform to the current specifications for "Concrete Aggregate", ASTM Designation C33.

C. Water: Water used in mixing concrete shall be fresh, clean, and free from injurious amounts of oil, acid, alkali or organic matter.

D. Ready-Mix Concrete: Ready-mixed concrete may be used at the option of the CONTRACTOR provided that such concrete meets the requirements of these specifications and of ASTM Designation C94 for "Ready-Mixed Concrete".

E. High-Early-Strength Concrete: Concrete made with high-early-strength Portland cement shall be used only when specifically authorized by the ENGINEER. The 7-day compressive strength of concrete made with high-early-strength cement shall be at least equal to the minimum 28-day compressive strength specified. All provisions of these specifications shall be applicable to high-early-strength concrete except the cement shall conform to ASTM Designation C150, Type III.

2.2 RELATED MATERIALS

A. Reinforcing: Deformed Reinforcing Bars, ASTM A615; Grade 60 unless otherwise indicated.

B. Welded Wire Fabric: ASTM A185.

C. Liquid Membrane-Forming Curing Compound: ASTM C309, Type I.

D. Form Materials:

1. Provide form materials with sufficient stability to withstand pressure of placed concrete without bow or deflection.

2. Exposed Concrete Surfaces: Suitable material to suit project conditions.

E. Waterstops: To be used in joints shall be #10 gage steel sheet, 4" wide, welded continuous through the joint, unless detailed otherwise.

F. Chemical Floor Hardener: Colorless aqueous solution containing a blend of magnesium fluosilicate and zinc fluosilicate combined with a wetting agent, containing not less than 2 lbs. of fluosilicates per gallon.

1. Apply to exposed concrete slabs not indicated or scheduled to receive subsequent finishes.

2.3 QUALITY

A. Strength: The minimum 28-day compressive strength of reinforced concrete shall be 4,000 psi, unless shown otherwise on the drawings.

1. Each cubic yard of 4,000 psi concrete shall contain no less than 517 lbs. of cement. The total water content per bag of cement shall not exceed 6.0 gallons.

B. Strength: The minimum 28-day compressive strength of non-reinforced concrete shall be 2,500 psi, unless shown otherwise on the drawings.

Each cubic yard of 2,500 psi concrete shall contain no less than 440 lbs. of cement. The total water content per bag shall not exceed 7.5 gallons.

C. Mix Proportions: All concrete materials shall be proportioned so as to produce a workable mixture with a slump between 2" and 4".

D. Tests:

1. The CONTRACTOR shall provide, for test purposes, one set of three cylinders taken from each day's pour or each 50 cubic yards placed, whichever is least or as directed by the ENGINEER. The CONTRACTOR at his expense shall supply test samples and an independent testing laboratory at the CONTRACTOR's expense will make tests. Sampling and testing of concrete shall be made in accordance with ASTM C-143 and ASTM C-31. The standard age of test shall be at 7 days and 28 days; and, when approved by the ENGINEER, a 45 day test may be used. If the test strength of the cylinders falls below the minimum allowable compressive strength, the ENGINEER shall have the right to order the CONTRACTOR to remove and renew that day's pour of concrete or the CONTRACTOR shall accept such deductions in the final payment as the OWNER may deem reasonable.

2. Sampling and testing of concrete materials shall be made in accordance with ASTM Designations. The CONTRACTOR at his expense shall supply test samples, and an independent testing laboratory at the CONTRACTOR's expense shall make tests. The source from which concrete aggregates are to be obtained shall be selected by the CONTRACTOR well in advance of the time when they will be required in the work; and suitable samples, as they are to be used in the concrete, shall be furnished in advance of the time when the placing of the concrete is expected to begin.

PART 3 EXECUTION

3.1 FORMING AND PLACING CONCRETE

A. Formwork: Construct so that concrete members and structures are of correct size, shape, alignment, elevation and position, complying with ACI 347.

Clean and adjust forms prior to concrete placement. Apply form release agents for wet forms, as required. Retighten forms during and after concrete placement if required to eliminate mortar leaks.

3.2 REINFORCEMENT

A. Position, support and secure reinforcement against displacement. Locate and support with metal chairs, runners, bolsters, spacers and hangers, as required. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

B. Install welded wire fabric in lengths as long as possible, lapping at least one mesh.

C. Installation of Embedded Items: Set and build into the work anchorage devices and other embedded items required for other work that is attached to, or supported by cast-in-place concrete. Use setting diagrams, templates and instructions provided by others for locating and setting.

3.3 CONCRETE PLACEMENT

A. Comply with ACI 304, placing concrete in a continuous operation within planned joints or sections. Do not begin placement until work of other trades affecting concrete is completed.

B. Consolidate placed concrete using mechanical vibrating equipment with hand rodding and tamping, so that concrete is worked around reinforcement and other embedded items and into all parts of the forms.

C. Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placement and curing. Concrete shall not be placed when the surrounding air temperature is below 40^{o}F. and dropping.

1. In cold weather comply with ACI 306.

2. In hot weather comply with ACI 305.

3.4 CONCRETE FINISHES

A. Nonslip Broom Finish: Apply nonslip broom finish to exterior concrete and sidewalks.

1. Immediately after trowel finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with the ENGINEER before application.

3.5 BONDING AND GROUTING

A. Before depositing new concrete on or against concrete that has set, existing surfaces shall be thoroughly roughened and cleaned of glaze, foreign matter, and loose particles. An epoxy coating shall be applied for bonding the new concrete to the old.

3.6 CURING

A. Concrete shall be kept continuously (not periodically) wet for a period of at least five consecutive days by covering with water or with an approved water saturated covering. Water for curing shall be clean and free from any elements, which might cause staining, or discoloration of the concrete surface.

3.7 PATCHING

A. Any concrete which is not formed as shown on the drawings, or is out of alignment or level or shows a defective surface, shall be considered as not conforming with the intent of these specifications and shall be removed from the job by the CONTRACTOR at his expense, unless the ENGINEER grants permission to patch the defective area. This shall be done in accordance with the procedures above. Honeycomb consisting of 1/2" diameter holes or greater shall be considered a defective surface. Permission to patch any such area shall not be considered a waiver of the ENGINEER's right to require complete removal of the defective work if the patching does not, in his opinion, satisfactorily restore the quality of the concrete and appearance of the surface.

B. As the forms are removed, fins, rough edges, and offsets shall be ground smooth. Holes to 1/2", slight honeycomb, and minor defects shall be wet and filled with a 1:2 mix of cement mortar, matching color of surrounding concrete, and then troweled to a uniform plane. As soon as they have been troweled, the patched areas shall be sprayed with a curing compound, which will not destroy future bonding properties. Three days after application of curing compound, the entire surface shall be finished by wetting and applying a 1:2 mix of cement mortar with a cement brick. Using the brick, mortar shall be rubbed into pits or indentations and excess mortar rubbed off to provide a uniformly textured surface. When the surface has dried, all loose sand and dust shall be removed and the surface then hosed down with water.

3.8 TOLERANCES

A. Tolerances for concrete work shall be in accordance with ACI 347.

END OF SECTION

SECTION 04100

MASONRY MORTAR AND GROUT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Cement, sand, aggregate admixtures and water for use in masonry mortar and grout.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. ASTM C 91 - Masonry Cement

2. ASTM C 144 - Aggregate for Masonry Mortar

3. ASTM C 150 - Portland Cement

4. ASTM C 207 - Hydrated Lime for Masonry Purposes

5. ASTM C 270 - Mortar for Unit Masonry

6. ASTM C 231 - Air Content of Freshly Mixed Concrete

7. ASTM C 404 - Aggregate for Masonry Grout

8. ASTM C 476 - Grout for Masonry

9. ASTM C 780 - Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry

10. ASTM C 1019 - Sampling and Testing Grout

11. Brick Institute of America Research Report No. 15

12. ACI 530.1/ASCE 6-92 - Specifications for Masonry Structures

1.3 SUBMITTALS

A. Provide all submittals, including the following, as specified in Division 1.

B. Product Data and Information: Submit the following:

1. Furnish notarized certificates of manufacture as evidence that the cement conforms to the specified requirements. Include mill-test reports on the cement.

2. Furnish notarized certificates to verify that the hydrated lime and aggregates meet the specified requirements.

3. Furnish laboratory tests as evidence that the air content and masonry mortar compressive strength meet the requirements of ASTM 270 Type N and that the efflorescence tendency meets the requirements of the wick test in Brick Institute of America Research Report No. 15.

4. Furnish laboratory tests as evidence that the masonry grout compressive strength is equal to or greater than 2,500 psi at 28 days.

1.4 DELIVERY, STORAGE AND HANDLING

A. General: Deliver, store and handle all mortar and grout materials as recommended by the manufacturers and as specified in Division 1 (and as follows:)

B. Cement: Store cement in weathertight buildings which will exclude moisture and contaminants. Do not use cement that has deteriorated from storage.

C. Hydrated Lime: Store hydrated lime in weathertight buildings which will exclude moisture and contaminants.

D. Aggregates: Keep aggregates clean and free from all other materials during transportation and handling. Stockpile aggregate in a manner to prevent segregation.

PART 2 PRODUCTS

2.1 CEMENT

A. Provide cement that is a domestic product from an approved source. Provide standard Portland cement meeting the requirements of ASTM C 150 Type I or Type II.

2.2 AGGREGATE

A. General: Provide fine aggregate for mortar that is natural sharp sand meeting the requirements of ASTM 144.

B. Fine Aggregate: Provide fine aggregate for masonry grout that is natural sand meeting the requirements of ASTM C 404 Size No. 2.

C. Coarse Aggregate: Provide coarse aggregate for masonry grout that is crushed stone meeting the requirements of ASTM C 404 Size No. 8.

2.3 HYDRATED LIME

A. Provide hydrated lime meeting the requirements of ASTM C 207.

2.4 WATER

A. Provide clean water furnished from approved sources to mix mortar and grout. Use water that does not contain deleterious amounts of acids, alkalies or organic materials.

PART 3 EXECUTION

3.1 MEASUREMENT AND MIXING

A. Measurement of Materials: Measure materials for mortar and grout by either volume or weight such that the specified proportions can be controlled and accurately maintained. Measurement by shovel will not be accepted.

B. Mixing Mortar and Grout: Mix all cementitious materials and aggregate for at least 3 minutes, and not more than 5 minutes, in a mechanical batch mixer, with the maximum amount of water to produce a workable consistency.

C. Retempering: Retemper mortars that have stiffened, because of evaporation of water, by adding water as frequently as needed to restore the required consistency. Place mortar and grout in final position within 2-1/2 hours after initial mixing.

D. Proportions:

1. Masonry Mortar: Mix masonry mortar meeting the requirements of ASTM C 270 Type N with volume proportions of 1 part of Portland cement, 1 part hydrated lime and 6 parts of sand measured in a damp loose condition.

2. Masonry Grout: Mix masonry grout meeting the requirements of ASTM C 476 with volume proportions of 1 part Portland cement, 0.10 parts hydrated lime and 3 parts fine aggregate measured in a damp loose condition.

3.2 TESTING

A. Masonry Mortar: Make and test specimens for preconstruction and construction evaluation of masonry mortar in accordance with the requirements of ASTM C 780.

B. Masonry Grout: Make and test specimens for preconstruction and construction evaluation of masonry grout in accordance with the requirements of ASTM C 1019.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 05540

METAL CASTINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Miscellaneous ferrous and nonferrous castings.

1. This classification includes wheel guards, valve boxes, manhole frames and covers, manhole steps, stop plank grooves, brackets and supports for piping and gutter inlets, floor drains, cleanouts and special malleable iron castings and inserts.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. ASTM A 27/A27M - Specification for Steel Castings, Carbon for General Applications
2. ASTM A 47 - Specification for Ferric Malleable Iron Castings
3. ASTM A 48 - Specifications for Gray Cast Iron Castings
4. ASTM A 148/A148M - Specifications for Steel Castings
5. ASTM A 536 - Specifications for Ductile Iron Castings
6. ASTM B 26/B26M - Aluminum
7. ASTM B 148 - Aluminum Bronze Sand Castings
8. ASTM B 584 - Manganese Bronze

PART 2 PRODUCTS

2.1 WORKMANSHIP

A. Provide castings accurately made to the approved dimensions, and plane or grind castings where marked or where otherwise necessary to secure flat and true surfaces. Make allowance in the patterns so that the specified thickness is not reduced. Provide manhole covers which conform to the details shown and which are true and seat at all points. Supply castings showing the name of the manufacturer

and the country of manufacture. No plugging or welding of defective castings will be permitted.

2.2 WEIGHTS

A. Reject castings with a weight which is less than the theoretical weight based on required dimensions by more than 5 percent. Provide facilities at the site for weighing castings in the presence of the ENGINEER, or furnish invoices showing true weights, certified by the supplier.

PART 3 EXECUTION

3.1 INSTALLATION

A. Erect all castings to accurate grades and alignment, and when placing in concrete carefully support castings to prevent movement during concreting.

3.2 PAINTING

A. Clean metal castings thoroughly before painting. Give manhole frames and covers and valve boxes one coat of primer and two coats of an approved asphaltum varnish or other approved coating at the point of manufacture. Deliver all other castings to the job site unpainted. Paint all other castings as specified in Section 09900.

END OF SECTION

SECTION 15100

WATER VALVES AND APPURTENANCES

PART 1 GENERAL

1.1 SCOPE OF WORK

A. Furnish all labor, materials, equipment, and incidentals required and install complete and ready for operation all valves and appurtenances as shown on the Drawings and as specified herein.

1.2 REFERENCES

A. Codes, specifications, and standards referred to by number or title form a part of this Section to the extent required by the references to codes, specifications, and standards. Latest revisions, as of the date of bid opening, apply, unless otherwise noted on the Drawings or specified in this Section.

B. Standards

Designation	Title
ANSI/AWWA C111/A21.11	Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings
ANSI/AWWA C500	Gate Valves
ANSI/AWWA C509	Resilient-Seated Gate Valves 3 through 12 NPS, for Water and Sewage Systems
ANSI/B16.1	Cast Iron Pipe Flanges and Flanged Fittings, Class 125
ANSI/B16.3	Malleable Iron Threaded Fittings, Class 150 and 300
ANSI/B16.5	Pipe Flanges and Flanged Fittings, Steel Nickel Alloy and Other Special Alloys
ASTM A276	Specification for Stainless and Heat-Resisting Steel Bars and Shapes
ASTM A231	Specification for Steel Casting, Austenitic, for High-Temperature Service
ASTM A743	Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, and Nickel-Base Corrosion-Resistant for General Application

MSS SP-60	Connecting Flange Joint Between Tapping Sleeves and Tapping Valves

1.3 DEFINITIONS

A. References to valve sizes on the Drawings and in the Specifications are intended to be nominal size, and shall be interpreted as nominal size.

1.4 SUBMITTALS

A. General: as specified in:

1. General Conditions;
2. Supplementary General Conditions;

1.5 QUALITY ASSURANCE

A. Testing: Test valves as specified in this Section.

PART 2 PRODUCTS

2.1 GENERAL:

A. All valves and appurtenances shall be of the size shown on the Drawings and as far as possible all equipment of the same type shall be from one manufacturer.

B. All valves and appurtenances shall have the name of the maker and the working pressure for which they are designed cast in raised letters upon some appropriate part of the body.

2.2 MANUFACTURERS

A. Resilient, Wedge or Gate Valves and Boxes.
The following manufacturers/models are acceptable for use on this project:

Gate, Resilient or Wedge Valves:
- Kennedy/M&H
- American
- Clow

Gate, Resilient Seated Only:
- Val-matic

B. Valves for Buried Service.
Approved manufacturer's list for valve boxes includes:
- Opelika Foundry Company
- Tyler Pipe Division
- Bingham & Taylor Corp.

C. Air Release Valves.
Acceptable and Approved models include:
- ARI D040
- Val-Matic

Approved Blow-off Assembly manufactures are:
- Infilco
- ARI
- Val-matic

D. Tapping Valves and Sleeves.
Approved manufactures for service saddles are:
- Double Strap Saddles:
  - Ford
  - JNC
  - Romac model 202N-H
- Stainless Tapping Saddles:
  - Powerseal
  - JCM
  - Cascade

E. Meter Boxes
Meters 1” through 2” approved manufactures are:
- Quazite PG1730BB12 box with Quazite PG1730WAP1 cover
- CDR WB-1730-12 box with CDR WC00-1730-2C

2.3 DESIGN

A. Resilient, Wedge or Gate Valves and Boxes

1. Valves for pipe less than 2" in diameter shall conform to the requirements of AWWA C509 (latest revision) and shall be cast iron, single wedge, non-rising stem, screwed bonnet, 125 pounds S.P., 200 pounds W.O.G with stuffing box repackable under pressure and all parts renewable. Ends shall be as shown or indicated on the drawings.

2. Resilient, wedge or gate valves 2" in diameter and larger shall be cast or ductile iron body, non-rising stem, bronze mounted gate valves, mechanical joint conforming to requirements of the AWWA Standard C509 and shall be provided with a 2" square operating nut. Valves shall be resilient, wedge, or gate type and shall turn to the left (counter clockwise) to open. The wedge or gate shall be cast iron or ductile iron per ASTM A536, minimum 65,000 psi strength and, completely encapsulated with urethane rubber, permanently bonded to the wedge or gate to meet ASTM test for rubber metal bond, ASTM D429. The valve stems for non-rising stem assemblies shall be cast bronze with integral collars in full compliance with AWWA. The NRS stem stuffing box shall be the

O-ring seal type with two rings located above thrust collar; the two rings shall be replaceable with valve fully open and subjected to full rated working pressure.

3. There shall be two low torque thrust bearings located above and below the stem collar. The stem nut shall be independent of wedge and shall be made of solid bronze. There shall be a smooth unobstructed waterway free of all pockets, cavities and depressions in the seat area. The body and bonnet shall be coated with fusion bonded epoxy both interior and exterior. The valve shall be designed and tested to be opened and closed under a differential pressure of 150 psi or greater.

B. Valves for Buried Service

1. Valves for buried service shall meet all the requirements as specified herein for interior except that buried valves shall have mechanical joint ends.

2. All buried valves shall have cast-iron three piece valve boxes, valve boxes shall be provided with suitable heavy bonnets to extend to such elevation at the finished grade surface as directed by the ENGINEER. The barrel shall be two-piece, screw type, having 5" shaft. The upper section shall have a flange at the bottom having sufficient bearing area to prevent settling, shall be designed so as to prevent the transmission of surface loads directly to the valve or piping, and shall be complete with cast iron covers. Covers shall have "WATER" cast into the top. The covers shall be so constructed as to prevent tipping or rattling.

3. One tee-handled wrench of suitable length shall be furnished to operate each valve with a valve box.

4. Where valves are located out of pavement, the boxes shall be adjusted to finished grade and a concrete slab two feet square and six inches thick shall be poured around the box.

5. Valve boxes shall be of the heavy duty, traffic bearing cast iron, adjustable screw type with a drop cover. The valve box assembly shall consist of a bottom section, top section and cover which is cast from gray iron, formulated to ASTM specification A-48 latest revision, class 30 minimum and shall be free from blowholes, shrinkage or other imperfections not true to pattern. The shaft size shall be 5 1/4" and the adjustable length shall be from 18" to 24". The wall thickness shall be 3/16" $\pm$ 1/16". The weight of the assembly shall be 61 pounds $\pm$ 2 pounds, with the cover weight being a minimum of 12 pounds.

6. The name of the manufacturer and foundry of origin shall be cast into each of the components of the assembly in legible form. The assembly shall be suitable for highway traffic wheel loads of 16,000 pounds and shall withstand a proof load test of 25,000 pounds without failure or permanent deflection, as per Federal Specification RR-F-621-C, latest revision. The valve box shall be cast, machined, assembled, and packaged within the United States and shall fully

comply with the Buy American provisions of Public Law 102-240, enacted 12/18/91.

C. Gate Valves Greater Than 20 Inches

1. Valves larger than 20" in diameter and larger shall be approved by the County and shall be epoxy-coated, cast or ductile iron body mechanical joint type conforming to requirements of the AWWA Standards and shall be provided with a 2" square operating nut.

2. 20" or larger resilient gate valve must have a 4" bypass line and 4" gate valve. If a Metroseal 250 or approved equal resilient gate valve is used, the 4" bypass line and 4" gate valve is not required. Butterfly valves may be used for valves greater than 24" without the 4" bypass line and 4" gate valve.

D. Check Valves

1. Check valves smaller than 4" shall have a bronze body with a bronze disk. Check valves shall absolutely prevent the return of water back through the valve when the inlet pressure decreases below the delivery pressure.

2. The valve must be full opening, tight seating and its seat right shall be renewable and must be securely held in place by a threaded joint; the valve disc shall be bronze and shall be suspended from a non-corrosive shaft which will pass through a stuffing box.

3. The check valve 4" and larger shall be a rubber flapper type swing check valve and the body and cover shall be cast iron construction meeting ASTM A126 Class B or Ductile Iron construction. The flapper shall be Buna-N having an “O” ring seating edge and be internally reinforced with steel.

4. Flapper to be captured between the body and the body cover in a manner to permit the flapper to flex from closed to full open position during flow through the valve. Flapper shall be easily removed without need to remove valve from line. Check Valves to have full pipe size flow area. Seating surface to be on a 45° angle requiring the flapper to travel only 35° from closed to full open position, for minimum head loss and non-slam closure.

5. Non-slam closing characteristic shall be provided through a short 35º disc stroke and a memory flex disc return action.

6. When essential to create backflow thru the check valve, i.e.; to prime or backflush a clogged pump, an external backflow device shall be included.

7. Valve exterior to be painted Phenolic Primer Red Oxide for high resistance to corrosion.

8. Materials of construction shall be certified in writing to conform to A.S.T.M. specified above.

9. Valve shall be APCO Series 100 Rubber Flapper Swing Check Valve, as manufactured by Valve & Primer Corporation, Schaumburg, Illinois, U.S.A or Series 500 swing flex valve as manufactured by Val-Matic Valve and Manufacturing Corporation or approved equal.

E. Backflow Prevention Devices

1. Backflow prevention devices for fire protection systems which do not utilize chemical additives or an auxiliary water supply shall be double detector check valve assemblies, shall be USC approved, painted red, and meet all requirements of ANSI/AWWA C510 For all other applications, backflow prevention devices shall be reduced pressure principle assemblies and shall be USC approved, and shall meet all requirements of ANSI/AWWA C511 and the Southern Standard Plumbing Code. Refer to Section 9 of the Lee County Utilities Operations Manual for details and Section 17196.

F. Air Release Valves

1. Air release valves shall be of the short body, automatic type as shown on the Lee County Standard Detail No. 9.27 in the Operations Manual. The valve body shall be cast iron construction, ASTM A126, Class B, and all internal working parts shall be 300 Series stainless steel, and BUNA-N orifice button. The inlet openings shall be 1" NPT screwed connection. The venting orifice shall be 3/16" in diameter and shall be installed to vent a minimum of 1 foot above the flood elevation.

G. Tapping Valves and Sleeves

1. Tapping valves shall be of non-rising stem type of O-Ring seals and conform to the applicable requirement as specified above for valves and shall have one flange joint end and mechanical joint end.

2. Valve end connecting to tapping sleeve shall have a flange for bolting to the sleeve. The flange shall have a tongue which fits a recess in sleeve. Tongues shall meet the requirements of MSS SP-60. Resilient-seated gate valves having a port diameter equal to or exceeding 1/4 inch over nominal diameter shall not require a tongue. Flange dimensions and drilling shall meet the requirements of ANSI B16.1. Mechanical joints shall meet the requirements of ANSI/AWWA C111/A21.11. A full nominal diameter cutter shall be used for tapping.

3. Tapping valves 16" and smaller, shall be installed vertically. Tapping valves larger than 16" shall be installed horizontally and shall have bypass valves. Tapping valves installed horizontally shall have rollers and tracks. Valves 16" and larger, shall have gear operators with enclosed gear cases suitable for buried service. Gear cases shall be extended type or totally enclosed type. Extended type gear cases shall have bolted side plates to cover stem and stuffing box.

H. Meter Boxes

1. Meters less than 1” shall be installed in a Quazite PG1118BB12 box with Quazite PG1118WAP1 cover, or CDR WB00-1118-12 box with CDR WC00-1118-2C cover.
2. Meters 1” through 2” shall be installed in a Quazite PG1730BB12 box with Quazite PG1730WAP1 cover,
3. Meters larger than 2” shall be installed above ground and approved by Lee County Utilities. Refer to Lee County standard details.

Meter boxes, which need to be replaced, shall be Quazite PG1730BB12 Should just the cover need to be replaced it shall be Quazite PG1730WAP1

PART 3 EXECUTION

3.1 INSTALLATION

A. All valves and appurtenances shall be installed in the locations shown, true to alignment and rigidly supported. Any damage to the above items shall be repaired to the satisfaction of the ENGINEER before they are installed.

B. After installation, all valves and appurtenances shall be tested at least one hour at the working pressure corresponding to the class of pipe, unless a different test pressure is specified. If any joint proves to be defective, it shall be repaired to the satisfaction of the ENGINEER.

C. Prior to the installation of sleeve-type couplings, the pipe ends shall be cleaned thoroughly for a distance of 8". Soapy water may be used as a gasket lubricant. A follower and gasket, in that order, shall be slipped over each pipe to a distance of about 6" from the end, and the middle ring shall be placed on the already laid pipe end until it is properly centered over the joint. The other pipe end shall be inserted into the middle ring and brought to proper position in relation to the pipe already laid. The gaskets and followers shall then be pressed evenly and firmly into the middle ring flaires. After the bolts have been inserted and all nuts have been made up finger-tight, diametrically opposite nuts shall be progressively and uniformly tightened all around the joint, preferably by use of a torque wrench of the appropriate size and torque for the bolts.

D. Valves shall be carefully inspected, opened wide and then tightly closed and the various nuts and bolts shall be tested for tightness. Special care shall be taken to prevent any foreign matter from becoming lodged in the valve seat. Gate valves, unless shown otherwise, shall be set with their stems vertically above the center line of the pipe. Any valve that does not operate correctly shall be removed and replaced.

E. Valve boxes shall be carefully centered over the operating nuts of the valves so as to permit a valve wrench or key to be fitted easily to the operating nut. Valve boxes shall

be set to conform to the level of the finished surface and held in position by a ring of concrete placed under the support flange as shown on the details in Section 9 of the Lee County Utilities Operations Manual. The valve box shall not transmit surface loads to the pipe or valve. Care shall be taken to prevent earth and other material from entering the valve box.

Any valve box which is out of alignment or whose top does not conform to the finished ground surface shall be dug and reset. Before final acceptance of the work, all valve boxes shall be adjusted to finish grade. Valve operating risers shall be installed with any valves required to ensure that the operating nut is 30 inches or less from the ground surface.

3.2 SHOP PAINTING

A. Ferrous surfaces of valves and appurtenances shall receive a coating of epoxy in accordance with AWWA Standard C550 and meets or exceeds all test requirements including the Food and Drug Administration Document Title 21 of the Federal Regulations on Food Additives, Section 175.000 entitled "Resinous and Polymeric Coating"; Impact Test Requirement in accordance with the ASTM D2794. The primer used on ferrous surfaces shall be Phenolic Primer Red Oxide.

END OF SECTION

SECTION 17196

BACKFLOW PREVENTERS

PART 1 GENERAL

1.1 DESCRIPTION

A. Provide reduced pressure principle or double check valve assembly backflow preventers where indicated on the drawings. The type of backflow preventer required for a particular installation shall be as required and approved by the OWNER.

B. Backflow prevention devices for fire protection systems which do not utilize chemical additives or an auxiliary water supply shall be double detector check valve assemblies, shall be USC approved, painted red, and meet all requirements of ANSI/AWWA C510. For all other applications, backflow prevention devices shall be reduced pressure principle assemblies and shall be USC approved, and shall meet all requirements of ANSI/AWWA C511 and the Southern Standard Plumbing Code. Refer to Lee County Utilities Standard details.

1.2 SUBMITTALS

A. Submit manufacturer's catalog data, illustrations, principle dimensions, materials of construction, installation instructions and other pertinent data.

B. Submit certificates from manufacturer stating that products furnished comply with these specifications.

C. Operation and Maintenance Manuals: Submit six manuals for each different size, type or model of backflow preventer furnished. Manuals shall be bound sets of literature including the following and other pertinent information required.

1. Detailed assembly drawings, clear and concise instructions for operating, adjusting, overhauling, troubleshooting and other maintenance.

2. A complete lubrication schedule including lubricant types, grades and frequency of lubrication.

1.3 STANDARDS OF CONSTRUCTION

A. Backflow prevention devices shall be manufactured in accordance with AWWA C510 and AWWA C511, latest revision, American Society of Sanitary Engineering Standards, the University of Southern California Foundation for Cross Connection Control and Hydraulic Research Foundation "Manual of Cross Connection Control", latest edition and shall be approved by Underwriters Laboratories for fire system installations.

1.4 PRODUCT HANDLING

A. Exercise care in transporting and handling backflow preventers to avoid damage. Inside of backflow preventers shall be kept free of dirt and debris.

PART 2 PRODUCTS

2.1 REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS

A. Reduced pressure principle backflow preventers shall be in accordance with AWWA C511 and include an integral sensing system that will automatically open a relief valve whenever the differential pressure between the inlet supply and the reduced pressure zone drops to 2 psi. The relief valve shall remain open until a positive pressure differential of 2 psi is re-established. If pressure upstream of the first check valve drops to atmospheric or below, the relief valve shall remain fully open providing an internal air gap between the first check valve and the water level in the reduced pressure zone. The unit shall also be constructed such that any minor leakage of the second check valve will result in visible flow from the relief valve, even if the first check valve is totally disabled.

B. Reduced pressure principle backflow preventers shall have all bronze bodies for sizes 3 inches and smaller and cast iron bodies for sizes 4 inches and larger. Cast iron bodies shall be coated with a two-part thermosetting epoxy coating in accordance with AWWA C550. The reduced pressure backflow preventer shall consist of two independently operated, spring loaded, wye pattern, poppet type check valves designed for installation in a normal horizontal flow attitude. An independent spring loaded relief valve shall be located between the two check valves. Check valve and relief valve springs shall be stainless steel, and all other internal working parts shall be bronze and stainless steel. Check valve and relief valve seats shall be stainless steel or bronze and shall be field replaceable without removing the device from the service line. Backflow preventers shall be designed for a working pressure of 150 psi and a temperature range of 32 degrees F to 140 degrees F. The backflow preventer shall be manufactured as a complete unit including test cocks, and upstream and downstream isolation gate valves. The test cocks shall be arranged such that the unit can be tested without removing the unit from the line. Isolation gate valves furnished for the unit shall be as specified below.

C. Reduced pressure principle backflow preventers shall be as listed on the Foundation's most current list.

2.2 DOUBLE CHECK VALVE ASSEMBLY BACKFLOW PREVENTERS

A. Double check valve assembly backflow preventers shall be designed to open under normal flow conditions at a pressure differential not less than 1 psi at each check

valve. The check valves shall be designed to close when the downstream pressure is greater than the supply pressure.

B. Double check valve assembly backflow preventers shall have all bronze bodies for sizes 2 inches and smaller and cast iron bodies for sizes 2-1/2 inches and larger. Cast iron bodies shall be coated with a two-part thermosetting epoxy coating in accordance with AWWA C550. The double check valve assembly shall consist of two independently operated, spring loaded, wye pattern, poppet type check valves. The unit shall be designed for installation in a normal horizontal flow attitude. Check valve springs shall be stainless steel, and all other internal working parts shall be bronze and stainless steel. Check valve seats shall be stainless steel or bronze and shall be field replaceable without removing the device from the service line. Backflow preventers shall be designed for a working pressure of 150 psi and a temperature range of 32 degrees F to 140 degrees F. The backflow preventer shall be manufactured as a complete unit including test cocks, and upstream and downstream isolation gate valves. The test cocks shall be arranged such that the unit can be tested without removing the unit from the line . Isolation gate valves furnished for the unit shall be as specified below.

C. Double check valve assembly backflow preventers shall be as listed on the Foundation's most current list.

2.3 ISOLATION GATE VALVES

A. Backflow preventers shall be furnished complete with upstream and downstream isolation gate valves.

B. Isolation gate valves for potable water service:

1. Gate valves 2 inches in size and smaller shall be all bronze valves conforming to Fed. Spec. WW-V-54, Type I, Class A designed for a working pressure of 150 psi. Bronze for valve body and internals shall be in accordance with ASTM B61. Valves shall be furnished with screwed ends, handwheel operator, non-rising stem, one-piece solid wedge disc and union bonnet. Valves shall be as manufactured by Crane, Powell or an approved equal. The minimum weight of valves shall be as follows:

Valve Size (Inches)	Valve Weight (Pounds)
3/4	1.4
1	2.4
1-1/4	3.6
1-1/2	5.0
2	8.0

2. Gate valves 3 to 12 inches in size shall be resilient seated gate valves in accordance with AWWA C509 with flanged ends, non-rising stem and a

handwheel operator. Refer to Section 17190, GATE AND BUTTERFLY VALVES AND APPURTENANCES FOR POTABLE WATER SERVICE.

C. Isolation gate valves for fire protection service shall be resilient seated gate valves in accordance with AWWA C509 with flanged ends and a handwheel operator. The operator shall be of the open screw and yoke (OS & Y) type. Refer to Section 17190, GATE AND BUTTERFLY VALVES AND APPURTENANCES FOR POTABLE WATER SERVICE.

PART 3 EXECUTION

3.1 GENERAL WARNING

A. Backflow prevention devices installed on closed systems may cause excessive pressure increases due to thermal water expansion and/or waterhammer downstream of the backflow preventer. Excessive pressure increases may cause damage or failure to water heaters and other plumbing fixtures which may be hazardous. The customer or plumbing contractor should install adequate pressure and thermal expansion devices to prevent possible excessive pressure increases within water heaters and other plumbing fixtures.

3.2 INSTALLATION

A. Backflow preventers shall be installed, where required by the OWNER, at the locations shown on the Drawings. Backflow preventers shall be installed in accordance with the manufacturer's written installation instructions and as shown on the Standard Details.

B. Reduced pressure principle backflow preventers shall be installed horizontally with an 18 inch minimum clearance between the finished grade and the lowest point on the bottom of the unit. Reduced pressure backflow preventers shall be installed with provisions for a suitable drain arrangement to drain off discharges from the relief valve, so that discharges are not objectionable. Double check valve assembly backflow preventers shall be installed horizontally with a 12 inch minimum clearance between the finished grade and the lowest point on the bottom of the unit. Backflow preventers shall be installed such that they are easily accessible for testing, maintenance and repair.

C. Piping and fittings for units 3 inches and larger in size shall have flanged joints. Piping, fittings and valves for units 3 inches and larger in size shall be properly supported with concrete foundations and adjustable pipe support stands as shown on the Standard Details.

D. Following installation the device shall be tested by a certified backflow prevention device tester. If the test fails the device shall be repaired by a certified backflow

prevention device technician and retested by a certified tester. Copies of all tests shall be furnished to the OWNER.

3.3 COATING

A. Following installation of the backflow preventer, piping, fittings and valves, the entire aboveground assembly shall be primed and coated. Prior to applying primer and finish coatings all surfaces shall be clean, dry and free of rust, oil and grease.

B. Prior to applying primer and finish coatings, all piping, fittings and valves with asphaltic coatings shall be either commercial sandblasted to remove all asphaltic coatings or coated with two coats, 1.2 mils DFT each coat, of a sealer consisting of synthetic alcohol-soluble resin and titanium dioxide pigment. The sealer shall be Kop-Coat Inertol Tar Stop or an equal approved by the ENGINEER.

C. The aboveground installation shall be primed with one coat, 1.5 mils DFT per coat, of a rust inhibitive synthetic resin primer. The primer shall be Kop-Coat Pug Primer, Kop-coat 622 Rust Penetrating Primer or an equal approved by the ENGINEER.

D. The installation shall be finish coated with two coats, 1.4 mils DFT each coat, of a straight long oil alkyd resin enamel. The color of the finish coats shall be OSHA yellow. The finish coating shall be Kop-Coat Rustarmor 500 or an equal approved by the ENGINEER.

END OF SECTION

GFA INTERNATIONAL

FLORIDA'S LEADING ENGINEERING SOURCE

Report of Geotechnical Exploration

Orange Grove Boulevard Water Main Improvement
North Fort Myers, Lee County, Florida

February 6, 2018
GFA Project No.: 17-7148.01

For: Barraco and Associates



February 6, 2018

Mr. Doug Tarn
Barraco and Associates, Inc.
2271 McGregor Blvd. Suite 100
Fort Myers, Florida 33901
Phone: (239) 461-3170
Email: dougt@barraco.net

Site: Proposal for Professional Consulting Services
Orange Grove Boulevard
North Fort Myers, Lee County, Florida
GFA Project # 17-7148.01

Dear Mr. Tarn:

GFA International, Inc. (GFA) has completed the subsurface exploration and geotechnical engineering evaluation for the above-referenced project in accordance with the geotechnical and engineering service agreement for this project. The scope of services was completed in accordance with our Geotechnical Engineering Proposal (17-7148.01), planned in conjunction with and authorized by you.

EXECUTIVE SUMMARY

The purpose of our subsurface exploration was to classify the nature of the subsurface soils and general geomorphic conditions and evaluate their impact upon the proposed construction. This report contains the results of our subsurface exploration at the site and our engineering interpretations of these, with respect to the project characteristics described to us including providing recommendations for site preparation.

GFA understands the project will consist of a water main replacement of ±5,000 linear feet along Orange Grove Boulevard. Design documents provided was a Layout Plan by Barraco and Associates, Inc., 10 pages, dated 9/26/2017. No other documents were provided at this time. The recommendations provided herein are based upon the above considerations. If the project description has been revised, please inform GFA International so that we may review our recommendations with respect to any modifications.

The following was completed for this study:

- Three (3) Hand Auger (HA) borings to depths of approximately 5 feet below ground surface (BGS) were completed at 1000-foot intervals from just north of Sta. 132+00 to just north of Sta. 152+00, in the northbound lane.

- Five (5) Standard Penetration Test (SPT) borings to depths of thirty (30) feet below existing site grade.

It should be noted that all Hand Auger (HA) and Standard Penetration Test (SPT) boring locations were chosen by Barraco and Associates.

The subsurface soil conditions encountered at this site generally consists of sand (SP; A-3), sand with silt (SP-SM; A-3/A-2-4), silty sand (SM; A-2-4), peat (PT; A-8), and weathered limestone (WLS) to the boring termination depths. Please refer to "Appendix D – Record of Hand Auger Boring Logs" and "Appendix E – Record of SPT Boring Logs" for a detailed account of each boring.

The following report presents the project information made available to us, our observation of the existing site conditions, the subsurface geotechnical information obtained during this exploration, and our recommendations on the suitability of the soils encountered for the water main utility improvement. Also included with this report are the results of our field and laboratory testing. The assessment of site environmental conditions for the presence of pollutants in the soil, rock, and groundwater at this site was not included as a part of our services.

We appreciate the opportunity to be of service to you on this project and look forward to a continued association. Please do not hesitate to contact us if you have any questions or comments, or if we may further assist you as your plans proceed.

Respectfully Submitted,
GFA International, Inc.
Florida Certificate of Authorization Number 4930

Chad A. Cook
Project Professional

PAUL JEFFREY D'HUYVETTER
LICENSE
No. 59716
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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1.0 INTRODUCTION

1.1 Scope of Services

The objective of our geotechnical services was to collect subsurface data for the subject project, summarize the test results, and discuss any apparent site conditions that may have geotechnical significance for the roadway widening. The following scope of service is provided within this report:

1. Prepare records of the soil boring logs depicting the subsurface soil conditions encountered during our field exploration.

2. Conduct a review of each soil sample obtained during our field exploration for classification and additional testing if necessary.

3. Analyze the existing soil conditions found during our exploration for the suitability of the soils encountered for the roadway widening.

4. Provide recommendations with respect to backfill material for the water main improvement.

5. Provide criteria and site preparation procedures to prepare the site for the proposed construction.

1.2 Project Description

GFA understands the project will consist of the water main replacement of ±5,600 linear feet along Orange Grove Boulevard. Design documents provided was a Layout Plan by Barraco and Associates, Inc., 10 pages, dated 9/26/2017. No other documents were provided at this time. The recommendations provided herein are based upon the above considerations. If the project description has been revised, please inform GFA International so that we may review our recommendations with respect to any modifications.

2.0 OBSERVATIONS

2.1 Site Inspection

A site reconnaissance was conducted by members of our engineering staff prior to mobilization of drilling equipment and crews. The purpose of the site visit was to observe the existing site conditions in order to detect any factors that may impact our studies and recommendations.

Generally, the proposed construction site is level. No standing water on the surface was observed during the time of our drilling. The tested site consists of an urban area and is landscaped.

2.2 Field Exploration

The following was completed for this study:

- Three (3) Hand Auger (HA) borings to depths of approximately 5 feet below ground surface (BGS) were completed at 1000-foot intervals from just north of Sta. 132+00 to just north of Sta. 152+00, in the northbound lane.

- Five (5) Standard Penetration Test (SPT) borings to depths of thirty (30) feet below existing site grade.

The locations of the Hand Auger and SPT borings performed were selected by Barraco & Associates and are illustrated in “Appendix B – Test Location Plan". The coordinates of each boring are listed in “Appendix D – Record of Hand Auger Boring Logs” and “Appendix E – Record of SPT Boring Logs”.

The soil samples recovered from the soil borings were visually classified and their stratification is illustrated in “Appendix D – Record of Hand Auger Boring Logs” and “Appendix E – Record of SPT Boring Logs”. It should be noted that soil conditions might vary between the strata interfaces, which are shown. The soil boring data reflect information from a specific test location only. Site specific survey staking for the test locations was not provided for our field exploration. The indicated depth and location of each test was approximated based upon existing grade and estimated distances and relationships to obvious landmarks. The boring depths were selected based on our knowledge of vicinity soils and to include the zone of soil likely to be stressed by the proposed construction.

2.3 Laboratory Analysis

Soil samples recovered from our field exploration were returned to our laboratory where they were visually examined in general accordance with ASTM D-2488. Samples were evaluated to obtain an accurate understanding of the soil properties and site geomorphic conditions. After a thorough visual examination of the recovered site soils, laboratory testing was conducted to determine gradation analysis (C-136) on individual samples.

All laboratory tests were conducted in general accordance with ASTM, AASHTO, or Florida Methods, as applicable. The method number for each test and the number of tests completed are presented in the following table.

TEST DESCRIPTION	NUMBER OF TESTS	ASTM TEST METHOD
Soil Classification	55	D-2488
Gradation Analysis	8	C-136

Bag samples of the soil encountered during our field exploration will be held in our laboratory for your inspection for 90 days and then discarded unless we are notified otherwise in writing.

2.3.1 Gradation Tests

A total of eight (8) gradation tests were performed on samples obtained during the field exploration program. Material passing the No. 200 sieve is considered "fines" and will be either silt or clay. The percent passing the No. 200 sieve, for the tested samples, ranged from 4.6 to 33 percent, this resulted in the sampled material to be considered poorly graded. A summary of the grain size distribution curve is presented in "Appendix I – Gradation Test Results".

2.4 Geomorphic Conditions

Boring logs derived from our field exploration are presented in "Appendix D – Record of Hand Auger Boring Logs" and "Appendix E – Record of SPT Boring Logs". The hand auger and SPT boring logs depict the observed soils in graphic detail. The classifications and descriptions shown on the logs are generally based upon visual characterizations of the recovered soil samples. In addition to visual characterizations, the boring logs also include and depict all gradation test results, which can be found in "Appendix I – Gradation Test Results".

All soil samples reviewed have been depicted and classified in general accordance with the American Association of State Highway and Transportation Officials (AASHTO), modified as necessary to describe typical southwest Florida conditions. See "Appendix F – Discussion of Soil Groups", for a detailed description of various soil groups.

The subsurface soils have been grouped into five (5) strata. Refer to "Appendix D – Record of Hand Auger Boring Logs" and "Appendix E – Record of SPT Boring Logs" for soil description and depths at which they are encountered.

Organic soils, peat (PT), were encountered in boring B-3 at intermediate depths ranging from 6 to 6.5 feet below existing grade (strata 5).

The subsurface soil conditions encountered at this site generally consists of very loose to dense sand (SP; A-3), sand with silt (SP-SM; A-3/ A-2-4), silty sand (SM; A-2-4), peat (PT; A-8), and weathered limestone (WLS) to the boring termination depths. Please refer to "Appendix D – Record of Hand Auger Boring Logs" and "Appendix E – Record of SPT Boring Logs" for a detailed account of each boring.

2.5 Hydrogeological Conditions

On January 16, 2018, the groundwater table was encountered in our HA borings at a depth of 4.5 feet below the existing ground surface. On January 18, 2018, the groundwater table was encountered in our SPT borings at a depth of 10 feet or more below the existing ground surface. The groundwater table can fluctuate depending upon tidal events.

The following descriptive characteristics of the four (4) types of soil surveys encountered during the drilling operations based on the soil survey of Lee County, Florida, published by the United States Department of Agriculture (see Appendix G):

<u>Myakka Fine Sand (11)</u>

Under natural conditions, the seasonal high water table for Myakka fine sands, in most years, is within 10 inches of the surface for 1 to 3 months and 10 to 40 inches below the surface during extended dry periods. Permeability is rapid in the surface and subsurface layers and moderate to moderately rapid in the subsoil.

Immokalee Sand (28)

In most years, under natural conditions, the water table is within 10 inches of the surface for 1 to 3 months and 10 to 40 inches below the surface for 2 to 6 months. It recedes to a depth of more than 40 inches during extended dry periods. Permeability is rapid in the surface and subsurface layers and moderate to moderately rapid in the subsoil.

Urban Land (59)

Urban land consists of areas that are more than 85 percent covered with parking lots, large buildings, streets, and sidewalks where the natural soil and ground water table cannot be observed.

Matlacha Gravelly Fine Sand (69)

The depth to the water table varies with the amount of fill material and the extent of artificial drainage. However, in most years, the water table is 24 to 36 inches below the surface of the fill material for 2 to 4 months. It is more than 60 inches below the surface during extended dry periods. Permeability is variable within short distances, but it is estimated to be moderately rapid to rapid in the fill material and rapid in the underlying material.

3.0 ENGINEERING EVALUATION AND RECOMMENDATIONS

3.1 General

The geotechnical evaluations for the proposed construction site are based on the subsurface soil and groundwater conditions encountered during this study, the project information made available, our site observations, and our experience in the vicinity. The test data has been evaluated using established geotechnical parameters of the soils recorded at this site, laboratory test results, and the observed performance of similar soil types.

Based on the soil conditions encountered in the performed borings, the near surface soils do not meet the gradation specification for select fill or drainage fill. Common fill consisting of sand (A-3; SP), sand with silt (A-3/A-2-4; SP-SM), and weathered limestone (A-1-b; WLS) does meet Lee County Technical Specifications for Backfilling. However, any on-site material consisting of silty sand (A-2-4; SM) or peat (A-8; PT) cannot be used for pipe bedding and initial backfill. Please refer to “Appendix D – Record of Hand Auger Boring Logs” and “Appendix E – Record of SPT Boring Logs” for a detailed account of each boring. The water main replacement may be designed according to the recommendations and site preparations as discussed below with a fill material meeting the specifications.

3.2 Pipe Bedding and Initial Backfill (Force Main)

According to the Lee County Technical Specifications, Section 2223, Backfilling, a select fill material shall be used for pipe bedding and initial backfill from top of bedding to 1 foot over the top of pipes. The select fill shall be compacted to not less than 98 percent of the maximum dry density as determined by ASTM D-1557.

Pipe bedding containing very fine sand, uniformly graded sands and gravel, silt, soft earth, or other material that have a tendency to flow under pressure when wet is unacceptable.

Based on the laboratory test results the majority of the near surface soils consist of poorly graded clean sands to slightly silty sands. Material from on-site excavation does not meet the gradation specification for select fill or drainage fill. Common fill consisting of sand (A-3;SP), sand with silt (A-3/A-2-4;SP-SM), and weathered limestone (A-1-b;WLS) does meet Lee County Technical Specifications for Backfilling. However, any on-site material consisting of silty sand (A-2-4;SM) or peat (A-8;PT) cannot be used for pipe bedding and initial backfill. Please refer to "Appendix D – Record of Hand Auger Boring Logs" and "Appendix E – Record of SPT Boring Logs" for a detailed account of each boring.

3.3 Open Cut (Trench Excavation)

All excavations shall be made by open cut unless otherwise indicated in the specifications on the drawings. All trenches shall have bottoms below the organic soils (when encountered) and shall be sufficiently wide and deep to allow proper installation of pipes. If organics extend below the depth of the proposed excavations, the organic material shall be removed and replaced with clean fill. Per Lee County Technical Specifications, Section 2222, Excavation, trench widths should be kept to a minimum with adequate space for workers to place, joint and backfill the pipe properly.

The minimum width of the trench shall be equal to the outside diameter of the pipe at the joint plus 8-inches for unsheeted trench or 12 inches for sheeted trench. Boulders, rocks, or other hard unyielding material shall be excavated to a depth of 8 inches below the bottom of the pipe elevation.

All trench excavations with side walls greater than 5 feet in depth shell be sloped or shored to protect workers. Material suitable for backfilling, clean to silty sand, shall be stockpiled far enough from the trench edge to avoid overloading slides or cave-ins. We recommend that distance be greater or equal to a depth of the trench.

Sloping is accomplished by cutting the banks of the excavation back to the angle of repose. The angle of repose for "in-situ" fine sands and sands with silt will be about 26 to 30 degrees, respectively. Normally, this angle would be not less than 1.5 feet on the horizontal to each foot on the vertical. When the excavation will be performed in the area not large enough to slope to the angle of repose, shoring must be erected to prevent cave-in. Depending on the depth of excavation and the depth of the water table, we anticipate the excavation will require shoring or a trench box. Trenching should be in general accordance with any Lee County Technical Specification trenching requirements and the Occupational Safety and Health Administration (OSHA) requirements, as applicable.

3.4 Horizontal Direction Drill

GFA understands that directional boring method shall be used beneath Orange Grove Boulevard and other specified area to limit disturbance.

The directional boring method comprises a three stage process. In the first stage, a pilot hole is drilled on the designed path. The pilot hole is enlarged in the second stage by passing a cutting tool known as the back reamer. In the third stage the pipe or casing pipe is placed in the enlarged hole. A starting pit with a drilling fluid in the pit is required to start the pilot hole. The drilling fluid is continuously pumped to the cutting head to facilitate the drilling, cutting, and to stabilize the bore hole.

3.5 Trench Backfill

Trench backfill material shall be clean earth fill composed of sand, sand and stone, crushed stones or other soils approved by a professional engineer. The trench backfilling shall be accomplished from the top of the initial backfill to the ground surface. The backfill, unless otherwise specified, shall be compacted to 98% of maximum density, as determined by ASTM D-1557.

When trenches are cut in pavements or areas to be paved, compaction shall be equal to 98% of maximum density. In unpaved portions of the Right-of-Way areas, compaction shall be not less than 95% of maximum density.

Based on the soil profiles, presented in "Appendix D – Record of Hand Auger Boring Logs" and "Appendix E – Record of SPT Boring Logs", the material from on-site excavation that will contain sands and silt or gravel size limestone fragments may be used for the trench backfill. If organic soils are encountered during construction, they are not suitable and shall not be used as a trench backfill material.

4.0 DEWATERING OF EXCAVATIONS

The high groundwater tables in the vicinity of excavations shall be reduced to prevent water inflow into excavations. Dewatering will be required for the excavation of trenches during construction. Each excavation shall be kept dry during sub grade preparation and continually thereafter until installation of the pipe or wet well structures. The dewatering will be required to maintain groundwater elevation at least 24 inches below the bottom at all times to prevent bottom disturbance or failure.

5.0 SITE PREPARATION PROCEDURES

Based on the soil conditions encountered in the performed borings, the near surface soils meet the below mentioned Lee County Technical Specifications for Excavation and Backfilling – Section 2222 and 2223. Due to the compressible peat encountered in boring B-3 (6 ft. – 6.5 ft.), material use should be completed in accordance with Lee County Technical Specifications and cannot be used for pipe bedding, initial backfill, or common fill. The project may be designed according to the recommendations and site preparations as discussed below with all fill material meeting the specifications. Depending on the construction method at or near boring B-3, it may be necessary to perform additional soil borings on 25-foot centers, prior to construction to delineate the extent and overall impact that the organic material may have on construction activities.

Site preparation procedures should begin with the removal of existing debris, vegetation, or other unsuitable materials within and beyond the excavation construction.

The organic soils, if encountered during construction, shall be removed and replaced to a required level (the future project specification) with a compacted suitable fill. The suitable fill material shall contain less than 10 percent of fines passing the No. 200 sieve, not contain clay balls and rock fragments greater than 3 inches in diameter.

An adequate dewatering system shall be installed to maintain the water table 2 feet or more below the maximum depth of excavation. The continuous dewatering shall be provided until the pipeline is completed and backfill is above the water table before beginning of the dewatering. When a professional engineer approves the discontinuing of the dewatering, the rate of pumping shall slowly decrease, allowing the water level to rise slowly.

The soils that extend below the water table should be allowed to dry prior to placement as a backfill material and compaction. This can be accomplished by stockpiling the material and allowing it to drain, or by spreading it in relatively thin lifts on the surface and allowing it to dry prior to compaction. The silty or sands with clay may require moisture conditioning so that the soil moisture content at the time of compaction is at or near the optimum moisture content.

Trench bottoms should be compacted with a small roller or vibratory plate compactor prior to pipe placement. Any loose or soft yielding areas detected during compaction of the trench bottoms should either be further compacted to at least 95% of maximum dry density or removed and replaced with a select fill and compacted to 95% of maximum dry density. Bedding stone may be used in lieu of select fill.

During the compaction operation, a geotechnical engineer or an engineering technician working under his direction should observe the soils to verify that the exposed soils are suitable and that unsuitable soils have been removed. Samples of the backfill materials should be obtained to determine the grain size distribution, its maximum dry density and optimum moisture content in the laboratory in accordance with ASTM D-1557 (Modified Proctor Test).

6.0 REPORT LIMITATIONS

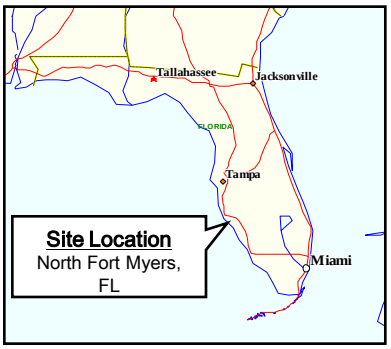
This consulting report has been prepared for the exclusive use of the current project owners and other members of the design team for the Orange Grove Boulevard Water Main Utility Improvement, located on Orange Grove Boulevard in North Fort Myers, Lee County, Florida. This report has been prepared in accordance with generally accepted local geotechnical engineering practices; no other warranty is expressed or implied. The evaluation submitted in this report, is based in part upon the data collected during a field exploration, however, the nature and extent of variations throughout the subsurface profile may not become evident until the time of construction. If variations then appear evident, it may be necessary to reevaluate information and professional opinions as provided in this report. In the event changes are made in the nature, design, or locations of the proposed structure, the evaluation and opinions contained in this report shall not be considered valid, unless the changes are reviewed and conclusions modified or verified in writing by GFA International. GFA is not responsible for damage caused by soil improvement and/or construction activity vibrations related to this project. GFA is also not responsible for damage concerning drainage or moisture related issues for the proposed or nearby structures.

7.0 BASIS FOR RECOMMENDATIONS

The analysis and recommendations submitted in this report are based on the data obtained from the tests performed at the locations indicated on the attached figure in “Appendix B: Test Location Plan”. This report does not reflect any variations, which may occur between borings. While the borings are representative of the subsurface conditions at their respective locations and for their vertical reaches, local variations characteristic of the subsurface soils of the region are anticipated and may be encountered. The delineation between soil types shown on the soil logs is approximate and the description represents our interpretation of the subsurface conditions at the designated boring locations on the particular date drilled.

Any third party reliance of our geotechnical report or parts thereof is strictly prohibited without the expressed written consent of GFA International. The methodology (ASTM D-1586) used in performing our borings and for determining penetration resistance is specific to the sampling tools utilized and does not reflect the ease or difficulty to advance other tools or materials.

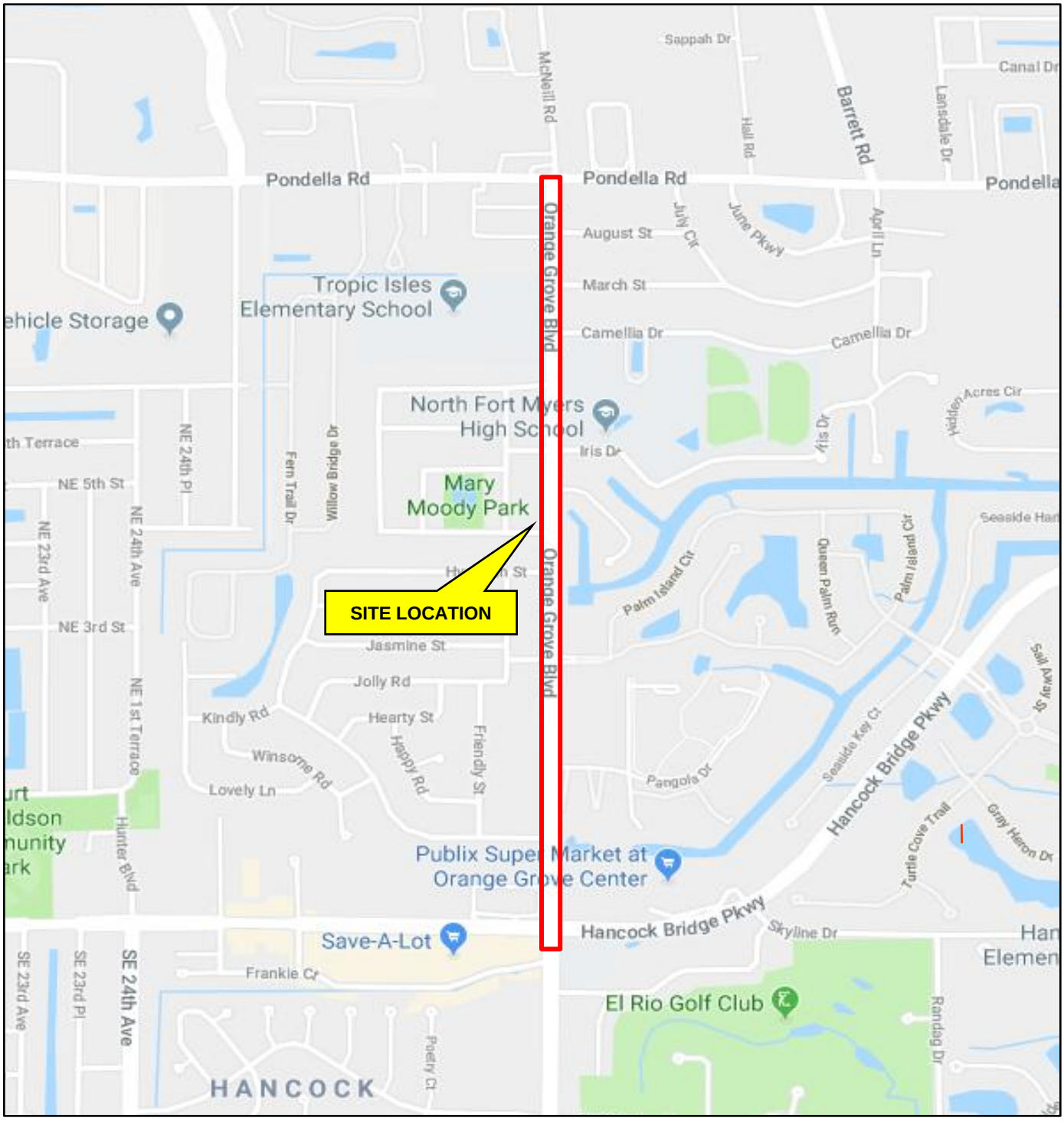
Appendix A - Vicinity Map



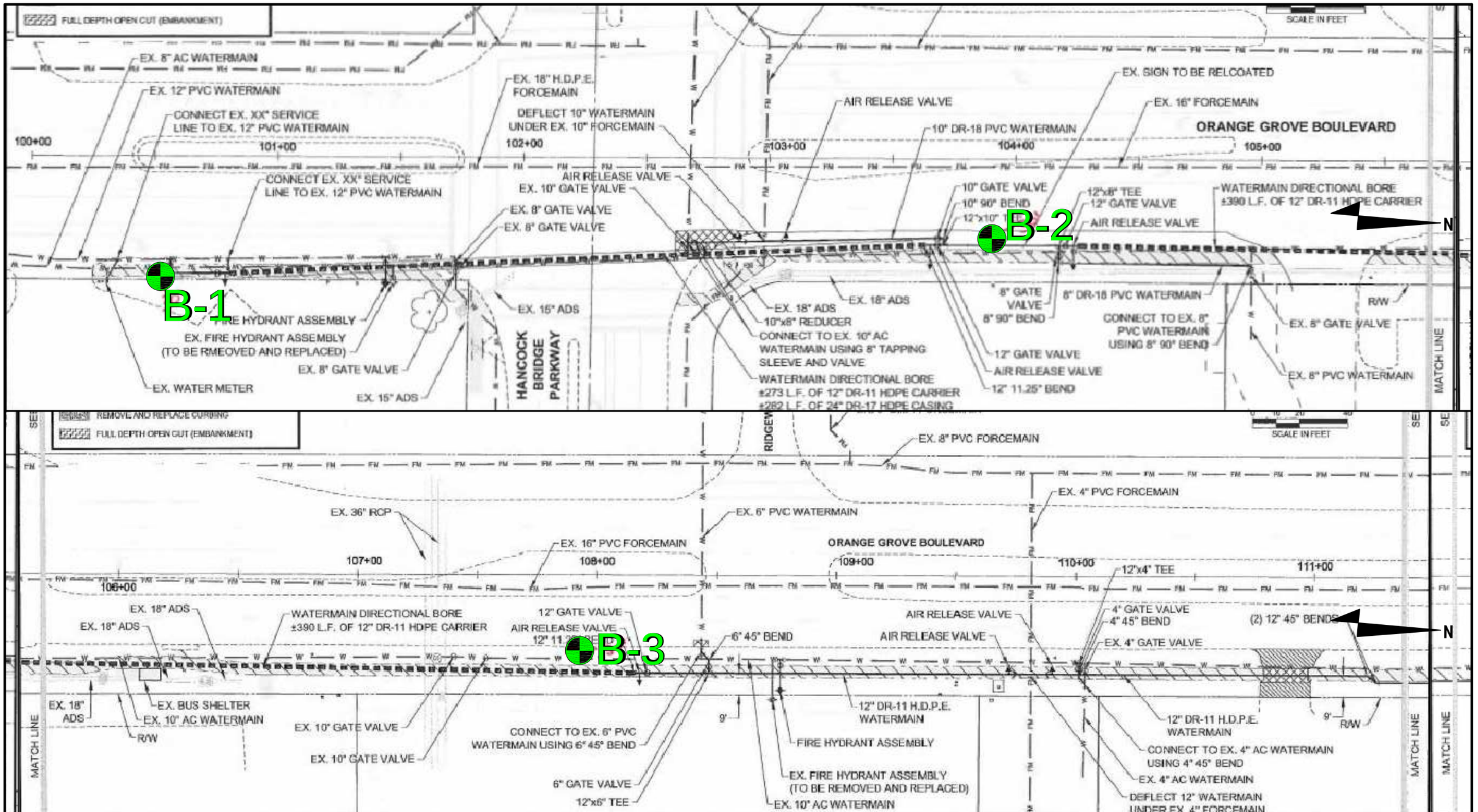
VICINITY MAP

Orange Grove Boulevard

North Fort Myers, Lee County, Florida
GFA International Project No.: 17-7148.01



Appendix B – Test Location Plan



NOTES: HAND AUGER LOCATION

SPT BORING LOCATION

BASE DRAWING PROVIDED BY CLIENT

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

GFA INTERNATIONAL, INC.
5851 COUNTRY LAKES DRIVE
FORT MYERS, FLORIDA 33905

PAUL J. D'HUYVETTER, P.E. #59716

LEE COUNTY DEPARTMENT OF PUBLIC WORKS

ROAD NAME	COUNTY NAME	PROJECT ID
Orange Grove Boulevard	LEE	17-7148.01

TEST LOCATION PLAN

ORANGE GROVE WATER MAIN UTILITY IMPROVEMENTS
NORTH FORT MYERS, LEE COUNTY, FLORIDA

DRAWN BY: CAC

REMOVE AND REPLACE CURBING

FULL DEPTH OPEN CUT (EMBANKMENT)

SCALE IN FEET 0 10 20 40

EX. 8" PVC FORCEMAIN

ORANGE GROVE BOULEVARD

EX. 16" PVC FORCEMAIN

EX. 1" WATER SERVICE LINE

112+00 113+00 114+00 115+00 116+00 117+00

CONNECT EX. 1" WATER SERVICE TO 12" DR-11 H.D.P.E. WATERMAIN

EX. 6" GATE VALVE

R/W

12" DR-11 H.D.P.E. WATERMAIN

6'

EX. 10" PVC WATERMAIN

EX. 6" AC WATERMAIN

TROPIC TERRACE

12"x6" TEE

6" GATE VALVE

6" 45° BEND

6" DR-18 PVC WATERMAIN

CONNECT TO EX. 6" AC WATERMAIN USING 6" 45° BEND

EX. 10" PVC WATERMAIN

12" DR-11 H.D.P.E. WATERMAIN

R/W

6'

MATCH LINE

N

REMOVE AND REPLACE CURBING

FULL DEPTH OPEN CUT (EMBANKMENT)

SCALE IN FEET 0 10 20 40

EX. 8" SANITARY SEWER

EX. 10" SANITARY SEWER

EX. 8" PVC FORCEMAIN

ORANGE GROVE BOULEVARD

WATERMAIN DIRECTIONAL BORE ±275 L.F. OF 12" DR-11 H.D.P.E. CARRIER

EX. 6" PVC FORCEMAIN

EX. 16" PVC FORCEMAIN

118+00 119+00 120+00 121+00 122+00

EX. 24" RCP

12" 11.25° BEND

B-4

EX. 10" GATE VALVE

CONNECT TO EX. 10" D.I.P. WATERMAIN USING 10" 45° BEND

10" 45° BEND

10" DR-18 PVC WATERMAIN

N

6'

R/W

12" DR-11 H.D.P.E. WATERMAIN

EX. 10" PVC WATERMAIN

12" GATE VALVE

AIR RELEASE VALVE

EX. 24" RCP

5.8'

R/W

PALM ISLAND CIRCLE

EX. 10" D.I.P. WATERMAIN

MATCH LINE

NOTES: HAND AUGER LOCATION

SPT BORING LOCATION

BASE DRAWING PROVIDED BY CLIENT

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

GFA INTERNATIONAL, INC.
5851 COUNTRY LAKES DRIVE
FORT MYERS, FLORIDA 33905

PAUL J. D'HUYVETTER, P.E. #59716

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ROAD NAME	COUNTY NAME	PROJECT ID
Orange Grove Boulevard	LEE	17-7148.01

TEST LOCATION PLAN

ORANGE GROVE WATER MAIN UTILITY IMPROVEMENTS NORTH FORT MYERS, LEE COUNTY, FLORIDA

DRAWN BY: CAC

REMOVE AND REPLACE CURBING
FULL DEPTH OPEN CUT (EMBANKMENT)
SCALE IN FEET
SEE
SEE S
MATCH LINE
MATCH LINE
N
ORANGE GROVE BOULEVARD
123+00
124+00
125+00
126+00
127+00
128+00
EX. 10" SANITARY SEWER
EX. 8" PVC FORCEMAIN
EX. 10" SANITARY SEWER
EX. 8" PVC WATERMAIN
EX. 16" PVC FORCEMAIN
EX. 8" SANITARY SEWER
12" 11.25° BEND
AIR RELEASE VALVE
12" GATE VALVE
EX. 15" RCP
(2) 12" 45° BEND
12"x8" TEE
8" GATE VALVE
12'
13'
12" DR-11 H.D.P.E. WATERMAIN
8" 45° BEND
CONNECT TO EX. 8" WATERMAIN USING 8" 45° BEND
EX. 8" AC WATERMAIN
(2) 12" 45° BEND
10" GATE VALVE
10" 45° BEND
CONNECT TO EX. 8" PVC WATERMAIN USING 8" 45° BEND
8" 45° BEND
8" GATE VALVE
12"x8" TEE
EX. 8" GATE VALVE
CONNECT 1" WATER SERVICE
12" DR-11 H.D.P.E. WATERMAIN
B-5
EX. 10" SANITARY SEWER
EX. 10" SANITARY SEWER
EX. 8" PVC WATERMAIN
EX. 10" SANITARY SEWER
EX. 8" SANITARY SEWER
EX. 10" SANITARY SEWER
EX. 8" SANITARY SEWER
ORANGE GROVE BOULEVARD
129+00
130+00
131+00
132+00
133+00
134+00
EX. 16" PVC FORCEMAIN
EX. 24" RCP
EX. 24" RCP
12" DR-11 H.D.P.E. WATERMAIN
12"x8" TEE
8" GATE VALVE
EX. 8" GATE VALVE
HA-1
12'
R/W
12" DR-11 H.D.P.E. WATERMAIN
CONNECT 1" WATER SERVICE LINES TO EX. WATER METERS
EX. FIRE HYDRANT ASSEMBLY (TO BE REMOVED AND REPLACED)
FIRE HYDRANT ASSEMBLY
8" 45° BEND
EX. 8" AC WATERMAIN
8" DR-18 PVC WATERMAIN
CONNECT TO EX. 8" PVC WATERMAIN USING 8" 45° BEND
EX. 8" PVC WATERMAIN
HYDRANGEA DRIVE
12'

NOTES: HAND AUGER LOCATION
SPT BORING LOCATION

BASE DRAWING PROVIDED BY CLIENT

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

GFA INTERNATIONAL, INC.
5851 COUNTRY LAKES DRIVE
FORT MYERS, FLORIDA 33905

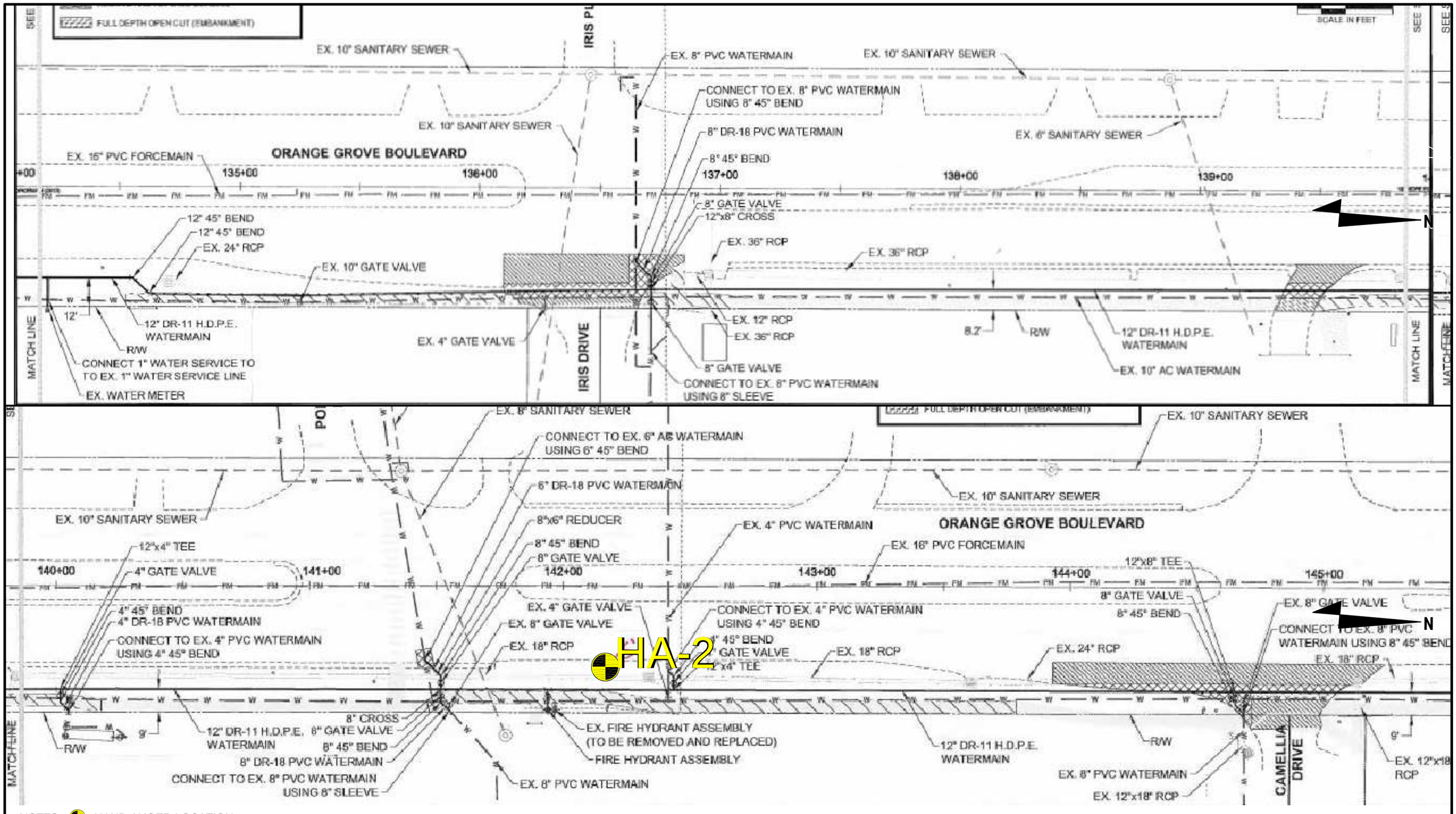
PAUL J. D'HUYVETTER, P.E. #59716

LEE COUNTY DEPARTMENT OF PUBLIC WORKS

ROAD NAME	COUNTY NAME	PROJECT ID
Orange Grove Boulevard	LEE	17-7148.01

TEST LOCATION PLAN
ORANGE GROVE WATER MAIN UTILITY IMPROVEMENTS
NORTH FORT MYERS, LEE COUNTY, FLORIDA

DRAWN BY: CAC



NOTES: HAND AUGER LOCATION

SPT BORING LOCATION

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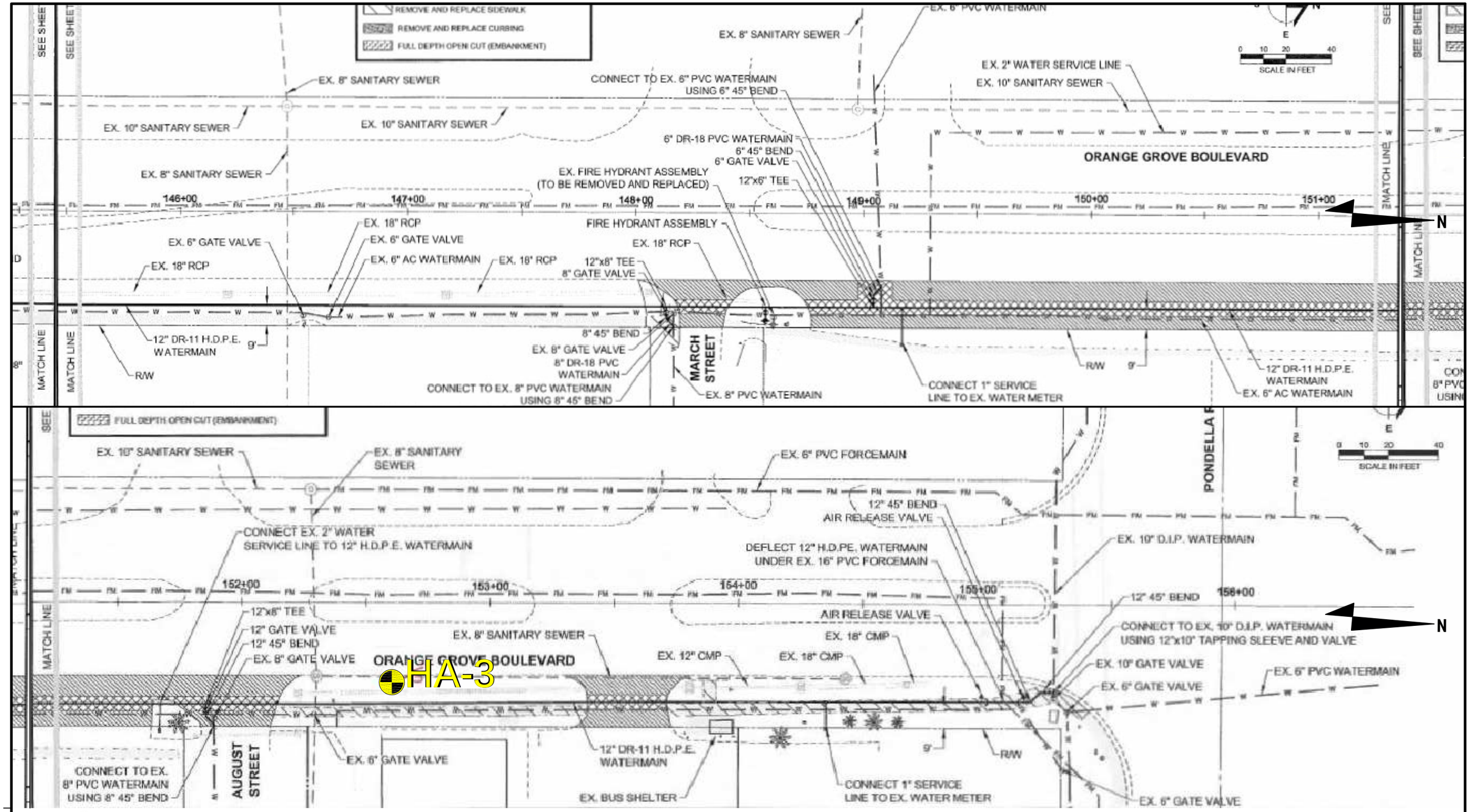
ROAD NAME	COUNTY NAME	PROJECT ID
Orange Grove Boulevard	LEE	17-7148.01

TEST LOCATION PLAN

ORANGE GROVE WATER MAIN UTILITY IMPROVEMENTS

NORTH FORT MYERS, LEE COUNTY, FLORIDA

DRAWN BY: CAC



NOTES: HAND AUGER LOCATION

SPT BORING LOCATION

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TEST LOCATION PLAN

ORANGE GROVE WATER MAIN
UTILITY IMPROVEMENTS
NORTH FORT MYERS, LEE COUNTY, FLORIDA

DRAWN BY: CAC

Appendix C – Notes Related to Borings

NOTES RELATED TO
RECORDS OF TEST BORING AND
GENERALIZED SUBSURFACE PROFILE

1. Groundwater level was encountered and recorded (if shown) following the completion of the soil test boring on the date indicated. Fluctuations in groundwater levels are common; consult report text for a discussion.

2. The boring location was identified and located in the field based on measured and estimated distances from existing site features.

3. The borehole was backfilled to site grade following boring completion, patched with asphalt cold patch mix when pavement was encountered.

4. The Record of Test Boring represents our interpretation of field conditions based on engineering examination of the soil samples.

5. The Record of Test Boring is subject to the limitations, conclusions, and recommendations presented in the report text.

6. The Standard Penetration Test (SPT) was performed in accordance ASTM Procedure D-1586. SPT testing procedure consists of driving a 1.4-inch I.D. split-tube sampler into the soil profile using a 140-pound hammer falling 30 inches.

7. On the Record of Test Boring listed as "Blow Counts", the N-value is the sum of the SPT hammer blows required to drive the split-tube sampler through the second and third 6-inch increment of the sampling layer, and is an indication of soil strength.

8. Shown on the Record of Test Boring an SPT N-value expressed as 50/2" is descriptive of the fact that 50 hammer blows were required to drive the split-spoon sampler a distance of approximately 2 inches.

9. The soil/rock strata interfaces shown on the Records of Test Boring are approximate and may vary from those in the field. The soil/rock conditions shown on the Records of Test Boring refer to conditions at the specific location tested; soil/rock conditions may vary between test locations.

10. Relative density and consistency for sands/gravels, silts/clays, and limestone are described as follows:

Granular Materials	
SPT (N-Value)	**Relative Density**
Less than 3	Very Loose
3 – 8	Loose
8 – 24	Medium Dense
25 – 40	Dense
Greater than 40	Very Dense

Silts and Clays	
SPT (N-Value)	**Consistency**
Less than 1	Very Soft
1 – 3	Soft
3 – 6	Firm
6 – 12	Stiff
12 – 24	Very Stiff
Greater than 24	Hard

11. Definition of descriptive terms of modifiers for silts/clays/shells/gravels are described as follows:

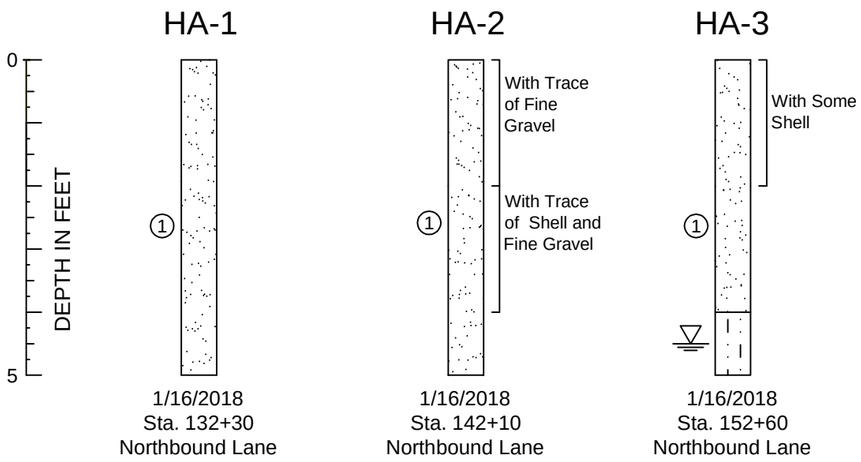
Percentage of Modifier Material	First Qualifier	Second Qualifier
0 – 5	With a Trace of + Modifier	With a Trace
5 – 12	Slightly + Modifier + y	With Some
12 – 30	Modifier + y	With
30 – 50	Very + Modifier + y	And

12. Descriptive characteristics for organic content percentages are described as follows:

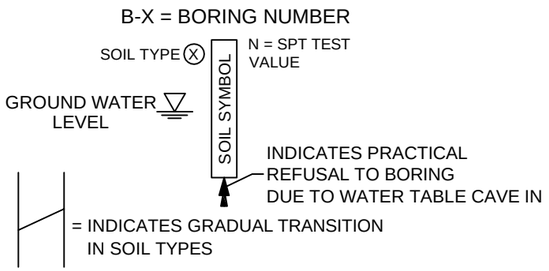
Percentage of Organic Material	Descriptor
0 – 5	With a Trace
5 – 20	With Organics
20 – 75	Highly Organic
75 – 100	Peat

Appendix D – Record of Hand Auger Borings

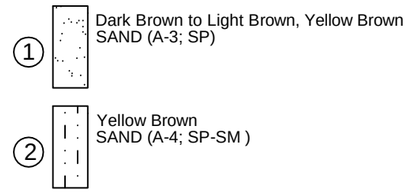
SOIL PROFILES



SOIL PROFILE LEGEND



SOIL LEGEND



NOTES:

N - STANDARD PENETRATION RESISTANCE TEST (SPT) VALUE. NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12-INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).

E.O.P. - EAST OF PAVEMENT EDGE

W.O.P. - WEST OF PAVEMENT EDGE

HA - HAND AUGER

SOIL CLASSIFICATION

CORRELATION OF N - VALUES WITH RELATIVE DENSITY AND CONSISTENCY

COHESIONLESS SOIL		SILTS AND CLAYS	
N - VALUE	RELATIVE DENSITY	N - VALUE	CONSISTENCY
0 - 3	VERY LOOSE	0 - 1	VERY SOFT
4 - 8	LOOSE	2 - 4	SOFT
9 - 24	MEDIUM DENSE	5 - 6	FIRM
25 - 40	DENSE	7 - 12	STIFF
OVER 40	VERY DENSE	13 - 24	VERY STIFF
		OVER 24	HARD

CORRELATION OF N - VALUES WITH HARDNESS DESCRIPTION

LIMEROCK	
N - VALUE	RELATIVE DENSITY
0 - 19	VERY SOFT
20 - 49	SOFT
50 - 100	MEDIUM HARD
50 FOR 3 TO 5"	MODERATELY HARD
50 FOR 0 TO 2"	HARD

APPROXIMATE FINES CONTENT	MODIFIERS
5% TO 15%	SLIGHTLY SILTY OR SLIGHTLY CLAYEY
16% TO 25%	SILTY OR CLAYEY
26% TO 49%	VERY SILTY OR VERY CLAYEY

APPROXIMATE SHELL CONTENT	MODIFIERS
0% TO 5%	WITH A TRACE OF SHELL
6% TO 12%	SLIGHTLY SHELLY
13% TO 30%	SHELLY
31% TO 50%	VERY SHELLY

APPROXIMATE ORGANIC CONTENT	MODIFIERS
0% TO 5%	WITH A TRACE
5% TO 20%	WITH ORGANICS
20% TO 75%	HIGHLY ORGANIC
75% TO 100%	PEAT

DEFINITION OF DESCRIPTIVE TERMS OF MODIFIERS FOR SILTS/CLAYS/SHELLS/GRAVELS ARE DESCRIBED AS FOLLOWS:

PERCENTAGE OF MODIFIER MATERIAL	FIRST QUALIFIER	SECOND QUALIFIER
0 - 5	WITH A TRACE OF + MODIFIER	WITH A TRACE
5 - 12	SLIGHTLY + MODIFIER + Y	WITH SOME
12 - 30	MODIFIER + Y	WITH
30 - 50	VERY + MODIFIER + Y	AND

RECORD OF HAND AUGER BORINGS

GFA International, Inc.
5851 Country Lakes Drive
Fort Myers, Florida 33905
239-489-2443 * TeamGFA.com

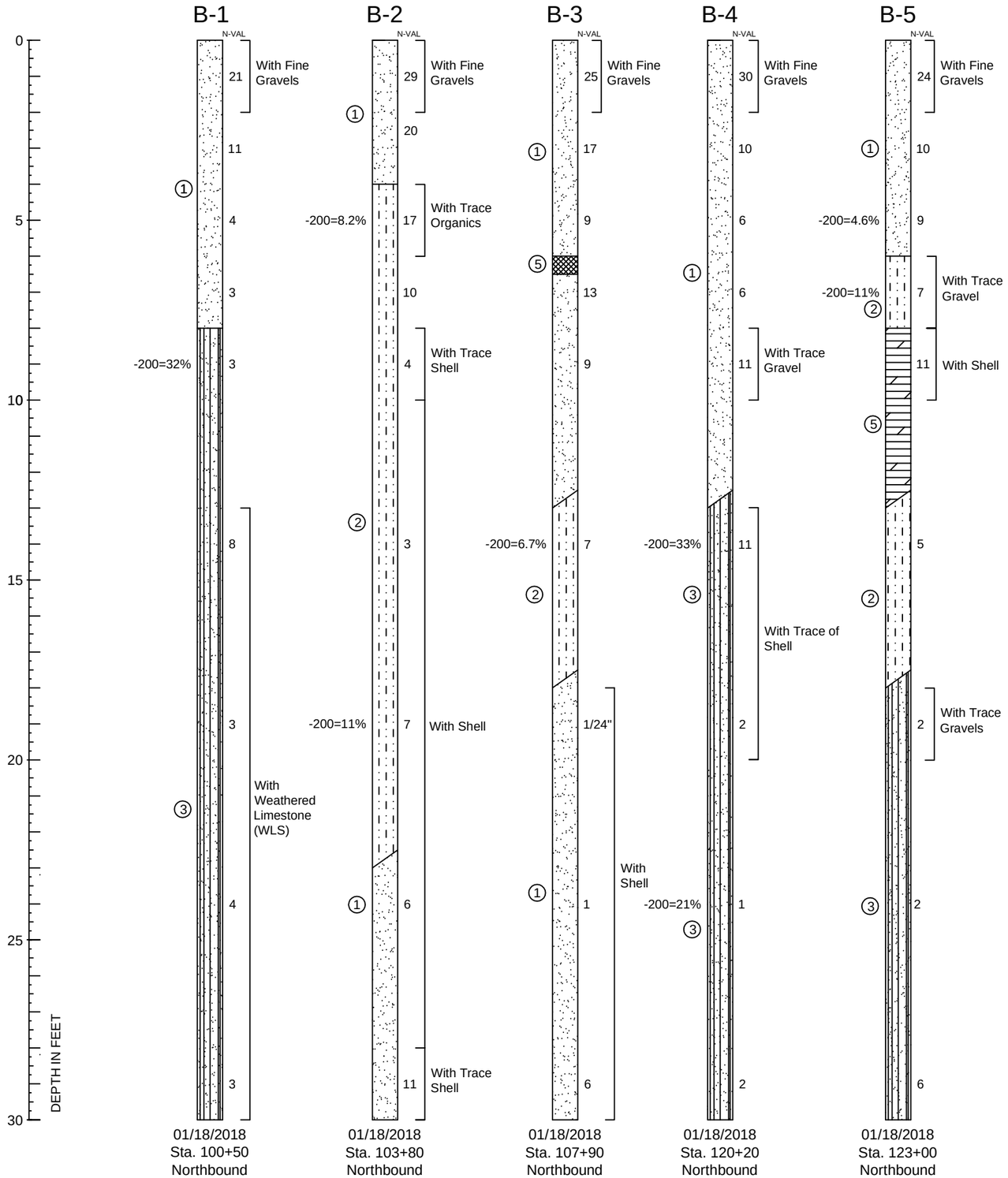
Client: Barraco and Associates, Inc.

Project:
Orange Grove Boulevard
Fort Myers Beach, Lee County, Florida

Date: 2/05/2018
Job No: 17-7148.01
Drawn By: CAC
Approved by: PJD

Appendix E – Record of SPT Boring Logs

SOIL PROFILES



NOTE: GROUNDWATER WAS ENCOUNTERED BELOW 10 FEET FOR ALL FIVE BORINGS.

SOIL PROFILE LEGEND

B-X = BORING NUMBER

SOIL TYPE (X) — SOIL SYMBOL — N = SPT TEST VALUE

GROUND WATER LEVEL

INDICATES PRACTICAL REFUSAL TO BORING EQUIPMENT

= INDICATES GRADUAL TRANSITION IN SOIL TYPES

SOIL LEGEND

1. Gray, Light Brown to Dark Brown, SAND (A-3;SP) Very Loose to Dense
2. Light Gray to Gray, SAND WITH SILT (A-3/A-2-4;SP-SM) Very Loose to Medium Dense
3. Light Gray to Gray, SILTY SAND (A-2-4;SM) Very Loose to Medium Dense
4. Light Gray, WEATHERED LIMESTONE (A-1-b;WLS) Very Soft
5. Highly Compressible PEAT (A-8;PT) Firm

NOTES:

N - STANDARD PENETRATION RESISTANCE TEST (SPT) VALUE. NUMBERS TO THE RIGHT OF BORINGS INDICATE SPT VALUE FOR 12-INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).

WOH - BORING INTERVAL ADVANCED UNDER WEIGHT OF HAMMER.

WOR - BORING INTERVAL ADVANCED UNDER WEIGHT OF ROD.

LFC - LOSS OF DRILLING FLUID CIRCULATION.

WLS - WEATHERED LIMESTONE

SOIL CLASSIFICATION

CORRELATION OF N - VALUES WITH RELATIVE DENSITY AND CONSISTENCY

COHESIONLESS SOIL

N - VALUE	RELATIVE DENSITY
0 - 3	VERY LOOSE
4 - 8	LOOSE
9 - 24	MEDIUM DENSE
25 - 40	DENSE
OVER 40	VERY DENSE

SILTS AND CLAYS

N - VALUE	CONSISTENCY
0 - 1	VERY SOFT
2 - 4	SOFT
5 - 6	FIRM
7 - 12	STIFF
13 - 24	VERY STIFF
OVER 24	HARD

CORRELATION OF N - VALUES WITH HARDNESS DESCRIPTION

LIMEROCK

N - VALUE	RELATIVE DENSITY
0 - 19	VERY SOFT
20 - 49	SOFT
50 - 100	MEDIUM HARD
50 FOR 3 TO 5"	MODERATELY HARD
50 FOR 0 TO 2"	HARD

APPROXIMATE FINES CONTENT — MODIFIERS

FINES CONTENT	MODIFIERS
5% TO 15%	SLIGHTLY SILTY OR SLIGHTLY CLAYEY
16% TO 25%	SILTY OR CLAYEY
26% TO 49%	VERY SILTY OR VERY CLAYEY

APPROXIMATE SHELL CONTENT — MODIFIERS

SHELL CONTENT	MODIFIERS
0% TO 5%	WITH A TRACE OF SHELL
6% TO 12%	SLIGHTLY SHELLY
13% TO 30%	SHELLY
31% TO 50%	VERY SHELLY

APPROXIMATE ORGANIC CONTENT — MODIFIERS

ORGANIC CONTENT	MODIFIERS
0% TO 5%	WITH A TRACE
5% TO 20%	WITH ORGANICS
20% TO 75%	HIGHLY ORGANIC
75% TO 100%	PEAT

DEFINITION OF DESCRIPTIVE TERMS OF MODIFIERS FOR SILTS/CLAYS/SHELLS/GRAVELS ARE DESCRIBED AS FOLLOWS :

PERCENTAGE OF MODIFIER MATERIAL	FIRST QUALIFIER	SECOND QUALIFIER
0 - 5	WITH A TRACE OF + MODIFIER	WITH A TRACE
5 - 12	SLIGHTLY + MODIFIER + Y	WITH SOME
12 - 30	MODIFIER + Y	WITH
30 - 50	VERY + MODIFIER + Y	AND

RECORD OF TEST BORINGS

GFA International, Inc.
5851 Country Lakes Drive
Fort Myers, Florida 33905
239-489-2443 * TeamGFA.com

Client: Barraco and Associates, Inc.

Project:
Orange Grove Blvd Utility Improvements
Orange Grove Blvd & Hancock Bridge Pkwy
North Fort Myers, Lee County, Florida

Date: 02/2/2018
Job No: 17-7148
Drawn By: JDC
Approved by: PJD

Appendix F – Discussion of Soil Groups

DISCUSSION OF SOIL GROUPS:
AASHTO CLASSIFICATION

COARSE GRAINED SOILS

- **Group A-1:** The typical material of this group is a well-graded mixture of stone fragments or gavel, coarse sand, fine sand, and a nonplastic or feebly-plastic soil binder. However, this group also includes stone fragments, gravel, coarse sand, volcanic cinders, etc., without a soil binder.

    - **Subgroup A-1-a:** Includes those materials consisting predominantly of stone fragments or gravel, either with or without a well-graded binder of fine material.

    - **Subgroup A-1-b:** Includes those materials consisting predominantly of coarse sand, either with or without a well-graded soil binder.

- **Group A-3:** The typical material of this group is fine beach sand or fine desert-blow sand without silty or clay fines, or with a very small amount of nonplastic silt. This group also includes stream-deposited mixtures of poorly-graded fine sand and limited amounts of coarse sand and gravel.

- **Group A-2:** This group includes a wide variety of “granular” materials which are borderline between the materials falling in Groups A-1 and A-3, and the silt-clay materials of Groups A-4, A-5, A-6, and A-7. It includes all materials containing 35% or less passing a No. 200 (75-µm) sieve which cannot be classified in Groups A-1 or A-3, due to the fines content or the plasticity indexes, or both, in excess of the limitations for those groups.

    - **Subgroups A-2-4 and A-2-5:** Include various granular materials containing 35% or less passing a No. 200 (75-µm) sieve and with a minus No. 40 (425-µm) portion having the characteristics of Groups A-4 and A-5, respectively. These groups include such materials as gravel and coarse sand with silt contents or plasticity indexes in excess of the limitations of Group A-1 and fine sand with nonplastic-silt content in excess of the limitations of Group A-3.

    - **Subgroups A-2-6 and A-2-7:** Include materials similar to those described under Subgroups A-2-4 and A-2-5, except that the fine portion contains plastic clay having the characteristics of the A-6 or A-7 group, respectively.

FINE GRAINED SOILS

- **Group A-4:** The typical material of this group is a nonplastic or moderately plastic silty soil usually having 75% or more passing a No. 200 (75-µm) sieve. This group also includes mixtures of fine silty soil and up to 64% of sand and gravel retained on a No. 200 sieve.

- **Group A-5:** The typical material of this group is similar to that described under Group A-4, except that it is usually of diatomaceous or micaceous character and may be highly elastic as indicated by the high liquid limit.

- **Group A-6:** The typical material of this group is a plastic clay soil usually having 75% or more passing a No. 200 (75-µm) sieve. This group also includes mixtures of fine clayey soil and up to 64% of sand and gravel retained on a No. 200 sieve. Materials of this group usually have a high volume change between wet and dry states.

- **Group A-7:** The typical material of this group is similar to that described under Group A-6, except that it has the high liquid limits characteristic of Group A-5 and may be elastic as well as subject to high-volume change.

    - **Subgroup A-7-5:** Includes those materials with moderate plasticity indexes in relation to the liquid limit and which may be highly elastic as well as subject to considerable volume change.

    - **Subgroup A-7-6:** Includes those materials with high plasticity indexes in relation to liquid limit and which are subject to extremely high volume change.

HIGHLY ORGANIC SOILS

- **Group A-8:** Highly organic soils (peat or muck) may be classified in this group. Classification of these materials is based on visual inspection and is not dependent on the percentage passing the No. 200 (75-µm) sieve liquid limit, or plasticity index. The material is composed primarily of partially decayed organic matter, generally has a fibrous texture, a dark brown or black color, and an odor of decay. These organic materials are unsuitable for use in embankments and subgrades. They are highly compressible and have low strength.

DISCUSSION OF SOIL GROUPS

COARSE GRAINED SOILS

GW and SW GROUPS. These groups comprise well-graded gravelly and sandy soils having little or no plastic fines (less than 5 percent passing the No. 200 sieve). The presence of the fines must not noticeably change the strength characteristics of the coarse-grained fraction and must not interface with it's free-draining characteristics.

GP and SP GROUPS. Poorly graded gravels and sands containing little of no plastic fines (less than 5 percent passing the No. 200 sieve) are classed in GP and SP groups. The materials may be called uniform gravels, uniform sands or non-uniform mixtures of very coarse material and very fine sands, with intermediate sizes lacking (sometimes called skip-graded, gap-graded or step-graded). This last group often results from borrow pit excavation in which gravel and sand layers are mixed.

GM and SM GROUPS. In general, the GM and SM groups comprise gravels or sands with fines (more than 12 percent passing the No. 200 sieve) having low or no plasticity. The plasticity index and liquid limit of soils in the group should plot below the "A" line on the plasticity chart. The gradation of the material is not considered significant and both well and poorly graded materials are included.

GC and SC GROUPS. In general, the GC and SC groups comprise gravelly or sandy soils with fines (more than 12 percent passing the No. 200 sieve), which have a fairly high plasticity. The liquid limit and plasticity index should plot above the "A" line on the plasticity chart.

FINE GRAINED SOILS

ML and MH GROUPS. In these groups, the symbol M has been used to designate predominantly silty material. The symbols L and H represent low and high liquid limits, respectively, and an arbitrary dividing line between the two is set at a liquid limit of 50. The soils in the ML and MH groups are sandy silts, clayey silts or inorganic silts with relatively low plasticity. Also included are loess type soils and rock flours.

CL and CH GROUPS. In these groups the symbol C stands for clay, with L and H denoting low or high liquid limits, with the dividing line again set at a liquid limit of 50. The soils are primarily inorganic clays. Low plasticity clays are classified as CL and are usually lean clays, sandy clays or silty clays. The medium and high plasticity clays are classified as CH. These include the fat clays, gumbo clays and some volcanic clays.

OL and OH GROUPS. The soil in the OL and OH groups are characterized by the presence of organic odor or color, hence the symbol O. Organic silts and clays are classified in these groups. The materials have a plasticity range that corresponds with the ML and MH groups.

HIGHLY ORGANIC SOILS

The highly organic soils are usually very soft and compressible and have undesirable construction characteristics. Particles of leaves, grasses, branches, or other fibrous vegetable matter are common components of these soils. They are not subdivided and are classified into one group with the symbol PT. Peat humus and swamp soils with a highly organic texture are typical soils of the group.

Appendix G – Roadway Soil Survey

LEE COUNTY
DEPARTMENT OF PUBLIC WORKS
ORANGE GROVE BOULEVARD

DATE OF SURVEY : January 16, 2018
SURVEY MADE BY : GFA INTERNATIONAL, INC.
SUBMITTED BY : PAUL J. D'HUYVETTER, P.E.

ROAD NAME : ORANGE GROVE BLVD.
CITY: NORTH FORT MYERS
COUNTY : LEE

CROSS SECTION SOIL SURVEY FOR THE DESIGN OF ROADS

SURVEY BEGINS: STA. 100+00 SURVEY ENDS: STA. 156+00

	ORGANIC CONTENT			SIEVE ANALYSIS RESULTS % PASS						ATTERBERG LIMITS (%)					CORROSION SERIES TEST RESULTS				
STRATUM NO.	NO. OF TESTS	% ORGANIC.	% MOISTURE CONTENT	NO. OF TESTS	4 MESH	10 MESH	40 MESH	100 MESH	200 MESH	NO. OF TESTS	LIQUID LIMIT	PLASTIC INDEX	AASHTO GROUP	DESCRIPTION	NO. OF TESTS	RESISTIVITY ohms-cm	CHLORIDE ppm	SULFATES ppm	pH
1	–	–	–	3	99.8–99.6	99.6–99.4	91.8–89.7	23.7–10.7	8.2–4.6	–	–	–	A–3	Gray, Dark Brown, SAND (SP/SP–SM) with Trace of Organics	–	–	–	–	–
2	–	–	–	2	90.8–89.2	88.3–85.5	79.6–68.2	25.6–13.7	11	–	–	–	A–2–4	Light Gray, SAND WITH SILT (SP–SM)	–	–	–	–	–
3	–	–	–	3	100–86.1	99.9–82.1	96.8–73.4	38.7–25.6	32–21	–	–	–	A–2–4	Gray to Light Gray, SILTY SAND (SM) with Gravel and Trace of Shell	–	–	–	–	–

NOTES:

EMBANKMENT AND SUBGRADE MATERIAL
STRATA BOUNDARIES ARE APPROXIMATE

Ground water was encountered at a depth of approximately 4.5 feet at boring locations at the time of our drilling.

The material from Stratum Number 1 appears satisfactory for use in the embankment when utilized in accordance with Index 505, except where organics were encountered.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

GFA INTERNATIONAL, INC.
5851 COUNTRY LAKES DRIVE
FORT MYERS, FLORIDA 33905

PAUL J. D'HUYVETTER P.E. #59716

LEE COUNTY DEPARTMENT OF PUBLIC WORKS

ROAD NAME	COUNTY NAME	PROJECT ID
ORANGE GROVE BOULEVARD	LEE	17-7148

ROADWAY SOIL SURVEY
ORANGE GROVE BOULEVARD
NORTH FORT MYERS, LEE COUNTY, FLORIDA

DRAWN BY: CAC

Appendix H – Hydrological Soils Map

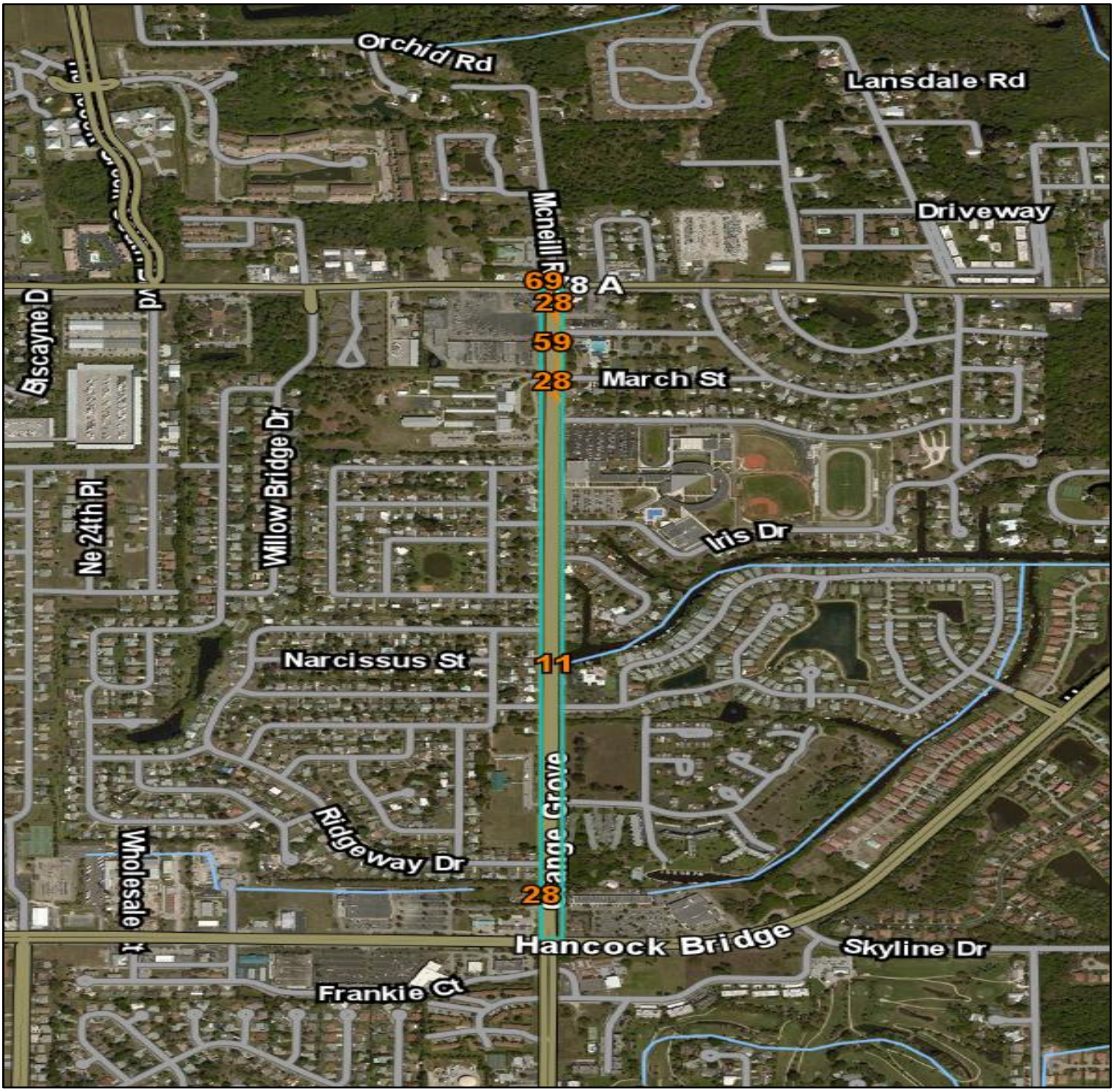


Hydrologic Soils map

Orange Grove Boulevard

North Fort Myers, Lee County, Florida
GFA International Project No.: 17-7148.01

N
W
E
S
ENVIRONMENTAL • GEOTECHNICAL • MATERIALS TESTING • INSPECTIONS
GFA



*Map Not To Scale

Map Unit:
- 11 – Myakka Fine Sand
- 28 – Immokalee Sand
- 59 – Urban Land
- 69 – Matlacha Gravelly Fine Sand

Appendix I – Laboratory Test Results

5851 Country Lakes Drive ● Fort Myers, Florida 33905 (239) 489-2443 ● (239) 489-3438 (fax)

SIEVE ANALYSIS - ASTM - C-136

Project:	Orange Grove Boulevard Water Main Utility Improvement	**Project No.:**	17-7148
Client:	Barraco and Associates, Inc.	**Lab No.:**	S001
Soil Location:	B-1 (8'-10')	**Date Sampled:**	1/18/2018
Sampled By:	Greg Cole	**Date Tested:**	1/30/2018
Tested By:	Robin Gibson		
Material Description:	Gray, SILTY SAND (SM; A-2-4) with Gravel		

#200 SIEVE WET WASH					
	ORIGINAL SAMPLE WEIGHT (g)	**WASHED SAMPLE WEIGHT (g)**	**WEIGHT PASSING (g)**	**PERCENT PASSING**	
	654.6	452.1	206.1	32.0%	

DRY SIEVE ANALYSIS					
STANDARD SIEVE SIZE	**PARTIAL SIZE (mm)**	**SIEVE WEIGHT RETAINED (g)**	**TOTAL WEIGHT RETAINED (g)**	**CUMULATIVE PERCENT RETAINED**	**PERCENT PASSING**
# 4	4.76	0	91.1	13.9%	86.1%
#10	2.00	25.8	116.9	17.9%	82.1%
#20	0.841	16.6	133.5	20.4%	79.6%
#40	0.420	40.6	174.1	26.6%	73.4%
#60	0.250	121.3	295.4	45.1%	54.9%
#100	0.149	106.1	401.5	61.3%	38.7%
# 200	0.074	46.8	448.3	68.5%	32.0%
Pan	0.000	3.6		- -	- -

Comments:

Respectfully Submitted,
GFA International, Inc.
FBPE CA # 4930

5851 Country Lakes Drive ● Fort Myers, Florida 33905 (239) 489-2443 ● (239) 489-3438 (fax)

SIEVE ANALYSIS - ASTM - C-136

Project:	Orange Grove Boulevard Water Main Utility Improvement	**Project No.:**	17-7148
Client:	Barraco and Associates, Inc.	**Lab No.:**	S002
Soil Location:	B-2 (4'-6')	**Date Sampled:**	1/18/2018
Sampled By:	Greg Cole	**Date Tested:**	1/30/2018
Tested By:	Robin Gibson		
Material Description:	Gray to Dark Brown, SAND WITH SILT (SP-SM; A-3) with Trace Organics		

#200 SIEVE WET WASH

	ORIGINAL SAMPLE WEIGHT (g)	WASHED SAMPLE WEIGHT (g)	WEIGHT PASSING (g)	PERCENT PASSING	
	512.1	475.2	41.7	8.1%	

DRY SIEVE ANALYSIS

STANDARD SIEVE SIZE	PARTIAL SIZE (mm)	SIEVE WEIGHT RETAINED (g)	TOTAL WEIGHT RETAINED (g)	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
# 4	4.76	0	2.0	0.4%	99.6%
#10	2.00	0.9	2.9	0.6%	99.4%
#20	0.841	3.7	6.6	1.3%	98.7%
#40	0.420	46.2	52.8	10.3%	89.7%
#60	0.250	202.6	255.4	49.9%	50.1%
#100	0.149	135.3	390.7	76.3%	23.7%
# 200	0.074	79.6	470.3	91.8%	8.1%
Pan	0.000	4.8		- -	- -

Comments:

Respectfully Submitted,
GFA International, Inc.
FBPE CA # 4930

5851 Country Lakes Drive ● Fort Myers, Florida 33905 (239) 489-2443 ● (239) 489-3438 (fax)

SIEVE ANALYSIS - ASTM - C-136

Project:	Orange Grove Boulevard Water Main Utility Improvement	**Project No.:**	17-7148
Client:	Barraco and Associates, Inc.	**Lab No.:**	S003
Soil Location:	B-2 (18'-20')	**Date Sampled:**	1/18/2018
Sampled By:	Greg Cole	**Date Tested:**	1/30/2018
Tested By:	Robin Gibson		
Material Description:	Light Gray SAND WITH SILT (SP-SM; A-2-4) with Trace Shell		

#200 SIEVE WET WASH

	ORIGINAL SAMPLE WEIGHT (g)	WASHED SAMPLE WEIGHT (g)	WEIGHT PASSING (g)	PERCENT PASSING	
	429.9	384.9	46.5	11.0%	

DRY SIEVE ANALYSIS

STANDARD SIEVE SIZE	PARTIAL SIZE (mm)	SIEVE WEIGHT RETAINED (g)	TOTAL WEIGHT RETAINED (g)	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
# 4	4.76	0	39.5	9.2%	90.8%
#10	2.00	23.0	62.5	14.5%	85.5%
#20	0.841	26.9	89.4	20.8%	79.2%
#40	0.420	47.4	136.8	31.8%	68.2%
#60	0.250	158.1	294.9	68.6%	31.4%
#100	0.149	76.3	371.2	86.3%	13.7%
# 200	0.074	12.1	383.3	89.2%	11.0%
Pan	0.000	1.5		- -	- -

Comments:

Respectfully Submitted,
GFA International, Inc.
FBPE CA # 4930

5851 Country Lakes Drive ● Fort Myers, Florida 33905 (239) 489-2443 ● (239) 489-3438 (fax)

SIEVE ANALYSIS - ASTM - C-136

Project:	Orange Grove Boulevard Water Main Utility Improvement	**Project No.:**	17-7148
Client:	Barraco and Associates, Inc.	**Lab No.:**	S004
Soil Location:	B-3 (13'-15')	**Date Sampled:**	1/18/2018
Sampled By:	Greg Cole	**Date Tested:**	1/30/2018
Tested By:	Robin Gibson		
Material Description:	Gray, SAND WITH SILT (SP-SM;A-3)		

#200 SIEVE WET WASH

	ORIGINAL SAMPLE WEIGHT (g)	WASHED SAMPLE WEIGHT (g)	WEIGHT PASSING (g)	PERCENT PASSING	
	444.8	415.9	29.9	6.7%	

DRY SIEVE ANALYSIS

STANDARD SIEVE SIZE	PARTIAL SIZE (mm)	SIEVE WEIGHT RETAINED (g)	TOTAL WEIGHT RETAINED (g)	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
# 4	4.76	0	0.8	0.2%	99.8%
#10	2.00	1.0	1.8	0.4%	99.6%
#20	0.841	2.5	4.3	1.0%	99.0%
#40	0.420	38.4	42.7	9.6%	90.4%
#60	0.250	261.8	304.5	68.5%	31.5%
#100	0.149	92.9	397.4	89.3%	10.7%
# 200	0.074	17.5	414.9	93.3%	6.7%
Pan	0.000	1.0		- -	- -

Comments:

Respectfully Submitted,
GFA International, Inc.
FBPE CA # 4930

5851 Country Lakes Drive ● Fort Myers, Florida 33905 (239) 489-2443 ● (239) 489-3438 (fax)

SIEVE ANALYSIS - ASTM - C-136

Project:	Orange Grove Boulevard Water Main Utility Improvement	**Project No.:**	17-7148
Client:	Barraco and Associates, Inc.	**Lab No.:**	S005
Soil Location:	B-4 (13'-15')	**Date Sampled:**	1/18/2018
Sampled By:	Greg Cole	**Date Tested:**	1/30/2018
Tested By:	Robin Gibson		
Material Description:	Light Gray SILTY SAND (SM; A-2-4) with Trace Shell		

#200 SIEVE WET WASH

	ORIGINAL SAMPLE WEIGHT (g)	WASHED SAMPLE WEIGHT (g)	WEIGHT PASSING (g)	PERCENT PASSING	
	695.5	473.3	227.9	33.0%	

DRY SIEVE ANALYSIS

STANDARD SIEVE SIZE	PARTIAL SIZE (mm)	SIEVE WEIGHT RETAINED (g)	TOTAL WEIGHT RETAINED (g)	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
# 4	4.76	0	54.0	7.8%	92.2%
#10	2.00	22.1	76.1	10.9%	89.1%
#20	0.841	18.4	94.5	13.6%	86.4%
#40	0.420	27.7	122.2	17.6%	82.4%
#60	0.250	209.7	331.9	47.7%	52.3%
#100	0.149	124.0	455.9	65.5%	34.5%
# 200	0.074	11.2	467.1	67.2%	33.0%
Pan	0.000	5.7		- -	- -

Comments:

Respectfully Submitted,
GFA International, Inc.
FBPE CA # 4930

5851 Country Lakes Drive ● Fort Myers, Florida 33905 (239) 489-2443 ● (239) 489-3438 (fax)

SIEVE ANALYSIS - ASTM - C-136

Project:	Orange Grove Boulevard Water Main Utility Improvement	**Project No.:**	17-7148
Client:	Barraco and Associates, Inc.	**Lab No.:**	S006
Soil Location:	B-4 (23'-25')	**Date Sampled:**	1/18/2018
Sampled By:	Greg Cole	**Date Tested:**	1/30/2018
Tested By:	Robin Gibson		
Material Description:	Light Gray SAND WITH SILT (SM; A-2-4) with Trace Shell		

#200 SIEVE WET WASH

	ORIGINAL SAMPLE WEIGHT (g)	WASHED SAMPLE WEIGHT (g)	WEIGHT PASSING (g)	PERCENT PASSING	
	511.3	405.4	108.2	21.0%	

DRY SIEVE ANALYSIS

STANDARD SIEVE SIZE	PARTIAL SIZE (mm)	SIEVE WEIGHT RETAINED (g)	TOTAL WEIGHT RETAINED (g)	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
# 4	4.76	0	0.0	0.0%	100.0%
#10	2.00	0.3	0.3	0.1%	99.9%
#20	0.841	0.5	0.8	0.2%	99.8%
#40	0.420	15.4	16.2	3.2%	96.8%
#60	0.250	147.3	163.5	32.0%	68.0%
#100	0.149	216.8	380.3	74.4%	25.6%
# 200	0.074	22.4	402.7	78.8%	21.0%
Pan	0.000	2.3		- -	- -

Comments:

Respectfully Submitted,
GFA International, Inc.
FBPE CA # 4930

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SIEVE ANALYSIS - ASTM - C-136

Project:	Orange Grove Boulevard Water Main Utility Improvement	**Project No.:**	17-7148
Client:	Barraco and Associates, Inc.	**Lab No.:**	S007
Soil Location:	B-5 (4'-6')	**Date Sampled:**	1/18/2018
Sampled By:	Greg Cole	**Date Tested:**	1/30/2018
Tested By:	Robin Gibson		
Material Description:	Gray,SAND (SP; A-3)		

#200 SIEVE WET WASH					
	ORIGINAL SAMPLE WEIGHT (g)	**WASHED SAMPLE WEIGHT (g)**	**WEIGHT PASSING (g)**	**PERCENT PASSING**	
	485.5	465.7	22.5	4.6%	

DRY SIEVE ANALYSIS					
STANDARD SIEVE SIZE	**PARTIAL SIZE (mm)**	**SIEVE WEIGHT RETAINED (g)**	**TOTAL WEIGHT RETAINED (g)**	**CUMULATIVE PERCENT RETAINED**	**PERCENT PASSING**
# 4	4.76	0	1.0	0.2%	99.8%
#10	2.00	0.9	1.9	0.4%	99.6%
#20	0.841	2.2	4.1	0.8%	99.2%
#40	0.420	35.7	39.8	8.2%	91.8%
#60	0.250	201.3	241.1	49.7%	50.3%
#100	0.149	144.5	385.6	79.4%	20.6%
# 200	0.074	77.4	463.0	95.4%	4.6%
Pan	0.000	2.7		- -	- -

Comments:

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SIEVE ANALYSIS - ASTM - C-136

Project:	Orange Grove Boulevard Water Main Utility Improvement	**Project No.:**	17-7148
Client:	Barraco and Associates, Inc.	**Lab No.:**	S008
Soil Location:	B-5 (6'-8')	**Date Sampled:**	1/18/2018
Sampled By:	Greg Cole	**Date Tested:**	1/30/2018
Tested By:	Robin Gibson		
Material Description:	Light Gray,SAND WITH SILT (SP-SM; A-2-4) with Trace Gravel		

#200 SIEVE WET WASH

	ORIGINAL SAMPLE WEIGHT (g)	WASHED SAMPLE WEIGHT (g)	WEIGHT PASSING (g)	PERCENT PASSING	
	472.0	422.7	52.3	11.0%	

DRY SIEVE ANALYSIS

STANDARD SIEVE SIZE	PARTIAL SIZE (mm)	SIEVE WEIGHT RETAINED (g)	TOTAL WEIGHT RETAINED (g)	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
# 4	4.76	0	51.1	10.8%	89.2%
#10	2.00	4.0	55.1	11.7%	88.3%
#20	0.841	4.6	59.7	12.6%	87.4%
#40	0.420	36.6	96.3	20.4%	79.6%
#60	0.250	144.4	240.7	51.0%	49.0%
#100	0.149	110.4	351.1	74.4%	25.6%
# 200	0.074	68.3	419.4	88.9%	11.0%
Pan	0.000	3.0		- -	- -

Comments:

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GFA International, Inc.
FBPE CA # 4930