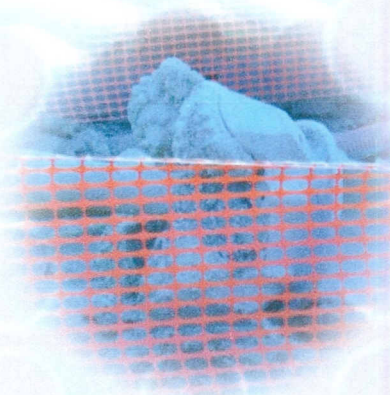


Town of Longboat Key

Bid Number 09-002

Water System Improvements:
Upsize Potable Water Transmission Main

Contract Specifications



January 2009

Town of Longboat Key

Bid Number 09-002

**Water System Improvements:
Upsize Potable Water Main**

Contract Specifications

January 2009



Laura S. Andrews

Laura S. Andrews, P.E.

Florida Professional Engineer

License No.: 47683

Date: 01/29/09

(Civil/Environmental)

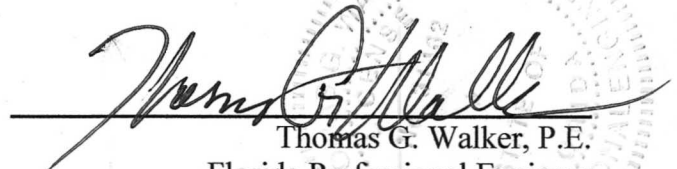
Engineering Visions, Inc.

4400 El Conquistador Pkwy, Suite 26

Bradenton, FL 34210

Office: (941) 870-5622

Florida Certificate of Authorization # 27192



Thomas G. Walker

Thomas G. Walker, P.E.

Florida Professional Engineer

License No.: 31462

Date: 01/29/09

(Civil/Environmental)

TGW Engineering, Inc

909 Tamiami Trail South, Suite 210

Nokomis, FL 34275

Office: (941) 412-9187

Florida Certificate of Authorization # 26755

TABLE OF CONTENTS

DIVISION 0 - BIDDING AND CONTRACT REQUIREMENTS

00010	Invitation to Bid
00100	Instructions to Bidders
00300	Bid Form
00400	Forms: Forms Index Minimum Qualifications/Equipment List Qualified Work Experiences & References Subcontractor References Corporation Affidavit Partnership or Joint Venture Affidavit Sole Proprietor/Individual Affidavit Organizational Structure Organizational Claims and Suits Bid Bond Statement of Compliance with Trench Safety Act Drug Free Workplace Certification Equal Employment Opportunity
00500	Contract
00700	General Conditions
00710	Performance and Payment Bond
00800	Local Project Conditions

DIVISION 1 - GENERAL REQUIREMENTS

01010	Summary of Work
01011	Site Conditions
01015	Permits and Fees
01020	Allowance
01025	Measurement and Payment
01045	Connections to Existing Systems
01050	Field Engineering
01051	Lines and Grades
01060	Project Identification Signs
01090	Reference Standards
01152	Application for Payment
01153	Change Order Procedures
01200	Project Meetings
01300	Submittals
01310	CPM Construction Scheduling Requirements
01370	Schedule of Values

TABLE OF CONTENTS

01390	Pre- and Post-Construction Audio and Video Recordings
01410	Testing Laboratory Services
01500	Construction Facilities and Temporary Controls
01530	Barriers
01570	Traffic Controls
01600	Material and Equipment
01630	Substitutions and Product Options
01700	Contract Close-out
01720	Project Record Documents

DIVISION 2 - SITEWORK

02010	Subsurface Investigation
02012	Protecting Existing Underground Utilities
02110	Clearing and Grubbing
02140	Dewatering
02211	Site Grading
02225	Trenching and Backfill Material
02226	Gravel and Crushed Rock Base for Structures
02270	Erosion and Sedimentation Control
02441	Horizontal Directional Drilling
02507	Prime and Tack Coats
02513	Asphaltic Surfaces
02520	Concrete Curbs and Headers
02521	Flowable Fill
02550	Asphaltic Concrete Overlay
02574	Pavement Repair, Removal and Replacement
02620	Polyethylene Encasement
02675	Disinfection of Potable Water Lines
02934	Sodding
02935	Landscape Planting

DIVISION 3 – CONCRETE

03000	Concrete
03300	Cast-In-Place Concrete
03315	Grout
03410	Precast Concrete Structures
03732	Concrete Repairs

TABLE OF CONTENTS

DIVISION 9 - FINISHES

09900 Painting and Coatings

DIVISION 15 – MECHANICAL

15000 Piping Schedule and General Piping Requirements
15012 PVC Pipe, 3-inches and Smaller
15014 Ductile Iron Pipe and Fittings
15044 Pressure Testing
15064 PVC Distribution Pipe
15071 HDPE Pipe, 20 Inches and Smaller
15115 Water Mains
15120 Valves and Appurtenances

INVITATION FOR QUALIFICATION AND BID
Bid # 09-002

The Town of Longboat Key (hereinafter "Town" or "Owner") is accepting sealed qualifications and bids (hereinafter "bid submittals") from contractors that must have recent and successful experience in the construction of potable water mains along Florida Department of Transportation (FDOT) right-of-way corridors utilizing open trench and directional drill technologies. All bidders must be or have a qualifying agent who is a current licensed Certified General Contractor or Underground Utility Contractor doing business as the bidder submitting the bid. Failure to list or to provide a current licensed Certified General Contractor or Underground Utility Contractor, whose license includes doing business as the bidder at the bid acceptance date, shall be deemed a non-responsive bid. In order for bidder to be considered as a qualified bidder they must complete and submit each of the Bid Submittal Forms attached in the bid submittal packet or they will be deemed an unqualified bidder.

Bid submittals for this project shall be comprised of two-parts (sealed qualification package and sealed price bid package). See Section 00100, Instructions to Bidders for detail instructions. Bid documents are only available through the Town of Longboat Key Purchasing Office at 501 Bay Isles Road, Longboat Key, FL 34228. There will be a \$270 nonrefundable charge for printed Bid Documents. Checks for payment are payable to the Town of Longboat Key. VISA and Master Cards are an acceptable form of payment. The \$270 charge is required before the Bid Documents can be obtained by or mailed to the bidder. Bid Documents provided include the Project Contract and Specifications, Drawings and a disk containing an Adobe pdf set of Specifications and Drawings. The Town of Longboat Key and its agents will not be responsible for print issues or content obtained from the use of Adobe .pdf files contained on the disk. There will be a Mandatory Pre-Bid conference on Friday, February 13, 2009 at 1:30 p.m. EST at the Town of Longboat Key Town Hall, Commission Chambers, 501 Bay Isles Road, Longboat Key, FL 34228 for providing pre-bid information and a site visit. For information about the bidding process, contact Gerald Wilson, Purchasing Manager at 941-316-1943. Questions or information requests regarding this Bid must be submitted in writing at least 7 calendar days prior to the bid receipt date and time. Fax or E-Mail questions or information requests to Gerald Wilson, Purchasing Manager, Fax # (941) 316-1656; e-mail address gwilson@longboatkey.org. Bid Documents may be examined at the Purchasing office. Examination of the bidding documents is by appointment at least one day in advance of intended viewing. Sealed bids will be accepted at the Purchasing Office at Town Hall until 2:00 p.m. eastern standard time (EST) on Wednesday, March 18, 2009 for the Qualification and Bidding for Potable Water Main Upsizing – Bay Isles Road to New Pass contract. Bids will not be accepted after 2:00 p.m. on that date.

Scope of work shall include, but not limited to:

Installation of approximately 3.2 miles of a new 12-inch to 16-inch potable water transmission main via open cut and directional drilling technologies along the eastern FDOT right-of-way (ROW) of State Road 789 (Gulf of Mexico Drive) from Bay Isles Road to 280 Gulf of Mexico Drive. The work shall progress as to maintain uninterrupted potable water service to Town customers. The work includes, but is not limited to, pipeline installation via horizontal directional drilling and open cut technologies, maintenance of traffic, tapping sleeve and valve installation, live taps, sitework, pressure and leakage tests, cleaning and disinfection, dewatering, compaction, site restoration, roadway restoration, ROW restoration, landscape restoration, sidewalk restoration, erosion and sediment control, and necessary appurtenances.

The pipeline route is in a heavily utility congested FDOT ROW. Field verification of existing utilities, daily record drawings including survey, and compliance with FDOT Utility permit, Health Department Construction of New Water Main permit and federal, state and local codes and regulations are required. The active project area for installation, testing and restoration of the transmission main is anticipated to

proceed in 2,000-foot increments. Construction and/or opening of larger areas of the pipeline route will not be allowed. It is the Town's intention to issue the Notice to Proceed as soon as possible in order to facilitate completion of most of the work prior to January 1, 2010 and therefore avoiding the busiest portion of traffic season. Utility and field verifications and shop drawing submittals may begin after the Notice to Proceed is issued. Limited material storage and staging areas will be provided by the Town at the Overlook Park on the South-end of Longboat Key. Security measures will be provided by the Contractor. Any additional staging and related security will be the responsibility of the Contractor. Storage of pipeline and equipment beyond the active project area within the ROW will not be allowed.

The time frame required for this Project is Two Hundred and Ten Calendar Days (210 Days) from the Start Date as identified in the Notice to Proceed, to Substantial Completion and Two Hundred and Fifty-five Calendar Days (255 Days) from Start to Final Completion. Liquidated damages will apply if the substantial completion date is not met.

A bid bond for 5% of the amount bid shall be required by all bidders. A public construction bond (performance and payment bond) shall be required by the successful bidder in the amount of 100% of the Contract Sum.

Bidders shall submit three (3) complete sets of fully completed bids at the time of bidding as defined in Section 00100, Instructions to Bidders. All Bid Submittals shall have one (1) original and two (2) copies. The original Bid Submittal Forms, Required Submissions shall be marked "Original" and the copies shall be marked "Copy".

Bids received after the scheduled receiving date and time established above will not be considered, but can be claimed by the bidder within 10 Days of the opening. After that time, they will be destroyed.

SECTION 00100

INSTRUCTIONS TO BIDDERS

THERE WILL BE A MANDATORY PRE-BID MEETING ON FRIDAY, FEBRUARY 13, 2009 AT 1:30 P.M. AT TOWN OF LONGBOAT KEY, TOWN HALL, COMMISSION CHAMBERS, 501 BAY ISLES ROAD, LONGBOAT KEY, FLORIDA, 34228 FOR BID INFORMATION AND SITE VISIT. BID DOCUMENT SUBMITTALS MUST BE DELIVERED TO THE PURCHASING OFFICE PRIOR TO 2:00 P.M., WEDNESDAY, MARCH 18, 2009, LOCATED AT 501 BAY ISLES ROAD, LONGBOAT KEY, FL, 34228. THERE WILL BE NO EXCEPTIONS.

BIDDER - To ensure consideration of your bid, follow these instructions.

- 1. BID SUBMITTAL:** The bid submittal shall be comprised of two separate sealed packages/envelopes:
 - a) Qualifications Package: plainly marked with the submitting firms name and “QUALIFICATION PACKAGE – Bid #09-002 – Qualification and Bidding for Potable Water Main Upsizing – Bay Isles Road to New Pass”
 - b) Price Bid Package: plainly marked with the submitting firms name and “PRICE BID PACKAGE – Bid #09-002 – Qualification and Bidding for Potable Water Main Upsizing – Bay Isles Road to New Pass”

The Town is administrating this bid in a two-part process. Qualification packages will be opened on the first bid opening date and time. All qualifying bid submittals will be reviewed by the Public Works Department and the Purchasing Division to determine if each bidder is qualified as identified in the bidding documents. The Town has the option but not obligation to consult with the Engineer during the review process. After the qualified bidders have been determined, a qualified bidder list will be recommended and approved by the Town Manager who will make the official determination on behalf of the Town.

A second public opening of the qualified sealed bid price packages from the qualified bidder list will occur. The schedule of the second public opening will be determined at a later date and will be posted on the Towns bulletin board and Demandstar.com one week before the opening. Any unqualified bidder may claim their unopened price bid package from the Purchasing Division up to 30 days from said opening. Any unclaimed unqualified price bid package will be destroyed after 30 days. Award of a contract will be made to the lowest responsive, responsible, and qualified bidder after bid price package evaluations have been completed.

2. QUALIFICATIONS PACKAGE:

The Qualifications submittal shall provide adequate information to establish a bidder as a qualified bidder based on the items requested. The package shall be organized and assembled in the order listed below under the given headings. Bidders must also include the provided forms in Section 00300 and 00400 as indicated and detailed on the Forms Index (00400-1). Forms may be copied, as needed, to provide additional area to present all relevant information. The Qualifications Package shall be bound no larger than a 2-inch three-ring binder with tabs separating the section headings and related information noted below:

- A. Title Page
- B. Table of Contents
- C. Letter of Interest Must include the name of the person(s) who will be authorized to make representations for the Bidder, their title(s), telephone number(s), and e-mail address(es). limited to two pages.

D. Section 1 – Team

This section must identify the prime bidder/firm, subcontractors, project staffing plan, and resumes. Identify the Project Manager and Construction Manager that will be responsible for day-to-day communication and coordination with the Town. Provide resumes for the Project Manager and Construction Manager detailing work experience. The Forms Index listed in 00400-01 details required forms for this Section.

E. Section 2 – Bidder’s Experience and Performance History

A qualified bidder shall provide a history of a minimum 5 recent and successfully completed construction projects. Recent shall mean no earlier than 2002. Successfully completed shall be projects performed by the Contractor through final completion. Relative construction experience for the bidder and subcontractors shall be that of similar projects to that summarized in the Scope of Work and Contractor Qualifications. Bidders must exhibit considerable relevant experience with projects of similar size and complexity and within FDOT ROW. Bidders are encouraged to provide detail narrative on similar projects to demonstrate experience. Provide names and resumes of particular personnel who will actually perform the work.

Bidders must indicate any sub-contractors proposed to be utilized for the project and list at least 2 successfully completed projects by the subcontractor with the bidding contractor or other contractors. The 2 successfully completed projects must be similar in size to this project.

Bidders must include a written affidavit stating that as the qualifying general or underground utility contractor, they will perform 51% of the work as identified in the bid documents, under the Contractors License.

Litigation history for Bidder and its proposed subcontractors is required. The Forms Index listed in 00400-01 details required forms for this Section. The Town may at its discretion disqualify a bidder due to excessive litigation actions or monetary amounts.

Similar complexity is defined as acting as general contractor for potable pipeline projects with the following characteristics:

1. Public utility pipeline construction.
2. Horizontal directional boring of HDPE pipe with diameters of 12-inches or greater and pull lengths of 1,000 ft. or greater.
3. Installation of PVC or DIP potable water main with a diameter greater than or equal to 12-inches and a length greater than 5,000 linear feet.
4. Work with and within Florida Department of Transportation (FDOT) roadways and confines
5. Certified FDOT Contractor is preferred.
6. Installation, relocation, and testing of water and wastewater pressure pipe.
7. Experience and capability of directional drilling and open cut techniques in congested rights-of-way paralleling close to edge of pavement.
8. Provision and implementation of certified maintenance of traffic plans requiring full access to property contiguous to project along with two-way traffic maintained.
9. Experience with maintenance of flow for existing potable water service and live tapping.

Similar Sized projects shall be defined as projects of not less than \$2,500,000 for an individual project.

F. Section 3 – References

Must provide a minimum of 5 client references with project name, address, telephone number, and contact person(s). Five of the references listed must be for the 5 successful completed construction projects as required in section 2E above. The Forms Index listed in 00400-01 details required forms for this Section.

G. Section 4 – FDOT Prequalification

If the bidder is currently pre-qualified with the Florida Department of Transportation (FDOT), please provide a copy of the pre-qualification and the current status and work class. The Forms Index listed in 00400-01 details required forms for this Section.

H. Section 5 – Other Relevant Information

Provide current Proof of Insurance (copy of Acord Insurance Certificate for proposal purposes – we are not asking for the bidder to add the Town as an additional insured unless they are awarded this bid), Statement on Public Entity Crimes, applicable business licenses and other information the bidder considers pertinent for consideration. The Forms Index listed in 00400-01 details required forms for this Section.

3. BID PRICE PACKAGE: The Forms Index listed in 00400-01 details required forms for the Price Bid Package. The following items shall be included in the sealed Bid Price Package envelope:

A. Submitted Bid Forms

B. Bid Bond

4. REQUEST FOR ADDITIONAL INFORMATION: The Town reserves the right request additional information from the bidders as reasonably required. This can include items such as requesting interviews, requiring presentations, financial resource information, insurance information, etc. Town will not be liable for any costs incurred by the bidders in connection with such requests.

5. EXECUTION OF BID: Bids must contain an original signature of an authorized representative in the space provided on the signature page. Bids must be typed or printed in black ink. Erasable ink is not permitted. All corrections made by a bidder to their bid must be initialed.

6. BID OPENING: All bid openings as specified in the Bid Documents shall be public. **BID SUBMITTAL FORMS USING FACSIMILE OR TELEGRAM ARE NOT ACCEPTABLE.**

NOTE: Bidders may view bid results on the Internet through <http://www.longboatkey.org> by selecting current bids. Written bid results may also be obtained at Town Hall but will not be given over the telephone. For a copy of the recap, send a written request with a self-addressed, stamped envelope with the bid number on the lower left hand corner of the envelope. Bid files may be examined after bid opening during normal working hours by appointment.

7. PRICES: Firm prices shall be bid. Submitted price bids shall remain in effect for 120 days after the bid opening.

8. MISTAKES: Bidders are required to examine the Technical Specifications, plans, delivery schedule, bid prices and all other Contract Documents. Failure to do so will be at bidder's risk. In case of a mistake in extension, the unit price will govern. All corrections made by bidder to any bid entry must be initialed and must be submitted before the bid opening.

9. ADDITIONAL TERMS & CONDITIONS: The Town reserves the right to reject bids containing any additional or differing terms or conditions than those stated in the Invitation for Qualification and Bid, Instructions to Bidders (including the General Conditions and proposed Contract), Technical Specifications, plans, and other Contract Documents.

10. CONFLICT OF INTEREST: The award of any contract as a result of any bid is subject to the provisions of Chapter 112, Florida Statutes. All bidders must disclose, with their bid, the name of any officer, manager, director, or agent who is also an employee of the Town or any of their agencies. Furthermore, all bidders must disclose the name of any Town employee who owns, directly or indirectly, any interest of any amount in the bidder's firms or any of their branches.

11. AWARD(S): The award of this bid and a contract shall be made to the lowest qualified responsive and responsible bidder meeting the requirement of the bid documents herein. As the best interest of the Town may require, the right is reserved: to make award(s) by total amount of bid, with or without alternate bid prices if included; to reject all bids, or; waive any minor irregularities or technicalities in bids received all at the sole discretion of the Town as consistent Chapter 38 of the Town Purchasing Code and any other applicable law whether or not reasonable. Upon award of the bid, a contract shall be entered into between the Town and the successful bidder in the form of the Contract For Qualification and Bidding for Potable Water Main Upsizing – Bay Isles Road to New Pass (hereinafter “Contract”) attached to the Bid Submittal Forms, which Contract shall incorporate by reference the General Conditions contained in this Instruction to Bidders.

12. NONCONFORMANCE WITH BID CONDITIONS: Bids and related materials delivered and received not conforming to the Invitation for Qualification and Bid, Instruction to Bidders, Technical Specifications, plans and all other Contract Documents for the Project will not be accepted for consideration.

13. ADDENDUM: Any changes in the bid shall be made in the form of a written Addendum by the Purchasing Manager or his representative. No other person shall be authorized to make changes verbally or in writing. If an Addendum is issued, the Addendum sheet must be signed and submitted with the bid submittal sheets at the time and due date of the bid.

14. ASSIGNMENT: Any Contract entered into pursuant to the Invitation for Qualification and Bid, and any monies which may become due as a result thereof, are not assignable, except with the prior written approval of the Purchasing Manager.

15. PATENTS AND ROYALTIES: The bidder, without exception, shall and does hereby indemnify and save harmless the Town and its employees from liability of any nature or kind, including cost and expenses for, or on account of, any copyrighted, patented or non-patented invention, process or article manufactured or used in the completion and submission of bids and/or the performance of the contract, including its use by the Town all as more specifically stated in the General Conditions. If the bidder uses any design, device or material covered by letters, patent or copyright, it is mutually agreed and understood without exception that the bid prices shall include all royalties or cost arising from the use of such design, device or material in any way involved in the Work.

16. FACILITIES: The Town reserves the right to inspect the bidder's facilities at any time, with prior notice.

17. BID PROTEST: Protest periods will be in effect five working days from the date of posting on the Town bulletin board and on Demandstar.com. in accordance with the Town's Purchasing Policies and Procedures. “ANY ACTUAL OR PROSPECTIVE BIDDER OR PERSON WHO IS

ALLEGEDLY AGGRIEVED IN THE CONNECTION WITH THE SOLICITATION OR PENDING AWARD OF A CONTRACT MAY PROTEST TO THE PURCHASING MANAGER. FAILURE TO FOLLOW THE BID PROTEST PROCEDURE REQUIREMENTS WITHIN THE TIME FRAMES PRESCRIBED HEREIN AS ESTABLISHED BY THE TOWN, SHALL CONSTITUTE A WAIVER OF YOUR PROTEST AND ANY RESULTING CLAIMS.” BID PROTEST PROCEDURE REQUIREMENTS MAY OBTAINED FROM THE PURCHASING MANAGER VIA PHONE, E-MAIL OR FAX AS SPECIFIED IN SECTION 00010, THE INVITATION FOR QUALIFICATION AND BID

18. CANCELLATION: The Town reserves the right to cancel the Project after the bid opening after reasonable written notice to the successful bidder should it be determined for any reason that completion of the Project is not in the best interest of the Town. Should the service rendered for any bid cause or threaten endangerment to public safety or welfare, the bid may be canceled by the Purchasing Manager immediately. In addition, in the event of the delay in issuance or refusal by any permitting authority to issue any permits for which the Town has applied prior to the publication of the Invitation for Qualification and Bid, the Town may, at its sole option and discretion decline to award any Contract for this Project.

19. PUBLIC ENTITY CRIME FORM: A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any 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 be awarded or perform Work as a Contractor, supplier, Subcontractor or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for CATEGORY TWO for a period of thirty-six (36) months from the date of being placed on the convicted vendor list.

20. PREFERENCE FOR DRUG FREE WORKPLACE: Whenever two or more bids, which are equal with respect to price, quality and service, are received, preference shall be given to a bid received from a business that certifies that it has implemented a drug free Workplace program in accordance with Section 287.087, Florida Statutes. In order to receive preference, a signed certification of compliance must be submitted with the bid response.

21. BID BOND: A form for the required Bid Bond equal to 5% of the Total Base Bid is included in the Forms and must be completed and submitted with each bid. If the bid is accepted and the bidder shall fail to contract as aforesaid, or fail to provide the required Performance and Payment Bond, or shall fail to provide all insurance as required by the Contract Documents within 15 Days after the posted date of the Notice of Bid Action, the Town, at its option, may determine that the bidder has abandoned his contract and thereupon this bid and the acceptance thereof shall be null and void, and the forfeiture of such security accompanying this bid shall operate and the same shall be the property of the Town.

22. PERFORMANCE AND PAYMENT BOND: A form for the required Performance and Payment Bond is included in the Forms and must be completed and submitted by the successful bidder in accordance with the requirements of the Contract Documents in the amount of 100% of the Contract Sum within 15 Days from posted date of Notice of Bid Action.

SECTION 00300

TOWN OF LONGBOAT KEY FLORIDA
QUALIFICATION ACKNOWLEDGEMENT BID # 09-002

(MUST BE COMPLETED AND SUBMITTED IN THE QUALIFICATION PACKAGE ENVELOPE)

The undersigned Bidder declares that the only person or parties interested in this bid as principals are those named herein, that this bid is made without any understanding, contract, or connection with any other person, firm, or corporation providing a bid for the same purpose and that this bid is in all respects fair and without collusion or fraud. The bidder understands that this bid must be manually signed in ink, otherwise it will be considered unresponsive and subject to rejection.

The undersigned bidder represents that the bidder accepts, and that this bid complies with, the Bid Documents; that bidder has carefully examined the proposed forms of Contract and Bonds, the Technical Specifications, Contract Drawings for the designated Work, and all other Bid Documents and Contract Documents. Bidder affirms that bidder has carefully examined the location of the designated Work and that, from his own investigations has satisfied himself as to the nature and location of the Work, the character, quality, and the quantity of materials and the kind and extent of equipment and other facilities needed for the performance of the Work, the general and local conditions and all difficulties to be encountered, and all other items which may, in any way, affect the Work or its performance.

The undersigned bidder represents that the bidder meets or exceeds all the qualifications put forth in the Bid Documents. The undersigned bidder proposes, and agrees if this bid is accepted, that he will contract with the Town in the form of the copy of the Contract for Qualification and Bidding for Potable Water Main Upsizing – Bay Isles Road to New Pass included in these Bid Documents, to provide all necessary machinery, tools, apparatus, and other means of construction necessary to do all the Work, and furnish all the materials and equipment specified or referred to in the Contract Documents and Bid Documents in the manner and time herein prescribed, and according to the requirements of the Town as therein set forth.

Under provisions of Chapter 112, Florida Statutes, bidder must disclose with proposal the name of any officer, director, or agent who is also an employee of the Town of Longboat Key. Bidder must disclose on an attachment (provided by bidder) entitled “Submitted Bid Conflict of Interest” the name of any Town of Longboat Key employee who owns, directly or indirectly, a 5% or more interest in the bidder’s firm or any of its branches, or in the firm of any Subcontractor to this bid. Absence of such an attachment represents bidder’s certification of no such employee.

Bidder acknowledges receipt of the following addenda issued during the bidding period; the cost of which, if any, is included in the Total Base Bid. If an Addendum is issued, the Addendum acknowledgement sheet must be signed and submitted with the bid submittal package at the time and due date of the bid

ADDENDUM # ADDENDUM DATE

_____	_____
_____	_____
_____	_____

Bidder _____

The undersigned bidder understands that the Town reserves the right to reject any or all bids and to waive any informalities and minor irregularities in the bidding. The bidder agrees that this bid shall be good and may not be withdrawn for a period of 120 Days after the scheduled bid opening.

The undersigned bidder acknowledges that Work to be performed shall conform to all Town codes and regulations. Work must be accomplished in a professional manner and meet all standards of any Professional trade requiring a license and or permit. Work must be substantially completed within 210 Calendar Days from the Start Date as specified in the Notice to Proceed, barring justifiable delays. Final Completion shall be 255 Calendar Days after Substantial Completion. Hours of operation that Work can be performed begin at 8:00 a.m. and run through 5:00 p.m. Monday through Saturday in accordance with Town Code, Chapter 130.

(Signature of Bidder)

(Typed name of Bidder)

Doing Business As: _____

Business Address: _____

City: _____ State _____ Zip _____

Fax: _____ Phone: _____

E-mail address: _____

TOWN OF LONGBOAT KEY FLORIDA
SUBMITTED BID # 09-002 FORM

(MUST BE COMPLETED AND SUBMITTED WITH BID IN THE PRICE BID PACKAGE ENVELOPE)

The undersigned Bidder declares that the only person or parties interested in this bid as principals are those named herein, that this bid is made without any understanding, contract, or connection with any other person, firm, or corporation providing a bid for the same purpose and that this bid is in all respects fair and without collusion or fraud. The bidder understands that this bid must be manually signed in ink, otherwise it will be considered unresponsive and subject to rejection.

The undersigned bidder represents that the bidder accepts, and that this bid complies with, the Bid Documents; that bidder has carefully examined the proposed forms of Contract and Bonds, the Technical Specifications, Contract Drawings for the designated Work, and all other Bid Documents and Contract Documents. Bidder affirms that bidder has carefully examined the location of the designated Work and that, from his own investigations has satisfied himself as to the nature and location of the Work, the character, quality, and the quantity of materials and the kind and extent of equipment and other facilities needed for the performance of the Work, the general and local conditions and all difficulties to be encountered, and all other items which may, in any way, affect the Work or its performance.

The undersigned bidder represents that the bidder meets or exceeds all the qualifications put forth in the Bid Documents. The undersigned bidder proposes, and agrees if this bid is accepted, that he will contract with the Town in the form of the copy of the Contract for Qualification and Bidding for Potable Water Main Upsizing – Bay Isles Road to New Pass included in these Bid Documents, to provide all necessary machinery, tools, apparatus, and other means of construction necessary to do all the Work, and furnish all the materials and equipment specified or referred to in the Contract Documents and Bid Documents in the manner and time herein prescribed, and according to the requirements of the Town as therein set forth.

Under provisions of Chapter 112, Florida Statutes, bidder must disclose with proposal the name of any officer, director, or agent who is also an employee of the Town of Longboat Key. Bidder must disclose on an attachment (provided by bidder) entitled “Submitted Bid Conflict of Interest” the name of any Town of Longboat Key employee who owns, directly or indirectly, a 5% or more interest in the bidder’s firm or any of its branches, or in the firm of any Subcontractor to this bid. Absence of such an attachment represents bidder’s certification of no such employee.

Bidder acknowledges receipt of the following addenda issued during the bidding period; the cost of which, if any, is included in the Total Base Bid. If an Addendum is issued, the Addendum acknowledgement sheet must be signed and submitted with the bid submittal package at the time and due date of the bid

ADDENDUM # ADDENDUM DATE

_____	_____
_____	_____
_____	_____

Bidder _____

BID FORM

The undersigned bidder understands that the Town reserves the right to reject any or all bids and to waive any informalities and minor irregularities in the bidding. The bidder agrees that this bid shall be good and may not be withdrawn for a period of 120 Days after the scheduled bid opening.

Having carefully examined the Contract Documents and Bid Documents, bidder agrees to the terms contained therein and proposes to furnish all labor, material, and equipment for the entire Work (including mobilization and demobilization), and to execute the Contract For Qualification and Bidding for Potable Water Main Upsizing – Bay Isles Road to New Pass in the form as that contained in the Bid Documents and any and all bonds, insurance certifications and other instruments or documents as specified or included in the Contract Documents and furnish the required Performance and Payment Bond, and will completely perform the Work in strict accordance with the terms of the Contract and the Bid Documents therein referred to the following prices, to wit:

Item #	Item Description	Number of Units	Units	Unit Price	Subtotal, \$
1	Mobilization	1	LS		
2	General Conditions	1	LS		
3	Maintenance of Traffic	1	LS		
4	NPDES Permitting	1	LS		
Potable Water Transmission Main					
5	16-inch PVC Pipe	6,335	LF		
6	16-inch Restrained Fittings	25	Tons		
7	16-inch Gate Valves	9	EA		
8	16-inch HDPE Pipe, HDD	1,880	LF		
9	12-inch PVC Pipe	7,275	LF		
10	12-inch Restrained Fittings	35	Tons		
11	12- inch Gate Valves	13	EA		
12	12-inch Tapping Sleeve/valve	2	EA		
13	12-inch Blow-off / Blind Flange	2	EA		
14	12-inch HDPE Pipe, HDD	3,300	LF		

Bidder _____

15	10-inch PVC Pipe	450	LF		
16	10-inch Restrained Fittings	10	Tons		
17	10-inch Gate Valves	9	EA		
18	10-inch Tapping Sleeve/valve	9	EA		
19	8-inch PVC Pipe	250	LF		
20	8-inch Restrained Fittings	10	Tons		
21	8-inch Gate Valves	5	EA		
22	8-inch Tapping Sleeve/valve	4	EA		
23	6-inch PVC Pipe	2,050	LF		
24	6-inch Ductile Iron Pipe	260	LF		
25	6-inch Restrained Fittings	15	Tons		
26	6-inch Gate Valves	25	EA		
27	6-inch Tapping Sleeve/valve	21	EA		
28	4-inch PVC Pipe	80	LF		
29	4-inch Restrained Fittings	200	LB		
30	4-inch Gate Valves	2	EA		
31	4-inch Tapping Sleeve/valve	1	EA		
32	2-inch PVC Pipe	80	FT		
33	2-inch Gate Valve	2	EA		
34	3/4-inch PVC Pipe	40	FT		

Bidder _____

35	5/8-inch Poly. Tubing	440	LF		
36	5/8-inch Ball Valves	10	EA		
Miscellaneous and Restoration					
37	Air Release Combination Valves and Vaults	9	EA		
38	Blow-Offs	2	EA		
39	Pipe Tracer Wire	21,700	LF		
40	Pipe Detection Tape	21,700	LF		
41	Additional Earth Excavation	500	CY		
42	Additional Unsuitable Material Excavation	200	CY		
43	Additional Crushed Stone Select Fill	250	Tons		
44	Additional Sand Select Fill	250	Tons		
45	Concrete Encasement/thrust blocks	100	CY		
46	Restoration - (Concrete Sidewalks)	3,000	SY		
47	Restoration - (Roads-Asphalt)	2,500	SY		
48	Restoration - (Concrete Drives)	100	LF		
49	Restoration - (Sod - Bahia)	7,500	SY		
50	Demobilization	1	LS		
SUBTOTAL (Item 1 – Item 50)					
51	Project Contingency (10% of Subtotal of Item 1 – Item 50)	1	LS		
TOTAL BASE BID (Item 1- Item 51)					

TOTAL BASE BID CONTRACT PRICE = \$ _____ **and in words:**

_____ and 00/100 dollars.

Alternate Bid Items 1, 2 and 3

Alternative Bid Items					
52	<p>Alternative 1 - Cost difference to purchase and install 12" HDPE pipe by directional drilling <i>instead</i> of 12" PVC pipe between Station 42+70 to Station 54+20 <i>(See Drawing Sheets C-108D, 109D, and 110D)</i></p>	1,150	LF		
53	<p>Alternative 2 - Cost difference to purchase and install 16" HDPE pipe by directional drilling <i>instead</i> of 16" PVC pipe between Station 108+00 to Station 115+30 <i>(See Drawing Sheets C-119D and C-120D)</i></p>	730	LF		
54	<p>Alternative 3 - Cost savings for <i>not</i> installing the 6" PVC and tap (including sidewalk restoration) between Station 160+96 and Station 168+50 <i>(See Drawing Sheets C-127T, C-128T, and C-129T)</i></p>	800	LF		

Bidder _____

The undersigned bidder acknowledges that Work to be performed shall conform to all Town codes and regulations. Work must be accomplished in a professional manner and meet all standards of any Professional trade requiring a license and or permit. Work must be substantially completed within 210 Calendar Days from the Start Date as specified in the Notice to Proceed, barring justifiable delays. Final Completion shall be 255 Calendar Days after Substantial Completion. Hours of operation that Work can be performed begin at 8:00 a.m. and run through 5:00 p.m. Monday through Saturday in accordance with Town Code, Chapter 130.

(Signature of Bidder)

(Typed name of Bidder)

Doing Business As: _____

Business Address: _____

City: _____ State _____ Zip _____

Fax: _____ Phone: _____

E-mail address: _____

SECTION 00400

FORMS

FORMS INDEX

Forms to be Completed and Submitted With Bid Packages	Package and Section	Page
Qualification and Addenda Acknowledgement	Qualifications-Section 2	00300-1 to 2
Submitted Bid, and Addenda Acknowledgement	Price Bid Package	00300-3 to 5
Forms Index (Form not submitted with bid)		00400-1
Minimum Qualifications and Equipment Lists	Qualifications-Section 2	00400- 2
Qualified Work Experiences & References	Qualifications-Section 3	00400-3
Subcontractor References	Qualifications-Section 3	00400-4
Form of Affidavit Where Bidder a Corporation	Qualifications-Section 1	00400-5
Form of Affidavit Where Bidder a Partnership or Joint Venture		00400-6
Form of Affidavit Where Bidder Sole Proprietor/Individual		00400-7
Organizational Structure	Qualifications-Section 1	00400-8
Organizational Claims and Suits	Qualifications-Section 2	00400-9
Bid Bond	Price Bid Package	00400-10 to 11
Statement of Compliance with Trench Safety Act	Qualifications-Section 5	00400-12
Drug Free Workplace Certification	Qualifications-Section 5	00400-13 to 14
Equal Employment Opportunity	Qualifications-Section 5	00400-15
Public Entity Crime	Qualifications-Section 5	00400-16 to 18
Indemnity, Liability, and Insurance Requirements	Qualifications-Section 5	00400-19 to 20
Form of Documents to be Submitted and/or Executed by Successful Bidder		
Contract		00500-1 to 6
General Conditions		00700-1 to 30
Performance and Payment Bond		00710-1 to 2

Bidder _____

MINIMUM QUALIFICATIONS
(MUST BE COMPLETED AND SUBMITTED WITH QUALIFICATION PACKAGE)

Qualifying Firm Name _____

Authorized Firm Qualifying Licensed Person _____

License # _____ Type of License _____

Copy of license is attached. YES NO, (explain why if NO):

EQUIPMENT LIST
(MUST BE COMPLETED AND SUBMITTED WITH QUALIFICATION PACKAGE)

Attach a list of equipment to be provided and used by bidder to perform the Work. (If not listed below, attach equipment list to this submittal page.)

Bidder _____

QUALIFIED WORK EXPERIENCES & REFERENCES (MUST BE COMPLETED AND SUBMITTED WITH QUALIFICATION PACKAGE)
--

Complete information below for a minimum of five clients within the past 5 years for work of similar size and complexity (as defined in Section 00100) within a 100 mile radius of Longboat Key:

NAME AND SCOPE OF WORK PERFORMED: _____

Total Cost of Work performed \$ _____ Original Bid Amount _____
Year Completed _____ Original Contract Days _____ Actual Completed Contract Time _____
Owner of Work Performed : _____ Contact Person: _____
Address: _____
City: _____ State: _____
Telephone: _____ e-mail address _____

NAME AND SCOPE OF WORK PERFORMED: _____

Total Cost of Work performed \$ _____ Original Bid Amount _____
Year Completed _____ Original Contract Days _____ Actual Completed Contract Time _____
Owner of Work Performed : _____ Contact Person: _____
Address: _____
City: _____ State: _____
Telephone: _____ e-mail address _____

NAME AND SCOPE OF WORK PERFORMED: _____

Total Cost of Work performed \$ _____ Original Bid Amount _____
Year Completed _____ Original Contract Days _____ Actual Completed Contract Time _____
Owner of Work Performed : _____ Contact Person: _____
Address: _____
City: _____ State: _____
Telephone: _____ e-mail address _____

NAME AND SCOPE OF WORK PERFORMED: _____

Total Cost of Work performed \$ _____ Original Bid Amount _____
Year Completed _____ Original Contract Days _____ Actual Completed Contract Time _____
Owner of Work Performed : _____ Contact Person: _____
Address: _____
City: _____ State: _____
Telephone: _____ e-mail address _____

NAME AND SCOPE OF WORK PERFORMED: _____

Total Cost of Work performed \$ _____ Original Bid Amount _____
Year Completed _____ Original Contract Days _____ Actual Completed Contract Time _____
Owner of Work Performed : _____ Contact Person: _____
Address: _____
City: _____ State: _____
Telephone: _____ e-mail address _____

Bidder _____

SUBCONTRACTOR REFERENCES (MUST BE COMPLETED AND SUBMITTED WITH QUALIFICATION PACKAGE)

Identify each subcontractor that will perform 5% or more of work as part of this bid, identifying previous clients for similar Work performed over last three years. Make copies of this form as necessary. Attach information regarding additional references, if any.

Subcontractor Contact Name: _____
Company: _____
City: _____ State: _____
Current Telephone (Daytime): _____
Reference based on related Work: ___ YES ___ NO
Project: _____ Date completed: _____

Subcontractor Contact Name: _____
Company: _____
City: _____ State: _____
Current Telephone (Daytime): _____
Reference based on related Work: ___ YES ___ NO
Project: _____ Date completed: _____

Subcontractor Contact Name: _____
Company: _____
City: _____ State: _____
Current Telephone (Daytime): _____
Reference based on related Work: ___ YES ___ NO
Project: _____ Date completed: _____

Subcontractor Contact Name: _____
Company: _____
City: _____ State: _____
Current Telephone (Daytime): _____
Reference based on related Work: ___ YES ___ NO
Project: _____ Date completed: _____

Subcontractor Contact Name: _____
Company: _____
City: _____ State: _____
Current Telephone (Daytime): _____
Reference based on related Work: ___ YES ___ NO
Project: _____ Date completed: _____

Indicate number of additional copies of this form that are attached, if any: _____

Bidder _____

ORGANIZATIONAL STRUCTURE (MUST BE COMPLETED AND SUBMITTED WITH QUALIFICATION PACKAGE)

Bidders Primary Work must be construction of municipal infrastructure. The bidder must have completed 5 projects within the last 3 years that are similar in size, scope, and cost to this project.

BIDDER NAME, ADDRESS: _____

PHONE # _____

E-MAIL ADDRESS _____

Type of Business _____

How many years in business: _____.

How many years in business under the present business name: _____.

Under what other or former names has your organization operated:

If a corporation, answer the following:

Date of incorporation: _____

State of incorporation: _____

President's name: _____

Vice president's name(s): _____

Secretary's name: _____

Treasurer's name: _____

If a partnership or joint venture, answer the following:

Date of organization: _____

Type of partnership (if applicable): _____

Name(s) of general partners: _____

If individually owned, answer the following:

Date of organization: _____

Name of owner: _____

Federal Employer's Identification Number: _____

Commercial General Liability Insurance:

Insurance Company Name: _____

Amount of Limits: _____

Policy Number: _____

Bidder _____

ORGANIZATIONAL CLAIMS AND SUITS (MUST BE COMPLETED AND SUBMITTED WITH QUALIFICATION PACKAGE)
--

Claims and suits (if the answer to any of the questions below is yes, please attach details including Project Name, Project Description, Project Owner, Claim Amount, Litigation Filed Date, and Outcome).

Has your organization ever failed to complete any Work awarded to it?

NO YES (details attached)

Are there any judgments, claims, and arbitration proceedings or suits pending or outstanding against your organization or officers?

NO YES (details attached)

Has your organization filed any lawsuits or requested arbitration with regard to construction contracts within the last five years?

NO YES (details attached)

Has your organization been named as a defendant or brought in as a party to any lawsuits within the last five years?

NO YES (details attached)

Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract?

NO YES (details attached)

Similar information is required for Bidder's Subcontractors.

Bidder _____

BID BOND (MUST BE COMPLETED AND SUBMITTED WITH PRICE BID PACKAGE)

KNOW ALL MEN BY THESE PRESENTS, that we (hereinafter called the Principal) and (hereinafter called the Surety), a Corporation chartered and existing under the Laws of the State of _____, and authorized to do business in the State of Florida, are held and firmly bound unto the Town of Longboat Key, Longboat Key, Florida, in the full and just sum of dollars \$ _____ (written amount: _____) good and lawful money of the United States of America, to be paid upon demand of the Town, to which payment will and truly be made, we bind ourselves, our heirs, executors administrators, successors, and assigned jointly and severally and firmly by these presents.

WHEREAS, the Principal is about to submit, or has submitted to the Town, a Bid Proposal for the purpose of:

Scope of work shall include, but not limited to:

Installation of approximately 3.2 miles of a new 12-inch to 16-inch potable water transmission main via open cut and directional drilling technologies along the eastern FDOT right-of-way (ROW) of State Road 789 (Gulf of Mexico Drive) from Bay Isles Road to 280 Gulf of Mexico Drive. The work shall progress as to maintain uninterrupted potable water service to Town customers. The work includes, but is not limited to, pipeline installation via horizontal directional drilling and open cut technologies, maintenance of traffic, tapping sleeve and valve installation, live taps, sitework, pressure and leakage tests, cleaning and disinfection, dewatering, compaction, site restoration, roadway restoration, ROW restoration, landscape restoration, sidewalk restoration, erosion and sediment control, and necessary appurtenances.

The pipeline route is in a heavily utility congested FDOT ROW. Field verification of existing utilities, daily record drawings including survey, and compliance with FDOT Utility permit, Health Department Construction of New Water Main permit and federal, state and local codes and regulations are required. The active project area for installation, testing and restoration of the transmission main is anticipated to proceed in 2,000-foot increments. Construction and/or opening of larger areas of the pipeline route will not be allowed. It is the Town's intention to issue the Notice to Proceed as soon as possible in order to facilitate completion of most of the work prior to January 1, 2010 and therefore avoiding the busiest portion of traffic season. Utility and field verifications and shop drawing submittals may begin after the Notice to Proceed is issued. Limited material storage and staging areas will be provided by the Town at the Overlook Park on the South-end of Longboat Key. Security measures will be provided by the Contractor. Any additional staging and related security will be the responsibility of the Contractor. Storage of pipeline and equipment beyond the active project area within the ROW will not be allowed.

WHEREAS, the Principal desires to file this Bond in lieu of a certified Bidder's check otherwise required to accompany this Bid Proposal;

NOW THEREFORE, the conditions of this obligation are such if the Bid Proposal is accepted, the Principal shall, within ten (10) Days after the date of receipt of written Notice of Award of Contract execute a Contract For Qualification and Bidding for Potable Water Main Upsizing – Bay Isles Road to New Pass in accordance with the Bid Proposal and upon the terms, conditions and price set forth therein, in the form and manner contained in the Contract Documents and execute a sufficient and satisfactory Public Construction Payment and Performance Bond payable to Town, in the amount of 100 percent (100%) of the total Contract Sum, in form and with surety satisfactory to said Town, then this obligation to be void, otherwise to be and remain in full force and virtue in law, and the surety shall, upon failure of the Principal to comply with any or all of the foregoing requirements within the time specified above,

Bidder _____

immediately pay to the aforesaid Town, upon demand, the amount of this Bond, in good and lawful money of the United States of America, not as a penalty, but as liquidated damages.

In the event the numerical expression is omitted or expressed as less than five percent (5%) of the total bid price, this figure shall be assumed to be erroneously stated and this bid bond shall be binding upon the Principal and Surety in the amount of five percent (5%) of the total bid price.

In testimony thereof, the Principal and Surety have caused these presents to be duly signed and sealed this

_____ Day of _____, 2009. _____

Principal

by _____

seal

State of Florida, County of Sarasota

The foregoing instrument was acknowledged before me this _____ Day of _____, 2009, by _____, who is personally known to me or who has produced _____, as identification and who did (did not) take an oath and who acknowledged before me that he executed the same for the purposes therein expressed on behalf of said corporation.

NOTARY PUBLIC

Typed Name

Commission Expires: _____

Surety

Countersigned _____

by _____

Local Producing Agent for _____

seal

seal

State of Florida, County of Sarasota

The foregoing instrument was acknowledged before me this _____ Day of _____, 2009, by _____, who is personally known to me or who has produced _____, as identification and who did (did not) take an oath and who acknowledged before me that he executed the same for the purposes therein expressed on behalf of said corporation.

NOTARY PUBLIC

Bidder _____

Typed Name

Commission Expires: _____

- NOTES:
1. Write in the dollar amount of the bond, which must be at least five percent (5%) of the total of the Base Bid included in the Proposal.
 2. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.
 3. Attorney-in-fact who sign Bid Bonds or Contract Bonds must file with each bond a certified and effectively dated copy of their power of attorney.

Bidder _____

STATEMENT OF COMPLIANCE WITH TRENCH SAFETY ACT Florida Statutes Section 553.60 (MUST BE COMPLETED AND SUBMITTED WITH QUALIFICATION PACKAGE)
--

Trench Safety Act Compliance

Bidder acknowledges that the Florida Trench Safety Act, Section 553.60 et seq., which became effective October 1, 1990, shall be in effect during the period of construction of the project. Bidder by signing and submitting the bid is, in writing, assuring that it will perform any trench excavation in accordance with the applicable trench safety standards as well as the method of compliance.

Method of Compliance

Cost

Bidder acknowledges that this cost is included in the applicable items of the bid and in the Total Base Bid. Failure to complete the above may result in the bid being declared non-responsive.

The Bidder is, and Town and Engineer are not, responsible to review or assess safety precautions, programs, or costs, or the means, methods, techniques or technique adequacy, reasonableness of cost, sequences or procedures of any safety precaution, program or cost, including but not limited to, compliance with any and all requirements of Florida Statute Section 553.60 cited as the "Trench Safety Act." Bidder is, and Town and Engineer are not, responsible to determine if any safety or safety related standards apply to the project, including, but not limited to, the "Trench Safety Act."

BIDDER:

Print or type name of entity

By: _____

Signature

Print or type name

Print or type title

Date

Bidder _____

DRUG FREE WORKPLACE CERTIFICATION (MUST BE COMPLETED AND SUBMITTED WITH QUALIFICATION PACKAGE)
--

Identical Tie Bids: Preference shall be given to businesses with drug free Workplace programs. If two or more bids are equal with respect to price, quantity, and service then a bid received from a business that certifies that it has implemented a drug free Workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if all or none of the tied vendors have or do not have a drug free Workplace program (Florida Statutes Section 287.087). In order to have a drug free Workplace program, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the Workplace and specifying the action that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the Workplace, the business's policy of maintaining a drug free Workplace, and available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employees that, as a condition of Working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the Workplace no later than five Days after such conviction.
5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug free Workplace through implementation of this section.

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

BIDDER:

Print or type name of entity

By: _____
Signature

Print or type name

Print or type title

Date

Bidder _____

Drug Free Workplace Certification, page 2 of 2

State of Florida, County of Sarasota

The foregoing instrument was acknowledged before me this _____ Day of _____, 2009, by _____, who is personally known to me or who has produced _____, as identification and who did (did not) take an oath and who acknowledged before me that he executed the same for the purposes therein expressed on behalf of said corporation.

NOTARY PUBLIC

Typed Name

Commission Expires: _____

Bidder _____

EQUAL EMPLOYMENT OPPORTUNITY (MUST BE COMPLETED AND SUBMITTED WITH QUALIFICATION PACKAGE)

The Town of Longboat Key is an Equal Opportunity/Affirmative Action Employer.

Pursuant to Executive Order 11346 as amended, you are advised that under the provisions of government contracting, Contractors and Subcontractors are obliged to take affirmative action to provide equal employment opportunity without regard to race, creed, color, national origin, age or sex.

**CERTIFICATION BY PROPOSED PRIME OR SUBCONTRACTOR
REGARDING EQUAL EMPLOYMENT OPPORTUNITY**

This certification is authorized pursuant to Executive Order 11246, Part II, Section 203(b), (30 F. R. 12319-15). Any Bidder or prospective Contractor, or any of the proposed Subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous Contract or subcontract to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicated that the prime or Subcontractor has not filed a compliance report due under applicable instruction, such Contractor shall be required to submit a compliance report.

(Signature of Bidder)

(Typed name of bidder)

Phone # _____ Fax # _____ e-mail _____
Address: _____

1. Bidder has participated in a previous contract or subcontract, subject to the Equal Opportunity Clause: YES___ NO___

2. Compliance Reports were required to be filed in connection with such contract or subcontract:
YES___ NO___

If YES, state what reports were filed and with what agency.

3. Bidder has filed all compliance reports due under applicable instructions:
YES___ NO___

If answer to Item 3 is NO, please explain in detail on revise side of this certification.

Bidder _____

SWORN STATEMENT ON PUBLIC ENTITY CRIMES Florida Statutes Section 287.133(3)(a) (MUST BE COMPLETED AND SUBMITTED WITH QUALIFICATION PACKAGE)
--

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

1. This sworn statement is submitted to the

_____ (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 _____

and (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: _____)

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 of the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or materiel misrepresentation.

3. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means finding of guilt of 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 in formation 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 an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes means:

A. A predecessor or successor of a person convicted of a public entity crime; or

B. 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 officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an 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 for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who

Bidder _____

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)(e), 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 into 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 an entity.
6. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Indicate which statement applies).

Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent.

The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the 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.

The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members or agents who are active in the 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 hearings 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).

Bidder _____

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 IT 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 OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

(Signature)

Sworn to and subscribed before me this _____ day of _____, 2009

Personally known _____

Or Produced Identification _____ Notary Public – State of _____

My commission expires _____

(Type of identification)

(Printed, typed or stamped commissioned name of notary public)

INDEMNITY, LIABILITY AND INSURANCE REQUIREMENTS
(MUST BE COMPLETED AND SUBMITTED WITH QUALIFICATION PACKAGE)

INDEMNIFICATION AND HOLD HARMLESS

The bidder covenants and agrees to indemnify and hold harmless the TOWN and its authorized representatives from any and all claims for bodily injury (including death), personal injury, and property damage (including attorney's fees) which arise out of, in connection with, or by reason of services provided by the firm or any of its Subcontractor in any tier, occasioned by the negligence, errors, or other wrongful act or omission of the firm or its Subcontractor in any tier, their employees, or agents and as more clearly defined in section 6.5 of the General Conditions.

GENERAL INSURANCE REQUIREMENTS

The firm is responsible for ensuring that all such insurance obtained will extend protection to any Subcontractor firm who may perform any part of this contract or require any such Subcontractor firm to obtain insurance consistent with this section. Such insurance will be required during the entire term of the contract.

Qualification packages shall include proof as evidence of the required insurance either Certificate(s) of Insurance or a certified copy of the actual insurance policy(ies).

TOWN, at its sole discretion, has the right to request a certified copy of any or all insurance policies required by this section. Required insurance with the TOWN as the certificate holder must be provided prior to commencement of work.

Insurance policies must be provided by a company authorized to transact business in the state of Florida and companies must maintain a minimum rating of A-VI, as assigned by the A.M. Best Company.

The Commercial General Liability must include TOWN as an additional insured and primary and non-contributory (Note: the proof of insurance included with the proposal does not have to include TOWN as an additional insured or list primary and non-contributory. *(This will only be required of the awarded bidder).*)

- Commercial General Liability with minimum limits of \$5,000,000 Combined Single Limit to include, as a minimum:
 - Premises Operations
 - Products and Completed Operations
 - Blanket Contractual Liability
 - Personal Injury Liability
 - Expanded Definition of Property Damage

If coverage is provided on a claims made policy, its provisions should include coverage for which claims filed on or after the effect date of this contract. In addition, the period for which claims may be reported should extend for a minimum of twelve (12) months following the acceptance of work by TOWN.

- Vehicle Liability with combined single limits of \$ 5,000,000 Combined Single Limit (CSL) to cover all vehicles to be used in fulfilling contract. Owned, Non-Owned and Hired Vehicles.

Bidder _____

- Statutory Workers' Compensation Benefits with Employer's Liability limits of not less than:
 - (Or proof of exemption)
 - \$500,000 Bodily Injury
 - \$500,000 Bodily Injury by Disease, policy limits
 - \$500,000 Bodily Injury by Disease, each employee
- Liability with minimum limits of not less than \$5,000,000.

Forward all certificates of insurance to Town, Benefits and Insurance Administrator with construction service identified on it.

Information described above has been read and agreed to with applicable supporting material attached.

(Signature)

Sworn to and subscribed before me this ____ day of _____, 2009

Personally known _____

Or Produced Identification _____ Notary Public – State of _____

My commission expires _____

(Type of identification)

(Printed, typed or stamped commissioned name of notary public)

SECTION 00500

DRAFT CONTRACT

DRAFT CONTRACT FOR POTABLE WATER MAIN UPSIZING – BAY ISLES ROAD TO NEW PASS

This Contract For Potable Water Main Upsizing – Bay Isles Road to New Pass (hereinafter “Contract”) is entered into by and between the Town of Longboat Key, 501 Bay Isles Road, Longboat Key, FL 34228, a Municipality organized under the laws of the State of Florida (hereinafter “Town” or “Owner”), and **Contractor Name**, whose address is **Contractors Address**, (hereinafter “Contractor”), as of the date appearing on the signature lines below.

Article 1 - WORK

Contractor shall complete all work as specified or indicated in the Technical Specifications, Plans prepared by Engineering Visions, Inc. and TGW Engineering, Inc., dated **Date of the Technical Provisions, Plans and Specifications** and all Contract Documents as enumerated herein and in accordance with the General Conditions incorporated herein by reference. The work (hereinafter “Work”) is generally described as Qualification and Bidding for Potable Water Main Upsizing – Bay Isles Road to New Pass all as more fully stated in this Contract and the Contract Documents.

Article 2 - ENGINEER

The project has been designed by Engineering Visions, Inc. and TGW Engineering, Inc., (hereinafter “Engineer” and sometimes referred to as “Professional” in the General Conditions and other Contract Documents). The Engineer is to act as Owner's representative and assume all duties and responsibilities and have the rights and authority assigned to Engineer or Professional in the Contract Documents in connection with completion of the work in accordance with the Contract Documents.

Article 3 - CONTRACT TIME

3.1 The Contract Time (as defined in the General Conditions incorporated by reference into this Contract) shall commence to run on the date specified in the Notice to Proceed, which Notice to Proceed shall be issued following execution of this Contract, and shall become part of the Contract Documents.

3.2 The Work shall be substantially completed within Two Hundred and Ten days (210 Days) calendar days from the date the Contract Time commences to run as specified in the Notice To Proceed, and all Work shall be completed, accepted, and ready for final payment within Two Hundred and Fifty-five Days (255 Days) calendar days after the date the Contract Times commence to run as specified in the Notice to Proceed.

3.3 Liquidated Damages. Owner and Contractor recognize and agree that time is of the essence of this Contract and for the Work to be performed pursuant to this Contract and the Contract Documents, and that Owner will suffer financial loss if the Work is not completed within the times specified in this Contract and the Contract Documents, plus any extensions thereof allowed in accordance with Article 13 of the General Conditions. They also recognize and agree that the delays, expense and difficulties involved in proving the actual loss or damages suffered by Owner if the Work is not completed within the time specified by this Contract and the Contract Documents render proof of actual loss uncertain. Accordingly, instead of requiring any such proof, Owner and

Article 6 - CONTRACTOR'S REPRESENTATIONS

In order to induce Owner to enter into this Contract, Contractor makes the following representations, upon which the Owner has actually and justifiably relied:

6.1 That Contractor has examined and carefully studied all Contract Documents, and that Contractor has the experience, expertise and resources to perform all required Work as specified within the times stated in this Contract and the Contract Documents.

6.2 That Contractor has visited the site and at least a fair representative sample of the Project Area and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, performance or furnishing of the Work to be performed pursuant to this Contract and the Contract Documents.

6.3 That Contractor is familiar with and can and shall comply with all federal, state, and local laws and regulations that may affect cost, progress, performance, and furnishing of the Work to be performed pursuant to this Contract and the Contract Documents.

6.4 That Contractor has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all Drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site. Contractor acknowledges that the Town and Engineer do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to physical conditions, including, but not limited to Underground Facilities at or contiguous to the site. Contractor has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto. Contractor does not consider that any additional examinations, investigations, explorations, tests, studies, or data are necessary for the performance and furnishing of the Work at the Contract Sum, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.

6.5 That Contractor is aware of the general nature of work to be performed by Owner and others at the site, if any, that relates to the Work to be performed pursuant to this Contract and the Contract Documents.

6.6 That Contractor has correlated the information known to Contractor, information and observations obtained from visits to the site, specifications, and Drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

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

6.8 That Contractor has had duly issued and executed all required Payment and Performance Bonds and Certificates of Insurance required by this Contract and the Contract Documents.

Article 7 - CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between Owner and Contractor concerning the scope and nature of the Work, and its performance, consist of the following which are incorporated by reference:

7.1 This Contract;

7.2 The General Conditions attached hereto;

7.3 The Plans, Technical Specifications, prepared by the Engineer relative to this Project, all as more specifically described in this Contract, the Invitation for Qualification and Bid, Instructions to Bidders and the General Conditions;

7.4 Certificates of Insurance, with endorsements, Performance and Payment Bond, Bid Bond, Notice of Award, Notice to Proceed, Change Orders and Construction Change Directives;

7.5 The following, which may be delivered or issued after the Effective Date of the Contract, and are not attached hereto: all written Amendments, Addenda and other documents amending, modifying, or supplementing the Contract Documents;

7.6 The Invitation for Qualification and Bid, Instructions to Bidders, and all completed Bid Submittal Forms.

Article 8 - MISCELLANEOUS

8.1 Terms used in this Contract, which are defined in the Bid Documents, General Conditions or other Contract Documents, shall have the meanings indicated in the Bid Documents, General Conditions or other Contract Documents as the case may be.

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

8.3 Contractor binds itself, its partners, successors, assigns, and legal representatives to the Town and any of the Town's successors, assigns, and legal representatives of the Town in respect of all covenants, contracts, and obligations contained in this Contract and the Contract Documents. No employees, agents or representatives of the Town are personally or individually bound by this Contract.

8.4 Any provision or part of this Contract or the Contract Documents held to be void or unenforceable under any law or regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that this Contract and the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

Bidder _____

8.5 Notice Provision: Any notice or other communications concerning material changes to the Contract, shall be sent via facsimile or certified U.S. Mail, return receipt requested, postage prepaid to the addresses listed below.

To Owner:

Bruce St Denis, Town Manager
Town of Longboat Key
Town Hall
501 Bay Isles Road
Longboat Key, FL 34228
Facsimile: (941) 316-1656

Juan J. Florensa, Public Works Director
Town of Longboat Key
Public Works Building
600 General Harris
Longboat Key, FL 34228
Facsimile: (941) 316-1984

With Copy to:
Laura Andrews, P.E., BCEE
Engineering Visions, Inc.
4400 El Conquistador Parkway, Suite 26
Bradenton, FL 34210

Thomas Walker, P.E., BCEE
TGW Engineering, Inc.
909 Tamiami Trail South, Suite 210
Nokomis, FL 34275

David Persson, Esq.
Hankin, Persson, Davis,
McClenathen & Darnell
1820 Ringling Blvd.
Sarasota, Florida 34236
Facsimile: (941) 365-3259

To Contractor:

Contractors Name, Contract, Address, Fax#

Bidder _____

To Contractor:

IN WITNESS WHEREOF, the parties hereto have made and executed this CONTRACT as of the day and year last written below. OWNER AND CONTRACTOR have signed this Contract in two originals in counterpart. One counterpart each has been delivered to the OWNER and the CONTRACTOR. All portions of the Contract Documents have been signed, initialed or identified by OWNER and CONTRACTOR or identified by ENGINEER on their behalf.

ATTEST:

As to **(Contractors Name)**

Contractor Name

Signature

By: _____

Its: _____
(Title of Authorized Representative)

(Print or Type Name)

(Print or Type Name)

(Print or Type Title)

(Print or Type Title)

Date: _____

Date: _____

Seal:

ATTEST:

As to Town of Longboat Key, Florida

OWNER

Town of Longboat Key, Florida

By: _____
Trish Granger, Town Clerk

By: _____
Bruce St. Denis, Town Manager

Date: _____

Date: _____

Seal:

Review of Contract As To Form:

By: _____
David Persson, Town Attorney

SECTION 00700

GENERAL CONDITIONS

ARTICLE 1 - CONTRACT DOCUMENTS

- 1.0 The Contract Documents comprise the entire contract between the Town and the Contractor and shall consist of the documents listed in Article 7 of the Contract for Qualification and Bidding for Potable Water Main Upsizing – Bay Isles Road to New Pass (hereinafter “Contract”):

ARTICLE 2 - DEFINITIONS

- 2.0 Whenever used in any of the Contract Documents, the following meaning shall be given to the terms herein defined:
- .1 The term **Addendum or Addenda** means any changes, revisions or clarifications of the Contract Documents, which have been duly issued by the Town to prospective Bidders prior to the time of receiving Bids.
- .2 The term **Amendment** means written modification to the Contract Documents, signed by Town and Contractor, on or after the Effective Date of the Contract and normally dealing with non-engineering or non-technical aspects of the Work.
- .3 The term **Application for Payment** means the pay request accepted by Professional or Town which is to be used by Contractor in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
- .4 The term **Bid Documents** means the Public Notice, Invitation for Qualification and Bid, all Forms contained in the Bid Documents, Definitions, Instructions to Bidders, Technical Specifications, General Conditions, submitted bid forms, proposed Contract Documents, addenda issued prior to public bid opening, , Drawings and other material provided as Bid Documents to define the Work.
- .5 The term **Bid Proposal** means the offer or proposal of the Bidder submitted on the prescribed form setting forth the price(s) for the Work to be performed.
- .6 The term **Bonds** means the Bid and Public Construction Payment and Performance Bond and other instruments of security furnished by the Contractor and its Surety in accordance with the Contract Documents.
- .7 The term **Change Order** means a written recommendation by Engineer, signed by Contractor and Town, which authorizes an addition, deletion, or revision in the Work, or an adjustment in the Contract Sum or the Contract Time, issued on or after the Effective Date of the Contract.
- .8 The term **Construction Change Directive** means a written Directive for changes in the Work, which, if not expeditiously implemented, might delay the project. In contrast to a Change Order, a Construction Change Directive is to be used where owner and Contractor have not reached agreement on proposed changes in Contract Sum or Contract Time. Upon receipt of such directive, Contractor must promptly proceed with the change in the Work described. A Construction Change Directive will not change the Contract Sum or the Contract Time, but is evidence that the parties expect that the change directed or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, of the Contract Sum or Contract Time.

Bidder _____

- .9 The term **Contractor** means the person, firm or corporation entering into the Contract with the Town to perform the Work as defined in the Contract and Contract Documents.
- .10 The term **Contract Documents** means the Contract, General Conditions, Plans and Specifications prepared by the Engineer relative to this project, Certificates of Insurance with endorsements, Performance and Payment Bond, Bid Bond, Notice of Award, Notice to Proceed, Change Orders, Construction Change Directives, Amendments, Addenda, Supplementary Conditions, and the Bid Documents.
- .11 The term **Contract Sum** means the moneys payable by Town to Contractor for completion of the Work in accordance with the Contract Documents.
- .12 The term **Contract Time**, unless otherwise provided, means the period of time as stated in the Notice To Proceed, including adjustments by Change Order, allotted in the Contract Documents for Substantial Completion of the Work.
- .13 The term **Defective** means an adjective which when modifying the word "Work" refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents.
- .14 The term **Day** is a calendar day. If a calendar Day shall fall on a legal holiday that Day will be omitted from the computation of Days for total Contract Time. Legal Holidays: New Year's Day, Martin Luther King Day, Memorial Day, 4th of July, Labor Day, Veterans Day, Thanksgiving Day and the following Friday, and Christmas Day.
- .15 The term **Drawings** means the Drawings as specifically referred to as such (or as "plans") in these documents or addenda that are produced by the Engineer. Drawings or plans issued after the execution of the contract to explain further or to illustrate, or to show changes in Work, will be known as "supplementary Drawings" and shall be binding upon the Contractor with the same force as the Drawings.
- .16 The term **Effective Date of the Contract** means the last date on which the Contract has been signed by either party to the Contract.
- .17 The term **Engineer** means Engineering Visions, Inc. and TGW Engineering, Inc., or its authorized representatives acting within the scope of duties established by contract with the Town. The term shall also encompass the term "Professional".
- .18 The term **Field Order** means a written direction to the Contractor from the Professional that modifies Technical Specifications, Drawings or any other Contract Document without changing Contract Sum or Contract Time.
- .19 The term **Final Completion** means the stage at which all incomplete and Defective Work has been completed or corrected in accordance with Contract Documents.
- .20 The Term **Milestone** means a principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of the Work.
- .21 The term **Notice of Award** means the written notice issued by the Town to the successful bidder.
- .22 The Term **Notice of Bid Action** means written notice by Town to all bidders stating the apparent successful bidder. A Contract in the form of the Contract For Qualification and Bidding for Potable Water Main Upsizing – Bay Isles Road to New Pass included in the Bid Documents will be executed by the Town upon compliance by the apparent successful bidder with conditions set forth in the Bid Documents.
- .23 The term **Notice to Proceed** means a written notice issued by the Town to the Contractor fixing the date on which the Contract Time will commence and upon which the Contractor shall start to perform the obligations under the Contract Documents, unless otherwise specified in the Notice

Bidder _____

- to Proceed. The actual Start Date shall be within ten (10) Days of Notice to Proceed date or when all applicable Permits have been secured, unless otherwise stated.
- .24 The term **Permits** means any regulatory agency, Federal, State, County or local that requires Permits for Work being performed.
- .25 The term **Professional** means the Architectural/Engineering firm or individual retained by the Town or in-house licensed person designated to perform the design and/or resident Engineer services for the Work. The term shall also encompass the term “Engineer”.
- .26 The term **Proposal Request** – is a written request used to obtain price quotations required in the negotiation of Change Orders.
- .27 The term **Project Area** (also sometimes referred to as “Site” in the Contract Documents) means the area within which are the specified contract limits of the improvements contemplated to be constructed in whole or in part under the Contract Documents.
- .28 The term **Project Manager** means Town representative in charge, employed by said Town, for the purpose of directing or having in charge the Work provided for in the Contract and the Contract Documents.
- .29 The term **Purchasing Manager** means the Manager of the Town Purchasing Department or its authorized representatives.
- .30 The term **Site** means the area of Work for this project located at Qualification and Bidding for Potable Water Main Upsizing – Bay Isles Road to New Pass.
- .31 The term **Supplementary Conditions** means any additional or supplementary conditions, if any, prepared and attached to and incorporated in the General Contract at the time of the execution of the General Contract.
- .32 The term **Substantial Completion** means the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer as evidenced by Engineer's definitive certificate of Substantial Completion, it is sufficiently complete and in accordance with the contract, so that the Work (or a specified part) can be utilized for the purposes for which it is intended; or, if no such certificate is issued, when the Work is complete and ready for final payment.
- .33 The term **Start Date** means the date of commencement of the Work.
- .34 The term **Subcontractor** means an individual, firm, or corporation having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the site.
- .35 The term **Specifications** – means descriptions of materials, equipment, construction systems, standards and Workmanship as applied to the Work and applicable administrative details as listed in or contained or specified in the Technical Specifications or other Contract Documents.
- .36 The term **Technical Reports** means the reports issued by the Town Contractor or Project Manager consisting of written technical material.
- .37 The term **Town** means the Town of Longboat Key, a Municipality organized under the laws of the State of Florida (also, sometimes referred to as “Owner”).
- .38 The Term **Underground Facilities** means all pipelines, 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, Gas, Steam, Liquid Petroleum Products, Telephone or other Communications, Cable Television, Sewage and Drainage Removal, Traffic or other Control Systems, or Water.

Bidder _____

- .39 The term **Unit Price Work** means Work to be paid for on the basis of unit prices.
- .40 The term **Work** means the entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment in the construction and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

ARTICLE 3 - PRELIMINARY MATTERS

3.1 Delivery of Bonds and Insurance Certificates

3.1.1 When the Contractor delivers the executed Contract to the Town, the Contractor shall also deliver to the Town the original and fully completed Payment and Performance Bonds and Insurance Certificates specified by the Contract Documents, including, but not limited to those matters and documents specified in Article 3.5.3 of these General Conditions. Failure to timely deliver said Bonds and evidence of insurance will be deemed the breach of a material condition precedent to the entry into a General Contract and shall prevent the formation of any contract between the Town and the successful bidder.

3.2 Copies of Documents

3.2.1 After the award of the Contract, the Town shall furnish the Contractor, at no cost, a maximum of five (5) sets of plans and Contract Documents for execution of the Work.

3.3 Commencements of Contract Times; Notice to Proceed

3.3.1 The Contract Time shall commence as established in the Notice to Proceed. A Notice to Proceed may be given at any time after the Effective Date of the Contract.

3.4 Starting the Work

3.4.1 The Contractor shall begin the Work on the date the Contract Time commences. No Work shall be done prior to the date on which the Contract Time commences. Any Work performed by the Contractor prior to date on which Contract Time commences shall be at the sole risk of the Contractor.

3.5 Before Starting Construction

3.5.1 Before undertaking each part 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 Professional any conflict, error, defect, ambiguity or discrepancy which the Contractor may discover in the Contract Documents and shall obtain a written interpretation or clarification from the Professional before proceeding with any Work affected thereby. The Contractor shall be liable to the Town for failure to report any conflict, error, defect, ambiguity or discrepancy in the Contract Documents, if the Contractor knew or reasonably should have known thereof.

3.5.2 Within fifteen (15) Days after the Notice to Proceed (unless otherwise specified in the Contract Documents), the Contractor shall submit to the Professional and the Project Manager for review and ultimate approval the following:

3.5.2.2. Contractor's proposed Work schedule showing start and completion dates of Work to be performed. Work schedule will include a planned sequence of project work and installation methods.

3.5.2.3. A preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Sum and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction or a schedule with sufficient breakdown of lump sum prices to identify items of Work and show retainage. Such amounts will include an appropriate amount of overhead and profit applicable to each item of Work.

3.5.2.4. A copy of the schedule of values shall be sent to the Project Manager and the Professional.

3.5.3 Prior to the Effective Date of the Contract, the Contractor shall deliver to the Town, an executed Insurance certificate, ACORD form # 25-S (7/97), in the amounts not less than identified in Article 6. The Acord certificate shall include separate endorsements for each insurance policy identified in the Acord certificate showing the Town as an additional insured, original policy or certified copies of each insurance policy (and other evidence of insurance which the Town may reasonably request) which the Contractor is required to purchase and maintain in accordance with Article 6.

3.5.4 Before any Work at the site is started and within 10 Days of the Notice To Proceed, a pre-construction conference scheduled by the Contractor, Project Manager, Professional and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in 3.5.2, procedures for handling Shop Drawings and other submittal, processing applications for payment and maintaining required records.

3.5.5 Unless otherwise provided in the Contract Documents, at least ten (10) calendar Days before submission of the first Application for Payment a conference attended by the Contractor, Project Manager, Professional and others as appropriate will be held to review for acceptability to the Professional the schedules submitted in accordance with 3.5.2. Contractor shall have an additional ten (10) calendar Days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to the Contractor until the schedules are submitted to and acceptable to the Professional. The progress schedule will be acceptable to the Professional as providing an orderly progression of the Work to completion within any specified Milestones and the Contract Time, but such acceptance will neither impose on the Professional responsibility for the sequencing, scheduling or progress of the Work nor interfere with or relieve the Contractor from Contractor's full responsibility therefore. The Contractor's schedule of Shop Drawing and Sample submissions will be acceptable to the Professional as providing a workable arrangement for reviewing and processing the required submittal. The Contractor's schedule of values shall be approved by the Professional as to form and substance.

3.5.5.1 The Contractor, in addition to preparing an initially acceptable schedule, shall be responsible for maintaining the schedule, including updating the schedule. Schedule updates shall include progression of Work as compared to scheduled progress on Work. Schedule updates shall accompany each pay request.

ARTICLE 4 - CONTRACT DOCUMENTS, INTENT, DISCREPANCIES, AMENDING, AND REUSE

4.1 Precedence

4.1.1 The Contract Documents comprise the entire Contract between the Town and the Contractor concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the Laws of the State of Florida.

4.1.2 It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be furnished by and performed by the Contractor with no change to the Contract Sum whether or not specifically called for. When words or phrases, which have a well-known technical or construction industry or trade meaning, are used to describe Work, materials or equipment, such words or phrases shall be interpreted in accordance with that meaning. Clarifications and interpretations of the Contract Documents shall be issued by the Professional.

4.1.3 Except as otherwise specifically stated in the Contract Documents, or as may be provided by Amendment or supplement thereto issued by one of the methods indicated in 4.3.1 or 4.3.2, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity or discrepancy between the provisions of the Contract Documents and the provisions of any such standard, specification, manual, code or instruction (whether or not specifically incorporated by reference in the

Contract Documents) and the provisions of any such Laws or Regulations application to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

4.1.4 Reference to standards, specifications, manuals or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code or Laws or Regulations in effect at the time of opening of Bids (or, on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

4.2 Conflicts

4.2.1 If during the performance of the Work, the Contractor discovers any conflict, error, defect, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such Law or Regulation applicable to the performance of the Work or of any such standard, specification, manual or code or of any instruction of any supplier, the Contractor shall report it to the Professional in writing at once, and, the Contractor shall not proceed with the Work affected thereby (except in an emergency) until an Amendment or supplement to the Contract Documents has been issued by one of the methods indicated in 4.3.1 or 4.3.2. The obligation of the Contractor as stated herein is in addition to the obligation of the Contractor pursuant to 3.5.1

4.2.2 No provision of any such standard, specification, manual, code or instruction shall be effective to change the duties and responsibilities of the Town, Contractor or Professional, or any of their Subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to the Town, Professional or any of the Professional's Consultants, agents or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of 10.7.1 or any other provision of the Contract Documents.

4.3 Amending

4.3.1 The Contract Documents may be amended to provide for additions, deletions and revisions to the Work or to modify the terms and conditions thereof by a Change Order.

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

4.3.2.1 A Field Order or Memo

4.3.2.2 Professional's written interpretation or clarification

4.4 Reuse of Documents

4.4.1 The Contractor, and any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with the Town shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications or other Contract Documents (or copies of any thereof) prepared by or bearing the seal of the Professional or Professional's consultant, and shall not reuse any of such Drawings, Specifications, other Contract Documents or copies on extensions of the Project or any other project without written consent of the Town and specific written verification or adoption by the Professional.

ARTICLE 5 - PROJECT CONDITIONS

5.1 Availability of Lands

5.1.1 The Town shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of the Contractor. Upon reasonable written request, the Town shall furnish the Contractor with a correct statement of record legal title and legal description of the lands upon which the

Work is to be performed. The Town shall identify any encumbrances or restrictions not of general application, but specifically related to use of lands so furnished with which the Contractor will have to comply in performing the Work. Necessary easements or rights-of-way will be obtained and expenses will be borne by the Town. If the Contractor and the Town are unable to agree on entitlement to or the amount or extent of any adjustments in the Contract Sum or the Contract Times as a result of any delay in the Town's furnishing these lands, rights-of-way or easements, the Contractor may make a claim therefore as provided in Articles 12 and 13. The Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.2 Subsurface Physical Conditions

5.2.1 Reference is made to the Technical Specifications and other pertinent provisions of the Contract Documents for identification of those reports of exploration and tests of subsurface conditions at or contiguous to the Project Area that have been utilized in preparing the Contract Documents, and those Drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) that have been utilized in preparing the Contract Documents.

5.3 Limited Reliance by Contractor Authorized Technical Data

5.3.1 The Contractor may rely upon the general accuracy of the technical data contained in the Contract Documents only to the extent specified in the Technical Specifications. Except for such reasonable general reliance on such technical data, the Contractor may not rely upon or make any claim against the Town, Professional, or any of Professional's Consultants with respect to:

5.3.1.1 the completeness of any reports, drawings or other portions of the Contract Documents for the Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by the Contractor and safety precautions and programs incident thereto, or

5.3.1.2 other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings, or

5.3.1.3 Any Contractor interpretation or conclusion drawn from any technical data, opinions or information.

5.4 Unknown or Concealed Conditions

5.4.1 If conditions are encountered, excluding Underground Facilities, at the Project Area which are (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then the Contractor shall give the Town notice, through the Professional, thereof promptly before conditions are disturbed and in no event later than 48 hours after first observance of the conditions.

5.4.2 The Project Manager and Professional shall promptly investigate such conditions, and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, the Project Manager and Professional shall recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Project Manager and Professional determine that the conditions at the Site are not materially different from those indicated in the Contract Documents or are not materially different from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents and that no change in the terms of the Contract Sum and/or Contract Time is justified, the Professional shall notify the Contractor of the determination in writing. The Work shall be performed after direction is provided by the Professional.

5.5 Physical Conditions - Underground Facilities

5.5.1 The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Project Area is based on information and data furnished to the Town or the Professional by the owners of such Underground Facilities or by others.

5.5.1.1 The Town and Professional shall not be responsible for the accuracy or completeness of any such information or data; and

5.5.1.2 The cost of all of the following will be included in the Contract Sum and the Contractor shall have full responsibility for (i) reviewing and checking all such information and data, (ii) locating all Underground Facilities shown or indicated in the Contract Documents, (iii) coordination of the Work with the owners of such Underground Facilities during construction, and (iv) the safety and protection of all such Underground Facilities, and repairing any damage thereto resulting from the Work.

5.5.2 If an Underground Facility is uncovered or revealed at or contiguous to the Project Area which was not shown or indicated in the Contract Documents, the Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency), identify the owner of such Underground Facility and given written notice to that owner and to the Town through the Professional. The Project Manager and Professional will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence of the Underground Facility. If the Project Manager concludes that a change in the Contract Documents is required, a Change Order will be issued as provided in Article 11 to reflect and document such consequences. 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 Sum 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 that the Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence and nature of such Underground Facility. If the Town and the Contractor are unable to agree on entitlement to or the amount or length of any such adjustment in Contract Sum or Contract Time, the Contractor may make a claim, therefore as provided in Articles 12 and 13. The Town and the Professional shall not be liable to the Contractor for any claims, costs, losses or damages incurred or sustained, direct or indirect, consequential, incidental or otherwise, by the Contractor on or in connection with any other project or anticipated project.

5.6 Reference Points

5.6.1 The Town through its Professional, shall provide the Contractor reference points for construction, which in the Town's judgment are necessary to enable the Contractor to proceed with the Work. The Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of the Town. The Contractor shall report to the Professional 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.

5.7 Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material

5.7.1 The Town shall be responsible for any Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material uncovered or revealed at the Project Area which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work and which may present a substantial danger to persons or property exposed thereto in connection with the Work at the Project Area. The Town shall not be responsible for any such materials brought to the site by the Contractor, Subcontractor, Suppliers or anyone else for whom Contractor is responsible.

5.7.2 The Contractor shall immediately: (i) stop all Work in connection with such hazardous condition and in any area affected thereby (except in an emergency as required by 7.12), and (ii) notify the Town and the Professional (and thereafter confirm such notice in writing). The Town shall promptly consult

with the Professional concerning the necessity for the Town to retain a qualified expert to evaluate such hazardous condition or take corrective action, if any. The Contractor shall not be required to resume Work in connection with such hazardous condition or in any such affected area until after the Town has obtained any required Permits related thereto and delivered to the Contractor special written notice (I) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (ii) specifying any special conditions under which such Work may be resumed safely. If the Town and the Contractor cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Sum or Contract Times as a result of such Work stoppage or such special conditions under which Work is agreed by the Contractor to be resumed, either party may make a claim therefore as provided in Articles 12 and 13.

5.7.3 If after receipt of such special written notice, the Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then the Contractor may order such portion of the Work that is in connection with such hazardous conditions or in such affected area to be deleted from the Work. If the Town and the Contractor cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Sum or Contract Times as a result of deleting such portion of the Work, then either party may make a claim therefore as provided in Articles 12 and 13. The Town may have such deleted portion of the Work performed by the Town's own forces or others in accordance with Article 8.

ARTICLE 6 - BONDS, INSURANCE, INDEMNIFICATION

6.1 Public Construction Bond and Other Bonds:

6.1.1 The Contractor shall furnish a Public Construction Bond, in an amount equal to the Contract Sum as security for the faithful performance and payment of all the Contractor's obligations under the Contract Documents. This Bond shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. The Contractor shall also furnish such other Bonds as may be required by any Supplementary Conditions. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department, and A.M. Best rated A-8 or better.

6.1.2 The Contractor shall be required to furnish additional coverage for added Work.

6.1.3 If the surety on any bond furnished by the Contractor is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state, or it ceases to meet the requirements of 6.1.1, the Contractor shall within ten Days thereafter substitute another bond and surety, both of which must be acceptable to the Town.

6.2 Licensed Sureties and Insurers; Certificates of Insurance

6.2.1 All Bonds and insurance required by the Contract Documents to be purchased and maintained by the Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the State of Florida to issue Bonds or insurance policies for the limits and coverages so required. All Bonds signed by an agent must be accompanied by a certified copy of authority to act. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

6.2.2 The Contractor shall deliver to the Town, with copies to each additional insured identified in 6.3.1, an original or a certified copy of the complete insurance policy for each policy required, certificates of insurance (and other evidence of insurance requested by the Town or any other additional insured) which the Contractor is required to purchase and maintain in accordance with 6.3.1.

6.3 Contractor’s Liability Insurance

6.3.1 The Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and furnished and will provide protection from claims set forth below which may arise out of or result from Contractor’s performance and furnishing of the Work and the Contractor’s other obligations under the Contract Documents, whether it is to be performed or furnished by the Contractor, any Subcontractor or supplier, or by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for those acts any of them may be liable. The Contractor shall purchase and maintain in force during the contract period with an insurer licensed to do business in the State of Florida; rated AAA or better by A.M. Best Rating Company for Class VII financial size category, and acceptable to the Town the following insurances. The limits of liability for the insurance shall provide coverage for not less than the following amounts or greater where required by applicable Laws and Regulations.

a. Workers Applicable Compensation Insurance providing statutory benefits, including those that may be required by any applicable federal statute:

Admitted in Florida	Yes
Employer’s Liability	\$500,000
All States Endorsement	Statutory
USL & H Endorsement	Statutory
Voluntary Compensation	Statutory

b. Commercial General Liability Insurance, including Town and Contractor Protective, Contractual, Products and Completed Operations Liability coverage on an occurrence policy form in limits not less than those listed and deductible amounts not to exceed \$25,000.

Aggregate Combined:	\$5,000,000.00
Each Occurrence:	\$5,000,000.00
M&C/CGL	\$1,000,000.00
Broad Form CGL	\$1,000,000.00
Contractual Liability	\$1,000,000.00
Products	\$1,000,000.00
Completed Operation	\$5,000,000.00
Personal Injury	\$1,000,000.00
Independent Contractors	\$1,000,000.00
XCU Property Damage Excel	\$1,000,000.00
Umbrella Liability	\$5,000,000.00

Regarding Completion Operations Liability: Continue coverage in force for three (3) years after Town’s acceptance of the project.

c. Automobile Liability Insurance. Coverage shall be maintained by the Contractor as to the ownership, maintenance, and use of all of its owned, non-owned, leased or hired vehicles with limits of not less than:

Bodily injury & Property Damage Liability	\$5,000,000.00
Combined Single Limit Each Accident	\$5,000,000.00

These policies will provide that:

- 1) The insurer(s) waive their rights of subrogation against the Town, their officials, employees, agents and consultants.
- 2) The Town shall be named as an additional insured on all Policies required by the Contract Documents. The Certificate of Insurance must state the Bid No. and the Bid Title. A Thirty (30) Day prior written notice of cancellation or material alteration is required. Renewal notices to be sent to the Purchasing Department.

3) The Contractor shall not be given Notice to Proceed under the Contract until he has obtained all the insurance required by the Contract Documents and submitted all certificates of insurance and proofs of insurance as required by the Contract Documents and all such materials had been delivered to and have been approved by the Town. The insurance certificates shall be given to:

Town Purchasing Department
Attention: Gerald Wilson
501 Bay Isles Road
Longboat Key, Florida 34228

The acceptable form of the certificate of insurance shall be the industry standard ACORD certificate.

6.3.2 Notwithstanding any other provision of these Contract Documents to the contrary, the Contractor shall not provide Builder's Risk or Architects and Engineers Professional Liability Insurance unless specially requested by the Town. The Town has Builder's Risk coverage and will provide the Contractor with appropriate Certificate of Insurance upon request. The Town's Builder's Risk policy does not insure the Contractor's tools, machinery or equipment that is stored at the job site. If the Contractor is required to store tools, machinery or equipment at the job site, the Contractor should provide insurance in the form of an equipment floater for Contractor's tools and equipment. The Town should be named as an additional insured on the Contractor's policy, with an appropriate waiver of subrogation as to any claims the Contractor or the Contractor's insurer may have against the Town arising from the storage of Contractor's tools and equipment.

6.3.3 The Contractor shall not allow a Subcontractor to work on the Project or be present on the Project Area without either Subcontractor carrying his own Workers Compensation and Liability insurance or the Contractor covering the Subcontractor under his policies. The policy is the same for each succeeding sub-tier Contractor. The Town may request proof of such coverage for any Subcontractor at any time during the performance of the Work.

6.3.4 Any additional insurance, if required, will be as specified in any Supplementary Conditions.

6.4 Receipt and Application of Insurance Proceeds

6.4.1 Any insured loss under the policies of insurance required by the Contract Documents will be adjusted with the Town and made payable to the Town as fiduciary for the insured as their interest may appear. The Town shall account for all money received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and cost thereof covered by an appropriate Change Order or written Amendment as determined by the Town.

6.5 Indemnification

6.5.1 The Contractor does hereby indemnify and hold harmless the Town, its officers and employees, from liabilities, damages, losses and costs, including but not limited to, reasonable attorneys fees, to the extent caused by the negligence, recklessness or intentional wrongful misconduct of the Contractor and persons or entities employed or utilized by the Contractor in the performance of the Work. The monetary limitation to the extent of this indemnification is \$4,000,000. The parties acknowledge and agree that at the time this Contract was prepared for inclusion in the Bid Documents for the Work, being prior to the time that bids were solicited and received, there was no way for the Town to know the precise amount of the Contract Sum, and the parties hereto expressly acknowledge and agree that the monetary limitation on the extent of the indemnification provided herein bears a reasonable commercial relationship to this Contract and the Work to be performed pursuant to the Contract and the Contract Documents.

6.5.2 In any and all claims against the Town or any of its agents or employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation under the previous paragraph shall not be limited in any way as to the amount or type of damages, compensation or benefits payable by or

Bidder _____

for the Contractor or any Subcontractor under Workmen's compensation acts, disability benefit acts, or other employee benefit acts.

6.5.3 The Contractor shall and does hereby indemnify and hold harmless the Town and anyone directly or indirectly employed by it from and against all claims, suits, demands, damages, losses, and expenses (including attorney's fees) arising out of any infringement of patent or copyrights held by others and shall defend all such claims in connection with any alleged infringement of such rights.

ARTICLE 7 - CONTRACTOR'S RESPONSIBILITIES

7.1 Supervision and Superintendence

7.1.1 The Contractor shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. The Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but the Contractor shall not be responsible for the negligence of others in the design or specification of a specific means, method, technique, sequence or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. The Contractor shall be responsible to see that the completed Work complies with the Contract Documents.

7.1.2 The Contractor shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to the Town, through the Professional, except under extraordinary circumstances. The superintendent will be the Contractor's representative at the site and shall have authority to act on behalf of the Contractor. All communications to the superintendent shall be as binding as if given to the Contractor. The Town reserves the right to require the Contractor to remove and replace the superintendent of this Project within 15 Days of notice.

7.2 Labor, Materials, and Equipment

7.2.1 The Contractor shall provide and pay for competent, suitable, qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. The Contractor shall at all times maintain good discipline and order on the site.

7.2.2 The Contractor shall furnish and pay for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, and sanitary facilities, and all other facilities and incidentals whether temporary or permanent necessary for the execution, testing, initial operation, and completion of the Work as required by the Contract Documents. Town will supply potable water to the Contractor for the execution, testing, initial operation, and completion of the Work.

7.2.3 All materials and equipment shall be new and of good quality, except as otherwise provided in the Contract Documents. If required by the Professional, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

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

7.3 Substitute Materials or Equipment

7.3.1 If the Contractor wishes to furnish or use a proposed substitute after the award of the Contract, it shall within thirty (30) Days after Notice to Proceed make written application to the Professional and Project Manager for consideration of such substitute, certifying in writing that the proposed substitute will perform adequately the duties imposed by the general design, be similar and of equal substance or quality 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 prior written approval of the Professional. The application shall also contain an itemized estimate of all costs that may result directly or indirectly from acceptance of such substitute, including costs of redesign, delays, maintenance, and claims of other Contractors affected by the resulting change, all of which shall be considered by the

Project Manager and Professional in evaluating the proposed substitute. Approval of any change in costs or schedule as a result of acceptance of the substitute by the Professional shall be by Change Order.

7.3.2 This paragraph applies to any cost reduction proposal (hereinafter referred to as a Value Engineering Change Proposal or VECPs) initiated and developed by the awarded Contractor during the construction process for the purpose of refining the Contract Documents so as to contribute to design cost effectiveness or significantly improve the quality of the end result. VECPs must result in savings without impairing essential functions and characteristics such as safety, service, life, reliability, economy of operation, ease of maintenance, aesthetics and necessary standard design features. The awarded Contractor must state that he is submitting a VECP proposal. The VECP shall be submitted to the Town through the Professional. The Town reserves the right to reject at its discretion any VECP submittal. As a minimum, the following information shall be submitted by the awarded Contractor with each VECP:

- 1) A description of the difference between the existing Contract requirement and the proposed change, and the comparative advantages and disadvantages;
- 2) Separate detailed cost estimates for both the existing Contract requirement and the proposed change.

7.4 Subcontractors

7.4.1 The Contractor shall be fully responsible for all acts and omissions of its Subcontractors and of persons directly or indirectly employed by them and of persons for whose acts any of them may be liable to the same extent as if they were employed by the Contractor. Nothing in the Contract Documents shall create any contractual relationship between any Subcontractor and the Town or any obligation on the part of the Town to pay or to see to the payment of any monies due any Subcontractor, except as may otherwise be required by law. The Town may furnish to any Subcontractor, to the extent practicable, evidence of amounts paid to the Contractor for specific Work done.

7.4.2 The Contractor shall identify and provide information on Subcontractors, Suppliers and other persons or organizations, which shall be used by the Contractor in accordance with requirements of the Contract Documents.

7.4.3 The divisions and sections of the Technical Specifications, and the identifications of any Drawings shall not control the Contractor in dividing Work among Subcontractor or delineating the Work to be performed by any specific trade.

7.4.4 The Contractor agrees to bind specifically every Subcontractor to the applicable terms and conditions of the Contract Documents, including but not limited to the General Conditions (specifically, but without limitation all indemnity provisions in favor of the Town) and any Supplemental Conditions, for the benefit of the Town.

7.4.5 All Work performed for the Contractor by a Subcontractor shall be pursuant to an appropriate written subcontract between the Contractor and the Subcontractor which shall contain provisions that waive all rights the contracting parties may have against one another for damages caused by fire or other perils covered by insurance, except such rights as they may have to the proceeds of such insurance held by the Town as trustee. The Contractor shall pay each Subcontractor an appropriate amount, determined by value of the Work, of any insurance monies received by the Contractor under this insurance.

7.5 Patent Fees and Royalties

7.5.1 The Contractor shall pay all license fees and royalties and assume all costs incident to the use of any invention, design, process, or device which is the subject of patent rights or copyrights held by others. The Contractor shall and does hereby indemnify and hold harmless the Town and its employees and agents from and against all claims, costs, losses and damages arising out of or resulting from any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product or device not specified in the Contract Documents.

7.6 Permits

7.6.1 All Permits and licenses necessary for the prosecution of the Work shall be procured and paid for by Contractor, except to the extent that any permits are issued and acquired by the Town as stated below prior to the entry into a Contract for the Work to be performed pursuant to the Contract Documents.

If Contractor performs any Work without obtaining, or contrary to, such Permits or licenses, Contractor shall bear all costs arising there from. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work.

7.6.2 Permits required for the Work - paid for and obtained by the Town are referenced in the Technical Specifications.

7.6.3 Contractor shall pay all sales, consumer, use and other similar taxes associated with the Work or portions thereof, which are applicable during the performance of the Work.

7.6.4 The permits obtained by the Town apply only to the Work to be performed pursuant to the Contract and the Contract Documents.

7.7 Laws and Regulations

7.7.1 The Contractor shall give all notices and comply with all laws, ordinances, rules, and regulations applicable to the Work. If the Contractor observes that any of the Contract Documents are contradictory to such laws, rules, and regulations, it will notify the Professional promptly in writing. Any necessary changes shall then be adjusted by an appropriate Change Order. If the Contractor performs any Work that it knows or should have known to be contrary to such laws, ordinances, rules, and regulations and without such notice to the Professional, it shall bear all related costs.

7.8 Taxes

7.8.1 The Contractor shall pay all sales, consumer, use and other similar taxes required to be paid by the Contractor in accordance with the Laws and Regulations of the place of the Project, which are applicable during the performance of the Work.

7.9 Use of Premises

7.9.1 The Contractor shall confine its equipment, the storage of materials and equipment, and the operations of its Workers to the areas permitted by law, ordinances, Permits, or the requirements of the Contract Documents. The Contractor shall not unreasonably encumber the site with materials and equipment. Any loss or damage to the Contractor's or any Subcontractor's equipment is solely at the risk of the Contractor.

7.9.2 During the progress of the Work, the Contractor shall keep the premises free from accumulations of waste materials, rubbish and other debris or contaminates resulting from the Work. At the completion of the Work, Contractor shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials. The Contractor shall leave the site clean and ready for occupancy by the Town at Substantial Completion of the Work. The Contractor shall restore to original condition all property so designated for alteration by the Contract Documents.

7.9.3 The Contractor shall not load or permit any part of any structure to be loaded in any manner that will endanger the structure. The Contractor shall not subject any part of the Work or adjacent property to stresses or pressures that will endanger them.

7.10 Record Documents

7.10.1 The Contractor shall keep at the Project Area and in good order one record copy of the Contract Documents and all Drawings and Specifications. These documents shall be annotated on a continuing and daily basis to show all changes made during the construction process. These shall be available to the Professional and the Project Manager during the Project Work and shall be submitted with the Application for Final Payment.

7.11 Safety and Protection

7.11.1 The Contractor shall take all necessary precautions for the safety of and will provide the necessary protection to prevent damage, injury, or loss to:

7.11.1.2 All employees on the Work and other persons who may be affected by it.

7.11.1.3 All the Work and all materials or equipment to be incorporated, whether in storage on or off the site. The Contractor shall assume all risk of loss for stored equipment or materials, irrespective of whether the Contractor has transferred the title of the stored equipment or materials to the Town.

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

7.11.2 The Contractor is responsible for observing all Occupational Safety and Health Administration (OSHA) regulations and shall self inspect to ensure this is accomplished. Including, but not limited to, those specified in the Technical Specifications. The Contractor shall ensure that all personnel are properly trained and shall be able to provide documentation for their personnel that have attended training courses. Examples of such training courses are, without limitation: Hazard Communications, Traffic Work Zone Safety, Personal Protective Equipment, First Aid/CPR, Permit Required Confined Space, Lock out/Tag out of hazardous energy.

7.11.3 A Town representative may periodically monitor Work site safety. Should there be safety and/or health violations, classified as Serious, Willful, or Criminal/Willful Violations, the Town's representative has the authority, but not the duty, to report to OSHA and require the Contractor to correct the violation in an expeditious manner. Neither the Town nor its representative shall have or assume any responsibility or duty whatsoever with respect to OSHA compliance for any work being performed, and the Contractor shall have the sole and exclusive duty and responsibility for compliance with all OSHA and other safety requirements with respect to the Work and the performance of the Work.

7.11.4 Should the Work site be in a hazardous area, the Town may furnish the Contractor with information concerning hazards such as types or identification of known toxic material, machine hazards, Material Safety Data Sheets, or any other information that would assist the Contractor in the planning of a safe Work site.

7.11.5 The Contractor shall be aware that while performing any Work pursuant to the Contract Documents, representatives from agencies such as the United States Department of Labor, OSHA, and the Division of Safety, State of Florida, are invitees and need not have warrants or permission to enter the Work site. These agencies, along with any authorized representative of the Town shall enter the Work site at the pleasure of the Town.

7.11.6 The Contractor shall designate a competent person of its organization whose duty shall be 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 Professional. All communications to the superintendent shall be as binding as if given to the Contractor. This provision shall not be deemed to in any way limit or define the obligations of Contractor as established by OSHA and/or other applicable rules and regulations.

7.11.7 Should there be catastrophic injuries, as defined by OSHA, or a fatality on the Worksite, the Project Manager shall be notified immediately.

7.11.8 Should the Town or Professional, require the OSHA 200 Log, or written safety and health plan & training documents, those documents shall be at his office within 24 hours of the request. Failure to provide the documentation within that time frame may cause the Project to be shut down, at no expense to the Town, until such documents are received.

7.12 Emergencies

7.12.1 In emergencies affecting the safety of persons, the Work or property at the site or adjacent thereto, the Contractor, without special instructions or authorization from the Professional if time or circumstances do not permit, is obligated to prevent or mitigate threatened damage, injury, or loss. The Contractor shall give the Professional written notice that the emergency provision has been invoked and shall state the reasons therefore within twenty-four (24) hours of the incident. If the Contractor believes the emergency results in additional Work, a claim for a Change Order may be submitted in accordance with the procedures set forth herein.

7.12.1.1 The Contractor shall immediately notify the Professional of all events involving personal injuries to any person on the Site, whether or not such person was engaged in the construction of the Project, and shall file a written report on such person(s) and any other event resulting in property damage of any amount within five (5) Days of the occurrence.

7.12.1.2 If the Professional determines that a change in the Contract Documents is required because of the action taken by the Contractor in response to such an emergency, a Change Order will be issued to document the consequences of such action.

7.13 Submittal and Samples

7.13.1 After checking and verifying all field measurements, the Contractor shall promptly submit to the Professional for approval, in accordance with the accepted schedule of submittal, all submittal and samples required by the Contract Documents. All submittal and samples shall have been checked by and stamped with the approval of the Contractor and identified as the Professional may require. The data shown on or with the submittal will be complete with respect to dimensions, design criteria, materials and any other information necessary to enable the Professional to review the submittal as required. At the time of each submission, the Contractor shall give notice to the Professional of all deviations that the submittal or sample may have from the requirements of the Contract Documents.

7.13.1.1 The Professional shall review and approve submittal and samples. The Professional's review and approval shall be only for conformance with the design concept of the Project and 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 Professional and resubmit the required number of corrected copies until approved. The Contractor's stamp of approval on any submittal or sample shall constitute its representation to the Professional and the Town that the Contractor has determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data, and that each submittal or sample has been reviewed or coordinated with the requirements of the Work and the Contract Documents.

7.13.1.2 No Work requiring a submittal or sample submission shall commence until the submission has been approved by the Professional. A copy of each approved submittal and each approved sample shall be kept in good order by the Contractor at the site and shall be available to the Professional and the Town staff. Any delays associated with the submittal process will be considered for time extensions only, and no damages or additional compensation for delay will be allowed.

7.13.1.3 The Professional's approval of submittal or samples shall not relieve the Contractor from responsibility for any variation from the requirements of the Contract Documents unless the Contractor has in writing called the Professional's attention to each such variation at the time of submission and the Project Manager has given written approval to the specific deviation; any such approval by the Professional shall not relieve the Contractor from responsibility for errors or omissions in the submittal.

7.13.1.4 Where a shop drawing or sample is required by the Contract Documents or the schedule of shop Drawings and sample submissions accepted by the Professional as required, any related Work performed prior to Professional's review and approval of the pertinent submittal will be at the sole expense and responsibility of the Contractor.

ARTICLE 8 - OTHER WORK

8.1 The Town may perform additional Work related to the Project with its own forces or may let other direct contracts. The Contractor shall provide the other contractors who are parties to such direct contracts, including but not limited to the other contractor's employees, agents, Subcontractors, and suppliers (or the Town's forces performing the additional Work), reasonable opportunity for the introduction and storage of materials and equipment and the execution of Work, and shall properly connect and coordinate its Work with theirs. The Contractor shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other Work. The Contractor shall not endanger any Work of others by cutting, excavating or otherwise altering their Work and will only cut or alter their Work with the written consent of the Professional and the others whose Work will be affected. Contractor is not entitled to exclusive use of the Site.

8.1.1 If any part of the Contractor's Work depends (for proper execution or results) upon the Work of any such other contractor (or the Town), the Contractor will inspect and promptly report to the Professional in writing any defects or deficiencies in such Work that render it unsuitable for such proper execution and results. The Contractor's failure to report shall constitute an acceptance of the other Work, except as to defects and deficiencies, which may appear in the other Work after the execution of its Work.

ARTICLE 9 – TOWN'S RESPONSIBILITIES

9.1 Except as otherwise provided in these General Conditions, the Town shall issue all communications to the Contractor through the Professional.

9.1.1 The Town shall furnish the data required under the Contract Documents and shall make payments to the Contractor when due as provided in Article 15.

9.1.2 The Town's responsibilities for providing lands, easements, and engineering surveys to establish reference points are set forth in Article 5.

ARTICLE 10 - PROFESSIONAL'S STATUS DURING CONSTRUCTION

10.1 Town's Representative

10.1.1 The Professional shall be a representative of the Town during the construction period. The duties, responsibilities, and limitations of authority of the Professional as the Town's representative during construction are set forth in these General Conditions and the Technical Specifications.

10.2 Visits to the Site

10.2.1 The Professional shall make periodic visits to the site to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents.

10.3 Clarifications and Interpretations

10.3.1 The Professional shall issue such written clarifications or interpretations of the Contract Documents (in the form of Drawings or otherwise) as may be determined necessary, or as reasonably requested by the Contractor, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. If the Contractor believes that a written clarification and interpretation entitles it to an increase in the Contract Sum, and/or Contract Time, the Contractor may make a claim as provided for in Articles 11, 12, and 13.

10.4 Rejecting Defective Work

10.4.1 The Professional has the authority to disapprove or reject Work, which is Defective. The Professional also has authority to require special inspection or testing of the Work at the Contractor's expense, as provided in Article 14, whether or not the Work is fabricated, installed, or completed.

10.5 Resident Engineer or Architect

10.5.1 The Professional may furnish a full or part-time Resident Engineer or Architect and other personnel to assist them in carrying out services at the site. The duties, responsibilities, and limitations of authority of any such Resident Engineer or Architect and other personnel are set forth in the Supplemental Conditions, if applicable.

10.6 Decisions on Disagreements

10.6.1 The Professional shall interpret the requirements of the Contract Documents and determine the acceptability of the Work. If the Contractor disagrees with the Professional's opinion, the Contractor shall refer claims, disputes, and other matters relating to the acceptability of the Work or their interpretation of the requirements of the Contract Documents initially to the Professional in writing with a request for a formal decision. The Professional will render in writing its opinion concerning the Contractor's request for a formal decision and shall submit it to the Project Manager. After receipt of the Professional's written opinion and all information requested from the Contractor, the Project Manager shall render a formal decision in writing, which shall then be conveyed to the Contractor by the Professional. Written notice of each such claim, dispute, and other matter shall be delivered by the Contractor to the Professional within seven (7) calendar Days of the occurrence first happening. Written supporting data will be submitted to the Professional within fifteen (15) calendar Days after such occurrence unless the Professional allows additional time. If the Contractor fails to strictly comply with these notices and submittal time periods, the Contractor shall be deemed to have waived its right to assert a claim the Contractor might otherwise have had concerning such matter.

10.7 Limitation on Professional's Responsibilities

10.7.1 Neither the Professional's authority to act under this Article or elsewhere in the Contract Documents, nor any decision made in good faith to exercise such authority shall give rise to any duty or responsibility of the Professional to the Contractor, any Subcontractor, any of their agents or employees.

10.7.1.1 The Professional shall not be responsible for the construction means, methods, techniques, sequences, or procedures or the safety precautions and programs used. The Professional shall not be responsible for the Contractor's failure to perform the Work in accordance with the Contract Documents.

10.7.1.2 The Professional shall not be responsible for the acts or omissions of the Contractor, any Subcontractors, any agents or employees, or any other persons performing any of the Work.

ARTICLE 11 - CHANGES IN THE WORK

11.1 Changes

11.1.1 Without invalidating the Contract, the Town may at any time or from time to time order additions, deletions, or revisions in the Work. The Professional shall provide the Contractor with a Proposal Request, identifying the Work to be added, deleted or revised. Upon receipt, the Contractor shall promptly submit a written proposal for the changed Work prepared in accordance with Articles 12 and 13. If the Proposal Request calls only for the deletion of Work, the Professional may order the partial suspension of any Work related to the proposed deletion, in which case the Contractor must cease performance as directed; the Contractor shall not be entitled to claim lost profits on deleted Work. All changed Work shall be executed under the applicable conditions of the Contract Documents.

11.1.2 Additional Work performed by the Contractor without authorization of a Change Order will not entitle the Contractor to an increase in the Contract Sum or an extension of the Contract Time, except in

Bidder _____

the case of an emergency as provided in Article 7.12 The effect of this paragraph shall remain paramount and shall prevail irrespective of any conflicting provisions contained in these Contract Documents.

11.1.3 Upon Contract as to changes in the Work to be performed, Work performed in an emergency as provided in Article 7, and any other claim of the Contractor for a change in the Contract Time or the Contract Sum, the Professional will prepare a written Change Order to be signed by the Professional and the Contractor and submitted to the Town for approval.

11.1.4 It is the Contractor's responsibility to notify its Surety of any changes affecting the general scope of the Work, Contract Sum, or Contract Time.

11.1.5 In the absence of a Change Order as provided in 11.1.3, the Town or Professional at the direction of the Town may; at its sole discretion issue a Construction Change Directive to the Contractor. Pricing of the Construction Change Directive will be in accordance with Article 12.

11.1.6 The Construction Change Directive will specify a price, and if applicable a time extension, determined to be reasonable by the Town. If the Contractor fails to sign such Construction Change Directive, the Contractor may submit a claim in accordance with Articles 11, 12, and 13, but the Contractor shall nevertheless be obligated to fully perform the Work as directed by the Construction Change Directive.

11.1.7 The Contractor shall proceed diligently with performance of the Work as directed by the Town, regardless of pending claim actions, unless otherwise agreed to in writing.

ARTICLE 12 - CHANGE OF CONTRACT SUM

12.1 The Contract Sum

12.1.1 The Contract Sum constitutes the total compensation (subject to written authorized adjustments) payable to the Contractor for performing the Work based upon an extension of the units and unit prices as shown on Contractor's Submitted Bid. All duties, responsibilities and obligations assigned to or undertaken by Contractor to perform the Work shall be at the Contractor's expense without change in the Contract Sum.

12.1.2 The Contract Sum may only be increased or decreased by a written Change Order or Construction Change Directive. Any claim for an increase shall be in writing and delivered to the Professional within seven (7) calendar Days of the occurrence first happening. Written supporting data will be submitted to the Professional within fifteen (15) calendar Days after such occurrence unless the Town allows additional time.

12.1.3. The value of any Work covered by a Change Order or of any claim for an adjustment in the Contract Sum will be determined by the following procedures:

12.1.3.1 Designated Unit Price (Field Measure). The Contractor and the Town recognize and acknowledge that the quantities shown for those items designated in the Contractor's Submitted Bid as unit price items are approximations prepared by the Town for bid purposes and that the actual compensation payable to the Contractor shall be based upon the application of unit prices to the actual quantities of items involved as measured in the field and required to complete the Work as originally defined in the Contract Documents.

When it is determined by the Town that an addition, deletion, or revision to the Work as defined in these Contract Documents is required and affects the quantities required for items designed in the Submitted Bid as unit price items, the Contractor and the Town agree that the compensation payable to the Contractor for such unit price items shall be adjusted accordingly by a Change Order based upon the application of the appropriate unit prices shown in the Submitted Bid to the quantity of the unit price item required to complete the Work as defined in the Contract Documents.

12.1.3.2 Other Unit Prices: For items not designated in the Submitted Bid as unit prices, the Town and the Contractor may establish unit prices as agreed on by Change Order.

12.1.3.3 Lump Sum: When it is determined by the Town that an addition, deletion or revision to the Work is required which results in a change in Work designated in the Bid Proposal as a lump sum item, the amount of increase or decrease in the lump sum price shall be established by mutual agreement of the parties.

12.1.4 If the pricing methods specified in 12.1.3 are inapplicable, or if the parties are unable to agree on a price for the changed Work, a reasonable price for the same shall be established by the Town in accordance with 12.2. The Town shall then process a unilateral Change Order, specifying the said reasonable price. The Contractor shall perform the Work as directed in the Change Order.

12.1.5 Failure on the part of the Contractor to construct any item to plan or authorized dimensions within the specification tolerances shall result in: reconstruction to acceptable tolerances at no additional costs to the Town; acceptance at no pay; or acceptance at reduced final pay quantity or reduced unit price, all at the discretion of the Town. Determinations of aggregate monetary change for items identified, as lump sum quantities shall be made by the Town based upon an analysis of the scope of the Contractor's failure to construct to plan or authorized dimensions.

12.2 Cost of Work

12.2.1 The term, Cost of Work, for the purpose of Change Orders, or Construction Change Directivemeans the costs necessarily incurred and paid by the Contractor in the proper performance of the Change Order Work. Except as may be agreed to in writing by the Professional, such costs shall be in amounts no higher than those prevailing in the area of the Work and may include the following categories:

- 12.2.1.1 Labor (payroll, taxes, fringe benefits, Worker's compensation, health and retirement benefits, sick leave):
- 12.2.1.2 Owned Equipment (at lowest applicable equipment rate manual rate)
- 12.2.1.3 Rented Equipment (at actual rental rate)
- 12.2.1.4 Materials
- 12.2.1.5 Supplies
- 12.2.1.6 Subcontractors Costs
- 12.2.1.7 Bonds and Insurance
- 12.2.1.8 Contractor's Fee (per 12.3)

12.2.2 The Contractor shall require all Subcontractors and suppliers to comply with all requirements of, and provide itemizations of all claims in accordance with this Article.

12.2.3 The term Cost of the Work shall not include any of the following:

12.2.3.1 Payroll costs and other compensation of the Contractor's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, lawyers, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by the Contractor whether at the site or in its principal or a branch office for general administration of the Change Order Work and not specifically included in the agreed upon schedule of job classifications, all of which are to be considered administrative costs covered by the Contractor's fee.

12.2.3.2 Extraordinary fringe benefits not specifically identified in Article 12.2.1.1.

12.2.3.3 Expenses of Contractor's principal and branch offices other than the Contractor's office at the site.

12.2.3.4 Any part of the Contractor's capital expenses, including interest on the Contractor's capital used for the Change Order Work and charges against the Contractor for delinquent payments.

12.2.3.5 Cost of premiums for all Bonds and insurance whether or not the Contractor is required by the Contract Documents to purchase and maintain the same (except for additional Bonds and insurance required because of changes in the Work).

12.2.3.6 Costs due to the negligence of the Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of Defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

12.2.3.7 Overhead or general expense costs of any kind (other than as provided in 12.3).

12.3 Contractor's Fee

12.3.1 The maximum percentage allowed for the Contractor's combined overhead and profit shall be as follows:

12.3.1.1 For all such Change Order Work or Construction Change Directive done a fixed percentage of the total adjustment to the Contract Sum shall be negotiated and shall not exceed ten (10) percent.

12.3.2 For all changes, the Contractor shall submit an itemized cost breakdown, together with supporting data in such detail and form as prescribed by the Professional. When a credit is due, the amount of credit to be allowed by the Contractor to the Town for any such change which results in a net decrease in cost will be the amount of the actual net decrease in direct cost as determined by the Professional, plus the applicable reduction in overhead and profit. When both additions and credits are involved in any change, the combined overhead and profit shall be calculated on the basis of the net change, whether an increase or decrease. In any event, the minimum detail shall be an itemization of all man-hours required by discipline/trade with the unit cost per man-hour and total labor price, labor burden, equipment hours and rate for each piece of equipment, material by units of measure and price per unit, other costs specifically itemized, plus the overhead and profit markup.

ARTICLE 13 - CHANGE OF CONTRACT TIME

13.1 Any change to the Contract Time will only be authorized by a written Change Order. Any request for an extension in the Contract Time shall be made in writing and delivered to the Professional within seven (7) calendar Days of the occurrence first happening and resulting in the claim. Written supporting data will be submitted to the Project Manager within fifteen (15) calendar Days after such occurrence unless the Professional allows additional time. All claims submitted by the Contractor for adjustments to the Contract Time must set forth in detail the reasons for and causes of the delay and clearly indicate why the subject delay was beyond the Contractor's control or fault.

13.1.1 If the Contractor is delayed at any time in the performance, progress, commencement, or completion of the Work by any act or neglect of or by the Town or the Professional, or by an employee of either, or by any separate contractor employed by the Town, or by changes ordered in the Work, or by labor disputes, fire, unavoidable casualties, utility conflicts which could not have been identified or foreseen by the Contractor using reasonable diligence, or any causes beyond the Contractor's control or fault, then the Contract Time shall be extended by Change Order for such reasonable time as the Town may determine. The Contractor shall be entitled to an extension of time for such causes only for the number of Days of delay which the Town may determine to be due solely to such causes and only to the extent such occurrences actually delay the completion of the Work and then only if the Contractor shall have strictly complied with all the requirements of the Contract Documents. Provided, however, notwithstanding anything in the Contract Documents to the contrary, no interruption, interference, inefficiency, suspension or delay in the performance, progress, commencement or completion of the Work for any cause whatsoever, including those for which the Town or the Professional may be responsible in whole or in part, shall relieve Contractor of its duty to perform or give rise to any right to damages or additional compensation from the Town. The Contractor's sole and exclusive remedy against the Town for interruption, interference, inefficiency, suspension or delay of any aspect of the Work shall be the right to seek an extension to the Contract Time in accordance with the procedures set forth herein.

ARTICLE 14 - WARRANTY AND GUARANTEE: ACCEPTANCE OF DEFECTIVE WORK

14.1 Warranty and Guarantee

14.1.1 The Contractor warrants and guarantees to the Town that all materials and equipment will be new unless otherwise specified, and that all Work will be of good quality, performed in a workmanlike manner, free from faults or defects, and in accordance with the requirements of the Contract Documents and any inspections, tests, or approvals referred to in this Article and other applicable provisions of the Contract Documents. All unsatisfactory Work, all faulty Work and all Work not conforming to the requirements of the Contract Documents or such inspections, tests, approvals, or all applicable building, construction and safety requirements shall be considered Defective. Notice of all defects or Defective Work, will be given to the Contractor in writing by the Project Manager and/or Professional. All Defective Work, whether or not in place, may be rejected, corrected, or accepted as provided in this Article.

14.1.2 If, after approval of final payment and prior to the expiration of one year after the date of Substantial 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 or materials are found to be Defective, incomplete, or otherwise not in accordance with the Contract Documents, the Contractor shall promptly, without cost to the Town and in accordance with the Town's written instructions, either correct such Defective Work, or if it has been rejected by the Town, remove it from the Site and replace it with non-Defective Work. If the Contractor does not promptly comply with the terms of such instructions, the Town may have the Defective Work corrected, removed, or replaced. All costs (direct or indirect) for Defective Work will be paid by the Contractor.

14.2 Tests and Inspections

14.2.1 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested, or approved by someone other than the Contractor, the Contractor shall give the Professional timely notice of readiness therefore. The testing firm(s), (if assigned by the Town to this Work), and all such inspections, tests, or approvals provided for by the Town shall be identified in writing by the Professional to the Contractor. All other inspections, tests or approvals shall be at the Contractor's expense including additional expenses for inspection and tests required as a result of delays by the Contractor or hours Worked in excess of 40 hours per week. For all required inspections, tests, and approvals on any Work prepared, performed, or assembled away from the site, the Contractor will furnish the Professional 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. Materials or Work in place that fail to pass acceptability tests shall be retested at the direction of the Professional and at the Contractor's expense.

14.2.2 Neither observations by the Professional or Project Manager nor inspections, tests, or approvals by persons other than the Contractor shall relieve the Contractor of its obligations to perform the Work in accordance with the requirements of the Contract Documents.

14.3 Access to the Work

14.3.1 For the duration of the performance of the Work, the Professional and its representatives, other designated representatives of the Town, and authorized representatives of any regulatory agency shall at all time be given 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 by others.

14.4 Uncovering the Work

14.4.1 If any Work required to be inspected, tested or approved is covered prior thereto without the prior written approval of the Professional, or if any Work is covered contrary to the request of the Project Manager, the Work shall, if requested by the Professional, be uncovered for observation, inspection, testing or approval and replaced at the Contractor's expense.

14.4.2 If any Work has been covered which either the Professional or the Project Manager has not specifically requested to observe, or if the Professional or the Project Manager considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor, upon written request of the

Professional, shall uncover, expose, or otherwise make available for observation, inspection, or testing 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 shall bear the expense of such uncovering, exposure, observation, inspection, testing, and satisfactory reconstruction. If, however, such Work is not found to be Defective, the Contractor shall be allowed an increase in the Contract Sum or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, and reconstruction, if it makes a claim as provided in Articles 11, 12 and 13.

14.5 Stop Work

14.5.1 When Work is Defective or when the Contractor fails to supply sufficient skilled Workmen or suitable materials or equipment, or make prompt payments to Subcontractors for labor, materials, or equipment, or if the Contractor violates any provisions of these Contract Documents, the Town may order the Contractor to stop the Work until the cause for such order has been eliminated. However, this right of the Town to stop the Work shall not give rise to any duty on the part of the Town to exercise this right for the benefit of the Contractor or any other party. The Contractor shall have no right to claim an increase in the Contract Sum or Contract Time or other damages for a stop Work order under this paragraph.

14.6 Correction or Removal of Defective Work

14.6.1 When directed by the Professional, the Contractor shall promptly, without cost to the Town, and as specified by the Professional, either correct the Defective Work, whether fabricated, installed, or completed, or 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 Defective Work within a reasonable time, all as specified in a written notice from the Professional, the Town may have the deficiency corrected. All direct and indirect costs of such correction shall be paid by the Contractor or deducted from payment to Contractor. The Contractor will also bear the expense of correcting or removing and replacing all Work of others destroyed or damaged by the correction, removal, or replacement of the Defective Work.

14.7 Acceptance of Defective Work

14.7.1 If, instead of requiring correction or removal and replacement of Defective Work, the Town prefers to accept it, the Town may do so. In such case, if acceptance occurs prior to approval of final payment, a Change Order incorporating the necessary revisions in the Contract Documents, including an appropriate reduction in the Contract Sum, shall be issued. If the acceptance occurs after approval of final payment, the Contractor shall pay within 60 days to the Town an appropriate sum to compensate for the defect in the Work.

14.8 Neglected Work by Contractor

14.8.1 If the Contractor neglects to execute the Work in accordance with the Contract Documents, including any requirements of the progress schedule, the Professional may direct the Contractor to submit a recovery plan and take specific corrective actions including, but not limited to, employing additional workmen, and/or equipment, and Working extended hours and additional Days, all at no cost to the Town in order to put the Work back on schedule. If the Contractor fails to correct the deficiency or take appropriate corrective action, the Town may terminate the contract or Contractor's right to proceed with that portion of Work and have the Work done by others. The cost of completion under such procedure shall be charged against the Contractor. A Change Order shall be issued incorporating the necessary revisions in the Contract Documents, including an appropriate reduction in the Contract Sum. If the payments due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Town within 60 days.

14.8.2 Should the Contractor Work overtime, weekends or holidays to regain the schedule, all costs to the Town of associated inspection, construction management and resident engineering shall be identified to the Contractor and the Contract Sum reduced by a like amount via Change Order.

ARTICLE 15 - PAYMENT AND COMPLETION

15.1 Schedule of Values

15.1.1 The schedule of values established as provided in 3.5.5 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to the Professional and the Project Manager. Progress payments on account of Unit Price Work will be based on the number of units completed. The provisions of the Technical Specifications shall apply to all payments and Applications For Payment.

15.2 Application for Progress Payment

15.2.1 At least twenty (20) calendar Days before the date established for each progress payment (but not more often than once a month), Contractor shall submit to the Professional for review an Application for Payment filled out and signed by the Contractor covering the Work completed as of the date of the Application For Payment and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that Town has received the materials and equipment free and clear of all liens and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect Town's interest therein, all of which will be satisfactory to Town. Payment is subject to a ten percent (10%) retainage that will be held until the final payment or acceptance by the Town. The Professional shall process Applications for Payment as specified in the Technical Specifications.

15.3 Contractor's Warranty of Title

15.3.1 Contractor warrants and guarantees that title to the Work, materials and equipment covered by any Application for Payment, whether incorporated in the Work or not, will pass to the Town no later than the time of payment free and clear of all liens.

15.4 Processing of Applications for Payment

15.4.1 The Professional will, within ten (10) calendar Days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application for Payment to the Town, or return the Application for Payment to Contractor indicating in writing Professional's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application For Payment. The Town shall, within thirty-one (31) calendar Days of presentation to them of the Application for Payment with Professional's recommendation of the amount for payment, pay Contractor amount recommended, unless the Town has reasons to refuse or contest the amount of the Application for Payment.

15.4.2 The Professional's recommendation of any payment requested in an Application for Payment will constitute a representation by the Professional to the Town based on the Professional's review of the Application for Payment and the accompanying data and schedules, that to the best of Professional's knowledge, information and belief that:

The Work has progressed to the point indicated on the Application for Payment;

The quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work and to any other qualifications stated in the recommendation), and;

The conditions precedent to the Contractor being entitled to such payment appears to have been fulfilled in so far as it is the Professional's responsibility to observe the Work.

15.4.3 By recommending any such payment, the Professional will not thereby be deemed to have represented that: (i) exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work beyond the responsibilities specifically assigned to the Professional in the Contract Documents or (ii) that there may not be other matters or issues between the parties that might

entitle the Contractor to be paid additionally by the Town or entitle the Town to withhold payment to the Contractor.

15.4.4 The Professional's recommendation of any payment, including final payment, shall not mean that the Professional is responsible for Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the Contractor to comply with Laws and Regulations applicable to the furnishing or performance of Work, or for any failure of the Contractor to perform or furnish Work in accordance with the Contract Documents.

15.4.5 The Professional may refuse to recommend the whole or any part of any payment if, in the Professional's opinion, he/she is unable to make the representation that the Application for Payment is acceptable to the Town. The Professional may refuse to recommend payment on the basis of the factors enumerated in the Technical Specifications, or for any other reason where it in good faith determines that it cannot recommend payment in the amount stated in the Application for Payment. The Professional may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in Professional's opinion to protect the Town from loss because or by reason of any of the factors or conditions as specified in the Technical Specifications.

15.4.6 The Town will give the Contractor immediate notice stating the reasons for such action and promptly pay the Contractor the amount so withheld, or any adjustment thereto agreed to by the Town and the Contractor, when Contractor corrects to the satisfaction of the Town and Professional the reasons for such action.

15.5 Substantial Completion

15.5.1 Substantial Completion is the stage in the progress of the Work when the Work or specified portion thereof is sufficiently complete in accordance with the Contract Documents so the Town can occupy or utilize the Work for its proposed use.

15.5.2 When the Contractor considers that the Work, or a specified portion thereof, which the Town agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Professional a thorough and inclusive list of items to be completed or corrected. The Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item on this list does not relieve the Contractor of the responsibility to complete all Work in accordance with the Contract Documents. Upon receipt of the Contractor's list, the Professional and Project Manager will visit the site to determine whether the Work or designated portion thereof is substantially complete. If the Professional's and the Project Manager's visit discloses any item, whether or not included on the Contractor's list, which is not in accordance with the requirements of the Contract Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item, upon notification by the Professional. The Contractor shall then submit a request for another visit by the Professional to determine Substantial Completion. When the Work or designated portion thereof is substantially complete, the Professional will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Document shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Contractor for their written acceptance and then to the Town for acceptance and issuance.

15.5.3 Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Professional, the Town shall make payment, reflecting adjustment in retainage, if any, for such Work or portion thereof as provided in the Contract Documents.

15.5.4 The Town shall have the right to exclude the Contractor from the Work after the date of Substantial Completion, but the Town shall allow the Contractor reasonable access to complete or correct items on the list.

15.6 Beneficial Use

15.6.1 Use by the Town or General Public, at the Town's option, of any substantially completed part of the Work which is identified in the Contract Documents, or portions of the Work which the Town, Professional, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by the Town or General Public for its intended purpose without significant interference with the Contractor's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

15.6.2 The Town at any time may request the Contractor in writing to permit the Town or General Public to use any such part of the Work which the Town believes to be ready for its intended use and substantially complete. If the Contractor agrees that such part of the Work is substantially complete, the Contractor will certify to the Town and the Professional in writing that the Contractor considers any such part of the Work ready for its intended use and substantially complete and request the Professional to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, the Town, Contractor and Professional shall make an inspection of that part of the Work to determine its status of completion. If the Professional does not consider that part of the Work to be substantially complete, the Professional will notify the Town and the Contractor in writing giving the reasons therefore. If the Professional considers that part of the Work to be substantially complete, the provisions of 15.5 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto. The Town, may at its discretion, reduce the amount of retainage subject to this declaration of partial Substantial Completion.

15.7 Final Inspection

15.7.1 Upon written notice from the Contractor that the entire Work or an agreed portion thereof is complete, the Professional will make a final inspection with the Town and the Contractor and will notify the Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or Defective. The Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.8 Application for Final Payment

15.8.1 After the Contractor has completed all such corrections to the satisfaction of the Professional and the Town and delivered in accordance with the Contract Documents all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance as required by the Contract Documents, certificates of inspection, marked-up record documents and other documents, and after the Professional has indicated that the completed Work is acceptable and in accordance with the Contract Documents, the Contractor may make Application for Final Payment following the procedure for progress payments. The Application for Final Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, (ii) consent of the surety, if any, to final payment, and (iii) complete and legally effective releases or waivers (satisfactory to Town) of any and all claims of any person or entity providing labor, services or materials to the Project. In lieu of such releases or waivers of liens and as approved by Town, Contractor may furnish receipts or release in full and an affidavit of the Contractor that (i) the releases and receipts include all labor, services, material and equipment for which a lien could be filed, and (ii) all payrolls, material and equipment bills and other indebtedness connected with the Work for which Town or Town's property might in any way be responsible, have been paid or otherwise satisfied. If any Subcontractor or supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to the Town to indemnify Town against any lien.

15.8.2 No Application for Final Payment will be recommended for payment by the Professional or accepted by the Town until each and every document to be delivered by the Contractor pursuant to the Contract Documents are accepted and approved by the Professional.

15.8.3 Notwithstanding any other provision of these Contract Documents to the contrary, the Town and the Professional are under no duty or obligation whatsoever to any vendor, materials provider, Subcontractor, laborer or other party to ensure that payments due and owing by the Contractor to any of them are or will be made. Such parties shall rely only on the Contractor's surety Bonds for remedy of nonpayment by him. The Contractor agrees to defend and resolve all claims made by Subcontractors,

indemnifying the Town and the Professional for all claims arising from or resulting from Subcontractor or supplier or material men or laborer services in connection with this project.

15.9 Final Payment and Acceptance

15.9.1 If, on the basis of the Professional's observation of the Work during construction and final inspection, and the Professional's review of the Application for Final Payment and accompanying documentation as required by the Contract Documents, the Professional is satisfied that the Work has been completed and the Contractor's other obligations under the Contract Documents have been fulfilled, the Professional will, within fifteen (15) Working Days after receipt of the Application for Final Payment, indicate in writing the Professional's recommendation of payment and present the Application for Final Payment to the Town for payment. Otherwise, the Professional will return the Application for Final Payment to the Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case the Contractor shall make the necessary corrections and resubmit the Application for Final Payment. After the presentation to the Town of the Application for Final Payment and accompanying documentation, in appropriate form and substance, and with the Professional's recommendation and notice of acceptability, the amount recommended by the Professional will become due and will be paid by the Town to the Contractor, along with any retainage not yet paid, within thirty (30) days after receipt of the Professional's recommendation for Final Payment.

15.9.2 If, through no fault of the Contractor, Final Completion of the Work is significantly delayed and if the Professional so confirms, the Town shall, upon receipt of the Contractor's Application for Final Payment and recommendation of the Professional, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by the Town for Work not fully completed or corrected is less than the retainage stipulated in the Contract, 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 Professional with the application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

15.10 Waiver of Claims

15.10.1 Submission of an Application for Final Payment and receipt of payment as a result thereof shall operate as and constitute a waiver and release of any and all claims by the Contractor against the Town other than those previously made in writing and still unsettled.

15.10.2 Conditions of the Technical Specifications are hereby reiterated.

ARTICLE 16 - SUSPENSION OF WORK AND TERMINATION

16.1 Suspension of Work

16.1.1 At any time and without cause, the Town may suspend the Work or any portion thereof for a period of not more than ninety (90) Days by notice in writing to the Contractor and the Professional, which will fix the date on which Work will be resumed. The Contractor shall resume the Work on the date so fixed. The Contractor shall be allowed an adjustment in the Contract Sum or an extension of the Contract Times, or both, directly attributable to any such suspension if the Contractor makes any approved claim therefore as provided in Articles 12 and 13.

16.1.2 If through no act or fault of the Contractor, the Work is suspended for a period of more than ninety (90) calendar Days by the Town or under an order of court or other public authority, or the Professional fails to act on any Application for Payment within thirty (30) calendar Days after it is submitted or the Town fails for thirty-one (31) calendar Days to pay the Contractor any sum recommended for payment by the Professional, then the Contractor may upon seven (7) Working Days written notice to the Town and the Professional, and provided the Town or the Professional did not remedy such suspension or failure within that time, terminate the Contract and recover from the Town payment on the same terms as provided in 16.3. In lieu of terminating the Contract and without prejudice to any other right or remedy, if the Professional has failed to act on an Application for Payment within thirty (30) calendar Days after it is submitted, or the Town has failed for thirty-one (31) calendar Days to pay the Contractor any sum

recommended for payment by the Professional, the Contractor may upon seven (7) Day's written notice to the Town and the Professional stop the Work until payment of all such amounts due the Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude the Contractor from making claim under Articles 12 and 13 for an increase in Contract Sum or Contract Times or otherwise for expenses or damage directly attributable to the Contractor's stopping Work as permitted by this paragraph.

16.2 Termination For Cause

16.2.1 Upon the occurrence of any one or more of the following events:

If the Contractor fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled Workers or suitable materials or equipment, or failure to adhere to the progress schedule established);

If the Contractor disregards Laws or Regulations of any public body having jurisdiction;

If the Contractor disregards the authority of the Professional or Project Manager or;

If the Contractor otherwise violates in any substantial way any provisions of the Contract Documents;

The Town may, after giving the Contractor seven (7) Working Days' written notice, and to the extent permitted by Laws and Regulations, terminate the services of the Contractor and terminate the Contract, exclude the Contractor from the site and take possession of the Work and of all the Contractor's tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by the Contractor (without liability to the Contractor for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which the Town has paid the Contractor but which are stored elsewhere, and finish the Work as Town may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment beyond an amount equal to the value of the Work actually completed and the value of materials and equipment not incorporated in the Work but delivered and suitably stored, less the aggregate of payments previously made. If the direct and indirect costs of completing the Work exceed the unpaid balance of the Contract Sum, the Contractor shall pay the difference to the Town within 60 days. Such costs incurred by the Town shall be verified by the Professional and incorporated in a Change Order, but in finishing the Work the Town shall not be required to obtain the lowest figure for the Work performed. The Contractor's obligations to pay the difference between such costs and such unpaid balance shall survive termination of the Contract.

16.2.2 In the event the Town terminates the Contract for cause and it is subsequently judicially determined that there was no cause for termination, the termination for convenience provision will be the means for disposition of the balance of the Contract obligations.

16.2.3 Notwithstanding, the Town may terminate this Contract immediately upon any lapse in the insurance coverage to be retained by the Contractor.

16.3 Termination for Convenience

16.3.1 Upon seven (7) Working Days' written notice to the Contractor and the Professional, the Town may, without cause and without prejudice to any other right or remedy of the Town, elect to terminate the Contract. In such case, the Contractor shall be paid (without duplication of any items):

For completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

For expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

For all claims, costs, losses and damages incurred in settlement of terminated contracts with Subcontractors, suppliers and others; and

Bidder _____

For reasonable expenses directly attributable to termination.

The Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss or incidental or consequential damages of any type or nature arising out of or resulting from such termination.

17 Disputes

17.1 All disputes arising under the Contract of Contract Documents or their interpretation, whether involving law or fact or both, or extra Work, and all claims for alleged breach of contract shall within ten (10) Working Days of the commencement of the dispute be presented by the Contractor to the Town for decision. All papers pertaining to claims shall be filed in quadruplicate. Such notice need not detail the amount of the claim but shall state the facts surrounding the claim in sufficient detail to identify the claim, together with its character and scope. In the meantime, the Contractor shall proceed with the Work as directed. Any claim not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten (10) Days of its commencement, the claim will be considered only for a period commencing ten (10) Days prior to the receipt by the Town of notice thereof. Each decision by the Town will be in writing and will be mailed to the Contractor by registered or certified mail, return receipt requested, directed to his last known address.

17.1.1 If the Contractor does not agree with any decision of the Town, he shall seek mediation by a certified circuit court civil mediator who will be agreed to by the parties or, if the parties cannot agree to a mediator within thirty (30) calendar Days of the request for mediation, said mediator will be chosen by the Town. The parties will cooperate in good faith with the mediator with the cost of the mediator split equally between the parties.

17.1.2 If the Contractor does not agree with any decision of the Town, or the mediation is unsuccessful, he shall in no case allow the dispute to delay the Work but shall notify the Town promptly that he is proceeding with the Work under protest and may then except the matter in question from the final release.

18 Miscellaneous

18.1 Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the address specified in the Contract.

18.2 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. A calendar Day of twenty-four hours measured from midnight to the next midnight will constitute a Day.

18.3 All representations, warranties, and guarantees made in the Contract Documents will survive final payment and termination or completion of the Contract. Also the obligation of the Contractor to maintain the Work until initiation of operation shall survive final payment and termination completion of the Contract.

18.4 The Contractor shall keep adequate records and supporting documentation applicable to this Work and Contract. Said records and documentation shall be retained by the Contractor for a minimum of five (5) years from the date of Final Completion or termination of the Contract. The Town shall have the right to audit, inspect, and copy all such records and documentation as often as the Town deems necessary during the period of the Contract and for a period of five (5) years thereafter provided, however, such activity shall be conducted only during normal business hours. The Town, during this period of time, 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 supporting documentation.

Bidder _____

18.5 In the event of any litigation arising from the performance of the Work or any alleged breach of the Contract or Contract Documents the prevailing party shall be entitled to recover reasonable attorneys fees (at both the trial and appellate level) and venue of any such action shall be in a court of competent jurisdiction in Sarasota or Manatee County. Each party to this Contract waives and relinquishes their right to intimate or pursue any action in any court except for the court of competent jurisdiction in Sarasota or Manatee County, Florida.

Bidder _____

Bond # _____

SECTION 00710

PERFORMANCE AND PAYMENT BOND

BY THIS BOND, we _____, as Principal, and _____, a corporation, as Surety, are bound to the Town of Longboat Key, herein called Owner, in the sum of \$ _____ (words) (_____) Performance and Payment Bond in the amount of 100% of total Contract Sum) for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs the contract dated _____, 2009, between Principal and Owner for Qualification and Bidding for Potable Water Main Upsizing – Bay Isles Road to New Pass, the contract being made a part of this bond by reference, at the times and in the manner prescribed in the contract; and
2. Promptly makes payments to all claimants, as defined in Section 255.05(1) Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the Work provided for in the contract; and
3. Pays Owner all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that Owner sustains because of a default by Principal under the contract; and
4. Performs the guarantee of all Work and materials furnished under the contract for the time specified in the contract, then this bond is void; otherwise it remains in full force.

Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes.

Any changes in or under the Contract Documents and compliance or noncompliance with any formalities connected with the contract or the changes does not affect Surety's obligation under this bond.

Changes in the Contract Sum shall be immediately reflected in the amount of the bond and Principal shall provide copy of verification from Surety to the Owner regarding such changes.

Dated on _____.

Bidder _____

Performance and Payment Bond, page 2 of 2

Any claims under this bond may be addressed to the name and address of Surety below. IN WITNESS WHEREOF, the PRINCIPAL and SURETY signed and sealed this instrument this _____ Day of _____, 2009.

SURETY: _____

LICENSE: _____

Surety's Attorney in Fact: _____

ADDRESS: _____

TELEPHONE: _____

By: _____ as Attorney in Fact.

State of Florida, County of Sarasota

The foregoing instrument was acknowledged before me this _____ Day of _____, 2009, by _____, who is personally known to me or who has produced _____, as identification and who did (did not) take an oath and who acknowledged before me that he executed the same for the purposes therein expressed.

NOTARY PUBLIC

Typed Name

Commission Expires: _____

PRINCIPAL: _____

Principal's Attorney in Fact: _____

ADDRESS: _____

By: _____ as Attorney in Fact.

APPROVED as to form:

BY: _____

David Persson, Town Attorney

SECTION 01010 SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. The location of the work is in the Town of Longboat Key, Sarasota County, Florida. Pipeline route is located along the eastern corridor of Gulf of Mexico Drive (SR 789) within the FDOT Right of Way (ROW).
- B. The Town of Longboat Key “Water System Improvements – Upsize Potable Water Transmission Main” Project Documents and Drawings for the proposed utilities have been prepared by Engineering Visions, Inc. and TGW Engineering, Inc. Supporting information was prepared as follows: Field survey (Q. Grady Minor and Associates); Utility locates via soft digs and ground penetrating radar (F. R. Aleman and Associates); Geotechnical soil information (Driggers Engineering Services, Inc.); and Ortho-rectified aerials (Pickett and Associates).
- C. The total work for the “Water System Improvements – Upsize Potable Water Transmission Main” consists of furnishing all labor, materials, equipment, services, fitting, valves, connections to existing systems, and all incidentals and appurtenances for the installation and testing of approximately 3.2 miles of new 12-inch and 16-inch potable water transmission main and water services. Pipeline route is in a heavily congested corridor.
- D. The FDOT is currently scheduled to re-surface Gulf of Mexico Drive roadway south of the Sarasota County line within calendar year 2009/2010. The FDOT and Town have agreed the Contractor will be allowed to trench restoration per crossing detail and patching pavement provided quality of material and compaction and final surfacing meet FDOT specifications. As such, the standard FDOT milling and restoration from centerline of GMD and 75-feet each direction is not required for travel lane reconstruction in this contract. Paved shoulder will need to match existing sub grade, base, structural asphalt and friction course. Contractor is required to take extreme caution to minimize all impacts and not enter into Gulf of Mexico Drive pavement. The FDOT maintains final inspection and authority in completed road work, repairs, and activity within their ROW. The affected pavement, driveways, and side roads shall have patching completed to pre-construction condition and to FDOT standards. This includes sub-base materials, compaction and surface, and final coatings.
- E. Construction also includes dewatering, FDOT standard Maintenance of Traffic (MOT), signage, complying with permit conditions, testing and all restoration

- F. Except as specifically noted, the Contractor shall provide and pay for:
 - 1. Labor, materials, tools, construction equipment, and machinery.
 - 2. Other facilities and services necessary for proper execution and completion of the work.
- G. Staging and storage facilities not established with the Town.
- H. The Contractor shall comply with all codes, ordinances, rules, regulations, orders, permits and other legal requirements of the Town of Longboat Key, Sarasota County, Florida Department of Transportation, (FDOT), Florida Department of Environmental Protection (FDEP), Southwest Florida Water Management District (SWFWMD), Department of Health (DOH) and the Army Corps of Engineers (ACOE).

1.02 LOCATIONS OF UTILITIES

- A. Information shown on the drawings as to the location of existing utilities has been prepared from the detailed field surveys and locates as described in 1.01 B. This information is not guaranteed and it shall be the Contractor's responsibility to determine the location, character, and depth of any existing utilities (Water, Wastewater, Storm water) and secondary services lines including Power, Phone, Cable, and Gas. Extreme caution shall be exercised to eliminate any possibility of any damage to utilities resulting from Contractor activities.

The Contractor shall be fully responsible for any damage to utilities or other services resulting from Contractor operations.

The Contractor is required to field verify Utility and secondary existing secondary service lines and any other existing facility.

The Contractor shall be responsible for the immediate repair of damage to existing utilities and secondary service lines.

The Contractor shall be responsible for damages to existing landscaping, landscape lighting and electrical lines, irrigation system piping and appurtenances (irrigation heads, spray nozzles), and control wiring. Contractor shall complete the repair and restoration of damaged facilities within five (5) calendar days of the damage.

- B. The Contractor shall determine any conflicts between existing utilities, or other structures or facilities, with the alignment or gradient of the proposed work, and report such conflicts to the Town and Engineer, sufficiently in advance of

construction operations so that proper adjustments in the alignment or gradient of the proposed work may be planned by the Town to avoid such conflicts. The Town shall not be liable for any cost or added expenses to the Contractor for delays, or for the necessary adjustment of previously installed work to avoid such conflicts, due to the Contractor's failure to advise the Town of such conflicts adequately in advance of construction operations.

- C. The Contractor shall uncover all existing water service connection locations determine the exact elevations, locations, type, and size of the services mains and lines sufficiently in advance of work to ensure that necessary materials are available when connections to the existing mains and services are to be made. Contractor will stabilize, backfill and mark these service connections until project work connections are completed.
- D. The Contractor shall be responsible for furnishing such fittings, restraints, couplings, adaptors, and specials as required to make connections to the existing water mains, services, and meters in accordance with the details shown on the Drawings. No claims for delay or extra cost will be allowed due to changes in the location, elevation, type, or size of the main or service line from those shown on the Drawings.

1.03 CONSTRUCTION SEQUENCE

- A. All work is to be performed in such a manner and sequence that interruptions of service to the existing customers shall be kept at a minimum. The Contractor shall fully coordinate and obtain the approval of the Town and Engineer of the proposed sequence of operations for making connections to the existing water mains and services. A connection plan is required.
- B. The project work along the pipeline route is anticipated to proceed in 2,000-foot increments.
- C. All existing water mains and services shall remain in service until the new pipe and services have been satisfactorily installed, including flushing, pigging, pressure testing, disinfection, and obtaining bacteriological clearances. The Contractor may flush, pig, test, and disinfect portions of the work prior to completion of all the proposed new construction. The new water lines and meter services will be pressure tested and disinfected together as one system or unit up to and including the lockable curb or meter stop. The Contractor shall provide the customer with a written notice 48 hours prior to the interruption of service in a method approved by the Town.
- D. The Contractor shall provide temporary service to customers if the integrity of the existing mains cannot be maintained. Temporary mains shall be considered incidental and costs for such must be included in the bid price for new water main work. The Contractor shall inform the Town and Engineer as to when and

approximately how long the water will be shut off. Every effort shall be made to minimize the inconvenience to the customers, and in no event shall the time of interruption of water service be in excess of two hours.

- E. Prior to the commencement of any work, the Contractor shall contact the appropriate permitting and underground agencies to provide a minimum of 48-hours in advance.

1.04 PROPERTY OWNER'S APPROVAL

- A. If not previously acquired by Town, the Contractor shall be responsible for obtaining the written authorization from each property owner to perform work on their property. The Town will assist the Contractor in obtaining written authorization from the property owner in the event the Contractor is unable to secure permission directly. Work shall not commence on any private property until the owner's authorization for that property is obtained.

1.05 SILTATION AND EROSION

- A. The Contractor shall take adequate precautions to minimize siltation and erosion within the project work area or adjacent areas. This includes in the vicinity of wetlands or coastline, in discharging well point systems, or during other construction activities (including flushing and disinfection of mains).

1.06 STORAGE OF MATERIALS

- A. Coordinate with the Town and private property owners to identify and utilize storage area(s), and agree to terms and conditions for use of the area to mobilize, and to store materials and equipment.
- B. All materials, supplies and equipment intended for use in the work shall be suitably stored by the Contractor to prevent damage from exposure, admixture with foreign substances, or vandalism or other cause. The Town will refuse to accept, or sample for testing, materials, supplies or equipment that have been improperly stored, as determined by the Town and Engineer. Materials found unfit for use shall not be incorporated in the work and shall immediately be removed from the construction or storage site.
- C. Delivered materials shall be stored in a manner acceptable to the Town and Engineer as referenced in Section 01600 – Material and Equipment before any payment for same will be made. Materials may be strung out along the line of construction as approved by the Town, Engineer, and FDOT not to exceed a maximum length of 500-feet (total).

- D. When storing materials on private property, the Contractor shall submit in writing the property owner's authorization to do so and provide any and all permits that may be required at no expense to the Town.

1.07 PRESERVATION OF PROPERTY

- A. The Contractor shall preserve from damage all property along the line of the work, or which is in the vicinity of or is in any way affected by the work, the removal or destruction of which is not called for by the Drawings. Wherever such property is damaged due to the activities of the Contractor, it shall be immediately restored to its original condition by the Contractor at no cost to the Town.

1.08 CLEAN UP

- A. The Contractor shall keep the construction site free of rubbish and other materials and restore to their original conditions those portions of the site not designated for the alternation by the Contract Documents. Trash will be gathered and removed on a daily basis. Clean up and restoration shall be accomplished daily throughout the contract period and in such a manner as to maintain a minimum of nuisance and interference to the general public and residents in the vicinity of the work. The Contractor shall also remove, when no longer needed, all temporary structures (including signage and utility flagging) and equipment used in his operation. It is the intent of this Specification that the construction areas and those other areas not designated for alteration by the Contract Documents shall be immediately restored to original condition.
- B. When water service has been restored through new service lines, there shall be no delay in removal of old meter boxes, old valve boxes, service pipe, and the restoration of grounds. As soon as possible, the premises and grounds shall be restored to conditions existing prior to the pipe installation, as far as practicable. Any holes or depressions, caused by the Contractor's work, shall be filled with sand or other suitable fill material, and all surfaces shall be left smooth. Any damage to buildings, shrubs, trees, plantings or paving shall be repaired, and any damaged areas of lawn shall be re-sodded. The Contractor shall coordinate with the Town in responding to any complaints of occupants or property owners. All new or existing meter boxes will be installed or reinstalled such that the top is flush with existing grade. On-site customer service pipe shall be buried appropriately.

1.09 PUBLIC SAFETY AND CONVENIENCE

- A. The Contractor shall at all times so conduct his work as to ensure the least possible obstruction to traffic, or inconvenience to the general public and residents in the vicinity of the work. No road or street shall be closed to the public, except with the permission of the Town, FDOT and appropriate Police and

Fire Department. Fire hydrants on or adjacent to the work shall be kept accessible. Provisions shall be made by the Contractor to ensure public access to sidewalks, public telephones, and the proper functioning of all gutters, sewer inlets, drainage ditches, and irrigation ditches. No open excavation shall be left overnight. All open excavation within the roadway shall be backfilled and a temporary asphalt patch applied prior to darkness each day. A temporary cold asphalt patch is acceptable.

1.10 SAFETY AND OSHA COMPLIANCE

- A. The Contractor shall comply in all respects with all Federal, State and Local safety and health regulations. Copies of the Federal regulations may be obtained from the U.S. Department of Labor, Occupation Safety and Health Administration (OSHA), Washington, DC 20210 or their regional offices.
- B. The Contractor shall comply in all respects with the applicable Workman's Compensation Law.

1.11 CONTRACTOR'S USE OF PREMISES

- A. Coordinate use of premises under direction of the Town. Submit in writing authorization to use the premises and provide any and all permits that may be required at no expense to the Town.
- B. Assume full responsibility for the protection and safekeeping of equipment and materials stored on the site.
- C. Move any stored products, under Contractor's control, which interfere with operations of the Town or separate Contractor.

1.12 SALVAGABLE MATERIALS

- A. The Town reserves the right to salvageable pipe fittings, valve boxes, or other miscellaneous materials removed during construction and not used in the work. At the Town's request said items shall be cleaned and delivered to the Town Public Works location, at the Contractor's expense, and shall remain the property of the Town. All other materials shall be disposed of by the Contractor at his own expense. No separate payment for this work shall be allowed.
- B. Fill generated from the construction shall be delivered to a site if designated by the Town, or disposed of by the Contractor at his own expense. No separate payment for this work shall be allowed.

1.13 CONTRACTOR COORDINATION WITH RESIDENTS

- A. Contractor shall coordinate with the Town in advance as it relates to interaction with the Longboat Key residents, business owners, press and other media forms.
- B. Contractor shall communicate with Town to identify their designated representatives in specified areas, and coordinate with their representatives for the progress of the work and to resolve problems concerning their issues.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01011 SITE CONDITIONS

PART 1 - GENERAL

1.01 SITE INVESTIGATION AND PRESENTATION

- A. The Contractor acknowledges that they are satisfied as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, tide stages, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed prior to and during the prosecution of the work and all other matters which can in any way effect the work or the cost thereof under this Contract.

- B. The Contractor further acknowledges that they are satisfied as to the character, quality, and quantity of surface and subsurface materials to be encountered from inspecting the site and from evaluating information derived from exploratory work that has been completed and included in the Contract Documents-Section 02010-Subsurface Investigations and Drawings. Any failure by the Contractor to acquaint himself with all the available information will not relieve him from responsibility for properly estimating the difficulty or cost of successfully performing the work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 INFORMATION ON SITE CONDITIONS

- A. All information gathered regarding site conditions, topography, subsurface information, groundwater elevations, existing utilities, construction of site facilities as applicable, and similar data has been incorporated into the Contract Specifications and Drawings. Neither the Town nor Engineer assumes any responsibility for the completeness or for the Contractor's interpretation of such supplementary information.

3.02 BORING LOG

A log of test borings showing a record of the data obtained on subsurface conditions is included at the back of Contract Specification Section 02010-Subsurface Investigation for reference only. Boring logs are for representation for the location where the boring was obtained.

3.03 BIDDER'S SUBSURFACE INVESTIGATION

- A. Prospective Bidders have the right, at their own expense, to make such additional subsurface investigations, by boring or test hole excavation, as they may desire. It is the responsibility of the Bidder to obtain permission and appropriate permits prior to conducting additional work. The timing to complete an effort will not be allowed to be used to delay bid packages and associated submittals.

3.04 DIFFERING SUBSURFACE CONDITIONS

- A. In the event subsurface latent physical conditions are found materially different from those indicated in the Documents, and differing materially from those ordinarily encountered and generally recognized as inherent in the character of work covered in these Contract Documents, the Contractor shall promptly, and before such conditions are disturbed, notify the Town and Engineer in writing of noted changes or conditions.
- B. The Town and Engineer will investigate such conditions promptly and following this review, the Contractor shall proceed with the work, unless otherwise instructed by the Town or Engineer. If the Town and Engineer finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for performing the work, the Town and Engineer will consider an adjustment in cost and time.
- C. The project work is in a heavily congested FDOT ROW. Field locates of utilities was conducted by utility flagging, ground penetrating radar, soft field digs and field survey. Located utilities have been incorporated into the Project Drawings. It is likely due to the numerous amount and age of utilities within this area, the Contractor may encounter lines not shown on Drawings. This is considered inherent to the type of work and should be planned for by the Contractor at no additional expense.

END OF SECTION

SECTION 01015 PERMITS AND FEES

PART 1 - GENERAL

1.01 GENERAL

- A. Obtain and pay for all permits and licenses as provided for in the General Conditions, except as otherwise provided herein.
- B. Schedule all inspections and obtain all written approvals of the agencies required by the permits and licenses.
- C. National Pollutant Discharge Elimination System (NPDES) Stormwater Permit (For Construction Activities Exceeding 1-acre less than 5-acre)
 - 1. The active construction area as Bid (without alternatives) will equal or exceed 1-acre in size. The Contractor will be responsible for the preparation, signatures, certifications, filings, implementation, maintenance and inspection of all stormwater pollution prevention control measures. This includes the Notice of Intent (NOI), Stormwater Pollution Prevention Plan (SWPPP), and associated permit fees in accordance with Chapter 62-621.
 - 2. Information developed for the compliance to 62-621 will be submitted to the Town and Engineer for review prior to submittal to the appropriate agencies.
- D. The Town has obtained the following permits:
 - 1. Florida Department of Transportation (FDOT) Utility Permits 2008-H-194-231 and 2008-H-194-232. Permits are included at the end of this Section 01015.
 - 2. Environmental Resource Permit (FDEP/SWFWMD/ACOE) Joint Agency reviewed November 23, 2008 – Regulatory and Proprietary Reviews approved. SPGP Review deemed not applicable by ACOE November 17, 2008. ERP Letter information included at end of this Section 01015.
 - 3. Department of Health (Sarasota County) - Notice of Intent to Use the General Permit for Construction of Water Main Extensions for PWS – Site# 0264569-003 and WD# 1098-09-001 issued January 23, 2009. DOH letter information is included at end of this Section 01015.
- E. Comply with all conditions specified in each of the permits and licenses.

1.02 DEWATERING ACTIVITIES

- A. Within 14 calendar days before any excavation, submit a dewatering plan. The dewatering plan shall outline the dewatering method, pump capacities, pumping duration, noise abatement, point of discharge and associated water quality protection, methods of bypass associated with ditch crossings, and other pertinent information that may be required by Southwest Florida Water Management District (SWFWMD).
- B. The Contractor shall coordinate with the SWFWMD regarding the applicable rules and regulations. If a dewatering permit is required, the Contractor shall prepare an application to the District and pay any associated fees. Dewatering permit, if applicable, must be obtained prior to any dewatering activities.

1.03 WORK IN FDOT RIGHT OF WAY (ROW)

- A. Comply with all FDOT construction and traffic control standards and requirements for work within FDOT Right of Way. Work requiring temporary lane closures require prior notification and permission from FDOT. Lane closures will not be allowed without the prior approval of the Town or the FDOT.
- B. FDOT current version of Standards, Materials, Traffic Controls and related work activity apply to all portions of this project work.
- C. The Contractor is solely responsible for compliance to all conditions of the FDOT permit and reference standards.
- D. The Contractor will submit to the Town, which reserves the right to review with FDOT, the Maintenance of Traffic Plan (MOT) written in compliance to current FDOT standards and as described in Drawings. The Contractor must utilize personnel with appropriate training in utility work traffic control planning, design, implementation, inspection and supervision in the preparation, selection, placement, and maintenance of traffic control schemes and devices in work zones of the State Highway System ROW as required by the FDOT current standards. The Contractor shall submit with their MOT Plan to the Town list of personnel which will be utilized and comply with these requirements.
- E. The Contractor will provide notification to FDOT and the Town 48-hours in advance of beginning construction activities.
- F. The Contractor will coordinate final inspection between FDOT, the Town and its agents.
- G. In the event the FDOT deem the activity non-compliant and require work to stop until compliance is achieved, the Contractor will correct the issues. The Town will not compensate the Contractor in time or finances for such events.

END OF SECTION

PERMIT VOID UNLESS DOT OPERATIONS CENTER IS NOTIFIED 48 HRS IN ADVANCE OF STARTING WORK PHONE (941) 359-7300 VERIFICATION NO

RULE 14-40

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

UTILITY PERMIT

NOTE: ALL ABOVE GROUND APPURTENANCES ARE TO BE LOCATED AT R/W LINE.

FORM 710-010-85 UTILITIES OGC - 1007

PERMIT NO.: <u>2008-H-194-231</u>		SECTION NO.: <u>17030000</u>		STATE ROAD <u>789</u>		COUNTY <u>Sarasota</u>	
FDOT construction is proposed or underway.				<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No	
Is this work related to an approved Utility Work Schedule?				<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No	
PERMITTEE:		Town of Longboat Key		ALL CONTRACTORS AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH PERMITTED MOT PLAN.			
ADDRESS:		600 General Harris Street					
CITY/STATE/ZIP:		Longboat Key, FL 34228					
TELEPHONE NUMBER: (941) 316 - 1958							
The above PERMITTEE requests permission from the State of Florida Department of Transportation, hereinafter called the FDOT, to construct, operate and maintain the following: 3.242 mile potable water 12-inch and 16-inch transmission main and related components located in the east FDOT ROW corridor of Gulf of Mexico Drive (SR 789).							
FROM: ~Mile Post 3.870 Section 17030000				TO: ~ Mile Post 7.112 (Section 17030000)			
Submitted for the PERMITTEE by: Name and Company (Typed or Printed Legibly)		Contact Information Address/Telephone/E-Mail (if applicable)		Signature		Date	
Laura S. Andrews, P.E. Engineering Visions, Inc.		4400 El Conquistador Pkwy, Ste 26 Bradenton, FL 34210				10/13/2008	

- The Permittee declares that prior to filing this application, the location of all existing utilities that it owns or has an interest in, both aerial and underground, are accurately shown on the plans and a letter of notification was mailed on September 2, 2008 to the following utilities known to be involved or potentially impacted in the area of the proposed installation: Verizon, Peoples Gas, Comcast Cable, and FPL
- The local Maintenance or Resident Engineer, hereafter referred to as the FDOT Engineer, shall be notified a minimum of forty eight (48) hours in advance prior to starting work and again immediately upon completion of work. The FDOT's Engineer is Lance Grace, located at 1840 61st Street, Sarasota, FL 34243, Telephone Number 941-359-7315. The Permittee's employee responsible for MOT is Anne Ross, P.E. LBK, Telephone Number 941-316-1958. (This name may be provided at the time of the forty eight (48) hour advance notice prior to starting work).
- All work, materials, and equipment shall be subject to inspection and approval by the FDOT Engineer.
- All plans and installations shall conform to the requirements of the FDOT's UAM in effect as of the date this permit is approved by FDOT, and shall be made a part of this permit. This provision shall not limit the authority of the FDOT under Paragraph 8 of this Permit.
- This Permittee shall commence actual construction in good faith within ~ 240 548 365 days after the permitted work has begun. If the beginning date is more than sixty (60) days from the date of permit approval, the Permittee must review the permit with the FDOT Engineer to make sure no changes have occurred to the Transportation Facility that would affect the permitted construction.
- The construction and maintenance of such utility shall not interfere with the property and rights of a prior Permittee.
- It is expressly stipulated that this permit is a license for permissive use only and that the placing of utilities upon public property pursuant to this permit shall not operate to create or vest any property right in said holder, except as provided in executed subordination and Railroad Utility Agreements.
- Pursuant to Section 337.403(1), Florida Statutes, any utility placed upon, under, over, or along any public road or publicly owned rail corridor that is found by FDOT to be unreasonably interfering in any way with the convenient, safe, or continuous use, or maintenance, improvement, extension, or expansion, of such public road or publicly owned rail corridor shall, upon thirty (30) days written notice to the utility or its agent by FDOT, be removed or relocated by such utility at its own expense except as provided in paragraphs (a) and (b), and except for reimbursement rights set forth in previously executed subordination and Railroad Utility Agreements, and shall apply to all successors and assigns for the permitted facility.
- It is agreed that in the event the relocation of said utilities are scheduled to be done simultaneously with the FDOT's construction work, the Permittee will coordinate with the FDOT before proceeding and shall cooperate with the FDOT's contractor to arrange the sequence of work so as not to delay the work of the FDOT's contractor, defend any legal claims of the FDOT's contractor due to delays caused by the Permittee's failure to comply with the approved schedule, and shall comply with all provisions of the law and the FDOT's current UAM. The Permittee shall not be responsible for delay beyond its control.
- In the case of non-compliance with the FDOT's requirements in effect as of the date this permit is approved, this permit is void and the facility will have to be brought into compliance or removed from the R/W at no cost to the FDOT, except for reimbursement rights set forth in previously executed subordination and Railroad Utility Agreements. This provision shall not limit the authority of the FDOT under Paragraph 8 of this Permit.
- It is understood and agreed that the rights and privileges herein set out are granted only to the extent of the State's right, title and interest in the land to be entered upon and used by the Permittee, and the Permittee will, at all times, and to the extent permitted by law, assume all risk of and indemnify, defend, and save harmless the State of Florida and the FDOT from and against any and all loss, damage, cost or expense arising in any manner on account of the exercise or attempted exercises by said Permittee of the aforesaid rights and privileges.
- During construction, all safety regulations of the FDOT shall be observed and the Permittee must take measures, including placing and the display of safety devices that may be necessary in order to safely conduct the public through the project area in accordance with the Federal MUTCD, as amended for highways, the requirements of the Standard Application Package for railways, including flagging services and Railroad Protective Insurance or acceptable alternative, when applicable, and the FDOT's Design Standards, Indexes 600-670, and Standard Specifications for Road and Bridge Construction, Section 102, as amended by the UAM. When a Utility deems it necessary to conduct Traffic Control activities and methods significantly different from those addressed in the above references, the Utility must submit an alternative plan signed and sealed by a licensed Florida professional engineer qualified to develop TCP in accordance with the provisions of Chapter 8 of the UAM.
- Should the Permittee be desirous of keeping its utilities in place and out of service, the Permittee, by execution of this permit acknowledges its present and continuing ownership of its utilities located between Existing AC Water Line (In/out Service) ~ Mile Post 3.870 Section 17030000 and Existing AC Water Line (In/Out service) ~ Mile Post 7.112 (Section 17030000) within the FDOT's R/W as set forth above. Whenever the Permittee removes its facilities, it shall be at the Permittee's sole cost and expense. The Permittee, at its sole expense, shall promptly remove said out of service utilities whenever the FDOT determines said removal is in the public interest.
- In the event contaminated soil is encountered by the Utility or anyone within the permitted construction limits, the Utility shall immediately cease work and notify the FDOT. The FDOT shall coordinate with the appropriate agencies and notify the Permittee of any suspension or revocation of the permit until contamination assessment and remediation, as appropriate under Rule Chapters 62-770 and 62-730 Florida Administrative Code, has progressed to a state that all environmental regulatory agencies having jurisdiction have approved the site of the contamination for resumption of work.

**CALL BEFORE YOU DIG
1-800-432-4770
IT'S THE LAW IN FLORIDA**

Sod All Portions of Disturbed Right-Of-Way.

UTILITY PERMIT

- 15. For any excavation, construction, maintenance, or support activities performed by or on behalf of the FDOT, within its R/W, the Permittee may be required by the FDOT or its agents to perform the following activities with respect to a Permittee's facilities: physically expose or direct exposure of underground facilities, provide any necessary support to facilities and/or cover, de-energize or alter aerial facilities as deemed necessary for protection and safety.
- 16. Pursuant to Section 337.401(2), Florida Statutes, the permit shall require the permit holder to be responsible for damage resulting from the issuance of the permit. The FDOT may initiate injunctive proceedings as provided in s. 120.69 to enforce provisions of this subsection or any rule or order issued or entered into pursuant thereto.
- 17. Pursuant to Section 337.402, Florida Statutes, when any public road or publicly owned rail corridor is damaged or impaired in any way because of the installation, inspection, or repair of a utility located on such road or publicly owned rail corridor, the owner of the utility shall, at his or her own expense, restore the road or publicly owned rail corridor to its original condition before such damage. If the owner fails to make such restoration, the authority is authorized to do so and charge the cost thereof against the owner under the provisions of s.337.404.
- 18. The Permittee shall comply with all provisions of Chapter 556, Florida Statutes, Underground Facilities Damage Prevention and Safety Act.
- 19. Special FDOT instructions: _____

It is understood and agreed that commencement by the Permittee is acknowledgment and acceptance of the binding nature of all the above listed permit conditions and special instructions.

- 20. Receipt of this permit acknowledges responsibility to comply with Section 119.07(3), Florida Statutes, and UAM Chapter 4.5.2, regarding Exempt Documents and Security System Plans Requests.
- 21. By the below signature, the Permittee hereby represents that no change to the FDOT's standard Utility Permit form, as incorporated by reference into Rule 14-46.001, for this Utility Permit has been made which has not been previously called to the attention of the FDOT (and signified to by checking the appropriate box below) by a separate attached written document showing all changes and the written and dated approval of the FDOT Engineer. Are there attachments reflecting change/s to the standard form? NO YES If Yes, _____ pages are attached.

PERMITTEE	Juan Florensa, Longboat Key Public Works Director	SIGNATURE		DATE:	10/13/08
Name & Title of Authorized Permittee or Agent (Typed or Printed Legibly)					
APPROVED BY:				ISSUE DATE:	11-13-08
District Maintenance Engineer or Designee					

UTILITY PERMIT FINAL INSPECTION CERTIFICATION

DATE:	
DATE WORK STARTED:	
DATE WORK COMPLETED:	
INSPECTED BY:	
(Permittee or Agent)	
CHANGE APPROVED BY:	DATE:
District Maintenance Engineer or Designee	

I the undersigned Permittee do hereby CERTIFY that the utility construction approved by the above numbered permit was inspected and installed in accordance with the approved plans made a part of this permit and in accordance with the FDOT's current UAM. All plan changes have been approved by the FDOT's Engineer and are attached to this permit. I also certify that the work area has been left in as good or better condition than when the work was begun.

PERMITTEE:	SIGNATURE:	DATE:
Name & Title of Authorized Permittee or Agent (Typed or Printed Legibly)		

CC: District Permit Office
Permittee

Laura S. Andrews, P.E., BCEE
4400 El Conquistador Parkway
Suite 26
Bradenton, FL 34210



Engineering Visions, Inc.

(941) 870-5622 Office
(941) 870-5419 Fax
(941) 730-1456 Mobile

October 17, 2008

Mr. Ed Giddens
Florida Department of Transportation
Sarasota Operations Center
1840 61st Street
Sarasota, FL 34243



Re: Town of Longboat Key
Potable Water Transmission Main
FDOT Utility Permit Application

Mr. Giddens:

On behalf of the Town of Longboat Key, we are submitting for permit the revised Potable Water Transmission Main FDOT Utility Permit application package. Included in our revised permit application package are the following items:

1. Four original signed permit applications for FDOT Section 17030401 and four original signed permit applications for FDOT Section 17030000.
2. Four original signed and sealed 11-inch by 17-inch drawings which include index, project layout, plan and profiles, details, cross-sections, and FDOT MOT and related restoration standards.
3. Copies of the Utility Location Verification Letter requests and plan transmission to Comcast Cable, FPL, Peoples Gas, and Verizon. To date, no response or information has been received from these entities.

Based on our last meeting held on September 29, 2008, we incorporated into the drawings the following informational primary FDOT items:

1. Dimensions depicting offset of pipe from edge of paved shoulder at 1-foot changes if offset.
2. Minimum cover of 63-inches for 12-inch pipe with directional drilling and 77-inch minimum cover for 16-inch pipe for directional drilling.
3. A total of 8 cross-sections are depicted on Sheets C-601 and C-602. Several of the cross-sections were taken at optional open-cut and directional drilling points and reflected accordingly in the appropriate cross-section detail.

LBKFDOTPermitTrans.10.17.08F

Florida COA 27192

4. Various information notes edited to incorporate traffic load bearing for Air Release Valve covers.
5. Incorporated FDOT Index 307 - Road Restoration and edited pipe trenching detail to reference FDOT standards.
6. Damage to the road surface will be restored to FDOT standards utilizing a patching method in anticipation of the planned FDOT resurfacing project. Should the completion of the Town's project be greater than six months prior to the commencement of the FDOT resurfacing project, the Town will restore the damaged areas as prescribed in Item 9 of your letter dated September 9, 2008.

As a courtesy to the FDOT, we will submit when available, one set of large plans (24-inch by 36-inch) unsealed for your inspector's additional use in the field.

We trust this information is sufficient to move forward in preparing our permit. Please contact me at (941) 730-1456 or Anne Ross, P.E. at 316-1958 x-224 if you have any questions.

Sincerely,


Laura S. Andrews, P.E., BCEE
Engineering Visions, Inc.

cc: Lance Grace, P.E., FDOT Sarasota Operations
Albert Rosenstein, P.E., FDOT - Engineering Manager
Juan Florensa, Public Works Director
Anne Ross, P.E., Town Engineer
Thomas Walker, P.E., BCEE (TGW Engineering, Inc.)

Laura S. Andrews, P.E., BCEE
400 El Conquistador Parkway
Suite 26
Bradenton, FL 34210



Engineering Visions, Inc.

(941) 870-5622 Office
(941) 870-5449 Fax
(941) 730-1456 Mobile

September 15, 2008

Mr. Ed Giddens
FDOT, Permits Manager
Sarasota Operations Center
1840 61st Street
Sarasota, FL 34243

Re: Town of Longboat Key
Potable Water Transmission Main
09/09/08 Utility Permit Response

received
SEP 17 2008
[Signature]

Dear Mr. Giddens,

On behalf of the Town of Longboat Key, we are submitting our response to FDOT comment letter dated 09.09.09 (received 09.12.08). We appreciate your expedient review of our application and plans submitted on 09.03.08.

Based on the comments we have received, we are requesting a meeting with you and other FDOT staff including staff from the District Utilities Office to discuss your comments, the plans and the Town's permit application.

As you are aware, we have been actively meeting and receiving reviewer input from FDOT regarding this pipeline project - both from the local Sarasota Operations Center and the District's Utility staff. Our more recent meeting occurred on July 10, 2008 where several of the items mentioned in your comment letter were discussed, for example, level of road restoration, depth of directional drilling activity, etc. Some of the comments in this letter are different than our meeting discussions and understanding of these items. I have attached a set of 07.10.08 meeting notes which includes the attendees and primary items discussed.

Due to the complex nature and scale of this project, a meeting with clear understanding of what is needed to complete this permit application in time to go to bid in November 2008. Aside from yourself, we would appreciate the following persons be in attendance, if possible:

Lance Grace - FDOT Sarasota Engineer
Albert Rosenstein - FDOT Sarasota Engineering Manager
Valerie Everts - FDOT Sarasota Permits
Gary Beagles - FDOT Bartow - Utilities
Deborah Barnhill - FDOT Bartow - Utilities

LBKFDOTResponse109.15.08F

Florida COA 27192

We would appreciate if you would forward a set of submitted drawings to the Utilities department so they may have a chance to review them prior to our meeting.

We trust a meeting can be scheduled in the near future to resolve these items and move forward. Please contact me at (941) 730-1456 or Anne Ross, P.E. at 316-1958 x-224 if you have any questions.

Sincerely,



Laura S. Andrews, P.E.
Engineering Visions, Inc.

cc: Lance Grace, P.E., FDOT (Engineer)
Albert Rosenstein, P.E., FDOT (Eng. Manager)
Juan Florensa, Public Works Director
Anne Ross, P.E., Town Engineer
Tom Walker, P.E. (TGW Engineering)

cc: copies sent with 07.10.08 Meeting Attachment

Town of Longboat Key FDOT Pre-Application Meeting No. 3
FDOT Sarasota Operations Center
July 10, 2008 – 2 pm

Attendees: Albert Rosenstein, P.E. – Sarasota FDOT - Engineering
Gary Beagles, - Bartow FDOT – Utilities
Deborah Barnhill – Bartow FDOT – Utilities
Valerie Everts – Sarasota FDOT – Permits
Sarasota FDOT Staff Member
Juan Florensa, Public Works Director
Anne Ross, P.E., Town Engineer
Laura Andrews, P.E., Project Manager
Tom Walker, P.E., Senior Design Engineer

Objective: To discuss comments, issues and course direction (both from FDOT and Longboat Key design team) for Potable Water Transmission design for permit application submittal.

Project Background and Design Highlights

New 12-inch and 16-inch potable water transmission main is at 75% design of alignment and type of construction. Plans submitted to FDOT Sarasota and Bartow Utilities for review and input.

Background and supporting design information gathered for pipeline design:

1. Custom Ortho-rectified Aerials of Pipeline Route in GMD East ROW Corridor (Flown March 2007).
2. Detailed horizontal and vertical existing ROW survey of known existing utilities including ground penetrating radar, utility entity flagging, centerline of roadway, edge of pavement, ROW extent, sidewalk, crossings, meters, valves, manholes, stormwater culverts, tress, poles and other similar related features.
3. 40 test hole soft digs to locate relative depths of existing utilities.
4. Soil borings at nominal depth of 20 feet every 500-feet for total of 36 borings.
5. Detailed pipeline design including alignment on triple-bank. Top bank is aerial with plan view depicting road, existing utility and ROW overlay. Middle bank is detailed plan view depicting road, existing utility, ROW and pipeline route. Lower bank is pipeline design profile and related profile features.

Design Constraints:

1. Estimated 40 to 50 live taps will be required which is limiting the amount and depth of portions of directional drilling.
2. Potable water service must be maintained.
3. Soil boring results (particularly in south end of GMD) depict extremely poor soils with 5 or less blow counts – equally not conducive for directional drilling.
4. Extremely confined and narrow area of space available for pipeline route due to heavily congested utilities.
5. Open-cut and directional drill methods would be used where appropriate.

Items Discussed:

Sidewalk

FDOT was asked about the requirements to keep the sidewalk open as it may be necessary to temporarily stage or close portions of the sidewalk during construction activities.

Response was given that temporary passage way for pedestrians will need to be provided – particularly where access is hindered more than a few hours. Damaged or removed sidewalk needs to be restored to pre-existing condition (FDOT standards).

Road Restoration

FDOT was asked to what level of road restoration would be required for potential neighborhood driveway cuts, turn lane or bike lane disturbances.

The pipeline does not cross under GMD at any time. It is designed to allow minimal disturbances as possible of the turn lanes, driveways and bicycle lane. In light of the current scheduled FDOT road resurfacing project slated for this portion of GMD within several months of this construction project, will it be necessary to mill and resurface the road as per FDOT standards.

Response was given that patching would be acceptable since the resurfacing of GMD was scheduled within an reasonable timeframe to this project. The FDOT would work with the Town in providing a coordinating effort to this project where possible.

Directional Drill Minimum Standards

FDOT was asked if the minimum standards for directional drill depths could be flexible due to the number of live taps and the depth to make the connections. Current design showed a minimum of 60-inch cover. Contractor will need to have some level of discretion due to the soil conditions.

Response was given that the direction drill depths were flexible and the 60-inch cover was acceptable since the transmission main did not go under GMD.

Additional Directional Drill Locations

FDOT requested the Design Engineers look to see if there may be additional areas where directional drilling may be utilized.

Response was given that this would be reviewed and adjusted if feasible.

Future ROW Easement Line

It was discussed with FDOT that easement reviews indicated a future ROW easement line for FDOT along a portion of the GMD corridor. Confirmation from FDOT was necessary to confirm whether FDOT had exercised that easement. If not, the future easement ROW easement line would be removed from the drawings to avoid confusion.

FDOT committed to verifying if the future ROW easement was applicable.

Public Information Officer

FDOT commented on the need for public information notices to the residents and community of Longboat. It was suggested a PIO representative be available for this project for the Town to aid in handling the community.

Response was given that Juan and the Public Works Department would handle this area of the project.

Full-Time Construction Services/Daily As-Builts

FDOT commented the Town needs to maintain full-time construction services for this project. Daily as-builts will need to be maintained in the field and available for inspection.

Response was given that full-time field services will be maintained, as well as, the requirement for daily red-lines of work.

Verizon FiOS FDOT Permit

FDOT noted that the Verizon permit for FiOS installation along the East-side of GMD corridor was just issued. The Town needed to verify that the pipeline route did not interfere with the Verizon FiOS lines.

The response was the Verizon line path would be checked against the pipeline route. Further, it was planned to discuss in person the pipeline route with Verizon.

Permitting Schedule

FDOT was asked about the duration of time needed to review the permit application once submitted.

Response was given to a time frame of 30 to 60 days on the outside. The project plans had been seen several times and there is familiarity with the project which will help expedite review.

It was anticipated edits and final design drawings would be ready for FDOT Permit application submittal sometime near the end of August. Bidding is planned for mid-November.

General Items

With permit application, submit 4 sets of drawings comprised of 2 full-size sets (24" x 36") – with one set as original signed and sealed; 2 half-size sets (11" x 17") – with one set signed and sealed. A copy in .pdf , if possible, once permitting is complete. This submittal will be distributed between Sarasota and Bartow FDOT.

It was commented the 75% design review set was a nice set of design drawings.



Florida Department of Transportation

CHARLIE CRIST
GOVERNOR

STEPHANIE C. KOPELOUSOS
SECRETARY

September 9, 2008

Engineering Visions, Inc.
4400 El Conquistador Parkway, Suite 26
Bradenton, Florida 34210

Attn: Laura Andrews, P.E.

RE: Utility Permit Town of Longboat Key
Water Main Improvements SR 789, Section # 17030& 17030401

Dear Ms. Andrews:

We are in receipt of your plans and permits for the above referenced project and have reviewed them. Please resubmit four sets of plans showing the following;

1. The proposed plan does not depict an off set from the edge of pavement or an off set from the right-of - line. These off sets must be provided.
2. All four sets of revised plans must be signed and sealed.
3. All proposed water meters as well as all fire hydrants must be placed at the right-of-way line.
4. If proposed air release valves are above grade the air release valves must be placed at the right-of-way line. If air release valves are to be placed in a manhole structure, the manhole must traffic load bearing and have a traffic load bearing lid. No air release manhole structures will be permitted within pavement limits, these limits are pave shoulder and travel lanes and street intersections.
5. This part of the Towns water main improvements are in two different roadway sections. This project should have two sets of plans and permit applications. One for the work in section 17030 and one for the work in section 17030401.
6. Plans must depict existing pavement widths, including auxiliary lanes and medians.
7. Only two typical cross-sections were shown in the plans. With the proposed utility running within the Departments right-of-way for distance of 18,008 +/- feet, it is our opinion that additional cross-sections are needed. Cross-sections can be shown for all alignment changes, where directional drills began and end or on 1000ft centers which ever gives a better representation of the proposed utility. Information included in the cross-sections are proposed and existing utilities off-set locations and their depths.

Sarasota Operations Center
1840 61st Street * Sarasota, FL 34243-2224
(941) 359-7300 * (941) 359-5646 (fax)

www.dot.state.fl.us

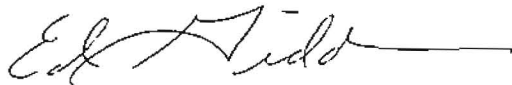
8. The cover depth for the proposed 12 inch directional drill is shown in the plans to be 60 inches. The maximum pull back reamer size for a 12 inch drill is an 18 inch reamer. With an 18 inch reamer the cover depth should be 3.5 times the reamer making the cover depth of 63 inches. For the 16 inch directional drill the maximum pull back reamer size is 22 inches. With 22 inch reamer the cover depth should 3.5 times the 22 inch reamer making the cover depth of 77 inches.
9. No details for pavement restoration were submitted. The Department will require that the paved shoulders be reconstructed to match the existing sub grade, base, structural asphalt and friction course. If a travel lane is excavated into the lane should be reconstructed to match the existing sub grade, base, and structural asphalt should be brought to final grade. For the friction course it shall be milled and replaced matching the existing friction course. The entire lane width shall be milled for a distance of 75 feet each side of the center line of the excavated lane.
10. Once the revised plans have been sent back to our office, this permit will be forwarded to our District Utilities Office for review to see if there are any conflicts with the Departments upcoming projects.

I have enclosed a Utility Check List that shows the required information.

Once we have received the revised plans, we can complete our review of your permit.

If you have any questions, or need any further information, please give me a call at (941) 359-7313.

Sincerely,



Ed Giddens, Permits Manager
Sarasota Operations Center

Cc: Anne Ross, Town of Long boat Key,
Lance Grace, P.E., Sarasota Operations Center Engineer
Albert Rosenstein, P.E., Sarasota Operations Center Engineer Manager
File

Laura S. Andrews, P.E., BCEE
4400 El Conquistador Parkway
Suite 26
Bradenton, FL 34210



Engineering Visions, Inc.

(941) 870-5622 Office
(941) 870-5449 Fax
(941) 730-1456 Mobile

September 3, 2008

Received

SEP 4 2008

Ms. Valerie A. Everts
Florida Department of Transportation
Permit Coordinator
Sarasota Operations Center
1840 61st Street
Sarasota, FL 34243

Re: Town of Longboat Key
Potable Water Transmission Main
FDOT Utility Permit Application

Dear Ms. Everts,

As per your request, we are submitting the following additional items for the Town of Longboat Key Potable Water Transmission Main FDOT Utility Permit application:

1. One Original Signed permit application.
2. Two copies of the signed permit application.
3. Two copies of 11-inch by 17-inch drawings which include index, plan and profiles, details, typical cross-sections, and FDOT MOT and related restoration standards.

Please include these items in our permit information submitted to you earlier today. We trust this information is sufficient to move forward in preparing our permit. Please contact me at (941) 730-1456 or Anne Ross, P.E. at 316-1958 x-224 if you have any questions.

Sincerely,

Laura S. Andrews, P.E., BCEE
Engineering Visions, Inc.

cc: Anne Ross, P.E., Town Engineer
Thomas Walker, P.E., BCEE (IGW Engineering, Inc.)

LBK FDOT Permit Trans. 2 09.03.08

Florida COA 27192

Laura S. Andrews, P.E., RCEE
4400 El Conquistador Parkway
Suite 26
Bradenton, FL 34210



Engineering Visions, Inc.

(941) 870-5622 Office
(941) 870-5449 Fax
(941) 730-1456 Mobile

September 3, 2008

Ms. Valerie A. Everts
Florida Department of Transportation
Permit Coordinator
Sarasota Operations Center
1840 61st Street
Sarasota, FL 34243

Re: Town of Longboat Key
Potable Water Transmission Main
FDOT Utility Permit Application

Dear Ms. Everts,

On behalf of the Town of Longboat Key, we are submitting for review the Potable Water Transmission Main FDOT Utility Permit application package. As you are aware, the Town of Longboat Key is planning to construct a potable water main ranging from 12- to 16-inches in size along Gulf of Mexico Drive (SR 789).

The location of the project activity is planned for the east corridor from FDOT (Section 17030401) approximate mile marker 0.561 northeast of named Quick Point Nature PR (FDOT mile marker 0.480) continuing northeast to FDOT (Section 17030000) mile marker 7.112 named Bay Isles Road. FDOT Section 17030401 starts at Quick Point Nature PR (0.480) and ends at Longboat Key Club Road (0.648) for a Section length of 0.168 miles. FDOT Section 17030000 starts at Longboat Key Club Road (3.870) and ends at Bay Isles Road (7.112) for a Section Length of 3.242 miles. The total section length of the corridor is 3.410 miles.

The 16-inch portion of the pipeline starts at Quick Point Nature PR north to south of Wedge Lane (located between FDOT (Section 17030000 mile marker 5.077 - Country Club Shore - Yardarm Lane) and FDOT (Section 17030000 mile marker 5.302 - Country Club Shore - Wedge Lane). Just prior of Wedge Lane, the pipeline will change to a 12-inch until Bay Isles Road (7.112) where the project ends.

The existing utility information used for our design was obtained through flagging by the utility agencies (Verizon (GTE), People's Gas, Comcast, FPL and LBK Public Works), detailed field survey and ground penetrating radar. Custom flown (March 2007) ortho-rectified aerials of the pipeline route along the GMD corridor makeup the top bank aerial layers.

Over the course of the year, we have submitted and had pre-application discussions and meetings with you and other FDOT staff on comprehensive cross-sections, pipeline route

LBK FDOT Permit Trans. 09.03.08

Florida COA 27192

SEP 3 2008
RECEIVED
RA

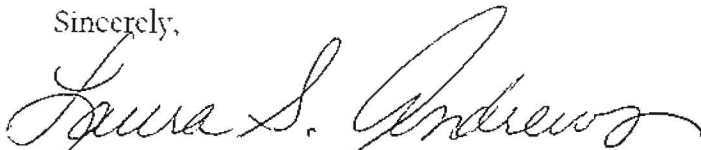
alignments, 60% plan review, and 75% plan review. Included in our permit application package are the following items:

1. One Original Signed permit application.
2. One Original Signed and Sealed 24-inch by 36-inch drawings which include index, project layout, plan and profiles, details, typical cross-sections, and FDOT MOT and related restoration standards.
3. One copy 24-inch by 36-inch drawings which include index, plan and profiles, details, typical cross-sections, and FDOT MOT and related restoration standards.
4. One Original Signed and Sealed 11-inch by 17-inch drawings which include index, project layout, plan and profiles, details, typical cross-sections, and FDOT MOT and related restoration standards.
5. One copy 11-inch by 17-inch drawings which include index, plan and profiles, details, typical cross-sections, and FDOT MOT and related restoration standards.
6. Copies of the Utility Location Verification Letter requests and plan transmission to Comcast Cable, FPL, Peoples Gas, and Verizon.

Based on our last meeting held on July 10, 2008 and to provide flexibility, we have provided a certain amount of optional direction drilling opportunities within the project. The additional areas which have an option of open-cut or directional drill are labeled with a D at the end of a sheet number. For example, Sheet C-110 depicts an open-cut design and Sheet C-110D depicts a directional drill design of the same area where this option will be permitted. This approach does allow for flexibility to aid in meeting challenging site conditions of crowded utilities and a known +1 service taps/connections.

We trust this information is sufficient to move forward in preparing our permit. Please contact me at (941) 730-1456 or Anne Ross, P.E. at 316-1958 x-224 if you have any questions.

Sincerely,



Laura S. Andrews, P.E., BCEE
Engineering Visions, Inc.

cc: Albert Rosenstein, P.E., FDOT - Engineering Manager
Juan Florensa, Public Works Director
Anne Ross, P.E., Town Engineer
Thomas Walker, P.E., BCEE (TGW Engineering, Inc.)



TOWN OF
LONGBOAT KEY

Incorporated November 14, 1955

Town Hall
501 Bay Isles Road
Longboat Key, Florida 34228-3196
(941) 316-1999
SUNCOM 516-2760
Fax (941) 316-1656
www.longboatkey.org

September 2, 2008

Mr. Steve Hoffman
Comcast Cable
5205 Fruitville Road
Sarasota, FL 34232

Subject: Town of Longboat Key
Water Transmission Main Project
Utility Location Verification

Dear Mr. Belanger:

The Town of Longboat Key is planning a potable water main project along SR 789 (Gulf of Mexico Drive) that will require excavation of the right of way to install approximately 18,000 lineal feet of water main ranging in size from 12 to 16 inches from Bay Isles Rd. to New Pass. The pipe will be placed about 5 to 7 feet from the east edge of pavement.

Attached you will find a copy of the cover sheet, index, and plan and profile sheets C100 - C130. Please review the drawings and confirm the locations of any utilities your company has in the vicinity. Please fax/email your markups to me at (941) 316-1984 or aross@longboatkey.org. If no response is received within 20 days from the date of this letter we will consider this a no conflict on your part.

Thank you for your assistance on this matter. We trust that this information is sufficient for your confirmation. If you have any questions or require additional information, please do not hesitate to contact me at (941) 316-1988.

Sincerely,

Anne L. Ross
Town Engineer

Enclosures

c: Juan J. Florensa, Public Work Director
Laura S. Andrews, P.E., BCEE, Engineering Visions



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www.longboatkey.org

September 2, 2008

Ms. Denise Hutton
Verizon
1701 Ringling Boulevard
Sarasota, FL 34236

Subject: Town of Longboat Key
Water Transmission Main Project
Utility Location Verification

Dear Ms. Hutton:

The Town of Longboat Key is planning a potable water main project along SR 789 (Gulf of Mexico Drive) that will require excavation of the right of way to install approximately 18,000 lineal feet of water main ranging in size from 12 to 16 inches from Bay Isles Rd. to New Pass. The pipe will be placed about 5 to 7 feet from the east edge of pavement.

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Thank you for your assistance on this matter. We trust that this information is sufficient for your confirmation. If you have any questions or require additional information, please do not hesitate to contact me at (941) 316-1988.

Sincerely,

Anne L. Ross
Town Engineer

Enclosures

c: Juan J. Florensa, Public Work Director
Laura S. Andrews, P.E., BCEE, Engineering Visions



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www.longboatkey.org

September 2, 2008

Mr. Dave Alvarez
Florida Power & Light
5657 South Macintosh Road
Sarasota, FL 34233

Subject: Town of Longboat Key
Water Transmission Main Project
Utility Location Verification

Dear Mr. Alvarez:

The Town of Longboat Key is planning a potable water main project along SR 789 (Gulf of Mexico Drive) that will require excavation of the right of way to install approximately 18,000 lineal feet of water main ranging in size from 12' to 16 inches from Bay Isles Rd. to New Pass. The pipe will be placed about 5 to 7 feet from the east edge of pavement.

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Sincerely,

Anne L. Ross
Town Engineer

Enclosures

c: Juan J. Florensa, Public Work Director
Laura S. Andrews, P.E., BCEE, Engineering Visions



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Fax (941) 316-1656
www.longboatkey.org

September 2, 2008

Mr. Danny Shanahan
TECO / Peoples Gas
8261 Vico Court
Sarasota, FL 34240

Subject: Town of Longboat Key
Water Transmission Main Project
Utility Location Verification

Dear Mr. Shanahan:

The Town of Longboat Key is planning a potable water main project along SR 789 (Gulf of Mexico Drive) that will require excavation of the right of way to install approximately 18,000 lineal feet of water main ranging in size from 12 to 16 inches from Bay Isles Rd. to New Pass. The pipe will be placed about 5 to 7 feet from the east edge of pavement.

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Sincerely,

Anne L. Ross
Town Engineer

Enclosures

c: Juan J. Florensa, Public Work Director
Laura S. Andrews, P.E., BCEE, Engineering Visions

FLORIDA DEPARTMENT OF TRANSPORTATION
Stormwater Pollution Control Reminder

- *Stormwater Management*

Contact your local municipality and/or the Southwest Florida Management District.

Bartow (863) 534-1448

Venice (Sarasota) (941) 278-7396

Fort Myers (Sarasota) (941) 278-7396

- Fort Myers is also part of South Florida Water Management District (800) 432-2045.

- *Used Oil recycling*

Contact the Florida Department of Environmental Protection at (813) 744-6100 or your local automotive parts store.

- *Hazardous Waste Disposal*

Contact the Florida Department of Environmental Protection at (813) 744-6100.

- *Spill Reporting*

State Warning Point (800) 320-0519

Federal Response Center (800) 424-8802

- *Pesticides & Fertilizers*

Contact your Local County Agricultural Extension Service.

Charlotte (941) 764-4340

Collier (239) 353-4244

DeSota (863) 993-4846

Glades (863) 946-0244

Hardec (863) 773-2164

Hendry (863) 674-4094

Highlands (863) 402-6540

Lee (239) 461-7500

Manatee (941) 722-4524

Okeechobee (863) 763-6469

Polk (863) 519-8677

Sarasota (941) 316-1000

LET'S WORK TOGETHER TO KEEP OUR ENVIRONMENT CLEAN...

AND INVEST IN FLORIDA'S FUTURE

PERMIT VOID UNLESS DOT
OPERATIONS OFFICE NOTIFIED
48 HOURS IN ADVANCE OF
STARTING WORK.

PHONE: 941-359-7300 _____

VERIFICATION NO.: _____



DENSITY REPORTS ARE TO
BE SUBMITTED PRIOR TO
PLACEMENT OF PAVEMENT

Applicant is responsible for notifying
owners of all existing aerial and buried
utilities of proposed driveway and
resolving any conflicts before
construction begins."

In accordance with Florida Statute 335.18
Permittee shall be required to bear the cost
of future access modifications, traffic
control devices or other improvements,
When determined by the Florida Department
of Transportation to be needed in conjunction
with accepted engineering practices.

"All Construction and/or Maintenance on the
Department's Right-of-Way shall conform to
the Federal Manual on Uniform Traffic
Control Devices (MUTCD) the Department's
Roadway and Traffic Design Standards and
the Standard Specifications for Road and
Bridge Construction."

"Prior to Excavating, contact The Clerk
of the Circuit Court for possible
gasoline conflict."

"If construction, reconstruction, repair or maintenance activity necessitates the
closing of one or more travel lanes of any road on the State Primary, County
Road, or City Street system, for a period of time exceeding two hours, the party
performing each work will be responsible to give notice to the appropriate local
law enforcement agency which has jurisdiction where such road is located prior
to commencing work on this project"

335.15 F.S. 91, 336.048 F.S. 91

THE SARASOTA OPERATIONS OFFICE
SHALL BE NOTIFIED 48 HOURS IN
ADVANCE OF STARTING WORK.

ALL CONTRACTORS AND SUBCONTRACTORS
SHALL BE RESPONSIBLE FOR COMPLIANCE
WITH PERMITTED MOT PLAN

Sod All Portions of Disturbed Right-of-Way

ALL ABOVE GROUND APPURTENANCES
ARE TO BE LOCATED AT R/W LINE.

THE APPLICANT SHALL NOT, DURING AND AFTER
COMPLETION OF PERMITTED CONSTRUCTION,
INTRODUCE ANY FORM OR METHOD OF SITE
DRAINAGE DISCHARGE INTO THE DRAINAGE
FACILITIES ON THE DEPARTMENT OF
TRANSPORTATION RIGHT-OF-WAY OR EASEMENT.
ANY DISCHARGE SHALL BE IN VIOLATION
OF THIS PERMIT.

"PERMITTEE IS CAUTIONED THAT
UTILITIES MAY BE LOCATED WITHIN
THE CONSTRUCTION AREA."

"It is the responsibility of the permittee to determine
And comply with all County and Municipal
ordinances that are relative to the construction
or other activity described on this permit and are
more stringent than Department of Transportation
requirements."

N.P.D.E.S. REQUIRES THAT STORM WATER CONTROL
MEASURES BE IMPLEMENTED ON ANY PROJECT ON
PUBLIC TRANSPORTATION FACILITY RIGHTS-OF-WAY
INCLUDING, BUT NOT LIMITED TO MEASURES
DESCRIBED IN F.D.O.T. STANDARD DESIGN INDEX
DRAWING NUMBERS 102, 103, AND 104



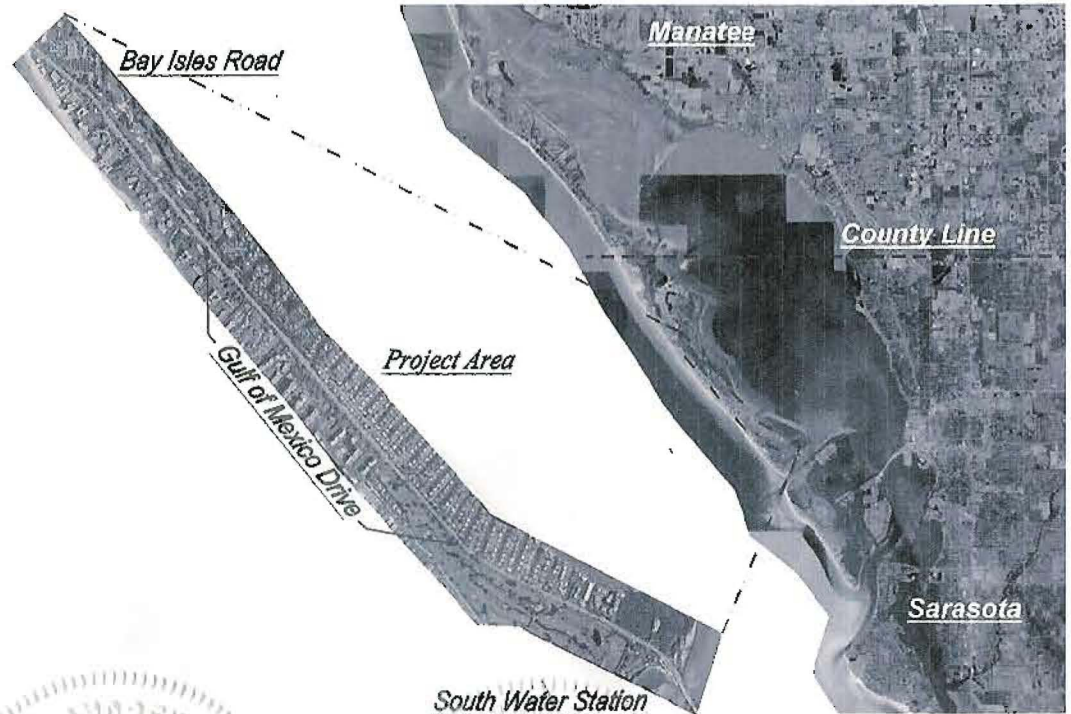
**WATER SYSTEM IMPROVEMENTS - UPSIZE POTABLE WATER TRANSMISSION MAIN
NEW PASS TO BAY ISLES ROAD**

*Town of Longboat Key
Longboat Key, FL*

Public Works Department
Director - Juan Florensa
Engineer - Anne Ross, P.E.

Town Manager
Bruce St. Denis

Commissions
District 1 - Lee Rothenberg
District 2 - George Spoll
District 3 - Peter O'Conner
District 4 - Joan Webster
District 5 - Robert Siekmann (Vice-Mayor)
At Large - Hal Lenobel (Mayor)
At Large - Randall Clair



Vicinity Map

	ENGINEERING VISIONS, INC. FL OCA# 27192 4100 EL CONQUISTADOR PKWY, SUITE 20 BRADENTON, FLORIDA 34210 PH: (941) 870-8822 FAX: (941) 870-8449		GW ENGINEERING, INC. FL OCA# 28750 900 TAMPAI TRAIL SOUTH, SUITE 210 NOKOMIS, FLORIDA 34275-3190 PH: (941) 412-9197 FAX: (941) 412-9275
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Project Manager
Laura S. Andrews 10/17/08
Laura S. Andrews, P.E.
Florida PE 47683

Civil Design
Thomas G. Walker
Thomas G. Walker, P.E.
Florida PE 31462

Date: 10/17/08

Issue Date: 10/17/08

PERMIT VOID UNLESS DOT OPERATIONS CENTER IS NOTIFIED 48 HRS IN ADVANCE OF STARTING WORK
 PHONE (941) 359-7300
 VERIFICATION NO _____

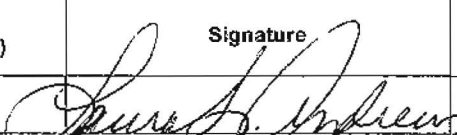
Sod All Portions of Disturbed Right-Of-Way.

ALL CONTRACTORS AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH PERMITTED MOT FLAM.
 FORM 710-010-85 UTILITIES OGC - 10/07

RULE 14-46

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

UTILITY PERMIT

PERMIT NO.: 2008-H-194-232	SECTION NO.: 17030401	STATE ROAD 789	COUNTY Sarasota
FDOT construction is proposed or underway.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Financial Project ID:
Is this work related to an approved Utility Work Schedule?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes, Document Number:
PERMITTEE:	Town of Longboat Key		
ADDRESS:	600 General Harris Street		TELEPHONE NUMBER: (941) 316 - 1958
CITY/STATE/ZIP:	Longboat Key, FL 34228		
The above PERMITTEE requests permission from the State of Florida Department of Transportation, hereinafter called the FDOT, to construct, operate and maintain the following: 0.168 mile potable water 16-inch transmission main and related components located in the east FDOT ROW corridor of Gulf of Mexico Drive (SR 789)..			
FROM: ~Mile Post 0.561 (Section 17030401)	TO: ~ Mile Post 0.648 (Section 17030401)		
Submitted for the PERMITTEE by: Name and Company (Typed or Printed Legibly)	Contact Information Address/Telephone/E-Mail (if applicable)	Signature	Date
Laura S. Andrews, P.E. Engineering Visions, Inc.	4400 El Conquistador Pkwy, Ste 26 Bradenton, FL 34210		10/13/2008

- The Permittee declares that prior to filing this application, the location of all existing utilities that it owns or has an interest in, both aerial and underground, are accurately shown on the plans and a letter of notification was mailed on September 2, 2008 to the following utilities known to be involved or potentially impacted in the area of the proposed installation: Verizon, Peoples Gas, Comcast Cable, and FPL.
- The local Maintenance or Resident Engineer, hereafter referred to as the FDOT Engineer, shall be notified a minimum of forty eight (48) hours in advance prior to starting work and again immediately upon completion of work. The FDOT's Engineer is Lance Grace, located at 1840 61st Street, Sarasota, FL 34243, Telephone Number 941-359-7315. The Permittee's employee responsible for MOT is Anne Ross, P.E. LBK, Telephone Number 941-316-1958. (This name may be provided at the time of the forty eight (48) hour advance-notice prior to starting work).
- All work, materials, and equipment shall be subject to inspection and approval by the FDOT Engineer.
- All plans and installations shall conform to the requirements of the FDOT's UAM in effect as of the date this permit is approved by FDOT, and shall be made a part of this permit. This provision shall not limit the authority of the FDOT under Paragraph 8 of this Permit.
- This Permittee shall commence actual construction in good faith within ~ 240 days after issuance of permit, and shall be completed within ~518 days after the permitted work has begun. If the beginning date is more than sixty (60) days from the date of permit approval, the Permittee must review the permit with the FDOT Engineer to make sure no changes have occurred to the Transportation Facility that would affect the permitted construction.
- The construction and maintenance of such utility shall not interfere with the property and rights of a prior Permittee.
- It is expressly stipulated that this permit is a license for permissive use only and that the placing of utilities upon public property pursuant to this permit shall not operate to create or vest any property right in said holder, except as provided in executed subordination and Railroad Utility Agreements.
- Pursuant to Section 337.403(1), Florida Statutes, any utility placed upon, under, over, or along any public road or publicly owned rail corridor that is found by FDOT to be unreasonably interfering in any way with the convenient, safe, or continuous use, or maintenance, improvement, extension, or expansion, of such public road or publicly owned rail corridor shall, upon thirty (30) days written notice to the utility or its agent by FDOT, be removed or relocated by such utility at its own expense except as provided in paragraphs (a) and (b), and except for reimbursement rights set forth in previously executed subordination and Railroad Utility Agreements, and shall apply to all successors and assigns for the permitted facility.
- It is agreed that in the event the relocation of said utilities are scheduled to be done simultaneously with the FDOT's construction work, the Permittee will coordinate with the FDOT before proceeding and shall cooperate with the FDOT's contractor to arrange the sequence of work so as not to delay the work of the FDOT's contractor, defend any legal claims of the FDOT's contractor due to delays caused by the Permittee's failure to comply with the approved schedule, and shall comply with all provisions of the law and the FDOT's current UAM. The Permittee shall not be responsible for delay beyond its control.
- In the case of non-compliance with the FDOT's requirements in effect as of the date this permit is approved, this permit is void and the facility will have to be brought into compliance or removed from the RW at no cost to the FDOT, except for reimbursement rights set forth in previously executed subordination and Railroad Utility Agreements. This provision shall not limit the authority of the FDOT under Paragraph 8 of this Permit.
- It is understood and agreed that the rights and privileges herein set out are granted only to the extent of the State's right, title and interest in the land to be entered upon and used by the Permittee, and the Permittee will, at all times, and to the extent permitted by law, assume all risk of and indemnify, defend, and save harmless the State of Florida and the FDOT from and against any and all loss, damage, cost or expense arising in any manner on account of the exercise or attempted exercises by said Permittee of the aforesaid rights and privileges.
- During construction, all safety regulations of the FDOT shall be observed and the Permittee must take measures, including placing and the display of safety devices that may be necessary in order to safely conduct the public through the project area in accordance with the Federal MUTCD, as amended for highways, the requirements of the Standard Application Package for railways, including flagging services and Railroad Protective Insurance or acceptable alternative, when applicable, and the FDOT's Design Standards, Indexes 600-670, and Standard Specifications for Road and Bridge Construction, Section 102, as amended by the UAM. When a Utility deems it necessary to conduct Traffic Control activities and methods significantly different from those addressed in the above references, the Utility must submit an alternative plan signed and sealed by a licensed Florida professional engineer qualified to develop TCP in accordance with the provisions of Chapter 8 of the UAM.
- Should the Permittee be desirous of keeping its utilities in place and out of service, the Permittee, by execution of this permit acknowledges its present and continuing ownership of its utilities located between Existing AC Water Line (In/out Service) ~Mile Post 0.561 Section 17030401 and Existing AC Water Line (In/Out service) ~ Mile Post 0.648 (Section 17030401) within the FDOT's RW as set forth above. Whenever the Permittee removes its facilities, it shall be at the Permittee's sole cost and expense. The Permittee, at its sole expense, shall promptly remove said out of service utilities whenever the FDOT determines said removal is in the public interest.
- In the event contaminated soil is encountered by the Utility or anyone within the permitted construction limits, the Utility shall immediately cease work and notify the FDOT. The FDOT shall coordinate with the appropriate agencies and notify the Permittee of any suspension or revocation of the permit until contamination assessment and remediation, as appropriate under Rule Chapters 62-770 and 62-730 Florida Administrative Code, has progressed to a state that all environmental regulatory agencies having jurisdiction have approved the site of the contamination for resumption of work.

NOTE: ALL ABOVE GROUND APPURTENANCES ARE TO BE LOCATED AT RW LINE.

CALL BEFORE YOU DIG
 1-800-432-4770
 IT'S THE LAW IN FLORIDA

UTILITY PERMIT

- 15. For any excavation, construction, maintenance, or support activities performed by or on behalf of the FDOT, within its RAW, the Permittee may be required by the FDOT or its agents to perform the following activities with respect to a Permittee's facilities: physically expose or direct exposure of underground facilities, provide any necessary support to facilities and/or cover, de-energize or alter aerial facilities as deemed necessary for protection and safety.
- 16. Pursuant to Section 337.401(2), Florida Statutes, the permit shall require the permit holder to be responsible for damage resulting from the issuance of the permit. The FDOT may initiate injunctive proceedings as provided in s. 120.69 to enforce provisions of this subsection or any rule or order issued or entered into pursuant thereto.
- 17. Pursuant to Section 337.402, Florida Statutes, when any public road or publicly owned rail corridor is damaged or impaired in any way because of the installation, inspection, or repair of a utility located on such road or publicly owned rail corridor, the owner of the utility shall, at his or her own expense, restore the road or publicly owned rail corridor to its original condition before such damage. If the owner fails to make such restoration, the authority is authorized to do so and charge the cost thereof against the owner under the provisions of s.337.404.
- 18. The Permittee shall comply with all provisions of Chapter 556, Florida Statutes, Underground Facilities Damage Prevention and Safety Act.
- 19. Special FDOT instructions: _____

It is understood and agreed that commencement by the Permittee is acknowledgment and acceptance of the binding nature of all the above listed permit conditions and special instructions.

- 20. Receipt of this permit acknowledges responsibility to comply with Section 119.07(3), Florida Statutes, and UAM Chapter 4.5.2, regarding Exempt Documents and Security System Plans Requests.
- 21. By the below signature, the Permittee hereby represents that no change to the FDOT's standard Utility Permit form, as incorporated by reference into Rule 14-46.001, for this Utility Permit has been made which has not been previously called to the attention of the FDOT (and signified by checking the appropriate box below) by a separate attached written document showing all changes and the written and dated approval of the FDOT Engineer. Are there attachments reflecting change/s to the standard form? NO YES If Yes, _____ pages are attached.

PERMITTEE	Juan Florensa, Longboat Key Public Works Director	SIGNATURE		DATE:	10/13/08
	Name & Title of Authorized Permittee or Agent (Typed or Printed Legibly)				
APPROVED BY:				ISSUE DATE:	11-13-08
	District Maintenance Engineer or Designee				

UTILITY PERMIT FINAL INSPECTION CERTIFICATION

DATE:
DATE WORK STARTED:
DATE WORK COMPLETED:
INSPECTED BY:
(Permittee or Agent)
CHANGE APPROVED BY:
District Maintenance Engineer or Designee
DATE:

I the undersigned Permittee do hereby CERTIFY that the utility construction approved by the above numbered permit was inspected and installed in accordance with the approved plans made a part of this permit and in accordance with the FDOT's current UAM. All plan changes have been approved by the FDOT's Engineer and are attached to this permit. I also certify that the work area has been left in as good or better condition than when the work was begun.

PERMITTEE:	SIGNATURE:	DATE:
Name & Title of Authorized Permittee or Agent (Typed or Printed Legibly)		

CC: District Permit Office
Permittee



TOWN OF LONGBOAT KEY

Incorporated November 14, 1955

Town Hall
501 Bay Isles Road
Longboat Key, Florida 34228-3196
(941) 316-1999
SUNCOM 516-2760
Fax (941) 316-1656
www.longboatkey.org

September 2, 2008

Mr. Steve Hoffman
Comcast Cable
5205 Fruitville Road
Sarasota, FL 34232

Subject: Town of Longboat Key
Water Transmission Main Project
Utility Location Verification

Dear Mr. Belanger:

The Town of Longboat Key is planning a potable water main project along SR 789 (Gulf of Mexico Drive) that will require excavation of the right of way to install approximately 18,000 lineal feet of water main ranging in size from 12 to 16 inches from Bay Isles Rd. to New Pass. The pipe will be placed about 5 to 7 feet from the east edge of pavement.

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Thank you for your assistance on this matter. We trust that this information is sufficient for your confirmation. If you have any questions or require additional information, please do not hesitate to contact me at (941) 316-1988.

Sincerely,

Anne L. Ross
Town Engineer

Enclosures

c: Juan J. Florensa, Public Work Director
Laura S. Andrews, P.E., BCEE, Engineering Visions



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(941) 316-1999
SUNCOM 516-2760
Fax (941) 316-1656
www.longboatkey.org

September 2, 2008

Ms. Denise Hutton
Verizon
1701 Ringling Boulevard
Sarasota, FL 34236

Subject: Town of Longboat Key
Water Transmission Main Project
Utility Location Verification

Dear Ms. Hutton:

The Town of Longboat Key is planning a potable water main project along SR 789 (Gulf of Mexico Drive) that will require excavation of the right of way to install approximately 18,000 lineal feet of water main ranging in size from 12 to 16 inches from Bay Isles Rd. to New Pass. The pipe will be placed about 5 to 7 feet from the east edge of pavement.

Attached you will find a copy of the cover sheet, index, and plan and profile sheets C100 – C130. Please review the drawings and confirm the locations of any utilities your company has in the vicinity. Please fax/email your markups to me at (941) 316-1984 or aross@longboatkey.org. If no response is received within 20 days from the date of this letter we will consider this a no conflict on your part. A coordination meeting on the recently installed FiOS project was held on Tuesday, August 26, 2008 between the Town and Mastek staff with followup through Mark Lee and Bryan Lantz with Verizon. The newly installed FiOS project was installed outside of the pipeline corridor. This submittal will act as the formal confirmation.

Thank you for your assistance on this matter. We trust that this information is sufficient for your confirmation. If you have any questions or require additional information, please do not hesitate to contact me at (941) 316-1988.

Sincerely,

Anne L. Ross
Town Engineer

Enclosures

c: Juan J. Florensa, Public Work Director
Laura S. Andrews, P.E., BCEE, Engineering Visions



TOWN OF
LONGBOAT KEY

Incorporated November 14, 1955

Town Hall
501 Bay Isles Road
Longboat Key, Florida 34228-3196
(941) 316-1999
SUNCOM 516-2760
Fax (941) 316-1656
www.longboatkey.org

September 2, 2008

Mr. Dave Alvarez
Florida Power & Light
5657 South Macintosh Road
Sarasota, FL 34233

Subject: Town of Longboat Key
Water Transmission Main Project
Utility Location Verification

Dear Mr. Alvarez:

The Town of Longboat Key is planning a potable water main project along SR 789 (Gulf of Mexico Drive) that will require excavation of the right of way to install approximately 18,000 lineal feet of water main ranging in size from 12' to 16 inches from Bay Isles Rd. to New Pass. The pipe will be placed about 5 to 7 feet from the east edge of pavement.

Attached you will find a copy of the cover sheet, index, and plan and profile sheets C100 – C130. Please review the drawings and confirm the locations of any utilities your company has in the vicinity. Please fax/email your markups to me at (941) 316-1984 or aross@longboatkey.org. If no response is received within 20 days from the date of this letter we will consider this a no conflict on your part.

Thank you for your assistance on this matter. We trust that this information is sufficient for your confirmation. If you have any questions or require additional information, please do not hesitate to contact me at (941) 316-1988.

Sincerely,



Anne L. Ross
Town Engineer

Enclosures

c: Juan J. Florensa, Public Work Director
Laura S. Andrews, P.E., BCEE, Engineering Visions



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Fax (941) 316-1656
www.longboatkey.org

September 2, 2008

Mr. Danny Shanahan
TECO / Peoples Gas
8261 Vico Court
Sarasota, FL 34240

Subject: Town of Longboat Key
Water Transmission Main Project
Utility Location Verification

Dear Mr. Shanahan:

The Town of Longboat Key is planning a potable water main project along SR 789 (Gulf of Mexico Drive) that will require excavation of the right of way to install approximately 18,000 lineal feet of water main ranging in size from 12 to 16 inches from Bay Isles Rd. to New Pass. The pipe will be placed about 5 to 7 feet from the east edge of pavement.

Attached you will find a copy of the cover sheet, index, and plan and profile sheets C100 – C130. Please review the drawings and confirm the locations of any utilities your company has in the vicinity. Please fax/email your markups to me at (941) 316-1984 or aross@longboatkey.org. If no response is received within 20 days from the date of this letter we will consider this a no conflict on your part.

Thank you for your assistance on this matter. We trust that this information is sufficient for your confirmation. If you have any questions or require additional information, please do not hesitate to contact me at (941) 316-1988.

Sincerely,

Anne L. Ross
Town Engineer

Enclosures

c: Juan J. Florensa, Public Work Director
Laura S. Andrews, P.E., BCEE, Engineering Visions



Florida Department of Environmental Protection

Southwest District Office
13051 North Telecom Parkway
Temple Terrace, Florida 33637-0926

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

NOV 3 2008

Juan Florensa
Town of Longboat Key, Public Works
c/o Laura S. Andrews, P.E.
Engineering Visions, Inc.
4400 EI Conquistador Parkway, Ste 26
Bradenton, FL 34210

File No. 58-0292198-001, Sarasota County

Dear Mr. Florensa:

This is to acknowledge receipt of your notice on October 13, 2008 of intent to use a Noticed General Permit, pursuant to Rule 62-341.453, Florida Administrative Code (F.A.C.), to install 11,260 linear feet of 12 – 16 inch potable water main by trenching and directional drilling. The project is located at within the existing FDOT right of way along the east corridor of Gulf of Mexico Drive (SR 789), Sections 08, 16, 17, 21 & 22, Township 36 South, Range 17 East, Sarasota County.

In addition to regulatory authorization under Rule 62-341.453, F. A. C., this type of activity also requires both proprietary and federal authorizations. Proprietary authorization is required pursuant to Chapters 253 and 258 Florida Statute (F.S.), to use state-owned submerged lands for private purposes. Federal authorization is needed for works in waters of the United States through the State Programmatic General Permit (SPGP) program.

Your notice has been reviewed by Department staff for all three types of authorizations: regulatory, proprietary and Federal. The authority for review and the outcomes of the reviews are listed below. Please read each section carefully. Your project may not have qualified for all three authorizations. If your project did not qualify for one or more of the authorizations the specific section dealing with that authorization will advise you how to obtain it. **You may NOT commence your project without all three authorizations.** If you change the project from what you submitted, the authorization(s) granted may no longer be valid at the time of commencement of the project. Please contact us prior to beginning your project if you wish to make any changes.

REGULATORY REVIEW – APPROVED

Based on the forms, drawings, and documents submitted/revised with your notice, it appears that the project meets the requirements for the Noticed General Permit under Rule 62-341.453, F.A.C.

Please be advised that the construction phase of the noticed general permit must be completed within five years from the date the notice to use the noticed general permit was received by the Department. If you wish to continue this noticed general permit beyond the expiration date, you must notify the Department at least 30 days before its expiration. Any activities performed under a noticed general permit are subject to general conditions required in Rule 62-341.215, F.A.C. (attached), and the specific conditions of Rule 62-341.453, F.A.C. (attached). Any deviations from these conditions may subject the permittee to enforcement action and possible penalties.

Authority for review- Part IV of Chapter 373, Florida Statute, Title 62, F.A.C. and in accordance to operating Agreements executed between the department and the Water management Districts, as referenced in Chapter 62-113, F.A.C.

PROPRIETARY REVIEW – APPROVED

A review of the location of your proposed project indicates that it is not on state-owned submerged lands. Therefore, your project is exempt from the further requirements of Chapter 253, F.S.

Authority for review - Chapter 253 and Chapter 258, F. S., and Chapter 18-20, F.A.C. and Chapter 18-21, F.A.C. if located in an Aquatic preserve, and section 62-343.075 as required.

SPGP REVIEW - NOT APPROVED

*Refer to USACOE Email dated 11.17.2008
Permit not required.*

Your project **does not qualify** for Federal authorization for works in waters of the United States through the State Programmatic General Permit (SPGP) program.

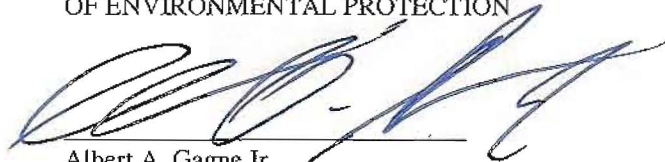
A copy of your application has been sent to the U.S. Army Corps of Engineers (USACOE) for review. The USACOE may require a separate permit. Failure to obtain this authorization prior to construction could subject you to enforcement action by that agency. For further information, you should contact the USACOE Tampa Regulatory Field Office at (813) 769-7060 or the Gainesville Regulatory Field Office at (352) 264-7672.

Authority for review - an agreement with the U.S. Army Corps of Engineers entitled "Coordination Agreement between the U. S. Army Corps of Engineers (Jacksonville District) and the Florida Department of Environmental Protection State Programmatic General Permit, Section 10 of the Rivers and Harbor Act of 1899 and Section 404 of the Clean Water Act.

If you revise your project after submitting the initial joint application the above authorization(s) may no longer be valid. Please contact us prior to construction if you wish to make any changes. Also, if you have any questions, please contact Michelle Press at (813) 632-7600, ext. 483. When referring to this project, please use the file number listed above.

Executed in Temple Terrace, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



Albert A. Gagne Jr.
Environmental Manager
Environmental Resource Management

Copies furnished to:
U.S. Army Corps of Engineers
File

Enclosures:
Ch. 62-341.453, F.A.C.
Ch. 62-341.215, F.A.C.
Notice of Rights of Substantially Affected Persons

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this determination, including all copies, was mailed before the close of business on 11/3/08, to the above listed persons.

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to 120.52(7),
Florida Statutes, with the designated Department Clerk,
receipt of which is hereby acknowledged.

Robinson 11/3/08
Clerk Date

62-341.453 General Permit for Installation, Maintenance, Repair, and Removal of Underground Cable, Conduit, or Pipeline.

(1) A general permit is hereby granted for the installation, maintenance, repair, and removal of underground cable, conduit, or pipeline that transmit electricity, communication signals, potable water, raw water, reclaimed water, domestic wastewater, propane gas or natural gas.

(2) This general permit is subject to the following special conditions:

- (a) The maximum width of the disturbed corridor in wetlands shall not exceed 30 feet. The maximum width of the excavated trench shall not exceed eight feet, with temporary spoil storage banks not to exceed ten feet in width;
- (b) The total area of wetland disturbance shall not exceed 0.5 acres of forested wetlands per ten miles of cable, conduit, or pipeline;
- (c) For a trench with a top width greater than three feet in herbaceous wetlands, the upper layer of the soil horizon shall initially be scraped and segregated into a spoil bank that is separated from the spoil bank resulting from the excavation of the trench for the utility line. The upper layer of the soil horizon shall be replaced as the last step of restored grades to facilitate natural revegetation;
- (d) Maintenance trimming or removal of trees in wetlands will be conducted only within the impacted areas authorized under this general permit and only as necessary to perform repairs on the cable, conduit, or pipeline;
- (e) This general permit does not authorize construction in surface waters other than wetlands;
- (f) There shall be no net placement of permanent fill resulting from the activities authorized by this general permit;
- (g) There shall be no dredging or filling in wetlands to access the work areas authorized by this general permit, except for temporary mats. All temporary mats shall be removed within thirty days after completion of the installation of the line within the wetland portion of the project;
- (h) The works authorized by this general permit shall not impede the flow of water in wetlands or other surface waters, except for a maximum period of 30 days during construction, provided that the impeded flow does not cause flooding and shall not adversely affect the wetlands or other surface waters;
- (i) Temporary spoil banks shall contain breaches that prevent impoundment or restriction of surface water flows;
- (j) This general permit does not authorize the installation of conduit for draining wetlands or other surface waters;
- (k) Pre-construction ground elevations and the contours of all disturbed soils, including vehicle ruts in wetlands and other surface waters, shall be restored within 30 days of completion of line installation. Restored grades shall be stabilized within 72 hours following completion of elevation and contour restoration to minimize erosion;
- (l) Vehicle usage in wetlands and other surface waters shall be conducted so as to minimize tire rutting and erosion impacts;
- (m) For purposes of this general permit, vehicular access in wetlands and other surface waters shall be limited to existing roads, trails, rights-of-way or easements, and to other previously disturbed corridors where they exist;
- (n) This general permit shall not apply in Outstanding Florida Waters, Outstanding National Resource Waters, Aquatic Preserves, or Class I waters; and
- (o) During the initial clearing event and when conducting subsequent normal maintenance activities, the permittee shall eradicate all Brazilian pepper (*Schinus terebinthifolius*), Australian pine (*Casuarina* spp.), and punk tree (*Melaleuca quinquinerva*) from the wetland portions of the utility right of way.

Specific Authority 373.026(7), 373.043, 373.118(1), 373.406(5), 373.414(9), 373.418, 403.805(1) FS. Law Implemented 373.118(1), 373.406(5), 373.413, 373.414(9), 373.416, 373.418 FS. History—New 10-3-95.

GENERAL CONDITIONS FOR ALL NOTICED GENERAL PERMITS

Rule 62-341.215, Florida Administrative Code

- (1) The terms, conditions, requirements, limitations, and restrictions set forth in this section are general permit conditions and are binding upon the permittee for all noticed general permits in this chapter. These conditions are enforceable under Part IV of Chapter 373, F.S.
- (2) The general permit is valid only for the specific activity indicated. Any deviation from the specified activity and the conditions for undertaking that activity shall constitute a violation of the permit. A violation of the permit is a violation of Part IV of Chapter 373, F.S., and may result in suspension or revocation of the permittee's right to conduct such activity under the general permit. The Department also may begin legal proceedings seeking penalties or other remedies as provided by law for any violation of these conditions.
- (3) This general permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any construction, alteration, operation, maintenance, removal or abandonment authorized by this permit.
- (4) This general permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the general permit as provided by Chapter 62-330, F.A.C.
- (5) The general permit does not relieve the permittee from liability and penalties when the permitted activity causes harm or injury to: human health or welfare; animal, plant or aquatic life; or property. It does not allow the permittee to cause pollution in contravention of Florida Statutes and Department rules.
- (6) The permittee is hereby advised that Section 253.77, F.S., states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the state, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.
- (7) The authorization to conduct activities pursuant to a general permit may be modified, suspended or revoked in accordance with Chapter 120, F.S., and Section 373.429, F.S.
- (8) This permit shall not be transferred to a third party except pursuant to Section 62-343.130, F.A.C. The permittee transferring the general permit shall remain liable for any corrective actions that may be required as a result of any permit violations prior to sale, conveyance, or other transfer of ownership or control of the permitted system or the real property at which the permitted system is located.
- (9) Upon reasonable notice to the permittee, Department staff with proper identification shall have permission to enter, inspect, sample and test the permitted system to insure conformity with the plans and specifications approved by the permit.
- (10) The permittee shall maintain any permitted system in accordance with the plans submitted to the Department and authorized in this general permit.
- (11) A permittee's right to conduct a specific noticed activity under this noticed general permit is authorized for a duration of five years.
- (12) Construction, alteration, operation, maintenance, removal and abandonment approved by this general permit shall be conducted in a manner which does not cause violations of state water quality standards, including any anti-degradation provisions of Sections 62-4.242(1)(a) and (b), 62-4.242(2) and (3), and 62-302.300, F.A.C., and any special standards for Outstanding Florida Waters and Outstanding National Resource Waters. The permittee shall implement best management practices for erosion, turbidity, and other pollution control to prevent violation of state water quality standards. Temporary erosion control measures such as sodding, mulching, and seeding shall be implemented and shall be maintained on all erodible ground areas prior to and during construction. Permanent erosion control measures such as sodding and planting of wetland species shall be completed within seven days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into wetlands and other surface waters exists due to the permitted activity. Turbidity barriers shall remain in place and shall be maintained in a functional condition at all locations until construction is completed and soils are stabilized and vegetation has been established. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.
- (13) The permittee shall hold and save the Department harmless from any and all damages, claims, or liabilities, which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the general permit.
- (14) The permittee shall immediately notify the Department in writing of any previously submitted information that is later discovered to be inaccurate. Specific Authority: 373.026, 373.043, 373.044, 373.118, 373.406, 403.813, 403.814, F.S. Law Implemented: 373.026, 373.043, 373.046, 373.118, 373.403, 373.413, 373.416, 373.418, 373.419, 373.422, 373.423, 373.426, 403.813, 403.814, F.S. History—New 10-3-95.

RIGHTS OF AFFECTED PARTIES

This letter acknowledges that the proposed activity may be conducted under general permit rule 62-341.453. This determination is final and effective on the date filed with the Clerk of the Department unless a sufficient petition for an administrative hearing is timely filed under sections 120.569 and 120.57 of the F.S. as provided below. If a sufficient petition for an administrative hearing is timely filed, this determination automatically becomes only proposed agency action subject to the result of the administrative review process. Therefore, on the filing of a timely and sufficient petition, this action will not be final and effective until further order of the Department. Because an administrative hearing may result in the reversal or substantial modification of this action, the applicant is advised not to commence construction or other activities until the deadlines noted below for filing a petition for an administrative hearing or request for an extension of time have expired.

Mediation is not available.

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the F.S. The petition must contain the information set forth below and must be filed (received by the clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000.

Under rule 62-110.106(4) of the Florida Administrative Code, a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the applicable deadline. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon. If a request is filed late, the Department may still grant it upon a motion by the requesting party showing that the failure to file a request for an extension of time before the deadline was the result of excusable neglect.

If a timely and sufficient petition for an administrative hearing is filed, other persons whose substantial interests will be affected by the outcome of the administrative process have the right to petition to intervene in the proceeding. Intervention will be permitted only at the discretion of the presiding officer upon the filing of a motion in compliance with rule 28-106.205 of the Florida Administrative Code.

In accordance with rule 62-110.106(3), Florida Administrative Code, petitions for an administrative hearing by the applicant must be filed within 21 days of receipt of this written notice. Petitions filed by any persons other than the applicant, and other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within 21 days of publication of the notice or within 21 days of receipt of the written notice, whichever occurs first. Under section 120.60(3) of the Florida Statutes, however, any person who has asked the Department for notice of agency action may file a petition within 21 days of receipt of such notice, regardless of the date of publication.

The petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition for an administrative hearing within the appropriate time period shall constitute a waiver of that right.

A petition that disputes the material facts on which the Department's action is based must contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number, if known;
- (b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;
- (c) A statement of when and how the petitioner received notice of the agency decision;
- (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
- (e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action;
- (f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts on which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301.

Under sections 120.569(2)(c) and (d) of the F.S., a petition for administrative hearing must be dismissed by the agency if the petition does not substantially comply with the above requirements or is untimely filed.

This determination constitutes an order of the Department. Subject to the provisions of paragraph 120.68(7)(a) of the F.S., which may require a remand for an administrative hearing, the applicant has the right to seek judicial review of the order under section 120.68 of the Florida Statutes, by the filing of a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000; and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days from the date when the final order is filed with the Clerk of the Department. The applicant, or any party within the meaning of section 373.114(1)(a) or 373.4275 of the F.S., may also seek appellate review of this order before the Land and Water Adjudicatory Commission under section 373.114(1) or 373.4275 of the F.S. Requests for review before the Land and Water Adjudicatory Commission must be filed with the Secretary of the Commission and served on the Department within 20 days from the date when the final order is filed with the Clerk of the Department. The applicant, or any party within the meaning of paragraph 20.255(5)(a) of the F.S., may also seek appellate review of the order before the Land and Water Adjudicatory Commission under subsection 20.255(5) of the F.S. Requests for review before the Land and Water Adjudicatory Commission must be filed with the Secretary of the Commission and served on the Department within 20 days from the date when the order is filed with the Clerk of the Department.

Subj: **RE: Longboat Key Potable Water Transmission Main**
Date: 11/17/2008 4:18:10 P.M. Eastern Standard Time
From: Mark.E.Peterson@usace.army.mil
To: LauraAndrewsPE@aol.com, Charles.A.Schnepel@usace.army.mil
CC: aross@longboatkey.org, jflorensa@longboatkey.org, admin@tgw1.com, tom@tgw1.com,
dspencer@longboatkey.org

Ms. Andrews,

Based on the information you have provided, it appears that a Corps permit will not be required to place a potable water transmission main in the FDOT ROW along the east side of Gulf of Mexico Drive.

If you have any questions about this determination or if the scope of the project changes significantly from that described below, please contact me.

Thanks,

Mark

Mark E. Peterson
Biologist, Tampa Section
U.S. Army Corps of Engineers
Jacksonville District

v. 813-769-7065
f. 813-769-7061

Please assist us in better serving you!
Please complete the customer survey by clicking on the following link:
<http://regulatory.usacesurvey.com/>

-----Original Message-----

From: LauraAndrewsPE@aol.com [mailto:LauraAndrewsPE@aol.com]
Sent: Friday, November 14, 2008 12:15 PM
To: Peterson, Mark E SAJ; Schnepel, Charles A SAJ
Cc: aross@longboatkey.org; jflorensa@longboatkey.org; admin@tgw1.com;
tom@tgw1.com; dspencer@longboatkey.org
Subject: Longboat Key Potable Water Transmission Main

Gentlemen,

I am writing this email to provide clarification of an ERP Notice General Permit application submitted on October 13, 2008 for the Town of Longboat Key for project work located in the south portion of the key in Sarasota County.

It appears that SWFWMD incorrectly attached a set of minutes and descriptions of work for a different project which has produced a certain element of confusion. The information they attached was for a potable water main sub-aqueous crossing which has already been constructed. It was permitted under ACOE SAJ2007-1093-MEP and referred to as the interconnect between Sarasota and Longboat Key. Again, this project has been complete and apparently confused by SWFWMD with this project.

Our project was submitted on October 13, 2008 for an ERP Notice General permit review. The project is for approximately 3.2 mile of 12-inch and 16-inch potable water transmission main to be placed in the FDOT ROW along the east side of Gulf of Mexico Drive. The pipeline will not have any dredge or fill, no net placement of soils, will not cross under, over, or in waters of the state. The pipeline will be installed using open-cut trenching in

combination with directional drilling. Placement of the pipeline ranges between 1-ft and 6- ft off the edge of asphalt pavement of Gulf of Mexico Drive (SR 789).

We have received FDEP Permit Approvals for Regulatory Review and Proprietary Review under FDEP file number 58-0292198-001 issued 11.03.08. The letter continues with the following excerpted ACOE related item:

SPGP REVIEW - NOT APPROVED

Your project does not qualify for Federal authorization for works in waters of the United States through the State Programmatic General Permit (SPGP) program.

A copy of your permit was sent to the U.S. Army Corps of Engineers (USACOE) for review. THE USACOE may require a separate permit. Failure to obtain this authorization prior to construction could subject you to enforcement action by that agency....

I hope this information clarifies any questions or concerns the ACOE may have regarding our permit application. Please let me know if you require any further information at 941-730-1456. Thank you for your attention to this matter.

Sincerely,

Laura S. Andrews

Laura S. Andrews, P. E.
Project Manager

Get the Moviefone Toolbar
<<http://pr.atwola.com/promoclk/100000075x1212774565x1200812037/aol?redir=http://toolbar.aol.com/moviefone/download.html?ncid=emlcntusdown00000001>> .
Showtimes, theaters, movie news & more!



Charlie Crist
Governor

Ana M. Viamonte Ros, M.D., M.P.H.
State Surgeon General

January 23, 2009

RECEIVED

JAN 27 2009

Mr. Juan J. Florensa, Public Works Director
Town of Longboat Key
600 General Harris Street
Longboat Key, FL 34228

PUBLIC WORKS DEPT.

RE: Water System Improvements-Upsize Potable Water Transmission Main
Utilities: Town Of Longboat Key

Dear Mr. Florensa:

Our office received the notice of intent to use a general permit for construction of the referenced water distribution system on January 5, 2009. The notice was subsequently reviewed under SITE#: 0264569-003 and WD#1098-09-001 on January 23, 2009, and has been determined to be completed as required in Chapter 62.555, F.A.C. The notice of intent to use a general permit is valid for a period of five years. The expiration date is January 5, 2014.

The following is a list of sample locations requested for the bacteriological test:

1. End of Line connections (34) - Sta 4+70, 10+10, 11+80, 24+35, 28+20, 35+40, 56+70, 61+50, 66+60, 76+50, 80+40, 83+35, 88+10, 93+35, 95+45, 96+70, 105+30, 118+50, 121+40, 125+38, 129+40, 133+70, 136+85, 137+80, 141+60, 145+30, 149+00, 152+50, 154+50, 156+40, 158+15, 163+50, 168+50 and 177+33
2. End of line blowoffs (2) - Sta 97+5 and 114+95
3. Any internal phase lines

All main clearances are to be scheduled with the Sarasota County Health Department, Office of Environmental Health per Florida Statutes 403.862. Sample points will be reviewed prior to main clearance.

All water lines will be disinfected in accordance with AWWA C651-99 with the chlorinated water being sampled by a utility inspector. Introduction of the disinfection shall be witnessed by a utility inspector. All sample taps shall be non-threaded. Any sampling location that is a fire hydrant requires prior approval by this Department and the Utility. All water mains will be pressure-tested in accordance with AWWA C600 Pipe Laying Section and the test being witnessed by the Utility.

Upon completion of the project, please provide us with copies of satisfactory bacteriological test results, as-built drawings, pressure test, letter of release to place system into service (Form #62-555.900(9)). We may then issue a clearance letter releasing the facilities for public use.

If there are any questions, please contact Brian Dietz at (941) 861-6133.

Sincerely,
OFFICE OF ENVIRONMENTAL HEALTH

Brian C. Dietz, P.E.
Professional Engineer II

BCD:kb

cc: Laura S. Andrews, P.E.
Thomas G. Walker, P.E.

PERMITEE: Mr. Juan J. Florensa, Public Works Director
Town of Longboat Key
600 General Harris Street
Longboat Key, FL 34228

Permit/Cert. Site: 0264569-003
WD: 1098-09-001
Date of Issue: January 5, 2009
Expiration Date: January 5, 2014
Project: Water System Improvements

GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727 or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, or its agent, employees, servants or representatives.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by this department.
3. As provided is in Subsections 403.08(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution or contravention of Florida Statutes and department rules, unless specifically authorized by an order from the department.
6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:
 - a. Having access to and copying any records that must be kept under the conditions of the permittee;
 - b. Inspecting the facility, equipment, practices, or operations regulated or require under this permit; and
 - c. Sampling or monitoring any substances or parameters at any locations reasonably necessary to assure compliance with this permit or department rules.
8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:
 - a. a description of and cause of non-compliance; and
 - b. the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.

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9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, and may be used by the department as evidence in any enforcement case arising; under the Florida Statutes or department rules, except where such use is prescribed by Section 403.73 and 403.111, Florida Statutes.
10. The permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or department rules.
11. This permit is transferable only upon department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the department.
12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.
13. This permit also constitutes:
 - *Determination of Best Available Control Technology (BACT)
 - *Determination of Prevention of Significant Deterioration (PSD)
 - *Certification of Compliance with State Water Quality Standards
 - *Compliance with New Source Performance Standards
14. The permittee shall comply with the following monitoring and record keeping requirements:
 - a. Upon request, the permittee shall furnish all records and plans required under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.
 - b. The permittee shall retain at the facility or other location designated by this permit, records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample measurement, report or application unless otherwise specified by department rule.
 - c. Records of monitoring information shall include:
 - *the date, exact place, and time of sampling or measurements;
 - *the person responsible for performing the sampling or measurements;
 - *the date(s) analyses were performed;
 - *the person responsible for performing the analyses;
 - *the analytical techniques or methods used; and
 - *the results of such analyses.
15. When requested by the department, the permittee shall within a reasonable time furnished any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SECTION 01020 ALLOWANCE

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Include in the Contract Sum the allowance stated in the Contract Documents.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract and Bid Form.

1.03 CONTINGENCY ALLOWANCE

- A. Include in the Contract, lump sum contingency allowances as follows:
 - 1. Public Works Contingency allowance: Allow 10% of the total contract bid value.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.01 GENERAL

- A. The Public Works Contingency Allowance shall be used as necessary with prior approval of supporting information to pay for unforeseen utility conflict resolutions or other project items. Such work to be performed only at the direction and with the prior review and approval of required information and supporting documentation to the Town.
- B. At the closeout of contract, monies remaining in the Public Works Contingency Allowance will be credited to the Town by Change Order.

END OF SECTION

SECTION 01025 MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 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 part of the Contract. Any items shown in the plans or specified in these contract documents for which a specific pay item is not included shall be included in the price of the item to which it pertains or is most closely associated.
- B. Any items not shown or omitted that are required for a complete installation shall be furnished and installed by the Contractor at no additional cost to the Owner.
- C. The prices shall include labor, materials, tools, and equipment to complete the work.
- D. No additional payment will be made for well pointing or other methods of dewatering excavations.
- E. Payment for repair and replacement of existing utilities will be included in the unit price or lump sum bid amount for the related new construction bid item.
- F. Payment for lump sum items shall be on a percentage of completion of the particular item basis.
- G. Payment for restoration of affected facilities to an equal or better condition shall be included in the unit price or lump sum bid amount for the related new construction bid item, except as noted on bid form.
- H. Trees 8-inches or less affected by construction shall be inventoried and replaced with nursery grade trees. Trees greater than 8-inches shall be relocated; as feasible. The costs for vegetation restoration or removal shall be included in the unit price for pipeline construction. No separate payment for vegetation removal shall be made.
- I. Existing storm sewers affected by construction shall be replaced to the line and grade of the existing storm sewer with equal or better materials. No separate payment for storm sewer restoration shall be made.

1.02 WORK LISTED IN THE SCHEDULE OF WORK ITEMS

- A. Work under this contract will be paid on a unit price or lump sum basis as outlined on the Bid Form for the quantity of work installed

- B. The application for payment for unit price items will be based on the quantity installed, and for lump sum items on the percentage completed.
- C. Additions, deletions, modifications or changes to the work as defined by this contract will be performed by change order according to the Standard General Conditions and will be paid for on the basis of the Cost of the Work.

1.03 WORK NOT LISTED IN THE SCHEDULE OF WORK ITEMS

- A. The bids for the work are intended to establish a total cost for the work in its entirety. Should the Contractor feel that the cost for the work has not been established by specific items in the Bid Forms, include the cost for that work in some related bid item so that the Proposal for the project reflects the total cost for completing the work in its entirety.

1.04 PARTIAL PAY REQUEST

- A. The installation of water mains, fitting and appurtenances, and special crossings includes dewatering, clearing, excavating, backfilling, compacting, testing, fine grading, public and private restoration, clean up, and placing the facilities in operation. When measurements of the amount of work constructed each month are made, for the purpose of partial payment, the following will be considered:
 - 1. In addition to the retainage as set out in the Agreement, payment for a Bid Item will not be made if the trench or excavation has not been backfilled, compacted, tested, and a temporary surface constructed.

1.05 BREAKDOWN OF BASE BID

- A. Where the Schedule of Bid Items show quantities, these quantities are primarily shown for bid evaluation purposes, and are believed to be reasonably accurate.
- B. In the event that the actual quantity of material installed exceeds the quantity shown, the Contractor will be paid the unit price shown for the quantity of the value shown on the bid breakdown, only upon prior discussion and approval by the Town and Engineer, based on justified and premeasured overages. The Contractor shall notify the Town and Engineer immediately upon discovery that the bid quantity may be less than the amount required to complete the project.
- C. A deduction from the contract amount will be similarly provided to the Town by the Contractor for quantities less than those shown on the bid breakdown.

1.06 CONTINGENCY AND/OR ALLOWANCES

- A. In addition to the cost of work, this contract will include an agreed upon sum as the construction contingency and/or allowance (see Schedule of Bid Items), which is included for the purpose of defraying the expenses due to unforeseen

conditions, extra work, and circumstances relating to construction, unless otherwise agreed. The Contractor will be required to furnish documentation evidencing expenditures charged to these contingency and allowance accounts prior to the release of funds by the Town. Furthermore, the Contractor shall obtain written pre-approval by Town's Project Manager before the expenditure of these funds. Documentation for use of the contingency and allowance accounts shall be assembled by the Contractor and provided immediately to the Town's Project Manager. No contingency or allowance funds will be released by the Town without the prior written approval of the Town's Project Manager.

- B. The contingency and allowance accounts are not for use by the Contractor to cover shortfalls in the Contractor lump sum bid amount.
- C. All uncommitted contingency or allowance funds will remain with the Town. The contract will be modified by the given amount of uncommitted funds at the substantial completion of the project via deductive change order.

1.07 PAYMENTS

- A. Payments for the Contractor shall be made in accordance with the provisions of the GENERAL CONDITIONS, and will be based on the measured quantities of satisfactory work product, as stipulated herein.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 PAYMENT ITEMS

ADMINISTRATIVE AND SET-UP REQUIREMENTS

SITE MOBILIZATION – Bid Item No.1

- A. Payment for mobilization, temporary facilities utilities, and all other activities necessary for field set-up will be made at the contract lump sum price bid for the item, which price shall be full compensation for all materials, labor, equipment, tools and all other incidentals necessary to complete this item. Includes all required mobilizations for all items.

- B. Payment item for mobilization shall not exceed two percent (2%) of the contract price.

GENERAL CONDITIONS – Bid Item No. 2

- A Payment for general conditions will be made at the combined lump sum price for the item. This item includes payment for bonds, insurance, submittals, progress meetings, field services, video, scheduling, record drawings, overhead, profit, and all other general condition costs.

MAINTENANCE OF TRAFFIC – Bid Item No. 3

- A. The quantity of traffic control to be considered for payment shall be equivalent to the percentage of the project determined by the Engineer to be complete as of the date of the pay request submitted. The percent completion of the project shall be based on the percent of the total project actually constructed and not on the percent of the Contract price completed.
- B. Payment for traffic control shall be made on the basis of a percentage of the work completed times the Lump Sum Price for this bid item. The contract unit price shall include compensation for required labor, materials, and equipment necessary to keep roadways and property accesses in service during construction activities in accordance with the Contract Documents.
- C. A detailed MOT plan will need to be provided by the Contractor for each Phase of construction.

NPDES PERMITTING – Bid Item No. 4

- A. Payment will be made for the Contractor's effort to apply for and maintain records and compliance with any and all NPDES permit requirements. Payment will be made based on the percentage of work completed times the lump sum amount for this line item. The threshold for this permit is based on a project size of 1.0 acre or greater of disturbance to the land surface. The current "base bid" project size is just over 1.0 acres.
- B. If the Town exercised either Bid Alternative 1 or 2, the area of disturbed project size may reduce below the 1.0 acre threshold, based on the Contractor's means and methods for tight trenching and minimum disruption. If it is determined that less than 1.0 acre of land will be disturbed for project work, this bid item will not be needed and the Town will be credited for the full amount of the bid cost for this work.

POTABLE WATER TRANSMISSION SYSTEM

PVC C900 AND 905 WATER MAINS - Bid Item Nos. 5, 9, 15, 19, 23, 28, 32, 34

- A. Payment for this PVC C900 and C905 water main pipe shall be determined by the number of linear feet of each size of pipe installed, in place, completed and approved. The footage shall be the horizontal distance measured along the surface of the trench between the centerlines of connecting or branch mains. The length of all fittings, sleeves, bends and valves in the main shall be included in the footage as typical sections of the pipeline being measured.
- B. The unit price bid per foot under this item shall be full compensation for providing all excavation, sheeting, shoring, special pipe bedding material, temporary plugs, de-watering, backfilling, temporary restoration, erosion control, complying with the State of Florida Trench Safety Act, furnishing and installing pipe, restraining devices, temporary water lines, disinfection, flushing, pressure testing, pigging, support utility poles, compaction, existing utility protection, site restoration excluding in-kind sod/landscape replacement (*Bid Item 49*), and other appurtenances required to complete construction of the water main and not included in other bid items. The water main piping shall be blue in color.
- C. This shall also include cutting, capping and retiring the existing potable water mains in the project area.
- D. Pavement restoration shall be paid under separate payment items.

HDPE (C906) WATER MAINS - Bid Item Nos. 8 and 14

- A. Payment for this HDPE C906 water main pipe shall be determined by the number of linear feet of each size of pipe installed, in place, completed and approved. The footage shall be the horizontal distance measured above the surface of the bore hole between the centerlines of connecting or branch mains. The length of all fittings, sleeves, bends and valves in the main shall be included in the footage as typical sections of the pipeline being measured.
- B. The unit price bid per foot under this item shall be full compensation for providing all excavation, sheeting, shoring, special pipe material, temporary plugs, de-watering, temporary restoration, erosion control, detectible warning wires, furnishing and installing pipe, restraining devices, temporary water lines, disinfection, flushing, pressure testing, pigging, support utility poles, compaction, existing utility protection, site restoration excluding in-kind sod/landscape replacement (*Bid Item 49*), and other appurtenances required to complete construction of the water main and not included in other bid items. The water main piping shall have blue stripes to denote potable water pipe.

DUCTILE IRON WATER MAINS - Bid Item No. 24

- A. Payment for Class 52 DIP shall be determined by the number of linear feet of each size of pipe and polyethylene wrap installed, in place, completed and approved. The footage shall be the horizontal distance measured above the surface of the bore hole between the centerlines of connecting or branch mains. The length of all fittings, sleeves, bends and valves in the main shall be included in the footage as typical sections of the pipeline being measured.
- B. The unit price bid per foot under this item shall be full compensation for providing all excavation, sheeting, shoring, special pipe material, temporary plugs, de-watering, temporary restoration, erosion control, poly wrap, detectible warning wires, furnishing and installing pipe, restraining devices, temporary water lines, disinfection, flushing, pressure testing, pigging, support utility poles, compaction, existing utility protection, site restoration excluding in-kind sod/landscape replacement (Bid Item 49), and other appurtenances required to complete construction of the water main and not included in other bid items.

GATE VALVES AND VALVE BOXES - Bid Item Nos. 7, 11, 17, 21, 26, 30, 33

- A. Payment for furnishing and installing gate valves and valve boxes of each size shall be made at the Contractor's unit price per valve and shall include all necessary labor and materials for furnishing and installing the valves, restraining devices and appurtenances as called for in the plans. This includes providing polyethylene encasement for valves and furnishing and installing concrete pads for water main valve boxes (as required) complete with identification disc. No payment shall be made under this item for valves required for wet taps, or fire hydrants.
- B. The number of gate valves to be paid will be determined by the actual number of units installed and accepted. Payment shall include the cost of painting the valve box.

TAPPING SLEEVE AND GATE VALVE - Bid Item Nos. 12, 18, 22, 27, 31

- A. Payment under this item shall be made at the Contractor's unit price for each size wet tap, and shall include all necessary labor and materials for a pressure tested and approved tap, including tapping sleeve, gate valve and restraining devices. This includes providing polyethylene encasement and all restoration as a result of installing tapping sleeve and gate valve.
- B. Contractor shall field verify existing water main diameter prior to submitting shop drawing for Tapping Sleeve and Gate Valve.

DIP FITTINGS – Bid Item Nos. 6, 10, 16, 20, 25, 29

- A. Payment for this item shall be made at the contract unit price per ton. The unit price bid for this item shall be full compensation for furnishing, installing and testing fittings, including polyethylene encasement, restraint glands, bolts, nuts, gaskets, and all other appurtenances for fittings. Only fittings actually installed will be measured for payment by the ton, based on certified shipping weight slips supplied by the CONTRACTOR. Weights of fittings for payment purposes shall be based on AWWA C153 and approved shop drawings. Weights for special fittings and nonstandard items shall be determined by physically weighing the fitting.

CONSTRUCT WATER SINGLE SERVICE RELOCATES FROM NEW WATER MAIN TO NEW METER BOX - Bid Item Nos. 35 and 36

- A. The number of water services will be determined by the count of units installed and accepted as indicated on the plans.
- B. Payment for relocating water services will be made at the Contractor's unit price for each 5/8" single water service installed and accepted. The Contract Unit Price will include compensation for labor, material and equipment, required to install the new water service and connection from the proposed water main to the right-of-way line, all in accordance with the plans and specifications. Payment will also include full compensation for providing all excavation, backfilling, fittings, casing pipe, sod and all other restoration required, meter (furnished by the Town), meter box (furnished by Contractor) and other appurtenances necessary to have a complete and fully functional water service.

MISCELLANEOUS WORK ACTIVITIES

AIR RELEASE VALVES AND VALVE VAULTS - Bid Item No. 37

- A. Payment for furnishing and installing air release valves and valve boxes of each size shall be made at the Contractor's unit price per valve and shall include all necessary labor and materials for furnishing and installing the valves, restraining devices and appurtenances as called for in the plans. This includes providing polyethylene encasement for valves and furnishing and installing concrete pads for water main valve boxes (as required) complete with identification disc. No payment shall be made under this item for valves required for wet taps, or fire hydrants.
- B. The number of ball valves to be paid will be determined by the actual number of units installed and accepted. Payment shall include the cost of painting the valve and valve box.

BLOW-OFF ASSEMBLY – Bid Item No. 38

- A. Payment for furnishing and installing blow-off assemblies will be made at the Contractor's unit price per assembly and shall include all necessary labor and materials for furnishing and installing the blow-offs, thrust blocking, protection box and lid and appurtenances as called for in the plans.
- B. The number of ball valves to be paid will be determined by the actual number of units installed and accepted. Payment shall include the cost of painting the valve and valve box

PIPE DETECTION PROVISIONS – Bid Item Nos. 39 and 40

- A. Measurement and payment for furnishing and installing pipe tracer wire and detection tape shall be made at the Contractor's unit price per foot and shall include all necessary labor and materials for furnishing and installing materials along the entire lengths of all diameter open trench pipe installations. For directional drilled pipe sections, payment will be made for dual functional tracer wires installed along entire length of drilled pipe.

ADDITIONAL MATERIALS – Bid Item Nos. 41, 42, 43, 44

- A. Measurement and payment for this item will be made at the contract unit price only for material necessary for completion of work approved as extra or for handling unforeseen conditions below grade. Payment shall constitute full compensation for all necessary delivery, taxes and materials required to provide the extra material, as needed to complete the work.

CONCRETE ENCASEMENT AND THRUST BLOCKS – Bid Item No. 45

- A. Payment for this item will be made at the contract unit price only for providing concrete necessary for encasement and thrust blocks necessary to handle constrains between pipes and to restraint existing and new pipes where restrained joints are not feasible.
- B. The amount of concrete to be paid will be determined by the actual number of cubic yards of concrete formed, placed, tested, and accepted. Payment shall include the cost concrete form work and testing.

RESTORATION OF CONCRETE SIDEWALK – Bid Item No. 46

- A. Measurement of this item shall be a count of only the area (in square yards) of sidewalk required to be removed for installation of the proposed underground utilities. The contract unit price shall include all labor, materials, and equipment necessary to construct the trench repair in accordance with the plans and specifications. This pay item also includes providing a temporary asphalt concrete patch until replaced with permanent overlay.
- B. Payment shall be made at the contract unit price for the yardage of sidewalk required to be restored in the section of right of way necessary to place the piping system.

RESTORATION AND REPAIR FOR OPEN CUT TRENCHING - Bid Item No. 47

- A. Measurement of this item shall be a count of the area (in square yards) of pavement required to be removed and restored for installation of the proposed underground utilities. No measurement of added pavement beyond drawing trench width shall be made for this item. The contract unit price shall include all labor, materials, and equipment necessary to construct the trench repair in accordance with the plans and specifications. This pay item also includes providing a temporary asphalt concrete patch until replaced with permanent overlay.
- B. Payment shall be made at the contract unit price for the length of asphalt pavement to be repaired in the section of road that shall be pavement repair to FDOT Standard. Payment shall not be made for asphalt restoration on that section of road to be entirely rebuilt.

RESTORATION OF CONCRETE DRIVE APRON - Bid Item No. 48

- A. The quantity of concrete drive apron restored and shall be determined by measurement of the units (per square foot) installed and accepted. No measurement or payment of added pavement beyond drawing trench width shall be made for this item.
- B. Payment for furnishing and installing concrete drive aprons shall be made at the contract unit price per square foot of concrete apron installed and accepted. The contract unit price shall include full compensation for all labor, materials, and equipment necessary to install the concrete drive aprons in accordance with the plans and specifications.

RESTORATION OF SOD AND LANDSCAPING – Bid Item No. 49

- A. Measurement of this item shall be a count of only the area (in square yards) of sod required to be removed for installation of the proposed underground utilities. The contract unit price shall include all labor, materials, and equipment necessary to place, grade, and maintain the sod. Measurement for any additional landscaping

shall be based upon required project work and will be reviewed and approved by Engineer.

- B. Payment shall be made at the contract unit price for the yardage of sod and any additional landscaping costs required to be restored as a direct result of the project within the given trench widths shown on the drawings.

SITE DEMOBILIZATION – Bid Item No. 50

- A. Measurement and payment for demobilization and all other activities necessary for final cleanup and leaving the project site in good order will be made at the contract lump sum price bid for the item, which price shall be full compensation for all materials, labor, equipment, tools and all other incidentals necessary to complete this item.
- B. Payment item for demobilization shall only be paid upon after satisfactory final project walk-through and submittal on final pay request.

ALLOWANCES

CONTINGENCY ALLOWANCE FOR UNFORESEEN CONDITIONS - Bid Item No. 51

- A. Included in this allowance is work associated with unforeseen utility conflict resolutions. All work authorized for payment will be authorized in writing by Town. Amount to be paid per conflict shall be negotiated or agreed to by both parties. Town reserves the right to award any, all or none of the money associated with this allowance.

ALTERNATIVE BID OPTIONS

- A. The Town is considering three alternatives within this project. Include within this portions cost differences associated with completing alternative described and detailed on the Drawings.

ALTERNATIVE 1 – Bid Item No. 52

- A. Payment for this alternative bid item is the difference in cost to provide 1,150 lineal feet of 12-inch HDPE pipe via HDD method instead of the base bid amount for open cut installation of 12-inch PVC; shown on drawing sheets C-108D through C-110D.
- B. HDPE C906 water main pipe shall be determined by the number of linear feet of 12-inch HDPE pipe installed, in place, completed and approved. The footage

shall be the horizontal distance measured above the surface of the bore hole between the centerlines of connecting or branch mains. The length of all fittings, sleeves, bends and valves in the main shall be included in the footage as typical sections of the pipeline being measured.

- C. The unit price bid per foot under this item shall be full compensation for providing all excavation, sheeting, shoring, special pipe material, temporary plugs, dewatering, temporary restoration, erosion control, detectible warning wires, furnishing and installing pipe, restraining devices, temporary water lines, disinfection, flushing, pressure testing, pigging, support utility poles, compaction, existing utility protection, site restoration including in-kind sod/landscape replacement, and other appurtenances required to complete construction of the water main and not included in other bid items. The water main piping shall have blue stripes to denote potable water pipe.

ALTERNATIVE 2 – Bid Item No. 53

- A. Payment for this alternative bid item is the difference in cost to provide 730 lineal feet of 16-inch HDPE pipe via HDD method instead of base bid amount for open cut installation of 16-inch PVC; shown on drawing sheets C-119 and C-120D.
 - 1) HDPE C906 water main pipe shall be determined by the number of linear feet of 16-inch HDPE pipe installed, in place, completed and approved. The footage shall be the horizontal distance measured above the surface of the bore hole between the centerlines of connecting or branch mains. The length of all fittings, sleeves, bends and valves in the main shall be included in the footage as typical sections of the pipeline being measured.
 - 2) The unit price bid per foot under this item shall be full compensation for providing all excavation, sheeting, shoring, special pipe material, temporary plugs, dewatering, temporary restoration, erosion control, detectible warning wires, furnishing and installing pipe, restraining devices, temporary water lines, disinfection, flushing, pressure testing, pigging, support utility poles, compaction, existing utility protection, site restoration including in-kind sod/landscape replacement, and other appurtenances required to complete construction of the water main and not included in other bid items. The water main piping shall have blue stripes to denote potable water pipe.

ALTERNATIVE 3 – Bid Item No. 54

- A. Payment for this alternative bid item is the added cost to provide an additional 800 lineal feet of 6-inch PVC pipe to the base bid amount for open cut installation of 6-inch PVC; shown on drawing sheets C-127T through C-129T.
- B. The unit price bid per foot under this item shall be full compensation for providing all excavation, sheeting, shoring, special pipe bedding material, temporary plugs, de-

watering, backfilling, temporary restoration, erosion control, complying with the State of Florida Trench Safety Act, furnishing and installing pipe, restraining devices, temporary water lines, disinfection, flushing, pressure testing, pigging, support utility poles, compaction, existing utility protection, site restoration including in-kind sod/landscape replacement, and other appurtenances required to complete construction of the water main and not included in other bid items. The water main piping shall be C900 and be blue in color.

- C. This shall also include cutting, capping and retiring the existing potable water mains in the project area.
- D. Additional pavement and sidewalk restoration required for this alternative bid item shall be included and paid under this payment item.

END OF SECTION

SECTION 01045 CONNECTIONS TO EXISTING SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. General Requirements
- B. Submittals - Connection Plan, Alterations, Shop Drawings
- C. Scheduling

1.02 RELATED SECTIONS

- A. Section 01010 - Summary of Work
- B. Section 01300 - Submittals
- C. Section 01500 - Construction Facilities and Temporary Controls
- D. Section 01570 - Traffic Control
- E. Section 02675 - Disinfection of Potable Water Lines
- F. Section 02574 - Pavement Repair, Removal and Replacement
- G. AWWA Standard – Disinfecting Mains ANSI/AWWA C651-05 (Revision of ANSI/AWWA C651-99)

1.03 GENERAL REQUIREMENTS

- A. Be responsible for all connections to existing systems, cutting, fitting and patching, including 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 connection work including, but not limited to, live tapping, flushing, repairs.
 - 3. Remove and replace defective work.
 - 4. Remove and replace work not conforming to the requirements of the Contract Documents.
- B. Coordination: Before connections are performed, close coordination must be maintained between the Contractor, Owner's Representative and Town Public Works staff. A comprehensive and detailed connection plan will be required for Town review and approval before any connections may be implemented. Before work is performed, verify and provide for any pipe restraint that may be required for the new connections. 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. Performance must be completed by competent workmen skilled in the trade.

- C. Loops: If changes to a "looped" water distribution system occurring during construction result in dead ends to any new or relocated water lines, connect such dead ends to the nearest water main. In cases where no nearby water main is available, provide a flushing device in coordination with the Town at no additional cost to the Town.
- D. Promptly Timed Work: Perform all cutting and patching promptly to install work including removal of samples of installed materials for testing, alteration of existing facilities or for the installation of new work in the existing construction.
- E. 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 Town and the Engineer's concurrence.
- F. Damage Prevention: Any and all variations from depicted work on the Drawings must be approved by the Town Public Works Department and Engineer. All utilities, including but not limited to, Gas, Phone, Cable, Power, Stormwater, Water, Wastewater and connections must be physically located by the Contractor and field verified. Personnel performing work in the ROW and confines of the project area, including Utility locates under concrete or pavement may require soft digs or vacuum locates. Methods and compliance with FDOT – ROW permit will be the Contractor's responsibility to obtain. Contractor is required to follow all applicable underground digging regulations of the State. All utilities will be field marked per Sunshine State One Call statutes and guidelines. Failure to comply may result in Contractor fines, penalties and associated damages to utilities.

1.04 SUBMITTALS

- A. Live tapping connections to the existing potable water services will be required for this project. Submit a written connection plan to the Engineer two weeks in advance of executing any connection or cutting as depicted on the Drawings. Alterations or alternatives will follow similar information submittal requirements as detailed below.

Include in plan:

1. Identification of the connections or alteration of work.
2. Description of connections and affected work.
3. Size and materials list of required connections.
4. Means of handling restraint of existing pipe prior to connection.
5. Means of handling and reporting bacterial analyses, disinfection and notifications.

6. The necessity for cutting, alteration or excavation beyond those depicted in Drawings.
 7. Effect on work of the Town or any separate contract, or on structural or weatherproof integrity of work.
 8. Description of proposed work:
 - a. Scope of pipe connection, restraint and restoration.
 - b. Scope of pavement cutting, patching, alteration, or excavation.
 - c. Trades who will execute the work.
 - d. Products proposed to be used.
 - e. Extent of refinishing to be done.
 - f. Alternatives to connections or cutting and patching, if proposed.
 - g. Written permission of any separate contractor whose work will be affected.
 9. Affects to structural integrity of any element of the project work and means to provide stability.
 10. Date, time, and schedule work will be uncovered and estimated duration of activity. Observe requirements detailed in 1.05.
- B. The Connection Plan will be submitted in accordance with Section 01300.

1.05 SCHEDULING

- 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 Town's normal operation is minimal. If shutdown involves the water distribution or transmission system, provide notice to the Town Public Works Department at least two (2) weeks prior to the proposed shutdown, including date, time and anticipated length of interruption of service. The majority of the connections will be live taps and may take place at night. Overtime, night and weekend work without additional compensation from the Town may be required to make these connections, especially if the connections are made at times other than those specified. The connection of new or existing pipelines is prohibited from starting until Contractor can assure that the system is in conformance with regulations, testing requirements, and Contract documents and can receive the new flow.
- B. Constraints: The project is located within the Town of Longboat Key within a heavily congested FDOT ROW. This corridor is congested w/both pedestrian and vehicular traffic as well as utilities within the ROW. As a result, the owner requires specific scheduling events to minimize disruption within project limits. Project requirements include the need to install and test pipeline sections with a length of 2,000 ft. maximum prior to installation of the next pipeline section. The project includes a series of shut-off valves, located approximately 1,000 ft. apart,

which will accommodate the Contractor's efforts to segment the completion of the project.

1. The contractor shall install, pressure test and restore each segment of the project prior to proceeding to the next sequence of pipe work. The Contractor to install and pressure test the service lines which are within each of the segments being installed. The service lines shall not be connected to the existing lines at this point, however. The entire new pipeline along with the service connections shall be installed, pressure tested and disinfected prior to connecting to either end of the pipeline project or any of the existing services. Upon completion of installation and pressure testing, Contractor shall clean and disinfect the pipeline in accordance with specifications and restoration of the new piping system.
2. Along the route are several directional drills that need to be completed as part of the project. Each of these drills should be considered an independent segment and work shall be conducted from start to finish at each of these directional drills prior to conducting the next sequenced directional drills. This includes all installation, pressure testing and restoration and clean-up prior to moving to the next location.
3. Upon successful clearance of the pipeline by the Department of Health (DOH), the Contractor shall install and connect all service lines to existing lines. This shall be conducted with water lines and valves in the closed position, and service still being provided through the existing AC distribution pipeline.
4. Upon completion and connection of all service laterals and their testing, the Contractor shall proceed with connections at the north and south. These north and south connections need to be performed in the off hours in accordance with the Town's procedures and timing.
5. When completed, the new pipeline shall be put in service by opening the shut-off valves at the north and south connection points. Verification of pipeline flow and pressure at each of the new service connections shall be verified. Upon successful verification of water flow and pressure at each of the new connections, the Contractor shall proceed with abandonment of the existing points of connection on the AC pipeline at the north and south connection locations.
6. The new water lines and meter services will be pressure tested and disinfected together as one system or unit up to and including the lockable curb or meter stop. The Contractor shall provide the customer

with a written notice 72 hours prior to the interruption of service in a method approved by the Town.

- C. Interruptions of Service: Perform cut-ins into lines at a time approved per the submitted connection plan. Whenever it is required to turn-off valves which, may interrupt the water supply of residents or businesses, notify all customers, concerned parties or agencies by written notification to the Town at least seventy-hours in advance of such cutoff, after having obtained the approval of the Town. The Contractor will coordinate written notifications with the Town Public Works Department. Provide a copy of the written notice to the Town's Public Works Department project contact and Engineer. The Town will maintain all public information in regards to this project. Only the Town Personnel may operate the Town owned valves and equipment unless prior written approval has been obtained from the Town. Maintain water service to existing connections under any and all conditions and at no additional cost to the Town.

- D. Request for Water System Shutdowns: When plans call for connection to existing water distribution facilities or the Contractor plans to shut down existing utilities or where damage to such facilities is likely in order to complete construction of items under this contract, furnish the Town, with a written request for connection. The Town's Public Works Department will aid in identifying the locations of all water valves needed to isolate the point of connection in the event that the existing facilities are damaged while, making the connection. Identify in the request means which the Contractor proposes to use in order to provide effective shutdown of the system. Include in the connection and shutdown schedule details of shutdown time and duration. No connections, or construction where shutdown of or damage to existing utilities may occur shall commence prior to Town approval of the connection and shutdown plan and schedule.

PART 2 PRODUCTS

2.01 MATERIALS

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

PART 3 EXECUTION

3.01 INSPECTION

- A. Inspect existing conditions of projects, including elements subject to damage or to movement during excavation cutting or 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 information.

3.02 PREPARATION

- A. In cases where service to utility customers is interrupted, provide adequate equipment with backup onsite to assure prompt restoration of service.
- B. Provide adequate temporary support as necessary to assure structural integrity of affected portion of work.
- C. Provide devices and methods to protect other portions of project from damage.
- D. Provide protection from elements for that portion of the project that may be exposed by cutting and patching work, and maintain excavations free from water.
- E. 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 that are not salvageable from the site.

3.03 PERFORMANCE

- A. Execute cutting and demolition by methods that 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. Determine the condition of existing pipe for connection needs.
- D. Measure and confirm all fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.
- E. Determine requirements for pipe restraints for new connections.
- F. Submit connection plan to Town and Engineer for approval. Connections will be made in the presence of the Town or Engineer.
- G. Upon approval install required restraints. If thrust blocks are used, allow adequate and manufactured recommended time for concrete curing unless they are pre-approved prefabricated units.

- H. Prepare for connection:
1. Prepare dry trench.
 2. Swab all connections, materials, and interior with concentrated 1% to 5% hypochlorite solution.
 3. If the interior of the pipe has dirt that will not be removed through flushing, then mechanical means of cleaning is required in conjunction with 1% hypochlorite disinfection solution.
 4. Cleaning method used can not force dirt into pipe-joint spaces.
 5. If the trench cannot be kept dry, water entering the installation must contain an available chlorine concentration of 25 mg/l.
 6. Alert the Town and Engineer if water outage is planned.
- I. Execute connection upon clearance for water quality and restraint compliance. Care should be taken to minimize downtime.
- J. Restoration through proper stabilization, backfill and compaction to pre-existing grades.

END OF SECTION

SECTION 01050 FIELD ENGINEERING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Provide and pay for field engineering services required for Project.
 - 1. Survey work required in execution of Project.
 - 2. Geotechnical work required in execution of Project.
 - 3. Other Civil, structural or other professional engineering services specified, or required to execute Contractor's construction methods.
- B. Coordination and cooperation with Town assigned agents to perform Quality Assurance in the fields of Engineering, Survey and Geotechnical.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract.
- B. Section 01010: Summary of Work.
- C. Section 01700: Contract Closeout.

1.03 QUALIFICATIONS OF SURVEYOR, GEOTECHNICAL, OR ENGINEER

- A. Qualified professional land surveyor registered and in good standing in the State of Florida.
- B. Qualified geotechnical engineer registered and in good standing in the State of Florida.
- C. Qualified professional engineer qualified and registered in the field of practice required and in good standing in the State of Florida.

1.04 SURVEY REFERENCE POINTS

- A. Existing basic horizontal and vertical control points for the Project are those designated on Drawings.
- B. Locate and protect control points prior to starting site work, and preserve all permanent reference points during construction.

1. Make no changes or relocations without prior written notice to Engineer.
2. Report to Engineer when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
3. Require surveyor to replace project control points which may be lost or destroyed.
 - a. Establish replacements based on original survey control.

1.05 PROJECT SURVEY REQUIREMENTS

- A. Establish lines and levels, locate and lay out, by instrumentation and similar appropriate means:
 1. Site improvements
 - a. Stakes for grading, fill and topsoil placement.
 - b. Utility slopes and invert elevations.
 2. Batter boards for structures.
 3. Controlling lines and levels required for mechanical trades.
- B. Verify layouts by same methods on a weekly basis.
- C. Locate and mark all known underground utilities prior to entrance of any equipment on the site. All such utilities shall be protected from heavy traffic. Establish and maintain barricades around all manholes, drains, and similar underground items. Immediately notify the Town of any conflict between operations and any in ground item to remain.
- D. Re-establish permanent control points.

1.06 OTHER SERVICES

- A. Contractor will require other services to provide material testing and support as specified and necessary to complete project.

1.07 RECORDS

- A. Maintain a complete, accurate log of all control and survey work as it progresses.

1.08 SUBMITTALS

- A. Submit name and address of registered surveyor and Professional Engineer to Engineer.

- B. On request of Engineer, submit documentation to verify accuracy of field engineering work.
- C. Submit certificate signed by registered engineer or surveyor certifying that elevations and locations of improvements are in conformance, or non-conformance, with Contract Documents.

PART 2 - PRODUCTS NOT USED.

PART 3 - EXECUTION NOT USED.

END OF SECTION

SECTION 01051

LINES AND GRADES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. General
- B. Surveys
- C. Datum Plane
- D. Protection of Survey Data

1.02 GENERAL

- A. Construct all work in accordance with the Drawings. Assume full responsibility for keeping all alignment and grades. Return site backing to existing grades when work is completed.

1.03 SURVEYS

- A. Reference Points: The reference points for the work are described in the Drawings. Base horizontal and vertical control points will be used as datum for the Work. Perform all additional survey, layout, and measurement work based on these control points.
 - 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 completed. 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 Crew Chief, 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.

1.04 DATUM PLANE

- A. Drawing elevations indicated or specified refer to NGVD 1929 and are expressed in feet and decimal parts thereof, or in feet and inches. Bearings shown are based on State Plane Horizontal Datum, NAD 1983 (1990 adjustment), Florida Zone (East or West). Reference Drawings for surveyor note information.

1.05 PROTECTION OF SURVEY DATA

- A. General: Safeguard all points, stakes, grade marks, known property corners, monuments, and benchmarks 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 Town will be transmitted to the Town by the Engineer with other records on completion of the Work.
- C. Electronic Format: Survey information must be kept and delivered in electronic format (ACAD) for record drawing preparation and use.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01060
PROJECT IDENTIFICATION AND SIGNS

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. Furnish and install one (1) Project Sign at direction of the Town.
- B. Remove sign upon completion of construction.
- C. Allow no other signs to be displayed without approval of the Town.

PART 2 - PRODUCTS

2.01 REQUIREMENTS

- A. Provide one (1) 4' x 8' wooden sign presenting the following:
 - 1. Project Name
 - 2. Town Officials and Logo as depicts on Cover of Drawings.
 - 3. Engineer and Contracting Firms
- B. Sign will be at least 5/8-inch pressure treated plywood on 4" by 4" posts and elevated a minimum of 36-inches above grade. Paint shall be approved for outdoor use and weather exposure. Lettering shall be professional procured.

PART 3 - EXECUTION

3.01 EXECUTION

- A. Submit proposed sign sketch layout to the Town and Engineer for review and approval prior to execution. Prepare to have sign installed within 30 days of Notice to Proceed issuance.
- B. Contractor will be required to obtain and pay for any necessary sign permits required for this portion of work.
- C. Sign Location
 - 1. Locate sign(s) within the right of way in an area approved by the Town.
- D. Maintenance
 - 1. Maintain signs and supports in a neat, clean condition; repair damages to structure, framing or sign.
 - 2. Relocate informational signs as required by progress of the work.
- E. Removal
 - 1. Remove signs, framing, supports, and foundations at Town's request.

END OF SECTION

SECTION 01090 REFERENCE STANDARDS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Abbreviation and acronyms used in Contract Documents to identify reference standards.

1.02 QUALITY ASSURANCE

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

1.03 ABBREVIATIONS, NAMES, AND ADDRESSES OR ORGANIZATIONS

- A. Obtain copies of referenced standards direct from publication source, when needed for proper performance of Work, or when required for submittal by Contract Documents.

AA Aluminum Association
 818 Connecticut Avenue, N.W.
 Washington, DC 20006

AASHTO American Association of State
 Highway & Transportation Officials
 444 North Capitol Street, N.W.
 Washington, DC 20001

ACI American Concrete Institute
 Box 19150
 Redford Station
 Detroit, MI 48219

AHA American Hardboard Association
 1210 West Northwest Highway
 Palatine, IL 60067

AI	Asphalt Institute Asphalt Institute Building College Park, MD 20740
AISC	American Institute of Steel Construction 1221 Avenue of the Americas New York, NY 10020
AISI	American Iron and Steel Institute 1000 16th Street, N.W. Washington, DC 20036
AITC	American Institute of Timber Construction 7012 South Revere Parkway, Suite 140 Englewood, CO 80112
ALSC	American Lumber Standard Committee P.O. Box 210 Germantown, MD 20875
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
APA	American Plywood Institute 7011 South 19 th Street Tacoma, WA 98466
API	American Petroleum Institute 1220 "L" Street N.W. Washington, D.C. 20005
ASCE	American Society of Civil Engineers United Engineering Center 345 East 47 th Street New York, NY 10017
ASME	American Society of Mechanical Engineers 345 East 47 th Street New York, NY 10017
ASPA	American Sod Producers Association

	Association Building Ninth and Minnesota Hastings, NE 68901
ASTM	American Society of Testing & Materials 1916 Race Street Philadelphia, PA 19103
AWWA	American Water Works Association 6666 W. Quincy Avenue Denver, CO 80235
AWI	Architectural Woodwork Institute 2310 South Walter Reed Drive Arlington, VA 22206
AWPA	American Wood-Preserver's Association 7735 Old Georgetown Road Bethesda, MD 20014
AWS	American Welding Society 2501 NW 7th Street Miami, FL 33125
CDA	Cooper Development Association 57th Floor, Chrysler Building 405 Lexington Avenue New York, NY 10017
CLFMI	Chain Link Fence Manufacturers Institute 1101 Connecticut Avenue Washington, DC 20036
CRSI	Concrete Reinforcing Steel Institute 180 North LaSalle Street, Suite 2110 Chicago, IL 60601
DEMA	Diesel Engine Manufacturer's Association 30200 Detroit Road Cleveland, Ohio 44145
FM	Factory Mutual System 1151 Boston Providence Turnpike

	Norwood, MA 02062
FS	Federal Specification General Services Administration Specifications and Consumer Information Distribution Section (WFSIS) Washington Navy Yard, Bldg. 197 Washington, DC 20407
GA	Gypsum Association 1603 Orrington Avenue Evanston, IL 60201
JIC	Joint Industrial Council 7901 West Park Drive McLean, VA 22101
MIL	Military Specification Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
MLSFA	Metal Lath/Steel Framing Association 221 North LaSalle Street Chicago, IL 60601
MSS	Manufacturers Standardization Society of the Valve & Fittings Industry 127 Park Street, N.E. Vienna, VA 22180
NAAMM	National Association of Architectural Metal Manufacturers 221 North LaSalle Street Chicago, IL 60601
NEBB	National Environmental Balancing Bureau 8224 Old Courthouse Road Vienna, VA 22180
NEMA	National Electrical Manufacturer's Association 2101 L Street, N.W. Washington, DC 20037
NFPA	National Fire Protection Association 470 Atlantic Avenue

	Boston, MA 02210
NFPA	National Forest Products Association 1619 Massachusetts Avenue, N.W. Washington, DC 20036
NSF	National Science Foundation 4201 Wilson Boulevard Arlington, Virginia 22230
OSHA	Occupational and Safety Health Administration US Department of Labor 200 Constitution Avenue, NW Washington, DC 20210
PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 20076
PCI	Prestressed Concrete Institute 20 North Wacker Drive Chicago, IL 60606
PPIC	Plumbing and Piping Industry Council 510 Shatto Place, Suite 402 Los Angeles, CA 90020
PS	Product Standard U.S. Department of Commerce Washington, DC 20203
SAMA	Scientific Apparatus Makers Association One Thomas Circle Washington, D.C. 20005
SBC	Standard Building Code Published by SBCCI
SDI	Steel Deck Institute Box 3812 St. Louis, MO 63122

TAS	Technical Aid Series Construction Specifications Institute 1150 Seventeenth Street, N.W. Washington, DC 20036
UL	Underwriter's Laboratories, Inc. 333 Pfingston Road Northbrook, IL 60062
UM	Uniform Mechanical Code Published by ICBO
UPC	Uniform Plumbing Code Published by IAPMO

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 01152 APPLICATION FOR PAYMENT

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit Applications for Payment to Engineer in accordance with the schedule established by Conditions of the Contract and herein.

1.02 RELATED REQUIREMENTS

- A. Agreement between the Town and Contractor: Unit Price.
- B. Conditions of the Contract: Progress Payments, Retainage and Final Payment.
- C. Bid Form.
- D. Section 01020: Allowances.
- E. Section 01153: Change Order Procedures.
- F. Section 01310: CPM – Construction Scheduling Requirements.
- G. Section 01370: Schedule of Values.
- H. Section 01700: Contract Closeout.
- I. Section 01720: Project Record Documents.

1.03 FORMAT AND DATA REQUIRED

- A. Submit applications in the form required by Town with itemized data typed on 8-1/2 inch x 11 inch white paper continuation sheets.
- B. Provide itemized data on continuation sheet:
 - 1. Format, schedules, line items and values: Those of the Schedule of Values accepted by Engineer.

1.04 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. Application Form:
 - 1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.
 - 2. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.

3. Execute certification with signature of a responsible officer of Contract firm.
- B. Continuation Sheets:
1. Fill in total list of all scheduled component items of Work, with item number and scheduled dollar value for each item.
 2. Fill in dollar value in each column for each scheduled line item when work has been preformed or products stored.
 - a. Round off values to nearest dollar, or as specified for Schedule of Values.
 3. List each Change Order executed prior to date of submission at the end of the continuation sheets.
 - a. List by Change Order Number, and description, as for an original component item of work.

1.05 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the Town or the Engineer requires substantiating data, Contractor shall submit suitable information, with a cover letter identifying:
1. Project
 2. Application number and date.
 3. Detailed list of enclosures.
 4. For stored products:
 - a. Item number and identification as shown on application.
 - b. Description of specific material.
- B. Submit one copy of data and cover letter for each copy of application.

1.06 PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. Fill in Application form as specified for progress payments.
- B. Use continuation sheet for presenting the final statement of accounting as specified in Section 01700 - Contract Closeout.

1.07 SUBMITTAL PROCEDURE

- A. Submit Applications for Payment to Engineer at the times stipulated.
- B. Number: Four (4) copies of Application.

- C. When Engineer finds Application properly completed and correct, Engineer will transmit certificate for payment to Owner, with copy to Contractor.

PART 2 - PRODUCTS **NOT USED.**

PART 3 - EXECUTION **NOT USED.**

END OF SECTION

SECTION 01153 CHANGE ORDER PROCEDURES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

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

1.02 RELATED REQUIREMENTS

- A. Agreement: The amounts of established unit prices.
- B. General conditions and Supplementary Conditions.
- C. Conditions of the Contract:
 - 1. Methods of determining cost or credit to Owner resulting from changes in Work made on a time and material basis.
 - 2. Contractor's claims for the additional cost.
- D. Section 01020: Allowances.
- E. Section 01152: Application for Payment.
- F. Section 01310: Construction Scheduling Requirements
- G. Section 01370: Schedule of Values.

- H. Section 01630: Substitutions and Product Options.
- I. Section 01700: Contract Closeout.

1.03 DEFINITIONS

- A. Change Order: See General Conditions.
- B. Construction Change Authorization: A written order to the Contractor, signed by Town and Engineer, which amends the Contract Documents as described, and authorizes Contractor to proceed with a change which affects the Contract Sum or the Contract Time, for inclusion in a subsequent Change Order.
- C. Field Order: A written order, instructions, or interpretations, signed by Engineer making minor changes in the Work not involving a change in Contract Sum or Contract Time.

1.04 PRELIMINARY PROCEDURES

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

5. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.

1.05 CONSTRUCTION-CHANGE AUTHORIZATION

- A. In lieu of Proposal Request, Engineer may issue a construction change authorization for Contractor to proceed with a change for subsequent inclusion in a Change Order.
- B. Authorization will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change, and will designate the method of determining any change in the Contract Sum and any change in Contract Time.
- C. Town and Engineer will sign and date the Construction Change Authorization as authorization for the Contractor to proceed with the changes.
- D. Contractor shall sign and date the Construction Change Authorization to indicate agreement with the terms therein.

1.06 DOCUMENTATION OF PROPOSALS AND CLAIMS

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

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

1.07 PREPARATION OF CHANGE ORDERS

- A. The Town and Engineer will prepare each Change Order.
- B. Use Town's Form, or agreed upon Form.
- C. Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.
- D. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contact Time.

1.08 LUMP-SUM/FIXED PRICE CHANGE ORDER

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

1.09 UNIT PRICE CHANGE ORDER

- A. Content of Change Orders will be based on, either:
 - 1. Engineer's definition of the scope of the required changes.
 - 2. Contractor's Proposal for a change, as recommended by Engineer.
 - 3. Survey of completed work.
- B. The amounts of the unit prices to be:
 - 1. Those stated in the Agreement.
 - 2. Those mutually agreed upon between Town and Contractor.
- C. When quantities of each of the items affected by the Change Order can be determined prior to start of the work:
 - 1. The Town and Engineer will sign and date the Change Order as authorization for Contractor to proceed with the changes.
 - 2. Contractor shall sign and date the Change Order to indicate agreement with the terms herein.
- D. When quantities of the items cannot be determined prior to start of the work:
 - 1. Engineer or Town will issue a construction change authorization directing Contractor to proceed with the change on the basis of unit prices, and will cite the applicable unit prices.
 - 2. At completion of the change, Engineer will review the cost of such work based on the unit process and quantities used.
 - a. Contractor shall submit documentation to establish the number of units of each item and any claims for a change in Contract Time.
 - 3. Engineer will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
 - 4. The Town and Contractor will sign and date the Change Order to indicate their agreement with the terms therein.

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

- A. Engineer and Town will issue a Construction Change Authorization directing Contractor to proceed with the changes.

- B. At completion of the change, Contractor shall submit itemized accounting and supporting data as provided in the Article "Documentation of Proposals and Claims" of this Section.
- C. Engineer will determine the allowable cost for such work, as provided in General Conditions and Supplementary Conditions.
- D. Engineer will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
- E. The Town and Contractor will sign and date the Change Order to indicate their agreement therewith.

1.11 CORRELATION WITH CONTRACTOR'S SUBMITTALS

- A. Periodically revise Schedule of Values and Request for Payment forms to record each change as a separate item of Work, and to record the adjusted Contract sum.
- B. Periodically revise the Construction Schedule to reflect each change in Contract Time.
 - 1. Revise schedules and sub-schedules to show changes for other items of work affected by the changes.
- C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 01200 PROJECT MEETINGS

PART 1 - GENERAL

1.01 OWNER RESPONSIBILITIES

- A. The Town shall schedule and administer construction meetings, periodic progress meetings, and specially called meetings throughout progress of the work. The Town and Engineer will conduct the following:
 - 1. Prepare agenda for meetings.
 - 2. Distribute written notice of each meeting four days in advance of meeting date.
 - 3. Make physical arrangements for meetings.
 - 4. Preside at meetings.
 - 5. Record the minutes; include significant proceedings and decisions.
 - 6. Reproduce and distribute copies of minutes within 7 to 10 days after each meeting.
 - a. To participants in the meeting.
 - b. To parties affected by decisions made at the meeting.
- B. Representatives of contractors, subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.

1.02 RELATED REQUIREMENTS

- A. Section 01300: Submittals
- B. Section 01700: Contract Closeout

1.03 PRE-CONSTRUCTION MEETING

- A. The pre-construction meeting shall be scheduled within 30 days after effective date of the Contract.
- B. A central site for the meeting, convenient for all parties, shall be designated by the Town. Until project meeting locations are permanently established, the initial meeting location will be the Town of Longboat Key Public Works Department, 600 General Harris Street, Longboat Key, FL 34228.

- C. The following shall attend:
 - 1. Town and Engineer representatives.
 - 2. Contractor's superintendent.
 - 3. Major subcontractors.
 - 4. Representatives from various utilities.
 - 5. Others as appropriate and approved by the Town.

- D. The Contractor needs to be prepared for the agenda as follows:
 - 1. Distribution and discussion of:
 - a. List of major subcontractors and suppliers.
 - b. Projected construction schedules.
 - 2. Critical work sequencing.
 - 3. Major equipment deliveries and priorities.
 - 4. Project coordination and designation of responsible personnel.
 - 5. Public Interaction Procedures.
 - 6. Procedures and processing of:
 - a. Personnel with contact numbers and email.
 - b. Field decisions.
 - c. Proposal requests.
 - d. Submittals.
 - e. Change orders.
 - f. Applications for payment.
 - 7. Adequacy for distribution of Contract Documents.
 - 8. Procedures for maintaining Record Documents.
 - 9. Use of premises.
 - a. Office, work, and storage areas.
 - b. Owner's requirements.
 - 10. Construction facilities, controls, and construction aids.
 - 11. Temporary utilities.
 - 12. Safety and first-aid procedures.

13. Security procedures.
14. Housekeeping procedures.
15. Emergency phone numbers.
16. Miscellaneous.

1.04 PROGRESS MEETINGS

- A. The Town, Engineer and Contractor shall schedule regular periodic meetings, as required.
- B. The Town, Engineer and Contractor will hold called meetings as required by progress of the work.
- C. Progress meetings shall be held at the project field office of the Contractor or other site directed by the Town or Engineer.
- D. The following shall attend:
 1. Town and Engineer representatives.
 2. Other representatives
 3. Contractor's superintendent
 4. Subcontractors as appropriate to the agenda.
 5. Suppliers as appropriate to the agenda.
 6. Others.
- E. The agenda shall be as follows:
 1. Review, approval, of minutes of previous meeting.
 2. Review of work progress since previous meeting.
 3. Field observations, problems, conflicts.
 4. Problems which impede construction schedule.
 5. Review of off-site fabrication delivery schedules.
 6. Corrective measures and procedures to regain projected schedule.
 7. Revisions to construction schedule.
 8. Progress, schedule, during succeeding work period.

9. Coordination of schedules.
10. Review of submittal schedules; expedite as required.
11. Maintenance of quality standards.
12. Pending changes and substitutions.
13. Review proposed changes for:
 - a. Effect on construction schedule and on completion date.
 - b. Effect on other contracts relating to the project.
14. Review of record drawings.
15. Other business.

1.05 RECORDING OF MEETINGS

- A. The Town and Engineer reserve the right to record all meeting as they occur through-out the duration of the Project Work. The Contractor has the same right if they deem necessary.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01300 SUBMITTALS

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. Submittals include the pre- and post-construction audio-video recording, traffic control plan, project schedule, connection plan, dewatering plan, drilling plan, testing data, shop drawings, product data and samples, and record documents including as-built drawings.

1.02 RELATED REQUIREMENTS

- A. Definitions and additional responsibilities of parties: General Conditions of the Contract.
- B. Section 01010: Permits and Fees
- C. Section 01045: Connection Plan
- D. Section 01310: CPM Construction Scheduling Requirements
- E. Section 01390: Pre- and Post-Construction Audio-Video Recordings
- F. Section 01570: Traffic Controls
- G. Section 01700: Contract Closeout
- H. Section 01720: Project Record Documents
- I. Section 02140: Dewatering
- J. Section 02441: Horizontal Directional Drilling
- K. Section 02675: Disinfection of Potable Water Lines
- L. Other Sections as submittals may apply.

1.03 PROJECT SCHEDULE

- A. Prior to the pre-construction meeting, the Contractor shall submit to the Town and Engineer for review and approval, a project schedule (Refer to Section 01310) showing the approximate dates on which each part or division of the work is expected to start and finish.
- B. The schedule shall be updated and submitted to the Town and Engineer at the end of each month, whenever the work deviates substantially from the schedule, or any time the Town and Engineer requests an updated schedule.

1.04 SHOP DRAWINGS

- A. Shop drawings shall be presented in a clear and thorough manner. Details shall be identified by reference to sheet and detail and schedule.

- B. Minimum sheet size shall be 8 ½ x 11 inches.

1.05 PRODUCT DATA AND SAMPLES

- A. Preparation
 - 1. Clearly mark each copy to identify pertinent products or models.
 - 2. Show performance characteristics and capacities.
 - 3. Show dimensions and clearances required.
 - 4. Show wiring or piping diagrams and controls.
 - 5. Include product warranty and guarantee information.
- B. Manufacturer's standard schematic drawings and diagrams:
 - 1. Modify drawings and diagrams by deleting information which is not applicable to the work.
 - 2. Supplement standard information to provide information specifically applicable to the work.

1.06 ADDITIONAL SUBMITTALS

- 1. Submittal of the record documents as described in Section 01720.

1.07 CONTRACTOR'S RESPONSIBILITIES

- A. Review shop drawings, product data, and samples prior to submission.
- B. Determine and verify:
 - 1. Field measurements
 - 2. Field construction criteria
 - 3. Catalog numbers and similar data
 - 4. Conformance with specifications
- C. Coordinate each submittal with requirements of the work and of the Contract Documents.
- D. Notify the Town and Engineer in writing, at the time of submission, of any deviations in the submittals from requirements of the Contract Documents.
- E. Begin no fabrication or work which requires approved submittals until return of submittals by the Town and Engineer.
- F. Provide a submittal register listing all anticipated submittals.

1.08 SUBMISSION REQUIREMENTS

- A. Make submittals in such sequence as to cause no delay in the work.
- B. Number of submittals required:
 - 1. Shop drawings and product data: Submit six (6) copies of each shop drawing submittal. Contractor will receive three (3) returned copies.
 - 2. Samples: Submit the quantity stated in each specification section.
- C. Submittals shall contain:
 - 1. The date of submission and the dates of any previous submissions.
 - 2. The project title and number.
 - 3. Contract identification.
 - 4. The names of:
 - a. Contractor
 - b. Supplier
 - c. Manufacturer
 - 5. Identification of the product, with the specification section number
 - 6. Field dimensions, clearly identified as such.
 - 7. Relation to adjacent or critical features of the work or materials.
 - 8. Applicable standards, i.e. AWWA, ASTM or federal specification numbers.
 - 9. Identifications of deviations from Contract Documents, if applicable.
 - 10. Identification of revisions on resubmittals.
 - 11. Contractor's stamp initialed or signed, certifying review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the work and of Contract Documents.

1.09 RESUBMISSION REQUIREMENTS

- A. Make any corrections or changes in the submittals noted by the Town and Engineer and resubmit unless otherwise noted.
- B. Shop drawings and product data:
 - 1. Revise initial drawings or data, and resubmit as specified for the initial submittal.
 - 2. Indicate any changes which have been made other than those suggested by the Town and Engineer.

- C. Samples: Submit new samples as required for initial submittal.

1.10 TOWN AND ENGINEER'S DUTIES

- A. Review submittals within 21 working days or in accord with schedule. Faster reviews will likely occur based on the number and accuracy of submittal information.
- B. Affix stamp and initials or signature, and indicate status of submittal.
- C. Return submittals to Contractor for distribution, or resubmission.
- D. Review initial submittals and one resubmittal. Resubmittals that cannot be approved will be returned. Additional resubmittals will be reviewed by the Town and Engineer, however, such additional review costs for time and materials for reviewing resubmittals will be back charged by the Town to the Contractor.

1.11 FORM

- A. The Form listed below following END OF SECTION is part of this specification:
 - 1. Form: Transmittal of Contractor's Submittal

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

TRANSMITTAL OF CONTRACTOR'S SUBMITTAL
(Attach to Each Submittal)

DATE: _____

TO: _____

Submittal No.: _____

New Submittal Resubmittal

Previous Submittal No.: _____

Project: _____

Project No. _____

Specification Section No.: _____

FROM: _____
Contractor

(Cover only one section with each transmittal)

Schedule Date of Submittal: _____

SUBMITTAL TYPE: Shop Drawing Contract Closeout "Or-Equal"/Substitute
 Quality Control Sample

The following items are hereby submitted:

Number of Copies	Description of Item Submitted (Type, Size, Model Number, Etc.)	Spec. Para. No.	Drawing or Brochure Number	Contains Variation to Contract	
				No	Yes

CONTRACTOR hereby certifies that (i) CONTRACTOR has complied with the requirements of Contract Documents in preparation, review, and submission of designated Submittal and (ii) the Submittal is complete and in accordance with the Contract Documents and requirements of laws and regulations and governing agencies.

By: _____
CONTRACTOR (Authorized Signature)

SECTION 01310
CPM CONSTRUCTION SCHEDULE REQUIREMENTS

PART 1 - GENERAL

1.01 GENERAL

- A. This section covers the requirements for submittal of a critical path method (CPM) construction schedule and an associated schedule of values.
- B. Development of the schedule, monthly payment requisitions, and project status reporting requirements of the contract shall employ computerized CPM scheduling.

1.02 INITIAL SCHEDULE SUBMITTALS

- A. Submit short-term schedule documents at the preconstruction conference and as described in the subsection on "Submittals" which shall serve as the Contractor's means to identify the manner in which the Contractor intends to complete all work within the contract time. A project overview bar-chart type plan for all work as indicated below:
 - 1. Comprehensive Project Overview Bar Chart: The comprehensive overview bar chart shall indicate the major components of the project work and the sequence relations between major components and subdivisions of major components. The overview bar chart shall indicate the relationships and time frames in which the various components of the work will be substantially complete and placed into service in order to meet the project milestones. Sufficient detail shall be included for the identification of subdivisions of major components into such activities as potholing, excavation, bedding and pipe installation, backfilling, surface restoration, tunneling, structures, relocations, improvements, and other important work for each major facility within the overall project scope. Indicate planned durations and start dates for each work item subdivision. Plot each major component and subdivision component on time scale sheets not to exceed 24 inches by 36 inches in size. Do not use more than four sheets to represent this overview information.
- B. The Owner's Representative and the Contractor shall meet to review and discuss the project overview bar chart within 7 to 10 days after they have been submitted to the Owner's Representative. The Owner's Representative's review and comment on the schedules shall be limited to contract conformance (with the sequencing and interim duration requirements). Make corrections to the schedules necessary to comply with the contract requirements, and adjust the schedules to incorporate any missing information requested by the Owner's Representative.

- C. Satisfactory incorporation of the Owner's Representative's comments shall be a condition for progress payments

1.03 SUBMITTALS

- A. Submit an initial schedule within ten days of the date of Notice to Proceed. If revisions are required to this initially submitted schedule, resubmit a revised schedule within five calendar days after the Contractor receives the returned copy.
- B. The network diagram and tabulated schedule when accepted by Town and Engineer will constitute the project work schedule unless a revised schedule is required due to substantial changes in the work or a change in contract time, delinquency by Contractor requiring a recovery schedule, or as otherwise provided herein below. Activities not occurring as scheduled are delinquent if they begin after early start or they finish after early finish.
- C. Submit a copy of the schedule, progress of schedule on a monthly basis along with the Application for Payment.
- D. Schedule submittals to the Owner's Representative shall include six (6) hard copies and one electronic copy of a CPM-type construction schedule.
- E. Submit a preliminary schedule of values for the major components of the work within 7 to 10 days of the Notice to Proceed.
- F. Prepare and submit a detailed schedule of values to the Owner's Representative within 30 days from the date of Notice to Proceed.

1.04 PROJECT INFORMATION

- A. Each network diagram and report tabulation shall be prefaced with the following summary data:
 - 1. Project name.
 - 2. Contractor.
 - 3. Type of tabulation (initial or updated).
 - 4. Project duration.
 - 5. Project contract completion date.
 - 6. Projected completion date.
 - 7. Variance analysis per activity.

1.05 GRAPHIC NETWORK DIAGRAM AND TABULATED SCHEDULES

- A. The completed schedule shall include a graphic network and tabulated schedules with the graphic network displayed on a sheet with a minimum size of 8 ½ x 11

inches provided this size is readily legible. The graphic network shall be the precedence diagram method (PDM). It may be divided into two or more sheets, if necessary, provided that all sheets are properly referenced. Notation on each activity arrow shall include a brief work description and an estimate of the time duration of the work. Show a calendar along the full length of each sheet. Plot each activity so that the beginning and completion dates can be readily determined by comparison to the calendar scale. Show activities using symbols and/or color that clearly designate whether it is a critical path or noncritical activity. Noncritical path activities shall show estimated work time and free float time.

B. Float Time:

1. Definition: Unless otherwise provided herein, float as referenced in these documents is total float. Total float is the period of time measured by the number of working days each noncritical path activity may be delayed before it and its succeeding activities become part of the critical path. If a noncritical path activity is delayed beyond its float period, that activity then becomes part of the critical path and controls the end date of the project. Thus, the delay of the noncritical path activity beyond its float period will cause delay to the project itself.
2. Float Ownership: Neither the Owner nor the Contractor owns the float time. The project owns the float time. As such, liability for delay of the project completion date rests with the party actually causing delay to the project completion date. For example, if Party A uses some but not all of the float time and Party B later uses the remainder of the float time as well as additional time beyond the float time, Party B shall be liable for the costs associated with the time that represents a delay to the project's completion date. Party A would not be responsible for any costs since it did not consume all of the float time and additional float time remained; therefore, the project's completion date was unaffected.

C. Display time at the top of the schedule, reading left to right, with no greater than weekly divisions.

D. The schedule shall indicate dates for important activities including:

1. A logical succession of work from start to finish. This logical succession, when accepted, is the Contractor's work plan and is only designated as early start to accommodate standard computerized systems.
2. Detailed definition of each activity.
3. A logical flow of work crews/equipment (crews are to be defined by labor category and labor hours; equipment by type and hours).
4. Shop drawing submittals and reviews.
5. Decisions.

6. Product procurement and delivery.
 7. Beginning and completion of each element of construction.
 8. Critical coordination dates.
 9. Submittal of record drawings and equipment manuals.
 10. Cleanup, final inspection, etc.
 11. Any project milestones or phases of work that affect important dates, such as other parallel contracts.
- E. Submit:
1. Activity sort by early start, organized by related elements.
 2. Activity sort by float, organized by related elements.
 3. Activity sort by predecessor/successor.
 4. Narrative description of the logic and reasoning of the schedule.
 5. Resource allocation by activity.
 6. List of cost-loaded activities that identifies specific cost amount for each activity in the CPM schedule.
- F. Show constraints between interrelated activities.
- G. The initial schedule shall include the following minimum data for each activity:
1. Activity numbers.
 2. Estimated duration.
 3. Activity description.
 4. Early start date (calendar dated).
 5. Early finish date (calendar dated).
 6. Status (whether critical).
 7. Float.
 8. Cost of activity.
 9. Other resources including equipment hours by type, labor by craft or crew, and materials by units.
- H. Where float time exists in activities, show the activities with early start/early finish times.
- I. The schedule shall include a title block with the project title, the Contractor's business name, the date of submittal or revision, and the signature of the Contractor's authorized representative attesting to his review and accuracy of the submittal.

- J. The duration indicated for each activity shall be in calendar days and shall represent the single best time considering the scope of the work and resources planned for the activity including time for inclement weather. Except for certain nonlabor activities, such as curing concrete or delivering materials, activity durations shall not exceed 14 days, be less than one day, or exceed \$50,000 in value unless otherwise accepted by the Owner's Representative.

1.06 CONSTRUCTION SCHEDULE PROGRESS

- A. If the Contractor's progress has fallen behind the accepted construction schedule, the Contractor shall take such steps as may be required, including increasing the number of personnel, shifts, overtime operations, days of work, and amount of construction equipment until such time as the work is back on schedule. Increased costs of any accelerated work program shall be paid for by the Contractor. Submit such recovery schedule within 10 days upon written request by Owner's Representative.

1.07 ACCEPTANCE

- A. The finalized schedule will be acceptable to the Owner's Representative when it provides an orderly progression of the Work to completion in accordance with the contract requirements, adequately defines the Contractor's work plan, provides a workable arrangement for processing the submittals in accordance with the project specification requirements, and properly allocates resources (labor, equipment, and costs) to each activity (free of unbalances in resources).
- B. Review of the Contractor's project schedule is for conformance to the requirements of the contract documents only. Review by the Owner's Representative of the Contractor's project schedule does not relieve the Contractor of any of its responsibility whatsoever for the accuracy or feasibility of the project schedule, or of the Contractor's ability to meet the interim milestone date(s) and the contract completion date, nor does such review and acceptance imply or expressly warrant, acknowledge, or admit the reasonableness of the logic, durations, labor, or equipment loading of the Contractor's project schedule.

1.08 REVISIONS OR UPDATES TO CONSTRUCTION SCHEDULE

- A. Submit a revised or updated construction schedule by the third working day of each month. The data date shall be the 25th of the preceding month. Revise or update the schedule upon the occurrence of any of the following:
 - 1. When delay in completion of any activity or group of activities indicates an overrun of the contract time or control point requirement by 10 working days or 10% of the remaining duration, whichever is less.
 - 2. Delays in submittals, deliveries, or work stoppage are encountered which make re-planning or rescheduling of the work necessary.

3. The schedule does not represent the actual prosecution and progress of the project as being performed in the field and progress for any activity is five working days behind the current schedule.
 4. The Contractor will be performing work at an earlier date than is shown on the schedule and the work will require additional inspection and/or testing personnel.
- B. In the event of any change to the contract, submit a time analysis of the effect on the critical path. If the Contractor maintains there is no impact, submit a statement to that effect.
- C. The cost of revisions to the construction schedule not resulting from authorized changes in the work shall be the responsibility of the Contractor.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01370 SCHEDULE OF VALUES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Using bid items and quantities as a primary basis - submit to the Engineer a Schedule of Values allocated to the various portions of the Work within ten days after award of contract. Include items which may not have been primarily identified in the Bid.
- B. Upon the request of the Engineer, support the values with data which will substantiate their correctness.
- C. The Schedule of Values, unless objected to by the Engineer, shall be used only as the basis for the Contractor's Applications for Payment.
- D. Related Requirements in Other Parts of the Contract Documents.
 - 1. Agreement
 - 2. General Conditions
 - 3. Supplementary Conditions

1.02 RELATED REQUIREMENTS

- A. Section 01020: Allowances
- B. Section 01152: Application for Payment
- C. Section 01600: Material and Equipment.

1.03 FORM AND CONTENT OF SCHEDULE OF VALUES

- A. Type schedule on 8-1/2-inch x 11-inch white paper; Contractor's standard forms and automated printout will be considered for approval by Engineer upon Contractor's request. Identify schedule with:
 - 1. Title of Project, location and (City, County, Owner) Project Number.
 - 2. Engineer and Engineer's Project number.
 - 3. Name and Address of Contractor.
 - 4. Date of Submission.

- B. Schedule shall list the installed value of the component parts of the Work, in sufficient detail to serve as a basis for computing values for progress payments during construction.
- C. Follow the table of contents of these Specifications as the format for listing component items.
 - 1. Identify each line item with the number and title of the respective major section of the specifications.
- D. For each major line item list sub-values of:
 - 1. Major products or operations under the item.
 - 2. Contract conditions, such as: bonds, insurance premiums, job mobilization, construction facilities and temporary controls.
- E. For the various portions of the Work:
 - 1. Each item shall include a directly proportional amount of the Contractor's overhead and profit.
 - 2. For items on which progress payments will be requested for stored materials, break down the value into:
 - a. The cost of the materials, delivered and unloaded, with taxes paid.
 - b. The total installed value.
- F. The sum of all values listed in the schedule shall equal the total Contract Sum.

1.04 SUBSCHEDULE OF UNIT MATERIAL VALUES

- A. Submit a sub-schedule of unit costs and quantities for:
 - 1. Products specified under a unit cost allowance in Section 01020.
 - 2. Products on which progress payments will be requested for stored products.
- B. The form of submittal shall parallel that of the Schedule of Values, with each item identified the same as the line item in the Schedule of Values.
- C. The unit quantity for bulk materials shall include an allowance for normal waste.
- D. The unit values for the materials shall be broken down into:

1. Cost of the material, delivered and unloaded at the site, with taxes paid.
 2. Installation costs, including Contractor's overhead and profit.
- E. The installed unit value multiplied by the quantity listed shall equal the cost of that item in the Schedule of Values.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 01390
PRE- AND POST-CONSTRUCTION
AUDIO-VIDEO RECORDINGS

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. The Contractor shall provide a color audio-video recording of the entire construction site project area prior to any site activity. All audio/video recordings shall be taken by a professional commercial video photographer. The video photographer shall be an established enterprise that routinely provides this type of service. The videos shall be in standard electronic compact disc/DVD format, indicating the date, project name, and a brief description of the location where the video was taken. The Contractor shall submit two (2) copies of the pre-construction audio-video to the Town and Engineer.
- B. Include the names and addresses of two references that the professional video photographer has performed color audio-visual recording on projects of a similar nature, including one within the last six months.
- C. No construction shall begin prior to the review and approval of the pre-construction audio-video DVD by the Town.
- D. Audio/video recordings meeting the same requirements and criteria will be needed for project close-out.

1.02 RELATED REQUIREMENTS

- A. Submit qualifications and references of the professional commercial video photographer.
- B. Submit two complete sets of DVD and related documents to the Town and Engineer for each Audio/Video task.

PART 2 - PRODUCTS

2.01 GENERAL

- A. The total audio-video recording system and the procedures employed in its use shall be such as to produce a finished product that will fulfill the technical requirements of the project. The video portion of the recording shall produce bright sharp and clear pictures with accurate colors and shall be free from

- B. Location marking indicators need to be provided by the Contractor sufficient to allow the viewer to be oriented to the video of the project area.

PART 3 - EXECUTION

3.01 GENERAL

- A. The following shall be included with the audio-video documentation:
 - 1. Coverage is required within and adjacent to the right of way, easements, storage, and staging areas where the work is to be constructed.
 - 2. Documentation of the conditions of the adjacent properties or any affected structures as a result of the impending construction.
 - 3. Videos shall be properly identified by video DVD number and project name. Video DVD shall include direction of coverage, the name of the streets or easements, engineering station numbers, date and time of coverage.
 - 4. Provide a written video DVD log to aid in locating any section of the construction site that may be in question.
 - 5. The video DVD log shall include sufficient detailed to determine the existing pavement conditions and markings to aid in the replacement and restoration of these facilities.
 - 6. Walking the route for audio/video is required. Panoramic views to cover limits of construction for the project area are required.

END OF SECTION

SECTION 01410 TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor will employ services of an Independent Testing Laboratory (ITL) to perform specified testing.
 - 1. Contractor shall cooperate with laboratory to facilitate the execution of its required services.

1.02 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory is not authorized to:
 - 1. Release, revoke, alter or enlarge on requirements of Contract Documents without the prior approval of the Town or Engineer.
 - 2. Approve or accept any portion of the Work.
 - 3. Perform any duties of the Contractor.

1.03 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with ITL personnel and/or Engineer by providing access to Work or manufacturer's operations.
- B. ITL to collect and test adequate quantities of representational samples of materials proposed to be used and which require testing, per applicable specifications and industry standards for geotechnical per material and compaction, concrete, asphalt, water quality including disinfection.
- C. Provide to the ITL the preliminary design mix proposed to be used for concrete, and other material mixes which require control by the testing laboratory.
- D. Furnish copies of Products test reports as required.
- E. Furnish incidental labor and facilities:
 - 1. To provide access to Work to be tested.
 - 2. To obtain and handle samples at the Project site or at the source of the product to be tested.

3. To facilitate inspections and tests.
 4. For storage and curing of test samples.
- F. Notify the Engineer sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests:
- When tests or inspections cannot be performed after such notice, reimburse Town for the ITL and travel expenses incurred due to Contractor's negligence.
- G. Make arrangements with the Engineer and the ITL and pay for additional samples and tests required for Contractor's convenience.
- H. The Town and the Engineer reserve the right to obtain additional testing if deemed necessary.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.01 PAYMENT

- A. Testing of materials and products will be performed by an ITL appointed and paid for by the Contractor. Testing will be performed so as to least encumber the performance of Work.
- B. The Contractor shall pay for costs of additional testing as required due to improper performance or failed tests for Work.
- C. When work of this contract or portions of work are completed, notify the Engineer so that arrangements can be made with the ITL to witness the tests. Do not proceed with additional portions of Work until results have been verified.

END OF SECTION

SECTION 01500
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 RELATED REQUIREMENTS

- A. Contractor shall conduct all related work in accordance with rules, regulations, permit conditions, as well as FDOT standards within their ROW.
- B. Section 01300: Submittals
- C. Section 02140: Dewatering
- D. Hurricane Preparedness Plan (1.17) this Section

1.02 FIELD OFFICES

- A. Contractor will be required to provide and maintain a functioning field office for the project and Contractor staff. The office shall be of adequate size to hold progress meetings with the Town, FDOT and Engineer. Job specific phone lines, fax, and site address are required. The space shall be properly ventilated, lighted, secured, and watertight for maintaining office operations, file project records, and allow for satisfactory worker conditions. Potable water and sanitary facilities including holding tank shall be provided; compliant with DOH health codes.
- B. The Contractor shall provide a separate and secure office for the Engineer. The space will be independent of the Contractor's field office, yet in close proximity to the project work. The location and facilities must be pre-approved by the Town and Engineer. A minimum of 500 SF of office space is required for this office. Supporting infrastructure includes two desks, four chairs, one dedicated phone line, one dedicated fax line, one dedicated internet line, DSL or cable connection bandwidth. The Contractor shall provide adequate parking, with compacted gravel or crushed rock base (minimum of 4"), if pavement is not available. Similar working place provisions stated in paragraph 1.02A are required for the Engineer's office for the duration of the project.
- C. There is limited space for field trailers on Longboat Key. Contractor will be responsible for obtaining permission, compliance with local building and land use codes, and associated leasing or rental fees for field facilities. Contractor shall have offices available for use prior to start of field work.
- D. The Contractor will be responsible for all costs related to the field offices.

1.03 CONSTRUCTION WATER

- A. Contractor to provide all water needed for project work. Provide temporary piping, valves and trucks to convey water from the source to the point of use. In locations where public water supply is available, the Contractor may be allowed to use water without charge for construction purposes. The Town will provide any meters required for water taken from the public water system. The express approval of the Town shall be obtained before water is used. Waste of water shall be sufficient cause for withdrawing the privilege of unrestricted use. Hydrants shall only be operated under the supervision of Town staff. The Contractor will be responsible for costs associated with retests. The Contractor shall make their own arrangements for developing water sources and supply all labor and equipment to collect, load, transport, and apply water as necessary for compaction of materials, concrete construction operations, testing, dust control, landscaping restoration, flushing and disinfection, and other construction use. The Town will assist where feasible at the Town's discretion.
- B. Develop sources of water supply or obtain water from private sources. Payment for all costs connected with utilization of the source shall be made by the Contractor. Water shall be clean and free from objectionable deleterious amounts of acids, alkalis, salts, or organic materials.
- C. Include the cost of construction water in the appropriate bid item to which it is appurtenant. The cost shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all the work necessary to develop a sufficient water supply and furnishing the necessary equipment for applying the water as described in these specifications.

1.04 ELECTRICAL POWER-CONSTRUCTION PHASE

- A. Provide for the purchase of power or provide portable power for the construction of the project where existing outlets are not available. Provide for the extension of utility lines to the point of usage. The cost of power shall be included in the appropriate bid items to which it is appurtenant and shall include full compensation for furnishing all labor, materials, tools, and equipment required to obtain and distribute power for construction purposes.

1.05 DUST CONTROL

- A. Perform dust control operations to prevent construction operations from producing dust in amounts harmful to persons or causing a nuisance to persons living nearby or occupying buildings in the vicinity of the work. Use water or

dust preventative to control dust. Their supply and application shall be at the expense of the Contractor.

1.06 FIRE DANGER

- A. Minimize fire danger in the vicinity of and adjacent to the construction site. Provide labor and equipment to protect the surrounding private property from fire damage resulting from construction operations. All costs arising from fire or the prevention of fire shall be at the expense of the Contractor.

1.07 ACCESS TO PRIVATE PROPERTY

- A. Contractor shall maintain vehicle and pedestrian access to private property adjacent to the construction(s) at all times, including all applicable ADA regulations regarding wheel chair access.
- B. The Contractor and their employees in company vehicles will be permitted to park their company vehicles at the project site.

1.08 TEMPORARY SANITARY FACILITIES

- A. Provide temporary toilet facilities separate from the job office. Maintain these during the entire period of construction under this Contract for the use of all construction personnel on the job. Provide enough chemical toilets to conveniently serve the needs of all personnel.
- B. Chemical toilets and their maintenance shall meet the requirements of the State and local health regulations and ordinances. Any facilities or maintenance methods failing to meet these requirements shall be corrected immediately.

1.09 CONSTRUCTION STAKING

- A. The Contractor will furnish all construction staking.

1.10 BARRICADES

- A. Install silt barriers, turbidity curtains and screens for capturing sediments-solids from erosion and liquids from temporary pumping and dewatering activities.

1.11 SECURITY

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

1.12 STAGING AREA

- A. The Contractor staging area shall be one mutually agreed upon by Town and the Engineer. See Section 01010, Summary of Work, for staging and storage area information.

1.13 DRAINAGE, EROSION, DUST AND MUD CONTROL

- A. Provide for the drainage of stormwater as may rain or flow onto or be discharged from the site in performance of the work. Drainage facilities shall be adequate to prevent damage to the work, the site, and adjacent property. Dewatering activities must be handled per Contractor approved dewatering plan and applicable dewatering permits.
- B. Existing drainage channels and conduits shall be cleaned, enlarged or supplemented as permitted by drainage control agencies to carry all runoff attributable to Contractor's operations. Dikes shall be constructed to divert runoff from entering adjacent property (except in natural channels), to protect Owner's facilities and the Work, and to direct water to drainage channels or conduits. Ponding shall be provided to prevent downstream flooding and waterway contamination.
- C. Prevent erosion of soil on the site and adjacent property resulting from construction activities. Effective measures shall be initiated prior to the commencement of clearing, grading, excavation, or other operation that will disturb the natural protection. Install silt barriers or screens for capturing sediments/solids from erosion and dewatering activities.
- D. Work shall be scheduled to expose areas subject to erosion for the shortest possible time, and natural vegetation preserved to the greatest extent practicable. Temporary storage and construction buildings shall be located, and construction traffic routed, to minimize erosion. Temporary fast growing vegetation or other suitable ground cover shall be provided as necessary to control runoff.
- E. Perform dust and mud control operations to prevent construction operations from producing dust and mud in amounts harmful to persons or property or causing a

nuisance to persons living nearby or occupying buildings or boats in the vicinity of the work. Use water or dust preventative to control dust during dry weather. Take necessary steps to prevent the tracking of mud onto adjacent streets and highways.

1.14 SIDEWALKS

- A. Per FDOT requirement, the pedestrian sidewalks must remain open. Temporary closure of sidewalks can be made provide a protected alternate path is available to pedestrians. Access must be marked for clarity and safety.

1.15 REMOVAL OF TEMPORARY CONSTRUCTION

- A. After the date of Substantial Completion and before the Work is completed remove the various temporary facilities, services, and controls and legally dispose of them.
- B. Portions of the site used for temporary facilities shall be reconditioned and restored to their previous condition.

1.16 UTILITY CLEARANCES

- A. Contractor shall be responsible for obtaining all utility clearances. No work will be permitted on site until all utility clearances have been obtained and utility locations clearly identified on the ground, and provisions made to insure the safe conduct of work at the construction sites.
- B. The Contractor shall also check and ensure that any airport clearances are accounted for prior to starting construction.

1.17 HURRICANE PLAN AND PRECAUTIONS

- A. Within 30 days of Notice to Proceed, the Contractor shall submit a Hurricane Preparation Plan. The plan shall outline the necessary measures which the Contractor will perform at no additional cost to the Town in case of tropical or hurricane warnings to secure the site and protect property. The measures proposed by the Contractor shall be compliance with state and local requirements.
- B. During such periods of time as are designated by the United States Weather Service as being a tropical or hurricane warning or alert, the Contractor shall take all precautions necessary to respond to all threatened storm events, regardless of whether the Owner or Engineer has given notice of the same.

- C. In these events, the Contractor and their Subcontractors will protect carefully the work and materials against damage or injury against the weather. If, in the Opinion of the Town and Engineer, any portion of work or materials are damaged, injured or injuries to persons by reason of failure of the Contractor and Subcontractors to properly protect the work, such work shall be removed and replaced at Contractor's expense.
- D. The Contractor shall be responsible for damage to work and materials due to rains and floods and will need to take appropriate precautions to protect work and materials. Possible measures include, but not limited to, temporary dikes, channels, or shoring to carry-off stormwater as the nature of work requires.
- E. Suspension of the work caused by a threatened or actual storm event, regardless of whether the Town and Engineer has directed such suspension, will entitle the Contractor to additional Contract Time as an excusable delay, yet shall not give rise to a claim for compensation.

1.18 STRINGING PIPE

- A. Pipe stringing will be limited to a maximum of 500 feet.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01530 BARRIERS

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. Furnish, install, and maintain suitable barriers as required to prevent public entry, and to protect the work, existing facilities, trees, and plants from construction operations; remove when no longer needed, or at completion of work.

1.02 RELATED REQUIREMENTS

- A. Section 01010 - Summary of Work.
- B. Section 01015 – Permits and Fees.
- C. Section 01570 – Traffic Controls.
- D. Current FDOT ROW work standards.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

- A. Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

2.02 FENCING

- A. Minimum fence height shall be per FDOT standards or four feet, if allowed. Open-mesh orange plastic fence shall be used to prohibit entry to the construction zone.

2.03 BARRIERS

- A. Materials are Contractor's option, as appropriate to serve required purpose to protect pedestrians, vehicular traffic, and safety of working crews.
- B. Maintenance of Traffic plan is required for project work. Barrier type and layouts will need to be incorporated and in compliance with the current FDOT standards of work with ROW.
- C. Lane closures are not allowed. In the event of temporary closure and routing, prior approval must be obtained from the Town and Engineer and FDOT.

- D. Care shall be taken to protect all pavement.

PART 3 - EXECUTION

3.01 GENERAL

- A. Install facilities of a neat and reasonably uniform appearance, structurally adequate for the required purposes.
- B. Maintain barriers during entire construction period.
- C. Relocate barriers as required by the progress of construction.

3.02 FENCES

- A. Provide and maintain fences necessary to assure security of the site during construction to keep unauthorized people and animals from the site when construction is not in progress.
- B. Provide additional security measures as deemed necessary and approved by the Town and Engineer.

3.03 TREE AND PLANT PROTECTION

- A. Preserve and protect existing trees and plants at site which are designated to remain, and those adjacent to site.
- B. Consult with the Town and Engineer and remove agreed-on roots and branches which interfere with construction. Employ a qualified tree trimmer/landscaper to remove branches and treat cuts.
- C. Protect root zones of trees and plants:
 - 1. Do not allow vehicular traffic or parking.
 - 2. Do not store materials or products.
 - 3. Prevent dumping of refuse or chemically injurious materials or liquids.
 - 4. Prevent puddling or continuous running water.
- D. Carefully supervise excavating, grading and filling, and other construction operations, to prevent damage.
- E. Replace, or suitably repair, trees and plants designated to remain which are damaged or destroyed due to construction operations.

3.04 REMOVAL

- A. Completely remove barricades when construction has progressed to the point that they are no longer needed and when approved by the FDOT, Town and Engineer.
- B. Repair damage caused by construction. Fill and grade areas of the site to the required elevations, and clean up the area.

END OF SECTION

SECTION 01570 TRAFFIC CONTROL

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. Provide, operate, and maintain equipment, services, and personnel with traffic control and protective devices, as required to expedite vehicular traffic flow around the construction area in accordance with current standards and requirements of FDOT within their ROW.
- B. Remove temporary equipment and facilities when no longer required, restore grounds to original, or to specified conditions.
- C. All traffic control devices shall meet or exceed FDOT certification standards.
- D. All traffic signs shall have high intensity face material.
- E. Upon notification by the Town, Engineer, and FDOT either verbally or in writing, the Contractor shall correct any noted deficiencies within one hour.
- F. Inspection of all traffic control shall be accomplished at least twice per day. One of these inspections shall be at the end of the work day.

1.02 REFERENCES

- A. Traffic control shall be in accordance with F.D.O.T. Roadway and Traffic Design Standards Series 600, 2008 or Latest Edition, Manual on Uniform Traffic Control Devices, 2008 or Latest Ed., and FDOT Standard Specifications, 2008 or latest Ed., and FDOT Road and Bridges, 2008 or Latest Edition.
- B. Section 01015 – Permits and Fees.
- C. Project Drawings.

1.03 TRAFFIC CONTROL PLAN

- A. The Contractor is to prepare a traffic control plan and/or Maintenance of Traffic (MOT) plan for the project work or phases of construction in accordance with FDOT requirements. The Contractor will submit to the Town, which reserves the right to review with FDOT, the Maintenance of Traffic Plan (MOT) written in compliance to current FDOT standards and as described in Drawings. The Contractor must utilize personnel with appropriate training in utility work traffic control planning, design, implementation, inspection and supervision in the

- B. The Contractor will provide notification to FDOT and the Town 48-hours in advance of beginning construction activities.
- C. This area is a heavily congested utility corridor with tight constraints. Gulf of Mexico Drive (SR 789) is the only means on or off of Longboat Key. High priority is to be given no lane closures. In the event of temporary lane closure, prior approval will be required by the Town, Engineer, and FDOT.
- D. Sidewalks are to remain open and free of obstructions. In the event the sidewalk must be closed, an alternate pedestrian route must be provided. The route must be marked for clarity and safety.
- E. The traffic control plan shall allow vehicular traffic across interrupted driveway or side street locations. Business entrances and access can not be closed.

1.04 TRAFFIC SIGNALS AND SIGNS

- A. Provide and operate traffic control and directional signals required to direct and maintain an orderly flow of traffic in all areas under Contractor's control, or affected by Contractor's operations.
- B. Provide traffic control and direction signs, post mounted, at all areas if required by FDOT.
- C. Traffic Signals - Construction requiring traffic signal modification shall be coordinated with the Town, Engineer, and FDOT. All excavation work within 30 feet of any traffic signal shall be coordinated with the Town, Engineer and FDOT.
- D. All existing traffic signs shall remain visible throughout construction activities unless superseded by required construction signing.
- E. Active construction signs in accordance with FDOT standards will be required to be posted in advance of active construction activities.

1.05 FLAGMEN

- A. Provide qualified and suitably equipped flagmen when construction operations encroach on traffic lanes, as required for regulation of traffic.

1.06 FLARES AND LIGHTS

- A. Provide lights as required by FDOT standards..
 - 1. To clearly delineate traffic lanes and to guide traffic as required.
 - 2. For use by flagmen in directing traffic.
- B. Provide illumination of critical traffic and parking areas as required.

1.07 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, Town and Engineer personnel, or construction operations.
- B. Monitor parking of construction personnel's private vehicles.
 - 1. Maintain free vehicular access to and through parking areas and driveways.
 - 2. Prohibit parking on or adjacent to access roads, or in non-designated areas.

1.08 CONSTRUCTION VEHICLES

- A. All slow moving construction vehicles shall have a slow moving sign visible from the rear of the vehicle.
- B. All vehicles used for construction activities shall have audible back-up warning devices.
- C. All dirt spilled from the Contractor's trucks on existing pavements shall be removed by the Contractor whenever, in the opinion of the Engineer, the accumulation is sufficient to cause the formation of mud, dust, interference with traffic or create a traffic hazard.

1.09 ROAD CLOSURES

- A. This area is a heavily congested utility corridor with tight constraints. Gulf of Mexico Drive (SR 789) is the only means on or off of Longboat Key. High priority is to be given no lane closures. In the event of temporary lane closure, prior approval will be required by the Town, Engineer, and FDOT.

- B. At least seven days prior to a proposed temporary road closure, the contractor shall submit to the Town and Engineer a complete traffic control plan for this closure.

This plan shall include the following minimum information:

1. Purpose and applicable alternatives for road closure.
2. Sketch of work site and all area roads, streets and mark driveways.
3. Proposed detour route.
4. All necessary traffic control devices to be used.
5. Emergency contractor contact person name and phone to be available 24 hours a day.
6. Estimated times/dates and duration of road closure.

PART 2 - PRODUCTS

- A. All traffic control devices shall meet or exceed FDOT certification standards.
- B. All traffic signs shall have high intensity face material.
- C. All traffic lighted materials must be in working order.

PART 3 - EXECUTION

- A. Upon notification by the owner either verbally or in writing, the contractor shall correct any noted deficiencies within one hour.
- B. Inspection of all traffic control items shall be accomplished at least twice per day. One of these inspections shall be at the end of the work day or at night.

END OF SECTION

SECTION 01600
MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Products.
- B. Workmanship.
- C. Manufacturer's Instructions.
- D. Transportation and Handling.
- E. Storage and Protection
- F. Substitutions and Product Options.

1.02 RELATED REQUIREMENTS

- A. Section 01010: Summary of Work.
- B. Section 01020: Allowances.
- C. Section 01090: Reference Standards.
- D. Section 01300: Submittals.
- E. Section 01630: Substitutions and Product Options.
- F. Section 01700: Contract Closeout.

1.03 PRODUCTS

- A. Products include material, equipment, and systems.
- B. Comply with Specifications and referenced standards as minimum requirements.
- C. Components required to be supplied in quantity within a Specification section shall be the same, and shall be interchangeable.

1.04 WORKMANSHIP

- A. Comply with industry standards except when more restrictive tolerances of specified requirements indicate more rigid standards or more precise workmanship.
- B. Perform work by persons qualified to produce workmanship for specified quality.
- C. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.05 MANUFACTURER'S INSTRUCTIONS

- A. When work is specified to comply with manufacturer's instructions, submit copies as specified in Section 01300, and distribute copies to persons involved, and maintain one set in field office.
- B. Perform work in accordance with details of instructions and specified requirements. Should a conflict exist between Specifications and instructions, consult with the Engineer.

1.06 TRANSPORTATION AND HANDLING

- A. Provide equipment and personnel necessary to handle products, including those provided by Town, by methods to prevent soiling or damage to products or packaging.
- B. Provide additional protection during handling as necessary to prevent scraping, marring or otherwise damaging products or surrounding surfaces.
- C. Handle products by methods to prevent bending or overstressing.
- D. Lift heavy components only at designated lifting points.

1.07 STORAGE AND PROTECTION

- A. For water service materials including pipe, valves, etc., material shall be sealed and protected against entrance of dirt, unclean waters, foreign materials, rodents, and child proofed.

- B. Store Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive Products in weather-tight enclosures and maintain within temperature and humidity ranges required by manufacturer's instructions.
- C. For exterior storage of fabricated Products, place on supports above ground. Cover Products subject to deterioration with impervious sheet covering; and provide ventilation to avoid condensation.
- D. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- E. Arrange storage to provide access for inspection. Periodically inspect to assure Products are undamaged, and are maintained under required conditions.
- F. After installation, provide coverings to protect Products from damage from traffic and construction operations. Remove when no longer needed.
- G. During such periods of time that are designated by the United States Weather Bureau as being a hurricane warning or alert, construction materials or equipment shall be secured against displacement by wind forces.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 01630 SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish and install Products specified, under options and conditions for substitutions stated in this Section.

1.02 RELATED REQUIREMENTS

- A. Information for Bidders, General Conditions, Project Specifications and Drawings.
- B. Section 01020: Allowances.
- C. Section 01300: Submittals.
- D. Section 01700: Contract Closeout.

1.03 PRODUCTS LIST

- A. Within 30 days after the Notice to Proceed, submit to Engineer five copies of complete list of major Products which are proposed for installation.
- B. Tabulate Products by specification section number and title.
- C. For products specified only by reference standards, list for each such Product:
 - 1. Name and address of manufacturer.
 - 2. Trade Name.
 - 3. Model or catalog designation.
 - 4. Manufacturer's data:
 - a. Reference standards.
 - b. Performance test data.

1.04 CONTRACTOR'S OPTIONS

- A. For Products specified only by reference standard, select product meeting that standard, by any manufacturer.
- B. For products specified by naming several products or manufacturers, select any one or those products and manufacturers names which complies with Specifications.
- C. For products specified by naming only one or more products or manufacturers and stating "or equal", submit a request as for substitutions, for any product or manufacturer which is not specifically named.

1.05 SUBSTITUTIONS

- A. Within a period of 30 days after Notice to Proceed, Engineer will consider formal requests from the Contractor for substitution of products in place of those specified:
- B. After the end of that period, the request will be considered only in case of product unavailability or other conditions beyond the control of the Contractor.
- C. The Town and Engineer reserves the right to request the Contractor to obtain a Professional Engineer if deemed necessary to support product substitution.
- D. Submit a separate request for each substitution. Support each request with:
 - 1. Complete data substantiating compliance of the proposed substitution with requirements stated in the Contract Documents:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature; identify:
 - 1) Product description.
 - 2) Reference standards.
 - 3) Performance and test data.
 - c. Samples, as applicable.
 - d. Name and address of similar projects on which product has been used, and the date of each installation
 - 2. Itemized comparison of the proposed substitution with product specified and list significant variations.
 - 3. Data relating to changes in the construction schedule.

4. Any effect of the substitution on separate contracts.
 5. List of changes required in other work or products.
 6. Accurate cost data comparing proposed substitution with product specified.
 7. Designation of required license fees or royalties.
 8. Designation of availability of maintenance services, and sources of replacement materials.
- E. Substitutions will not be considered for acceptance when:
1. They are indicated or implied on Shop Drawings or product data submittals without a formal request from Contractor.
 2. They are requested directly by a subcontractor or supplier.
 3. No Data relating to changes in construction schedule.
 4. Any effect of substitution on separate contracts.
 5. List of changes required in other work or products.
 6. Accurate cost data comparing proposed substitution with product specified.
 7. Designation of required license fees or royalties.
 8. Designation of availability of maintenance services, sources of replacement materials.
 9. Acceptance will require substantial revision of Contract Documents.
- F. Substitute products shall not be ordered or installed without written acceptance of Engineer.
- G. Engineer will determine the acceptability of proposed substitutions.

1.06 CONTRACTOR'S REPRESENTATION

- A. In making formal request for substitution Contractor represents that:
1. They have investigated proposed product and has determined that it is equal to or superior in all respects to that specified.
 2. They will provide the same warranties or bonds for substitution as for product specified.

3. They will coordinate installation of accepted substitution into the Work, and will make such changes as may be required for the Work to be complete in all respects.
4. Contractor waives claims for additional costs caused by substitution which may subsequently become apparent.
5. Cost data is complete and includes related costs under their Contract, but not:
 - a. Costs under separate contracts.
 - b. Engineer's costs of redesign or revision of Contract Documents.

1.07 ENGINEER DUTIES

- A. Review Contractor's requests for substitutions with reasonable promptness.
- B. Notify Contractor, in writing, of decision to accept or reject requested substitution.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 01700 CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. Contract completion includes substantial completion, final inspection after completion, final cleaning, contractor's closeout submittals, and final adjustment of accounts.

1.02 SUBSTANTIAL COMPLETION

- A. When Contractor considers work has reached substantial completion, they shall submit to the Town and Engineer the following:
 - 1. Written notice that the work is substantially complete in accordance with Contract Documents.
 - 2. A list of items yet to be completed or corrected and explanations thereof.
- B. Within a reasonable time upon receipt of such notice, the Town and Engineer will conduct a walk-through, if necessary, to determine the status of completion.
- C. Should the Town and Engineer determine that the work is not substantially complete:
 - 1. The Town and Engineer will promptly notify the Contractor in writing, giving the reasons thereof.
 - 2. Contractor shall remedy the deficiencies in the work and send a second written notice of Substantial Completion to the Town and Engineer.
 - 3. Upon receipt of the second notice, the Town and Engineer will re-review the work.
- D. When the Town and Engineer finds that the Work is substantially complete, they will issue to the Contractor a Certificate of Substantial Completion with a tentative list of items to be completed or corrected before final inspection.

1.03 FINAL COMPLETION

- A. When Contractor considers the Work is complete with all minor deficiencies completed or corrected, he shall submit written certification that:
 - 1. Contract Document requirements have been met.
 - 2. Work has been inspected for compliance with Contract Documents.

3. Work has been completed in accordance with Contract Documents.
 4. All minor deficiencies have been corrected or completed and the Work is ready for final review.
 5. Project record documents are complete and submitted.
- B. Within a reasonable time upon receipt of such certification, the Town and Engineer will conduct a walk-through to verify the status of completion.
- C. Should the Town and Engineer determine that the work is incomplete or defective:
1. The Town and Engineer will promptly notify the Contractor in writing, giving the reasons thereof.
 2. Contractor shall remedy the deficiencies in the work and send a second written certification to the Town and Engineer that the work is complete.
 3. Upon receipt of the second certification, the Town and Engineer will re-review the Work.
- D. When the Town and Engineer determine that the work is acceptable, under the Contract Documents, he shall request the Contractor to make closeout submittals.

1.04 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean site; sweep paved areas, rake clean other surfaces.
- C. Remove waste and surplus materials, rubbish, and construction facilities from the Project and from the site.

1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS

- A. Project Record Documents
 1. At Contract Closeout, submit documents with transmittal letter containing date, project title, Contractor's name and address, list of documents, and signature of Contractor.
 2. Drawings legibly marked to record actual constructions. Horizontal and vertical locations of underground utilities and appurtenances shall be referenced to permanent surface improvements. Provide record document in an AutoCAD Format (Version 2007 or later). Coordinate with Town and Engineer on AutoCAD version type.

3. Specifications and addenda legibly marked in each Section to record.
 4. Changes made by Field Order or by Change Order.
- B. Evidence of payment and Release of Liens.
- C. Service manuals, installation instructions, and operation and maintenance manuals.
- D. The closeout requirements of this section are in addition to the requirements of the Standard General Conditions and Supplementary Conditions.

1.06 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to the Town and Engineer.
- B. Statement shall reflect all adjustments to the Contract Sum.
1. The original Contract sum.
 2. Additions and deductions resulting from:
 - a. Previous change orders or written amendment.
 - b. Allowances
 - c. Unit prices
 - d. Deductions for uncorrected work.
 - e. Deductions for liquidated damages
 - f. Other adjustments
 3. Total contract sum as adjusted
 4. Previous payments
 5. Sum remaining due

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01720
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Maintain at the site a record copy of:
 - 1. Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders and other modifications to the Contract.
 - 5. Approved Shop Drawings, Product Data and Samples.
 - 6. Field Test Records.

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.03 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
 - 1. Provide files and racks for storage of documents.
 - 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with CSI format.
- C. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all times for review by the Town, Engineer, or FDOT.

1.04 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in the color code approved by Town and Engineer for the course of the project work.

1.05 RECORDING

- A. Label each document, "PROJECT RECORD" in neat large printed letters, or by rubber stamp.
- B. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.
- C. Drawings: Legibly mark to record actual construction (hard copy):
 - 1. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 2. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structures.
 - 3. Field changes of dimension and detail.
 - 4. Changes made by Field Order or by Change Order.
 - 5. Details not on original Contract Drawings.
- D. Specifications and Addenda; legibly mark each Section to record:
 - 1. Manufacturer, trade name, catalog number, and supplier of each produce and item of equipment actually installed.
 - 2. Changes made by Field Order or by Change Order.

1.06 AS-BUILT PLANS (RECORD DRAWINGS)

- A. The Contractor shall maintain full size (22"x34") field drawings to reflect the "as-built" items of work as the work progresses. These drawings shall be made available to the Town and Engineer at each monthly progress meeting. The drawings are to made available at any time during the course of the project activity at the Town and Engineer request. Portions of payments will be with held if project drawings are not kept up to date and compliant to the Contract.
- B. Upon completion of the work, the Contractor shall prepare a record set of "as-built" drawings on full-size, reproducible material and an electronic

file in ACAD 2007 Format or Latest Version. An electronic file of the design drawings on a compact disk will be furnished to the Contractor by the Engineer at no additional cost. AutoCAD Releases must be signed for access to digital files. No additional payment will be made for those “as-built” drawings.

- C. The cost of maintaining record changes, and preparation of the Record Drawings shall be included in the unit prices bid for the affected items. Upon completion of the work the Contractor shall furnish the Engineer the reproducible “as-built” Drawings and the electronic files. The completed Record drawings shall be delivered to the Engineer at least 72 hours prior to final walk-through of the work. **The Final Walk-through will not be conducted unless the Record Drawings are in the possession of the Town and Engineer.**

- D. The completed (or final) record drawings shall be certified by a Professional Land surveyor registered in the State of Florida. This certification shall consist of the surveyor’s embossed seal bearing his registration number, the surveyor’s signature and date on each sheet of the drawing set. In addition, the key sheet, cover sheet or first sheet of the plans set shall list the business address and telephone number of the surveyor.

- E. Representative items of work that should be shown on the record drawings as verified, changed or added are shown below:
 - 1. Plans:
 - a. Structure types, location with grade of rim and flow-line elevations.
 - b. Water Pipe type, length, size and elevations. This includes transmission main, services, connections and valves.
 - c. Other Utility types, length, size and elevation in conflict structures.
 - d. All maintenance access structures, valves and hydrants within right-of way.
 - e. Spot (critical) elevations at plateaued intersections, P.C., P.T., midpoint of all intersections.
 - 2. Pavement Marking and Signing Plans: Sign location where installed if different from plans.
 - 3. Water, Reclaimed and Sewer Plans: Location (horizontal and vertical) of all pipe lines, structures, fittings, valves and

appurtenances and water /sanitary sewer/stormwater pipe crossings.

- F. The Contractor shall submit progress record drawings with each application for payment. These drawings shall accurately depict the work completed and for which payment is being requested.
- G. As-built drawings shall include the following criteria at a minimum.
 - 1. As-builts of water lines shall include the following information:
 - a. Top of pipe elevations and horizontal location every 100 lf and each change of alignment.
 - b. Locations and elevations of all fittings including bends, tees, gate valves, double detector check valves, fire hydrant, etc.
 - c. All tie-ins to existing lines shall be as-built.
 - d. The ends of all water services at the buildings or homes shall be as-built or where the water service terminates.
 - e. Details of all connections at large scale and to scale.
 - 2. All as-builts for driveways, roadways and swales areas shall consist of the following:
 - a. Elevations at all high and low points, and at enough intermediate points to confirm slope consistency and every 50' for roadways.
 - b. As-builts shall be taken at all locations where there is a finish grade elevation shown on the design plans.
 - c. All catch basin and manhole rim elevations shall be shown.
 - d. Elevations around island areas will also be required.
 - e. As-builts shall be taken on all paved and unpaved swales prior to placement of asphalt and/or topsoil/sod, at enough intermediate points to confirm slope consistency and conformance to the plan details.
 - 3. If a change is made via field order or deviation to any structure, pipeline, etc., a new location shall be noted on the as-builts. The Engineer may request additional as-built information to verify horizontal or vertical locations.

1.07 SUBMITTAL

- A. At Contract closeout, deliver Record Documents to Town and Engineer.

- B. A complete set of “As-Built” Drawings shall be prepared and delivered to the Town and Engineer. Work shall be performed by a Registered Professional Land Surveyor and shall include, but not be limited to the following:
1. Pipes, fittings, connections, valve boxes, taps, splice boxes, pull boxes, thrust blocks, restraints, all underground utilities- waterlines, electrical runs, irrigation system, storm drainage pipe and structures, finished necessary grades, benches, curbs, fences walls signs, light fixtures and other items as necessary.
- C. Accompany submittal with transmittal letter in duplicate, containing:
1. Date.
 2. Project title and number.
 3. Contractor’s name and address.
 4. Title and number of each Record Document.
 5. Signature of Contractor or his authorized representative.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 02010 SUBSURFACE INVESTIGATION

PART 1 - GENERAL

1.01 RESPONSIBILITY

- A. Subsurface explorations were conducted and completed by Driggers Engineering Services, Inc. A full copy of the investigation report, boring location map, and boring logs follow this Section. No responsibility is assumed by the Engineer or Town for subsoil quality or condition other than at the locations, and at the time the exploration was completed. No claim for extra compensation or for extension of time will be allowed on account of subsurface conditions inconsistent with the data shown, except as noted in Section 01011-Site Conditions.
- B. All information gathered regarding site conditions, topography, subsurface information, groundwater elevations, existing utilities, construction of site facilities as applicable, and similar data has been incorporated into the Contract Specifications and Drawings. Neither the Town nor Engineer assumes any responsibility for the completeness or for the Contractor's interpretation of such supplementary information.
- C. The project work is in a heavily utility congested FDOT ROW. Field locates of utilities was conducted by utility flagging, ground penetrating radar, soft field digs and field survey. Located utilities have been incorporated into the Project Drawings. It is likely due to the numerous and age of utilities within this area, the Contractor may encounter lines not shown on Drawings. This is considered inherent to the type of work and should be planned for by the Contractor at no additional expense.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

**REPORT OF THE
SUBSURFACE SOIL INVESTIGATION**

**AC PIPELINE REPLACEMENT
LONGBOAT KEY, FLORIDA**

Engineering Visions, Inc.
4400 El Conquistador Parkway
Suite 26
Bradenton, Florida 34210

June 29, 2007

Attention: Laura S. Andrews, P.E.

**RE: Report of the Geotechnical Investigation
Proposed AC Pipeline Replacement Construction
Gulf of Mexico Drive
Longboat Key, Florida
Our File: DES 075961**

Dear Laura:

In accordance with your authorization, **DRIGGERS ENGINEERING SERVICES, INC.** has completed the subsurface soil investigation for the planned improvements. The following pages of this report present the results of our field and laboratory studies.

FIELD GEOTECHNICAL INVESTIGATION

To identify subsurface soil and groundwater conditions along the proposed 17,500 lineal feet of pipeline, thirty-six (36) Standard Penetration Test (SPT) borings were performed. The SPT borings were advanced to a nominal depth of 20 feet below existing grade.

The Standard Penetration method of sampling and testing was utilized to provide soil samples for visual classification and laboratory testing, plus to develop Standard Penetration resistance data reflective of the strength and bearing capability of the soils penetrated. Representative samples were returned to the laboratory for examination by the project engineer and assignment of laboratory classification tests.

Plate I in the report Appendix provides an illustration of the approximate boring locations. The boring locations were staked and numbered in the field by your surveyor prior to our site visit. It is also our understanding that surface elevations were not recorded at the SPT boring locations. Upon review of the plan and profile sheets provided for our use, we identified approximate stationing and elevations for each SPT boring locations. You will note that certain test borings had to be offset to either avoid obstructions or facilitate set-up. The results of the exploratory borings are appended in the form of boring logs providing visual and estimated Unified Soil Classification and observed groundwater depth. Also attached is a brief description of the Standard Penetration method of sampling and testing.

LABORATORY CLASSIFICATION TESTING

To aid in further characterizing the engineering properties of the subsoils encountered at the boring locations, a limited laboratory classification test program was implemented. The classification tests consisted of grainsize analyses, Atterberg Limit determinations and organic content tests. Results of the laboratory tests are presented in the report attachments.

INDICATED SUBSURFACE CONDITIONS

The program of test borings has generally identified the presence of predominantly fine sands with variable silt and shell content extending to depths of at least 20 feet below existing grade. In localized areas, zones were encountered that appeared to consist of predominantly shell with substantially reduced sand content.

In localized areas such as the vicinity of borings B-30 and B-33, highly organic soils were evidenced within the upper 6 to 8 feet below existing grade. Further, borings B-34, B-35 and B-36 reflected the presence of lenticular seams of high plasticity clays of varying thickness within the upper 3.5 to 6 feet beneath the present ground surface. The previously mentioned organic soils probably represent the native subgrade soils that existed prior to the surficial fill application that was used to develop existing grade. The lenticular clay seams may be the resultant of hydraulic fill placement during the historic development of the area.

Standard Penetration resistance values indicate that the upper sandy soils vary from loose to medium dense in consistency. The deeper soils, below 6 to 8 feet, varied from medium dense to dense to very loose chiefly dependent upon the indicated fines content within the subsurface

soils. The looser zones exhibiting reduced penetration resistance were primarily associated with sands with increased silt and/or clay fines coupled with a reduction in shell content.

It should be noted that several borings such as B-33 through B-36 were deepened below the original planned depth of 20 feet as a result of very loose conditions encountered at the original planned termination depth. These locations were deepened to the depth range of 25 to 30 feet. The deeper penetration borings indicated, in some instance, the continued presence of fine sands with variable silt and shell content. In other locations, soils were encountered with increased clay fines. At boring B-34, relatively hard silty clays occurred below 29 feet and at B-36, a seam of calcareous clay was cream-colored limestone occurred below 27 feet.

At the time of our investigation, groundwater levels were recorded generally in the depth range of about 2.2 feet to some 10 feet below existing grade. The variation in the depth-to-groundwater is primarily reflective of differences in surface topography. It should be noted that these water levels were recorded during a period of sub-normal rainfall. We would anticipate that groundwater levels would normally rise at least 1 to 2 feet during the course of the normal wet season. Yet, higher groundwater elevations can occur during extreme climatic events and may locally be perched above shallow lenticular clay seams depending upon their lateral extent.

GEOTECHNICAL EVALUATION AND RECOMMENDATIONS

Based on our discussion, we understand that design details for the pipeline are presently in the development stage. Nevertheless, at this time, it is anticipated that the pipeline may have a diameter in the range of 12 to 16 inches.

We anticipated that the majority of the pipeline will be installed in an open excavation with a minimum cover of 3 feet. However, in certain areas, directional drilling may be employed due either to the presence of utility conflicts or perhaps the desire to avoid disruption of ingress or egress in residential or commercial areas.

PIPELINE SUBGRADE CONDITIONS - In general, our program of exploratory borings identified the presence of predominantly sandy soils with variable silt and shell content extending from existing grade to depths of at least 21.5 feet. Exception to the general trend appeared to occur at borings B-30 and B-33 where highly organic soils were generally evidenced in the depth range of about 6 to 8 feet below existing grade. Further, borings B-34, B-35 and B-36 indicated

the presence of seams of high plasticity clays of variable thickness generally within the upper 3.5 to 6 feet below the present ground surface.

The fine sands and shelly sands with variable silt fines representing the SP to SP-SM and SM Unified Soil Classification or the A-3 to A-2-4 AASHTO Classification represents soils that would certainly be suitable for subgrade support for the planned pipeline. Bedding requirements for the pipeline should be consistent with project specification requirements.

Highly organic soils and soils with elevated plasticity or considered unsuitable and should be removed and replaced where occurring in close proximity to the base of the pipeline such that they may be subject to remolding and disturbance that could result in unexpected post-construction settlement. These soils should be disposed of and replaced with suitable native soils comprising the SP to SP-SM or AASHTO A-3 Soil Classification compacted to specification requirements.

The potential exists that organic or clay soils may occur 2 to 3 feet or more below the invert elevation of the pipeline. In such instances, it may be feasible to allow the unsuitable materials to remain provided that the subgrade for the pipeline can be prepared in a firm and unyielding condition suitable for placement of the pipeline to proper line and grade. Allowing these unsuitable materials to remain at depth is dependent upon engineering judgment that will be strongly influenced by design grades. For example, the installation of a pipeline generally results in no net increase in stress below the bottom of the pipeline due to the fact that the weight of the excavated soils is less than the weight of the pipe and contents. Thus, where pipes are installed and there is no increase in the original ground surface elevation, the net stress increase on deeper soils is less than the original overburden pressure. Thus, one would anticipate negligible post-construction settlements. Conversely, where grades may be significantly elevated above original grade, stress increases can occur that can promote the potential for settlement. In such instances, it may be necessary to over-excavate the unsuitable materials and replace them with select backfill dependent upon the tolerance of the pipeline selected to anticipate total and differential settlement.

As a result of the foregoing, it will be important to re-visit the issue of buried unsuitable materials at such time when pipeline profile and design finished grades can be finalized. There may be merit in performing some supplemental shallow hand probings at that time to better define the lateral and vertical extent of any unsuitable materials especially when considering the nominal 500 foot spacing of the authorized test borings.

SUITABILITY OF EXCAVATED SOILS FOR USE AS BACKFILL - Fine sands comprising the SP to SP-SM and SM Unified Soil Classification or the AASHTO A-3 to A-2-4 Soil Classification would certainly be suitable for replacement and compaction as backfill following pipeline installation. Soils with excessive organic content comprising the P_t Unified Soil Classification or the AASHTO A-8 or soils with increased fines content a plasticity not meeting the requirements of the Unified Soil Classification SP to SP-SM or SM or AASHTO A-3 to A-2-4 would be considered unsuitable for replacement and compaction backfill.

Soils excavated below the groundwater table will require adjustment in moisture content to levels suitable for replacement and compaction as backfill. The fine sands with variable shell content comprising the SP Unified Soil Classification or the AASHTO A-3 Soil Classification should only require routine effort to adjust moisture contents for placement and re-compaction. However, soils with appreciable fines may require special handling and processing in order to aerate the soils to reduce moisture content to proper levels for placement and compaction.

OPEN-CUT CONSTRUCTION CONSIDERATION - It is anticipated that where the pipeline is to be constructed in an open-cut, the contractor will either implement a sloped excavation or perhaps trench box construction to minimize the lateral extent of the excavation. Where open-cutting is planned, we would recommend side slopes no steeper than 1.5 horizontal to 1 vertical with proper construction dewatering and protection against surface erosion. Where the ways and means of the contractor may result in surcharging adjacent areas with either equipment or stockpiled materials, flatter slopes may be required for stability. In any event, the contractor must comply with OSHA Trench Safety and Construction Requirements.

Depending upon the location and the depth of excavation, construction dewatering will be required. We envision that dewatering would consist of installing shallow wellpoints so as to maintain groundwater levels no less than 1 foot below the excavation bottom or as needed to effect any required removal and replacement of unsuitable soils.

DIRECTIONAL DRILLING - The potential exists that directional drilling may be utilized in certain areas. Details have not been developed with respect to potential profile grades for the directional drilling. Nevertheless, we have assumed herein that drilling depths would be less than 20 feet below existing grade.

The results of our geotechnical investigation indicate that the directional drilling will primarily penetrate through sands with variable silt, clay and shell content and localized organic and clay seams. In several areas, the test borings appeared to encounter zones of abundant shell with minimal sand fines. These zones will be expected to exhibit increased permeability and this should be considered by the directional drilling contractor.

The contractor should certainly consider ways and means for maintaining stability of the directional drilled boreholes so as to avoid any caving of overlying soils that could result in a loss of subgrade support for overlying structures and neighboring utilities. Conversely, care must be exercised to avoid a discharge of drilling fluid that would be considered objectionable.

CONSTRUCTION INSPECTION AND TESTING - The requested program of exploratory borings consisted of relatively widely-spaced test borings to generally define subsurface conditions for use in the design of the planned facilities. Clearly, the potential exists that variations in subgrade soil conditions could exist between test boring locations that could impact subgrade preparation requirements. Accordingly, it will be important to implement an appropriate program of geotechnical inspection during pipeline construction by a representative of the project geotechnical engineers so that judgments can be made with respect to subgrade preparation requirements that may be indicated based upon actual conditions observed during the construction process. In addition, it will be important to perform appropriate compaction tests during backfilling operations to check for specification compliance. Compaction tests should be performed throughout each lift of backfill material consistent with applicable testing frequency requirements but in no case should the testing frequency exceed compaction tests at nominal 200 foot intervals along the pipeline. The degree of compaction should be consistent with project specification requirements.

It must be recognized that our geotechnical investigation consisted of a program of test borings intended to provide information to guide the design and develop generalized requirements for construction. Our investigation may not have included procurement of all information that may be required by the prospective contractor in the preparation of his proposal.


The contractor is certainly encouraged to perform such additional investigation or testing as may be deemed appropriate to qualify his bid submittal.

DRIGGERS ENGINEERING SERVICES, INC. appreciates the opportunity to serve you at this preliminary stage. Should you have any questions concerning our findings to-date or require any additional information, please do not hesitate to contact this office at your convenience.

Respectfully submitted,

DRIGGERS ENGINEERING SERVICES, INC.


Jeffrey A. Driggers, E.I.
Project Engineer


F. Jaime Driggers, P.E.
President 11/2/09
FL Registration No. 16989



JAD

JAD-REP\075961

Copies submitted: (3)

APPENDIX

PLATE I - BORING LOCATION PLAN

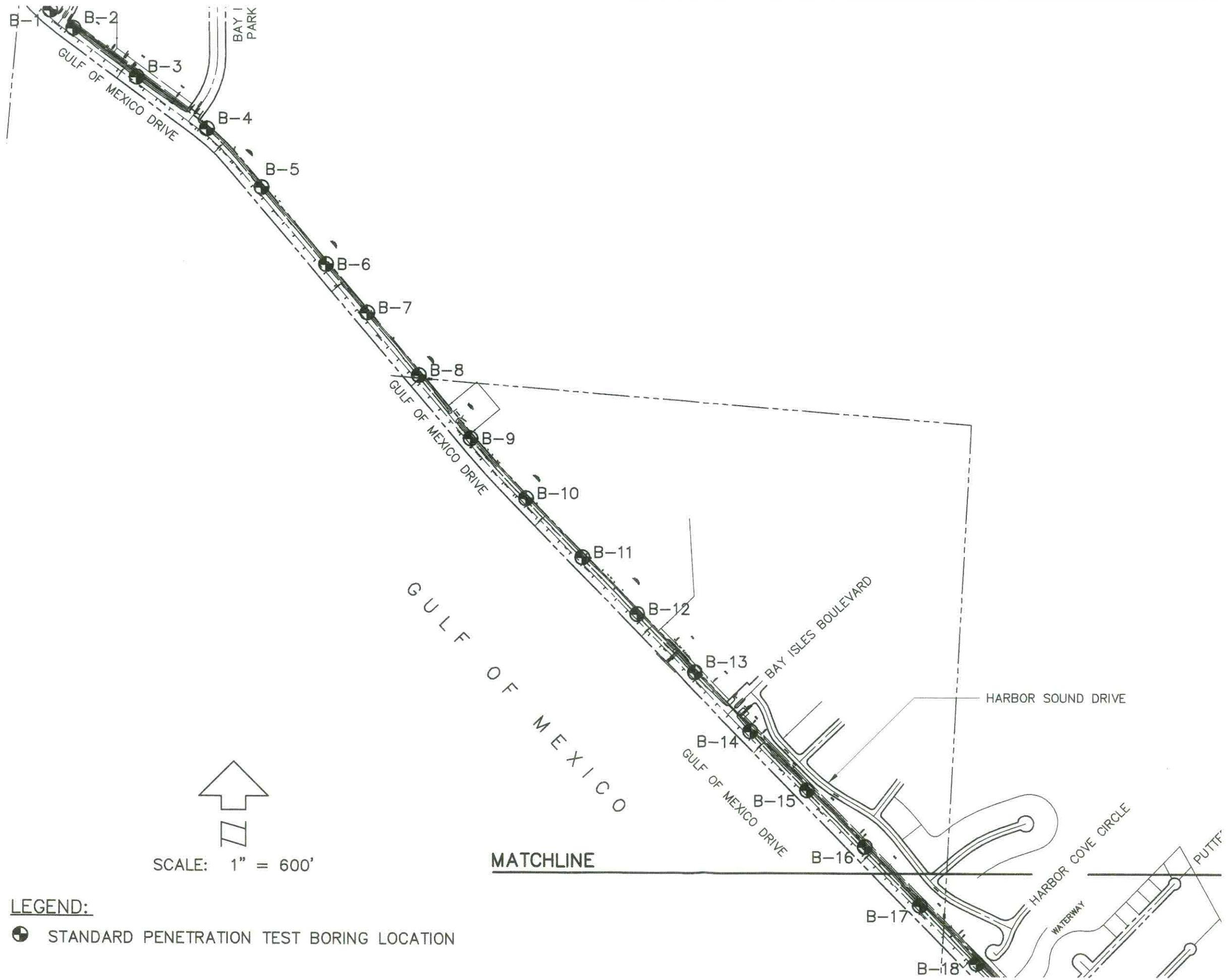
STANDARD PENETRATION TEST BORING LOGS

SUMMARY OF LABORATORY TEST RESULTS

GRAINSIZE ANALYSIS

METHOD OF TESTING

PLATE I - BORING LOCATION PLAN




LEGEND:

⊕ STANDARD PENETRATION TEST BORING LOCATION

SCALE: 1" = 600'

CAD FILE NAME: N:\A\CLTWIN\PLATE1\LONGBOATPIPE-6-29-07\0158-3617-08-GMD-PP 28JUNE07.DWG DRAWN BY: R.D.B. DATE: 1/12/09

CAD / ENGINEER	SHEET TITLE	PROJECT NO.
R.D.B. / F.J.D.	BORING LOCATION PLAN	DES 075961
PREPARED BY	PROJECT NAME	SHEET NO.
	PROPOSED AC PIPELINE REPLACEMENT GULF OF MEXICO DRIVE LONGBOAT KEY, FLORIDA	PLATE I-A



CAD FILE NAME: N:\ACTWIN\PLATE1\LONGBOATPIPE-6-29-07\0158-3617-08-GMD-PP-28JUNE07.DWG DRAWN BY: R.D.B. DATE: 1/12/09

CAD / ENGINEER	SHEET TITLE	PROJECT NO.
R.D.B. / F.J.D.	BORING LOCATION PLAN	DES 075961
PREPARED BY	PROJECT NAME	SHEET NO.
	PROPOSED AC PIPELINE REPLACEMENT GULF OF MEXICO DRIVE LONGBOAT KEY, FLORIDA	PLATE I-B

STANDARD PENETRATION TEST BORING LOGS



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-1**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman A.P.
 Completion Date 6/6/07 Depth To Water 3.0' Time _____ Date 6/6/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
			SURF. EL: +4.8+/-'						
0			Brown Fine SAND with trace of roots and trace of shell (SP) (A-3)						
			Brown Fine SAND with trace of shell fragments (SP) (A-3)						
			Dark brown Fine SAND with shell fragments (SP) (A-3)						
5			Dark brown slightly silty Fine SAND with trace of shell fragments (SP-SM) (A-3)	1/5/12					
			Medium dense to dense light brown Fine SAND with shell (SP) (A-3)	6/14/21					
10				6/15/25					
				6/13/17					
15			- abundant shell below depth 15.0'	6/10/17					
20				3/5/16					
25									
30									
35									

Remarks Location: Sta. 403+53; Offset 37' Right of Baseline Survey

Casing Length _____

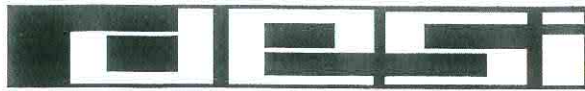


DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-2**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ A.P. _____
 Completion Depth 21.5' Date 6/6/07 Depth To Water 2.8' Time _____ Date 6/6/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
			SURF. EL: +5.0+/-'						
0			Grayish-brown Fine SAND with roots and trace of shell (SP) (A-3)						
			Light brown Fine SAND (SP) (A-3)						
			Light gray Fine SAND (SP) (A-3)						
5			Dark brown Fine SAND (SP) (A-3)						
			Light brown Fine SAND with shell fragments (SP) (A-3)						
			Tan Fine SAND with shell (SP) (A-3)	2/10/26					
			Dense to medium dense tan to light gray Fine SAND with trace of shell (SP) (A-3)	9/13/19					
10				8/12/10					
				3/4/9					
15			Medium dense light brown Fine SAND with shell (SP) (A-3)	5/11/15					
20			Very loose dark grayish-brown silty Fine SAND with trace of shell (SM) (A-2-4)	3/1/1					
25									
30									
35									

Remarks Location: Sta. 401+82; Offset 37.5' Right of Baseline Survey Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-3**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ A.P. _____
 Completion Depth 21.5' Date 6/6/07 Depth To Water 3.0' Time _____ Date 6/6/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
SURF. EL: +5.1+/-'									
0			Gray Fine SAND with shell and trace of roots (SP) (A-3)						
			Gray Fine SAND with shell (SP) (A-3)						
			Brown Fine SAND with shell (SP) (A-3)						
			Light tan Fine SAND with shell (SP) (A-3)						
5			Dark gray Fine SAND (SP) (A-3)						
			Gray Fine SAND (SP) (A-3)						
			Reddish-brown Fine SAND (SP) (A-3)	2/4/14					
			Tan Fine SAND with shell (SP) (A-3)						
			Medium dense light brown Fine SAND with abundant shell fragments (SP) (A-3)	4/15/20					
10			Dense to medium dense light brown Fine SAND with trace of shell (SP) (A-3)	7/20/25					
				8/10/17					
15			Dense light brown Fine SAND (SP) (A-3)	8/13/21					
20			Very loose dark grayish-brown silty Fine SAND (SM) (A-2-4)	1/1/1					
25									
30									
35									

Remarks Location: Sta. 396+86; Offset 32' Right of Baseline Survey Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-4**

Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL

Location See "Remarks" Foreman A.P.

Completion
 Depth 21.5' Date 6/6/07 Depth To Water 4.8' Time _____ Date 6/6/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
SURF. EL: +6.6+/-'									
0			Grayish-brown Fine SAND with trace of shell and trace of asphalt fragments (SP) (A-3)						
			Gray Fine SAND with shell (SP) (A-3)						
			Light gray Fine SAND with trace of shell (SP) (A-3)						
5			Brown Fine SAND with shell fragments (SP) (A-3)						
			Tan Fine SAND with shell fragments (SP) (A-3)	1/3/5					
			Tan Fine SAND with shell (SP) (A-3)						
			Loose to medium dense tan Fine SAND with abundant shell (SP) (A-3)	2/7/8					
10			Medium dense light brown Fine SAND with shell (SP) (A-3)	1/5/9					
			Dense light brown Fine SAND with trace of shell (SP) (A-3)	5/17/19					
15			Medium dense light brown Fine SAND with shell (SP) (A-3)	2/6/13					
			Dense light brown Fine SAND (SP) (A-3)						
20				12/21/26					
25									
30									
35									

Remarks Location: Sta. 391+48; Offset 36' Right of Baseline Survey

Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-5**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ A.P. _____
 Completion _____
 Depth 21.5' Date 6/6/07 Depth To Water 2.9' Time _____ Date 6/6/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
SURF. EL: +5.1+/-'									
0			Gray Fine SAND with shell and gravel (SP) (A-3)						
			Tan Fine SAND with abundant shell (SP) (A-3)						
5			Light gray Fine SAND with shell fragments (SP) (A-3)	2/5/4					
			Loose light gray Fine SAND with trace of shell (SP) (A-3)	2/8/12					
10			Medium dense to dense tan to light gray Fine SAND with shell (SP) (A-3)	5/15/21					
				7/13/16					
15			Dense to very dense gray to light gray Fine SAND with trace of shell (SP) (A-3)	8/15/23					
20				14/27/31					
25									
30									
35									

Remarks Location: Sta. 386+59; Offset 32' Right of Baseline Survey
 Casing Length 6.0'



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-6**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ A.P. _____
 Completion _____
 Depth 21.5' Date 6/6/07 Depth To Water 4.3' Time _____ Date 6/6/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
SURF. EL: +6.4+/-'									
0	[Symbol: Grayish-brown sand with shell and gravel]		Grayish-brown Fine SAND with shell and gravel (SP) (A-3)						
			Light brown Fine SAND with shell (SP) (A-3)						
5	[Symbol: Tan sand with shell]		Tan Fine SAND with shell (SP) (A-3)						
			Loose to medium dense light gray Fine SAND with shell (SP) (A-3)	1/2/3					
10	[Symbol: Medium dense to dense light gray sand with trace of shell]		Medium dense to dense light gray to gray Fine SAND with trace of shell (SP) (A-3)	3/6/9					
				2/10/17					
15	[Symbol: Dense gray sand]			4/13/19					
			Dense gray Fine SAND (SP)	1/8/17					
20				2/12/19					
25									
30									
35									

Remarks Location: Sta. 381+45; Offset 32' Right of Baseline Survey
 _____ Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-7**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman A.P.
 Completion Depth 21.5' Date 6/6/07 Depth To 4.8' Water Time Date 6/6/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
SURF. EL: +7.0+/-'									
0	[Symbol: Grayish-brown sand with gravel and shell]	[Sample: (A-3)]	Grayish-brown Fine SAND with gravel and trace of shell (SP) (A-3)						
			Light brown Fine SAND with trace of shell (SP) (A-3)						
			Tan Fine SAND with abundant shell (SP) (A-3)						
5	[Symbol: Medium dense tan sand with shell]	[Sample: (A-3)]	Medium dense tan Fine SAND with shell (SP) (A-3)	2/4/8					
				6/6/5					
10	[Symbol: Dense light gray to light brown sand with shell]	[Sample: (A-3)]	Dense light gray to light brown Fine SAND with trace of shell (SP) (A-3)	6/14/18					
				8/15/23					
15	[Symbol: Dense to medium dense gray sand]	[Sample: (A-3)]	Dense to medium dense gray Fine SAND (SP) (A-3)	10/19/24					
20	[Symbol: Empty]	[Sample: (A-3)]		9/9/18					
25	[Symbol: Empty]	[Sample: (A-3)]							
30	[Symbol: Empty]	[Sample: (A-3)]							
35	[Symbol: Empty]	[Sample: (A-3)]							

Remarks Location: Sta. 376+48; Offset 35.5' Right of Baseline Survey
 Casing Length

Project No. DES 075961 **BORING NO.** B-8
Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
Location See "Remarks" **Foreman** A.P.
Completion **Depth To**
Depth 21.5' **Date** 6/6/07 **Water** 5.7' **Time** _____ **Date** 6/6/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
			SURF. EL: +7.6+/-'						
0	▽		Grayish-brown Fine SAND with trace of shell (SP) (A-3)						
	▽		Tan Fine SAND with abundant shell fragments (SP) (A-3)						
5	▽		Loose light brown Fine SAND with shell (SP) (A-3)	2/2/4					
	▽		Medium dense tan Fine SAND with trace of shell (SP) (A-3)	7/12/16					
10	▽		Dense light gray Fine SAND (SP) (A-3)	4/11/16					
	▽			7/18/25					
15	▽			9/19/23					
	▽		Medium dense gray slightly silty Fine SAND (SP-SM) (A-3)	7/10/9					
20	▽								
25	▽								
30	▽								
35	▽								

Remarks Location: Sta. 371+42; Offset 35.5' Right of Baseline Survey
Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-9**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ C.O. _____
 Completion _____
 Depth 21.5' Date 6/7/07 Depth To Water 5.4' Time _____ Date 6/8/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
SURF. EL: +7.6+/-'									
0			Brown Fine SAND with shell (SP) (A-3)						
			Tan Fine SAND with abundant shell (SP) (A-3)						
5			Medium dense tan Fine SAND with shell (SP) (A-3)	2/5/7					
			Medium dense light brown Fine SAND with trace of shell (SP) (A-3)	5/12/14					
10			Dense light brown Fine SAND with shell (SP) (A-3)	7/12/20					
			Dense light brown to light gray Fine SAND with trace of shell (SP) (A-3)	5/17/23					
15				9/16/18					
20				13/21/16					
25									
30									
35									

Remarks Location: Sta. 366+44; Offset 25' Right of Baseline Survey
 _____ Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-10**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ C.O. _____
 Completion _____
 Depth 21.5' Date 6/7/07 Depth To Water 5.8' Time _____ Date 6/8/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
0			SURF. EL: +7.7+/-'						
			Brown Fine SAND with trace of roots and trace of shell (SP) (A-3)						
			Brown Fine SAND with shell (SP) (A-3)						
			Light brown Fine SAND with shell (SP) (A-3)						
5			Tan Fine SAND with shell (SP) (A-3)						
			Tan Fine SAND with trace of shell (SP) (A-3)						
			Tan Fine SAND with shell (SP) (A-3)	5/10/11					
			Medium dense light gray Fine SAND (SP) (A-3)						
			Abundant Shell with tan Fine SAND	5/4/8					
10			Medium dense tan Fine SAND with shell (SP) (A-3)	5/9/14					
			Medium dense to dense light gray Fine SAND with trace of shell (SP) (A-3)	6/10/18					
15				11/18/20					
20				15/23/20					
25									
30									
35									

Remarks Location: Sta. 361+33; Offset 31.5' Right of Baseline Survey Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-11**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ C.O. _____
 Completion _____
 Depth 21.5' Date 6/7/07 Depth To Water 7.8' Time _____ Date 6/8/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
			SURF. EL: +9.5+/-'						
0			Brown Fine SAND with trace of shell (SP) (A-3)						
			Gray Fine SAND with trace of shell (SP) (A-3)						
			Gray Fine SAND with shell (SP) (A-3)						
			Light gray Fine SAND with shell (SP) (A-3)						
			Dark gray Fine SAND with shell (SP) (A-3)						
5			Tan Fine SAND with abundant shell (SP) (A-3)						
			Tan Fine SAND with shell (SP) (A-3)						
			Light brown Fine SAND with abundant shell (SP) (A-3)	2/3/6					
			Loose tan Fine SAND with abundant shell (SP) (A-3)	2/6/7					
10			Medium dense brown Fine SAND (SP) (A-3)	3/12/11					
			Medium dense tan Fine SAND with shell (SP) (A-3)	3/7/12					
15			Medium dense to dense light gray Fine SAND with trace of shell (SP) (A-3)	9/21/27					
20			Very dense light gray Fine SAND (SP) (A-3)	15/23/20					
25									
30									
35									

Remarks Location: Sta. 356+32; Offset 27' Right of Baseline Survey
 _____ Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-12**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ C.O. _____
 Completion Depth 21.5' Date 6/7/07 Depth To Water 9.8' Time _____ Date 6/8/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
SURF. EL: +11.3+/-'									
0			Grayish-brown Fine SAND with roots and trace of shell (SP) (A-3)						
			Gray Fine SAND with trace of shell (SP) (A-3)						
			Dark gray Fine SAND with shell (SP) (A-3)						
			Light tan Fine SAND with trace of shell (SP) (A-3)						
5			Dark brown Fine SAND with shell (SP) (A-3)						
			Tan Fine SAND with abundant shell (SP) (A-3)	2/4/6					
			Brownish-gray Fine SAND with abundant shell (SP) (A-3)	3/5/7					
10			Loose tan Fine SAND with abundant shell (SP) (A-3)	5/10/13					
			Medium dense tan Fine SAND with shell (SP) (A-3)	8/14/15					
			Medium dense to very dense light brown Fine SAND with trace of shell (SP) (A-3)	9/15/22					
15									
20				11/24/33					
25									
30									
35									

Remarks Location: Sta. 351+33; Offset 27' Right of Baseline Survey Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-13**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman A.P.
 Completion
 Depth 21.5' Date 6/7/07 Depth To 8.8' Time Date 6/8/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
			SURF. EL: +10.5+/-'						
0			Gray Fine SAND with shell (SP) (A-3)						
			Gray Fine SAND with abundant shell (SP) (A-3)						
			Dark gray Fine SAND with abundant shell (SP) (A-3)						
			Light brown Fine SAND with abundant shell (SP) (A-3)						
5			Tan Fine SAND with abundant shell (SP) (A-3)						
			Light brown Fine SAND with abundant shell (SP) (A-3)	1/2/2					
			Abundant Shell with trace of tan Fine SAND	1/2/3					
10			Loose to medium dense light gray to light brown Fine SAND with shell (SP) (A-3)	1/1/8					
				9/4/12					
15			Dense light gray Fine SAND with trace of shell (SP) (A-3)	10/18/23					
20				12/18/23					
25									
30									
35									

Remarks Location: Sta. 346+34; Offset 35' Right of Baseline Survey

Casing Length



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-14**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ A.P. _____
 Completion _____
 Depth 21.5' Date 6/7/07 Depth To Water 9.2' Time _____ Date 6/8/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
			SURF. EL: +11.0+/-'						
0			Dark brown Fine SAND with trace of roots and trace of shell (SP) (A-3)						
			Brown Fine SAND with shell (SP) (A-3)						
			Light brown Fine SAND with shell (SP) (A-3)						
5			Tan Fine SAND with abundant shell (SP) (A-3)						
			Abundant Shell with tan Fine SAND	2/3/3					
				2/2/5					
10			Medium dense light gray Fine SAND (SP) (A-3)	8/12/12					
			Medium dense light brown Fine SAND with shell (SP) (A-3)	6/5/8					
15			Dense light brown to light gray Fine SAND with trace of shell (SP) (A-3)	13/17/25					
20				13/20/24					
25									
30									
35									

Remarks Location: Sta. 341+31; Offset 28.5' Right of Baseline Survey Casing Length 6.0'



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO.** B-15
Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
Location See "Remarks" **Foreman** A.P.
Completion **Depth To**
Depth 21.5' **Date** 6/7/07 **Water** 7.3' **Time** _____ **Date** 6/8/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
			SURF. EL: +11.1+/-'						
0			Brown Fine SAND with shell (SP) (A-3)						
5			Tan Fine SAND with abundant shell (SP) (A-3)						
			Abundant Shell with tan Fine SAND	2/3/2					
10				2/3/4					
				3/3/3					
			Medium dense tan Fine SAND with shell (SP) (A-3)	4/10/10					
15			Very dense light gray Fine SAND (SP) (A-3)	12/24/30					
20				13/26/37					
25									
30									
35									

Remarks Location: Sta. 336+28; Offset 34' Right of Baseline Survey
Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-16**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman A.P.
 Completion Depth 21.5' Date 6/7/07 Depth To Water 9.5' Time _____ Date 6/8/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
SURF. EL: +11.1+/-'									
0			Dark brown slightly silty Fine SAND with roots and trace of shell (SP-SM) (A-3)						
			Brown Fine SAND with shell (SP) (A-3)						
			Brown Fine SAND with trace of shell (SP) (A-3)						
			Brown Fine SAND with abundant shell (SP) (A-3)						
5			Medium dense tan Fine SAND with abundant shell (SP) (A-3)						
			Abundant Shell	2/7/8					
10			Medium dense light gray Fine SAND (SP) (A-3)	1/2/6					
			Medium dense tan Fine SAND with abundant shell (SP) (A-3)	4/8/12					
			- trace of shell at depth 15.0'	6/7/12					
15			Dense to very dense light gray Fine SAND (SP) (A-3)	14/19/16					
20				10/27/30					
25									
30									
35									

Remarks Location: Sta. 331+31; Offset 37' Right of Baseline Survey

Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-17**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ A.P. _____
 Completion Depth 21.5' Date 6/7/07 Depth To Water 9.7' Time _____ Date 6/8/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
			SURF. EL: +11.2+/-'						
0			Brown Fine SAND with trace of asphalt fragments (SP) (A-3)						
			Gray Fine SAND with shell (SP) (A-3)						
			Light brown Fine SAND with abundant shell (SP) (A-3)						
5			Brown Fine SAND with shell (SP) (A-3)						
			Light brown Fine SAND with abundant shell (SP) (A-3)	2/3/5					
			Loose to medium dense tan Fine SAND with abundant shell (SP) (A-3)	3/7/10					
10				4/8/9					
			Medium dense to dense light gray Fine SAND with trace of shell (SP) (A-3)	4/10/11					
15				8/15/22					
			Very dense light gray Fine SAND (SP) (A-3)	10/24/32					
20									
25									
30									
35									

Remarks Location: Sta. 326+33.5; Offset 36' Right of Baseline Survey

Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO.** B-18
Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
Location See "Remarks" **Foreman** _____ **A.P.** _____
Completion **Depth To** **Time** **Date** 6/8/07
Depth 21.5' **Date** 6/8/07 **Water** 10.0'

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
			SURF. EL: +12.1+/-'						
0	▽		Dark brownish-gray Fine SAND with trace of roots (SP) (A-3)						
	▽		Brown Fine SAND (SP) (A-3)						
	▽		Brown Fine SAND with shell (SP) (A-3)						
	▽		Light brown Fine SAND with abundant shell (SP) (A-3)						
5	▽		Brown Fine SAND with abundant shell (SP) (A-3)						
	▽		Loose tan Fine SAND with abundant shell (SP) (A-3)	2/2/5					
	▽		Loose light brown Fine SAND with shell (SP) (A-3)	2/2/4					
10	▽			4/5/5					
	▽		Medium dense tan Fine SAND with abundant shell (SP) (A-3)	5/12/12					
15	▽		- trace of shell at depth 15.0'	6/20/28					
	▽		Dense to very dense light gray Fine SAND (SP) (A-3)						
20	▽			11/28/38					
25									
30									
35									

Remarks Location: Sta. 321+34; Offset 24' Right of Baseline Survey **Casing Length** _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-19**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman A.P.
 Completion Depth 21.5' Date 6/8/07 Depth To 9.4' Time Date 6/8/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
SURF. EL: +10.8+/-'									
0			Dark grayish-brown Fine SAND with shell fragments (SP) (A-3)						
			Gray Fine SAND with abundant shell (SP) (A-3)						
5			Loose light brown silty Fine SAND with shell (SM) (A-2-4)	3/4/4					
			Abundant Shell with trace of tan Fine SAND	2/2/2					
10			Loose to medium dense tan Fine SAND with abundant shell (SP) (A-3)	2/2/5					
			Medium dense tan Fine SAND with shell (SP) (A-3)	2/6/12					
15			Dense tan Fine SAND with abundant shell (SP) (A-3)	6/12/17					
			Medium dense light gray Fine SAND with trace of shell (SP) (A-3)	3/10/24					
20									
				2/7/23					
25									
30									
35									

Remarks Location: Sta. 316+33; Offset 23.5' Right of Baseline Survey
 Casing Length



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-20**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ A.P. _____
 Completion Depth 21.5' Date 6/8/07 Depth To Water 8.0' Time _____ Date 6/8/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
			SURF. EL: +9.8+/-'							
0			Gray Fine SAND with shell (SP) (A-3)							
			Gray Fine SAND with abundant shell (SP) (A-3)							
5			Light brown Fine SAND with abundant shell (SP) (A-3)	2/3/4						
			Abundant Shell with trace of tan Fine SAND	1/3/8						
10			Medium dense tan Fine SAND with shell (SP) (A-3)	5/8/16						
				3/12/16						
15			Medium dense tan Fine SAND with abundant shell (SP) (A-3)	11/6/21						
20			Very loose gray slightly silty Fine SAND with shell (SP-SM) (A-3)	1/2/1						
25										
30										
35										

Remarks Location: Sta. 311+34; Offset 22' Right of Baseline Survey Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-21**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ A.P. _____
 Completion Depth 26.5' Date 6/8/07 Depth To Water 7.1' Time _____ Date 6/8/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
			SURF. EL: +9.2+/-'						
0			Brown Fine SAND (SP) (A-3)						
			Brown Fine SAND with abundant shell (SP) (A-3)						
5			Medium dense to dense tan Fine SAND with abundant shell (SP) (A-3)	3/4/7					
				5/5/9					
10				9/18/20					
			- trace of shell at depth 12.0'	10/22/25					
15			Dense to very dense light gray Fine SAND (SP) (A-3)	15/26/25					
			Very loose green slightly silty Fine SAND (SP-SM) (A-2-4)	0/0/0					
20									
			Loose gray slightly silty Fine SAND with trace of shell (SP-SM) (A-3)	1/2/5					
25									
30									
35									

Remarks Location: Sta. 306+12; Offset 29.5' Right of Baseline Survey
 _____ Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-22**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ C.O. _____
 Completion _____
 Depth 21.5' Date 6/8/07 Depth To Water 7.8' Time _____ Date 6/8/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
			SURF. EL: +9.1+/-'							
0			Dark brown and gray Fine SAND with trace of shell (SP) (A-3)							
			Light brown Fine SAND with abundant shell (SP) (A-3)							
5			Loose to dense tan Fine SAND with abundant shell (SP) (A-3)	3/8/9						
				2/3/6						
10				6/12/24						
			Dense light gray Fine SAND with trace of shell (SP) (A-3)	6/15/20						
15				14/20/22						
			Very loose green silty Fine SAND with shell (SM) (A-2-4)	0/1/2						
20										
25										
30										
35										

Remarks Location: Sta. 301+12; Offset 21.5' Right of Baseline Survey
 _____ Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-23**

Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL

Location See "Remarks" Foreman _____ C.O. _____

Completion Depth 21.5' Date 6/8/07 Depth To Water 8.0' Time _____ Date 6/8/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
			SURF. EL: +9.4+/-'						
0			Brown Fine SAND with trace of shell fragments (SP) (A-3)						
			Brown Fine SAND with shell (SP) (A-3)						
5			Light brown Fine SAND with abundant shell (SP) (A-3)						
			Abundant Shell with trace of tan Fine SAND	1/1/5					
10			Loose to medium dense tan Fine SAND with shell (SP) (A-3)	1/3/5					
			Medium dense light gray Fine SAND with trace of shell (SP) (A-3)	4/13/14					
15			Very dense light gray slightly silty Fine SAND (SP-SM) (A-3)	3/8/13					
			Very loose gray silty, slightly clayey Fine SAND with shell (SM) (A-2-4)	5/22/29					
20				0/1/1					
25									
30									
35									

Remarks Location: Sta. 296+10; Offset 24' Right of Baseline Survey

Casing Length _____

DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO.** B-24
Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
Location See "Remarks" Foreman _____ C.O. _____
Completion **Depth To** **Time** **Date**
 Depth 21.5' Date 6/8/07 Water 6.8' Date 6/8/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
			SURF. EL: +9.8+/-'							
0			Brown and gray Fine SAND with trace of shell fragments (SP) (A-3)							
			Light brown Fine SAND with abundant shell (SP) (A-3)							
5			Loose to medium dense tan to light gray Fine SAND with abundant shell (SP) (A-3)	2/4/8						
				3/3/3						
				2/6/11						
10			Medium dense light gray Fine SAND with trace of shell (SP) (A-3)	2/6/12						
			Medium dense light gray Fine SAND with shell (SP) (A-3)	2/3/10						
15			Very loose greenish-gray silty Fine SAND with shell (SM) (A-2-4)	4/1/1						
			Medium dense light brown slightly silty Fine SAND with shell (SP-SM) (A-3)	0/3/9						
20										
25										
30										
35										

Remarks Location: Sta. 291+10; Offset 24' Right of Baseline Survey Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO.** B-25
Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
Location See "Remarks" **Foreman** _____ **A.P.** _____
Completion **Depth To** **Time** **Date**
Depth 21.5' **Date** 6/11/07 **Water** 7.8' _____ _____ 6/12/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
			SURF. EL: +8.5+/-'							
0	▽		Brown Fine SAND with trace of roots and trace of shell fragments (SP) (A-3)							
	▽		Light brown Fine SAND with shell (SP) (A-3)							
5	▽		Medium dense to loose tan Fine SAND with abundant shell (SP) (A-3)	9/8/3						
	▽			3/7/15						
10	▽		Medium dense light gray Fine SAND with trace of shell (SP) (A-3)	2/2/3						
	▽		Loose to medium dense tan Fine SAND with shell (SP) (A-3)	3/6/9						
15	▽			5/6/4						
	▽			8/8/3						
20	▽		Very loose greenish-gray silty Fine SAND with trace of shell (SM) (A-2-4)	1/0/1						
25										
30										
35										

Remarks Location: Sta. 286+10.5; Offset 30' Right of Baseline Survey
Casing Length _____

DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 BORING NO. B-26
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ A.P. _____
 Completion Depth 21.5' Date 6/11/07 Depth To Water 7.2' Time _____ Date 6/12/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
			SURF. EL: +8.3+/-'							
0	▽		Dark brown Fine SAND with trace of shell (SP) (A-3)							
	▽		Gray Fine SAND with shell (SP) (A-3)							
5	▽		Very loose brown Fine SAND with shell (SP) (A-3)	2/2/2						
10	▽		Abundant Shell and Limestone Fragments	1/0/0						
	▽		Abundant Shell	1/1/1						
	▽		Dense to medium dense light gray Fine SAND with trace of shell (SP) (A-3)	1/2/2						
15	▽			6/15/16						
20	▽			3/9/10						
25										
30										
35										

Remarks Location: Sta. 281+11; Offset 24' Right of Baseline Survey
Casing Length _____

DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO.** B-27
Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
Location See "Remarks" **Foreman** _____ **A.P.** _____
Completion _____ **Depth To** _____
Depth 21.5' **Date** 6/11/07 **Water** 6.4' **Time** _____ **Date** 6/12/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
			SURF. EL: +8.3+/-'							
0	▽		Dark brown Fine SAND with trace of shell fragments (SP) (A-3)							
	▽		Gray Fine SAND with shell (SP) (A-3)							
5	▽		Light brown Fine SAND with abundant shell (SP) (A-3)							
	▽		Dark brown Fine SAND with shell (SP) (A-3)							
	▽		Light brown Fine SAND with abundant shell (SP) (A-3)	2/3/2	●					
10	▽		Loose to medium dense tan Fine SAND with abundant shell (SP) (A-3)	3/2/5	●					
	▽			6/4/3	●					
	▽			7/7/6	●					
15	▽		Medium dense light gray Fine SAND with trace of shell (SP) (A-3)	5/8/14	●					
	▽		Abundant Shell							
20	▽			2/1/2	●					
25										
30										
35										

Remarks Location: Sta. 276+25; Offset 27' Right of Baseline Survey
Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-28**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ A.P. _____
 Completion Date 6/11/07 Depth To Water 4.8' Time _____ Date 6/12/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
			SURF. EL: +5.7+/-'						
0			Brown Fine SAND with asphalt fragments (SP) (A-3)						
			Grayish-brown Fine SAND with shell (SP) (A-3)						
			Tan Fine SAND with abundant shell (SP) (A-3)						
5			Dark brown Fine SAND with abundant shell (SP) (A-3)						
			Tan Fine SAND with abundant shell (SP) (A-3)	2/5/8					
			Medium dense tan Fine SAND with shell (SP) (A-3)						
10			Medium dense light brown Fine SAND with trace of shell (SP) (A-3)	5/9/12					
				8/11/14					
				7/12/16					
15			Dense light gray Fine SAND (SP) (A-3)						
				11/15/22					
20			Very loose greenish-gray silty Fine SAND with trace of shell (SM) (A-2-4)						
				1/0/1					
25									
30									
35									

Remarks Location: Sta. 271+57; Offset 28' Right of Baseline Survey Casing Length _____

DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO.** B-29
Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
Location See "Remarks" **Foreman** _____ **C.O.** _____
Completion **Depth To** **Time** **Date**
Depth 21.5' **Date** 6/11/07 **Water** 2.9' _____ _____ 6/12/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
			SURF. EL: +4.6+/-'							
0	(SP)		Dark grayish-brown Fine SAND with gravel (SP) (A-3)							
	(SP)		Light brown Fine SAND with trace of shell (SP) (A-3)							
	(SP)		Light brown Fine SAND with shell (SP) (A-3)							
5										
			Very loose gray and brown slightly silty Fine SAND with trace of shell (SP-SM) (A-3)	1/0/1						
			Medium dense tan Fine SAND with abundant shell fragments (SP) (A-3)	1/4/8						
10			Medium dense tan Fine SAND with trace of shell (SP) (A-3)	6/11/8						
			Very loose tan Fine SAND with shell (SP) (A-3)	1/2/2						
15			Loose tan Fine SAND with abundant shell (SP) (A-3)	1/1/4						
			Medium dense light gray Fine SAND with trace of shell (SP) (A-3)	3/7/5						
20										
25										
30										
35										

Remarks Location: Sta. 266+34; Offset 28' Right of Baseline Survey **Casing Length** _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-30**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ C.O. _____
 Completion Depth 21.5' Date 6/11/07 Depth To Water 3.0' Time _____ Date 6/12/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
			SURF. EL: +4.3+/-'						
0			Grayish-brown Fine SAND with roots (SP) (A-3)						
			Light brown Fine SAND with trace of shell (SP) (A-3)						
			Light brown slightly silty Fine SAND with trace of shell (SP-SM) (A-3)						
5			Light brown Fine SAND (SP) (A-3)						
			Light brown Fine SAND with trace of shell (SP) (A-3)	0/0/3					
			Very loose brown organic, silty Fine SAND (SM/Pt) (A-8)						
			Medium dense brown Fine SAND (SP) (A-3)	5/7/7					
10			Medium dense gray Fine SAND with shell (SP) (A-3)						
			Medium dense to loose tan Fine SAND with abundant shell (SP) (A-3)	2/6/6					
				2/6/6					
15									
				3/2/3					
20									
				2/4/4					
25									
30									
35									

Remarks Location: Sta. 261+27; Offset 23' Right of Baseline Survey

Casing Length 6.0'

DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO.** B-31
Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
Location See "Remarks" **Foreman** _____ **C.O.** _____
Completion **Depth To** **Time** **Date**
Depth 21.5' **Date** 6/11/07 **Water** 3.3' _____ _____ 6/12/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
			SURF. EL: +4.8+/-'						
0	▽		Grayish-brown Fine SAND with trace of shell (SP) (A-3)						
			Grayish-brown Fine SAND (SP) (A-3)						
	▽		Tan Fine SAND with trace of shell (SP) (A-3)						
	▽		Light tan Fine SAND with trace of shell (SP) (A-3)						
5	▽		Loose tan Fine SAND with shell (SP) (A-3)						
				4/6/2					
	▽		Loose gray slightly silty Fine SAND with shell (SP-SM) (A-3)						
10	▽		Medium dense light gray to gray Fine SAND (SP) (A-3)						
				2/2/4					
				4/6/9					
				4/6/15					
15									
				7/10/14					
20	▽		- trace of shell at depth 20.0'						
				7/7/10					
25									
30									
35									

Remarks Location: Sta. 256+05; Offset 20' Right of Baseline Survey **Casing Length** 6.0'

Project No. DES 075961 **BORING NO.** B-32
Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
Location See "Remarks" **Foreman** _____ **C.O.** _____
Completion **Depth To** **Time** **Date**
Depth 21.5' **Date** 6/11/07 **Water** 2.9' _____ _____ 6/12/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
			SURF. EL: +4.0+/-'							
0	(Symbol: Sand with gravel)		Grayish-brown Fine SAND with gravel and trace of roots (SP) (A-3)							
	(Symbol: Sand with shell)		Light brown Fine SAND with trace of shell (SP) (A-3)							
	(Symbol: Sand with shell)		Dark gray Fine SAND with trace of shell (SP) (A-3)							
5	(Symbol: Sand with shell)		Tan Fine SAND with shell (SP) (A-3)							
	(Symbol: Sand with shell)		Light gray Fine SAND with trace of shell (SP) (A-3)	0/0/2						
	(Symbol: Silty sand)		Dark brown silty Fine SAND and brown Fine SAND with trace of shell (SM/SP) (A-2-4/A-3)	5/6/4						
10	(Symbol: Sand with roots)		Very loose light brown Fine SAND with roots (SP) (A-3)	1/1/1						
	(Symbol: Sand with roots)		Loose light brown Fine SAND with trace of roots (SP) (A-3)							
	(Symbol: Silty sand)		Very loose greenish-gray slightly silty Fine SAND with trace of shell (SP-SM) (A-3)	0/1/0						
15	(Symbol: Sand with shell)		Very loose greenish-gray Fine SAND with trace of shell (SP) (A-3)	0/1/1						
	(Symbol: Silty sand)		Very loose light gray slightly silty Fine SAND with trace of shell (SP-SM)							
20	(Symbol: Silty sand)			1/1/3						
25										
30										
35										

Remarks Location: Sta. 250+61; Offset 29' Right of Baseline Survey **Casing Length** 6.0'



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO.** B-33
Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
Location See "Remarks" **Foreman** _____ **C.O.** _____
Completion
Depth 31.5' **Date** 6/12/07 **Depth To Water** 2.8' **Time** _____ **Date** 6/12/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
SURF. EL: +4.7+/-'									
0			Dark grayish-brown Fine SAND with gravel (SP) (A-3)						
			Light brown Fine SAND with shell fragments (SP) (A-3)						
			Dark grayish-brown slightly silty Fine SAND with shell (SP-SM) (A-3)						
5			Dark grayish-brown Fine SAND with shell (SP) (A-3)						
			Tan Fine SAND with shell (SP) (A-3)	0/0/0					
			Very loose dark brown organic, silty Fine SAND (SM/Pt) (A-8)	3/3/2					
10			Loose to very loose light gray to gray Fine SAND (SP) (A-3) - trace of shell at depth 10.0'	0/0/0					
				0/0/0					
15			Very loose gray to greenish-gray silty Fine SAND with trace of shell (SM) (A-2-4)	0/0/0					
20				1/0/0					
25			Very loose brown and dark brown silty Fine SAND (SM) (A-2-4)	0/0/0					
30			Very loose gray slightly silty Fine SAND with shell (SP-SM) (A-3)	0/1/3					
35									

Remarks Location: Sta. 245+63.5; Offset 28.5' Right of Baseline Survey
Casing Length 6.0'

Project No. DES 075961 **BORING NO.** B-34
Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
Location See "Remarks" **Foreman** _____ **C.O.** _____
Completion **Depth To** **Time** **Date**
Depth 31.5' **Date** 6/12/07 **Water** 2.7' **Date** 6/12/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
			SURF. EL: +4.5+/-'							
0	(Symbol: Sand with gravel)		Gray Fine SAND with gravel and trace of roots (SP) (A-3)							
	(Symbol: Sand with asphalt)		Dark grayish-brown Fine SAND with trace of light brown Fine SAND and asphalt fragments (SP) (A-3)							
5	(Symbol: Sand with shell)		Tan Fine SAND with trace of shell (SP) (A-3)							
	(Symbol: Silty clay)		Greenish-gray silty CLAY (CH) (A-7-6)							
	(Symbol: Sand with shell)		Tan Fine SAND with trace of shell (SP) (A-3)							
	(Symbol: Sand with shell)		Very loose gray Fine SAND with trace of shell (SP) (A-3)	2/1/3						
10	(Symbol: Silty sand)		Medium dense gray slightly silty Fine SAND with trace of shell (SP-SM) (A-3)	4/6/6						
	(Symbol: Silty sand)		Very loose grayish-brown to greenish-gray silty Fine SAND (SM) (A-2-4)	0/1/0						
	(Symbol: Silty sand)			1/0/1						
15	(Symbol: Silty sand)		- trace of shell below depth 15.0'	1/0/0						
	(Symbol: Silty sand)			0/0/1						
25	(Symbol: Silty sand)		Very loose dark gray silty, clayey Fine SAND (SM-SC) (A-2-6)	0/0/0						
	(Symbol: Clay)		Hard dark green silty CLAY (CL)	11/16/17						
35										

Remarks Location: Sta. 240+58.5; Offset 30' Right of Baseline Survey **Casing Length** 6.0'



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO. B-35**
 Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 Location See "Remarks" Foreman _____ C.O. _____
 Completion Depth 26.5' Date 6/12/07 Depth To Water 2.2' Time _____ Date 6/12/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
SURF. EL: +3.4+/-'									
0			Dark brown slightly silty Fine SAND with finely divided organic material (SP-SM) (A-3)						
			Brown Fine SAND with shell (SP) (A-3)						
			Dark gray Fine SAND with shell (SP) (A-3)						
			Light brown Fine SAND with abundant shell (SP) (A-3)						
5			Greenish-gray silty CLAY with trace of shell (CH) (A-7-6)						
			Brown Fine SAND with trace of shell (SP) (A-3)	3/1/2					
			Very loose grayish-brown silty Fine SAND with trace of shell (SM) (A-2-4)	1/0/1					
10			Very loose grayish-brown slightly silty Fine SAND with trace of shell (SP-SM) (A-3)	1/1/1					
			Very loose light gray Fine SAND (SP) (A-3)	3/2/2					
15			Very loose greenish-gray silty Fine SAND (SM) (A-2-4)	1/0/1					
			Very loose greenish-gray silty Fine SAND with shell (SM) (A-2-4)	1/0/0					
20			Medium dense light gray slightly silty Fine SAND with shell (SP-SM) (A-3)	9/11/16					
25									
30									
35									

Remarks Location: Sta. 235+56; Offset 30' Right of Baseline Survey Casing Length 6.0'

DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 075961 **BORING NO.** B-36
Project Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
Location See "Remarks" Foreman _____ C.O. _____
Completion **Depth To** **Time** **Date**
 Depth 31.5' Date 6/12/07 Water 3.5' _____ Date 6/12/07

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
			SURF. EL: +4.5+/-'							
0			Dark gray Fine SAND with trace of roots and trace of finely divided organic material (SP) (A-3)							
			Tan Fine SAND with shell and gravel (SP) (A-3)							
			Tan Fine SAND with trace of shell (SP) (A-3)							
5			Grayish-brown Fine SAND with shell (SP) (A-3)							
			Greenish-gray silty CLAY with seam of greenish-gray silty Fine SAND (CH/SM) (A-7-6/A-2-4)	2/8/13						
			Light brown Fine SAND with trace of shell (SP) (A-3)	2/2/2						
10			Medium dense light gray Fine SAND with trace of shell (SP) (A-3)	0/1/2						
			Very loose gray silty Fine SAND with trace of shell (SM) (A-2-4)	2/3/6						
			Loose gray and light gray slightly silty Fine SAND (SP-SM) (A-3)							
15			Very loose greenish-gray silty Fine SAND with trace of shell (SM) (A-2-4)	0/0/0						
20				0/0/1						
25			Very loose greenish-gray silty Fine SAND with abundant shell (SM) (A-2-4)	0/1/0						
30			Firm cream colored calcareous CLAY and cream colored LIMESTONE (CL)	2/3/2						
35										

Remarks Location: Sta. 230+56.5; Offset 28' Right of Baseline Survey
Casing Length 6.0'

SUMMARY OF LABORATORY TEST RESULTS

SUMMARY OF LABORATORY TEST RESULTS

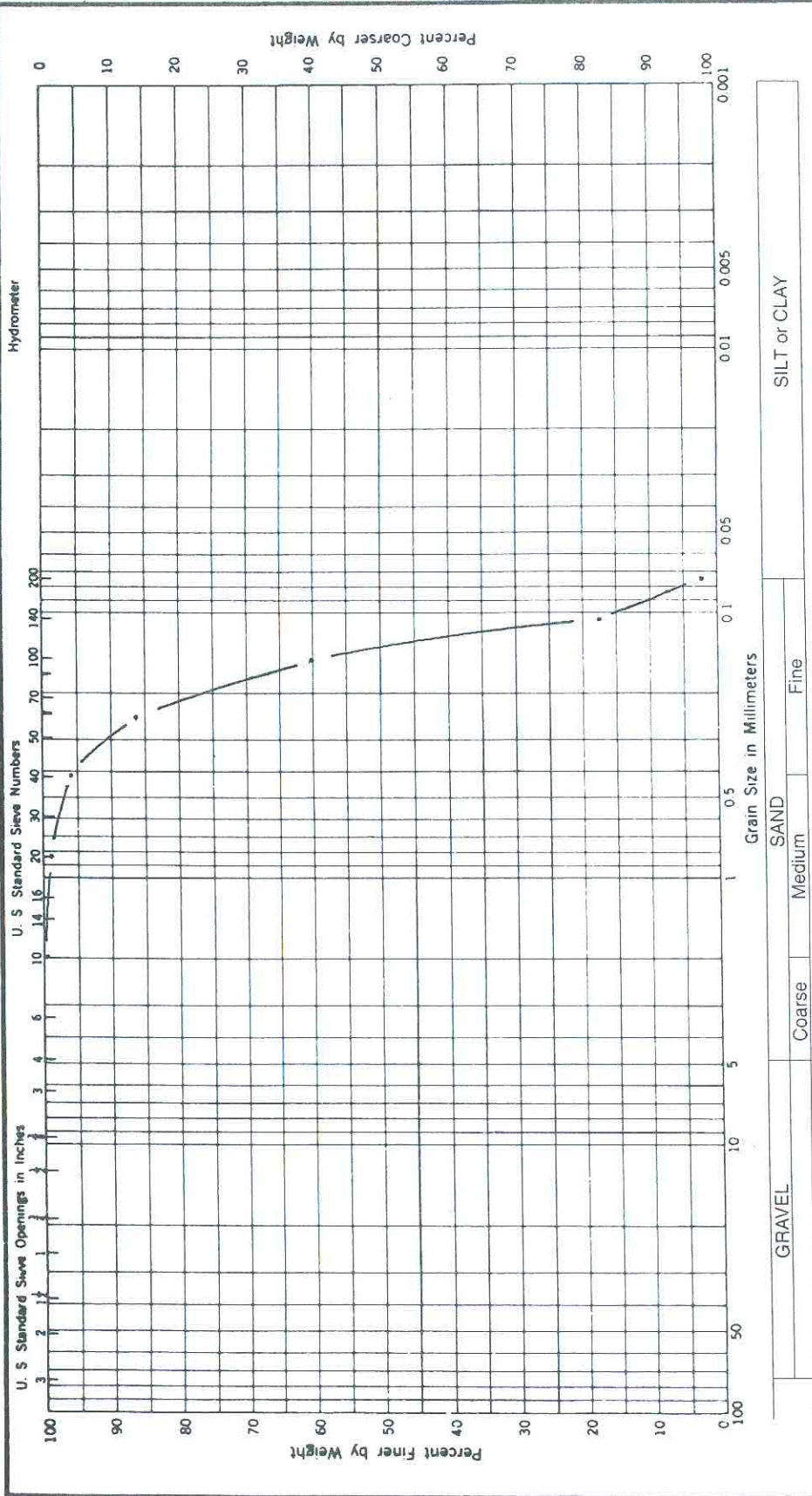
BORING NO.	DEPTH (ft)	DESCRIPTION	W %	Y _d (pcf)	G _s	ATTERBERG LIMITS			P.P. (tsf)	U.C.	CON	G.S.	ORG (%)	pH	Cl. (ppm)	SO ₄ (ppm)	RES. (Ohm-cm)
						LL	PL	SL									
B-1	2.7-5.6	Dark brown Fine SAND with shell fragments										*					
B-3	8.0-9.5	Light brown Fine SAND with trace of shell										*					
B-3	20.0-21.5	Dark grayish-brown silty Fine SAND										*					
B-5	6.0-7.5	Light gray Fine SAND with trace of shell										*					
B-6	20.0-21.5	Gray Fine SAND										*					
B-8	12.0-13.5	Light gray Fine SAND										*					
B-11	8.0-9.5	Brown Fine SAND										*					
B-19	4.0-5.5	Light brown Fine SAND with shell										*					
B-20	20.0-21.5	Gray slightly silty Fine SAND with shell										*					
B-21	20.0-21.5	Green slightly silty Fine SAND										*					
B-23	20.0-21.5	Grayish-green silty, slightly clayey Fine SAND	28.9			32	23					**	18.6				
B-25	10.0-11.5	Light gray Fine SAND with trace of shell										*					
B-30	6.0-7.5	Brown organic, silty Fine SAND											6.3				
B-32	12.0-13.5	Greenish-gray Fine SAND with trace of shell										*					
B-33	6.0-7.5	Dark brown organic, silty Fine SAND											6.9				
B-33	10.0-11.5	Gray Fine SAND with trace of shell										*					

W %	=	Water Content	=	Con.	
Y _d (pcf)	=	Dry Density	=	G.S. (+1)	
G _s	=	Specific Gravity	=	ORG. (%)	
LL	=	Liquid Limit	=	Cl. (ppm)	
PL	=	Plastic Limit	=	SO ₄ (ppm)	
SL	=	Shrinkage Limit	=	RES. (ohm-cm)	
P.P. (tsf)	=	Pocket Penetrometer	=	*	
U.C.	=	Unconfined Compression	=	**	

CLIENT: Engineering Visions, Inc./TGW Engineering, Inc.
PROJECT: Proposed AC Pipeline Replacement, Gulf of Mexico Drive, Longboat Key, Florida
FILE: DES 075961

GRAINSIZE ANALYSIS

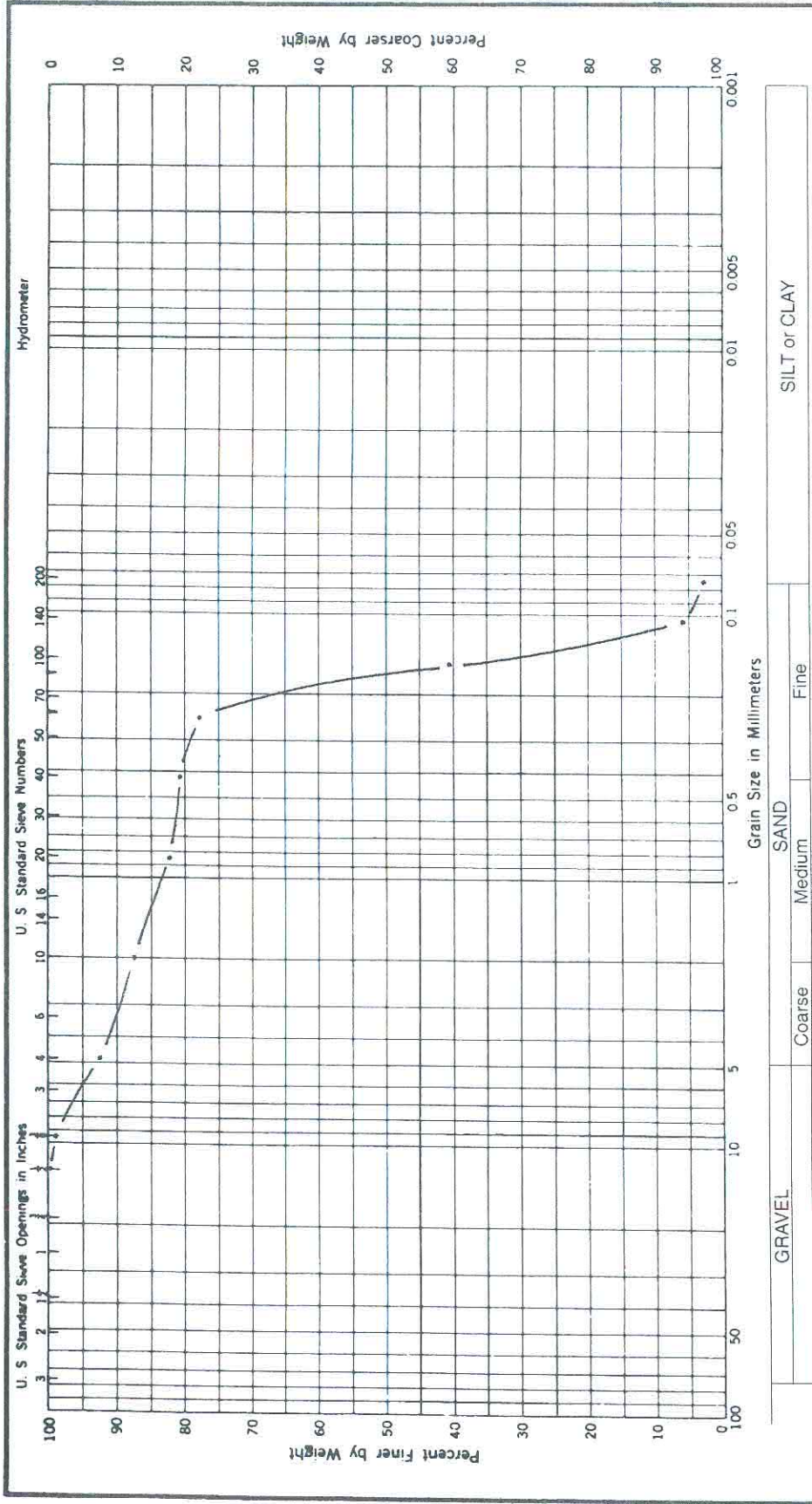
DRIGGERS ENGINEERING SERVICES, INC.



Number	Depth	Natural Moisture	L L	P L	P I	Classification
B-1	2.7' - 5.6'					Dark brown Fine SAND with shell fragments

CLIENT: Engineering Visions, Inc./
TGW Engineering, Inc.
PROJECT: Proposed AC Pipeline Replacement,
Gulf of Mexico Dr., Longboat Key, FL
FILE: DES 075961

DRIGGERS ENGINEERING SERVICES, INC.

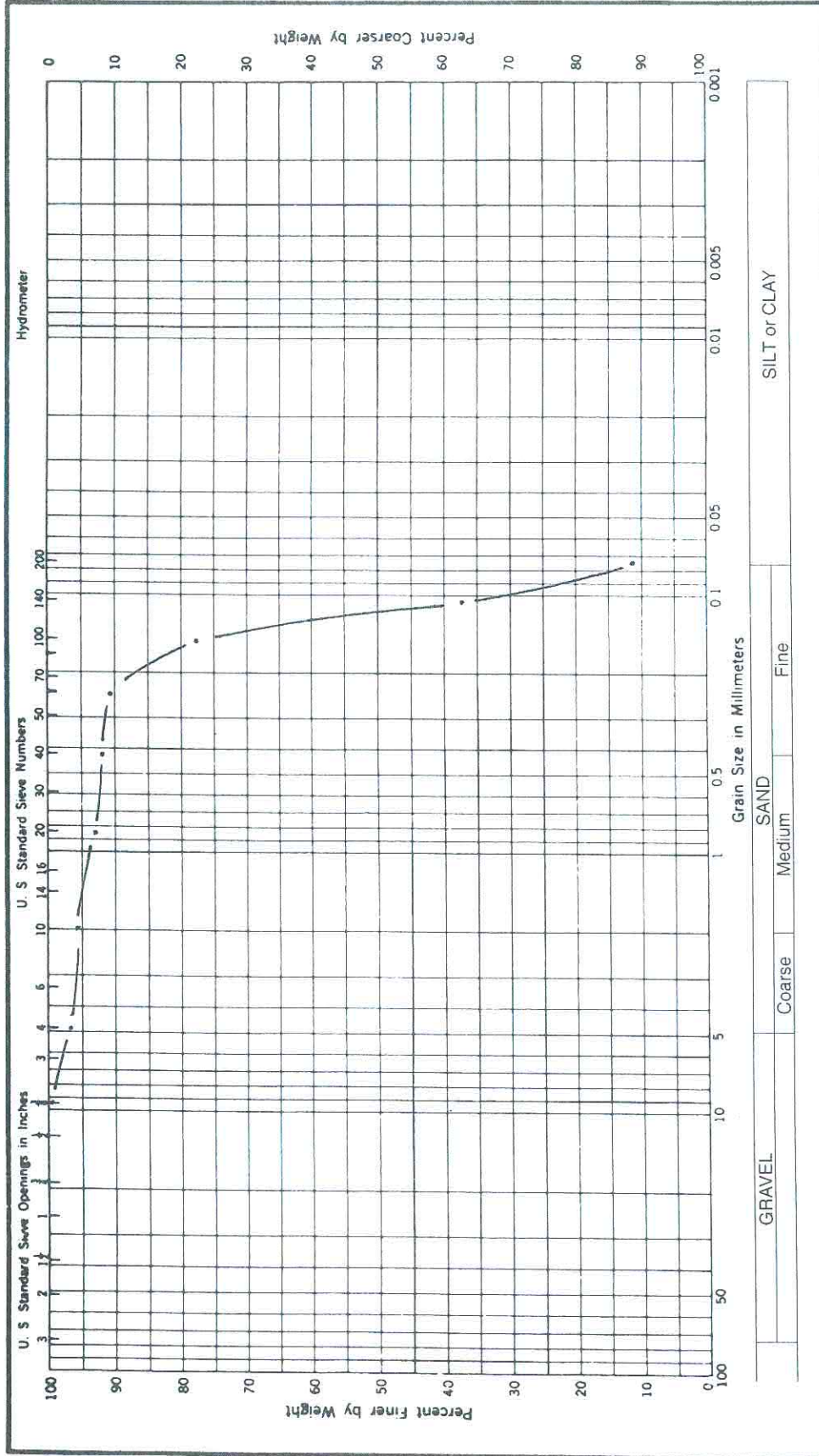


Number	Depth	Natural Moisture	L.L.	P.L.	P.I.	Classification
B-3	8.0' - 9.5'					Light brown Fine SAND with trace of shell

CLIENT: Engineering Visions, Inc./
 TGM Engineering, Inc.
 PROJECT: Proposed AC Pipeline Replacement,
 Gulf of Mexico Dr., Longboat Key, FL
 FILE: DES 075961

GRAVEL: _____ Coarse _____ Medium _____ Fine _____ SILT or CLAY

DRIGGERS ENGINEERING SERVICES, INC.

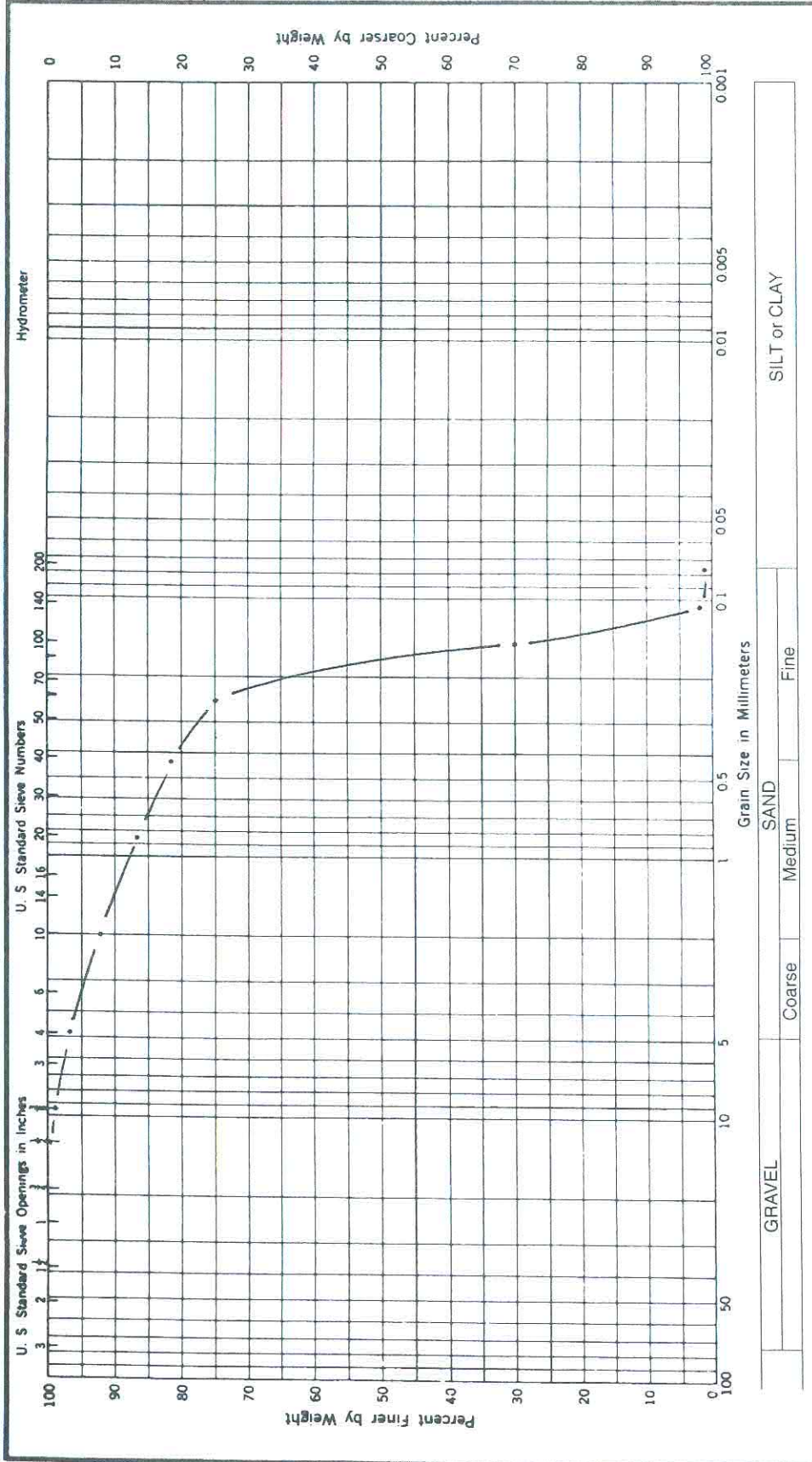


Number	Depth	Natural Moisture	L L	P. L	P. I.	Classification
B-3	20.0' - 21.5'					Dark grayish-brown silty Fine SAND

GRAVEL	SAND	SILT or CLAY
Coarse	Medium	Fine

CLIENT:	Engineering Visions, Inc./ TGW Engineering, Inc.
PROJECT:	Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
FILE:	DES 075961

DRIGGERS ENGINEERING SERVICES, INC.

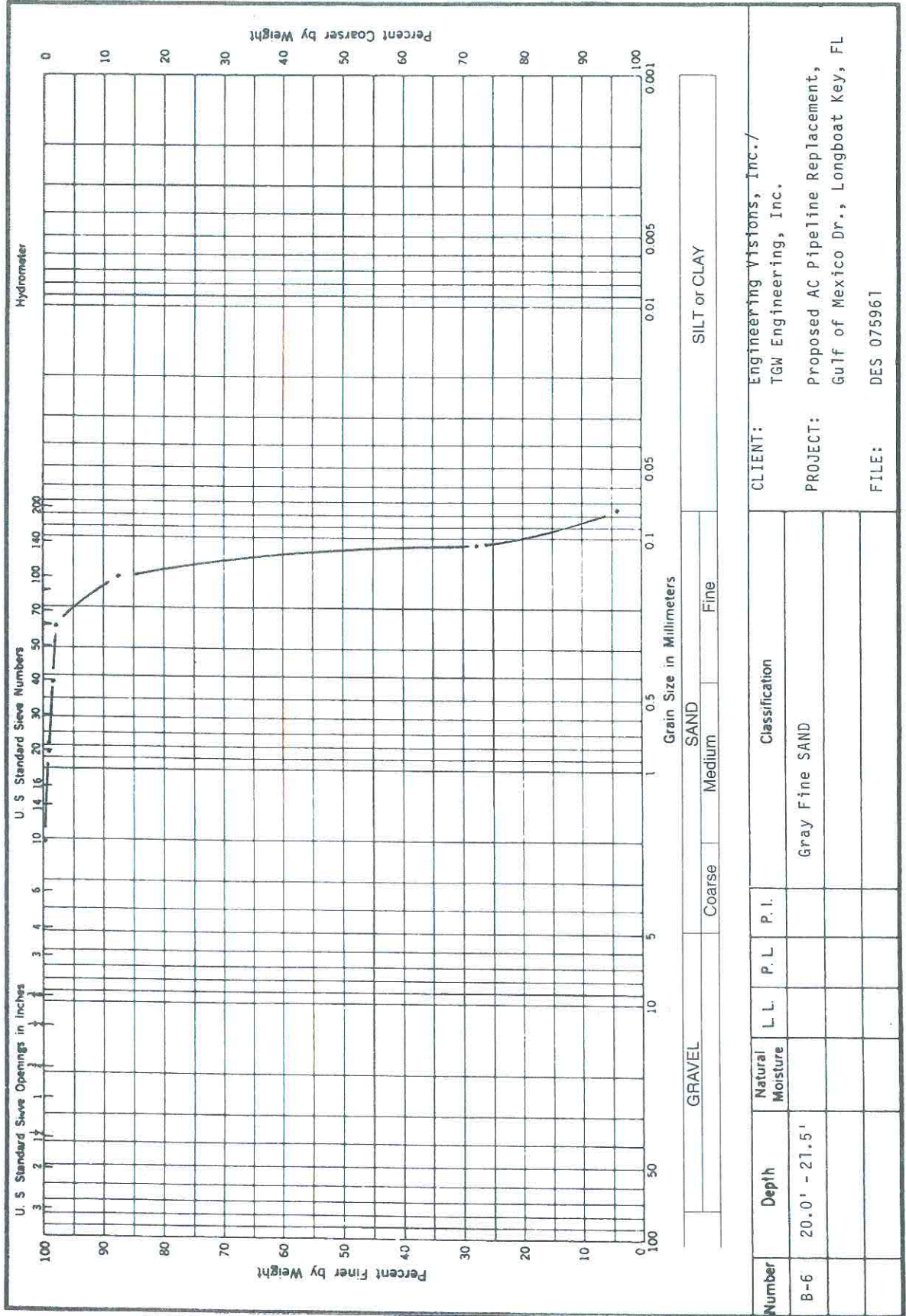


Number	Depth	Natural Moisture	L.L.	P.L.	P.I.	Classification
B-5	6.0' - 7.5'					Light gray Fine SAND with trace of shell

GRAVEL	SAND	SILT or CLAY
Coarse	Medium	
	Fine	

CLIENT:	Engineering Visions, Inc./ TGW Engineering, Inc.
PROJECT:	Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
FILE:	DES 075961

DRIGGERS ENGINEERING SERVICES, INC.



CLIENT: Engineering Visions, Inc. /
TGW Engineering, Inc.

PROJECT: Proposed AC Pipeline Replacement,
Gulf of Mexico Dr., Longboat Key, FL

FILE: DES 075961

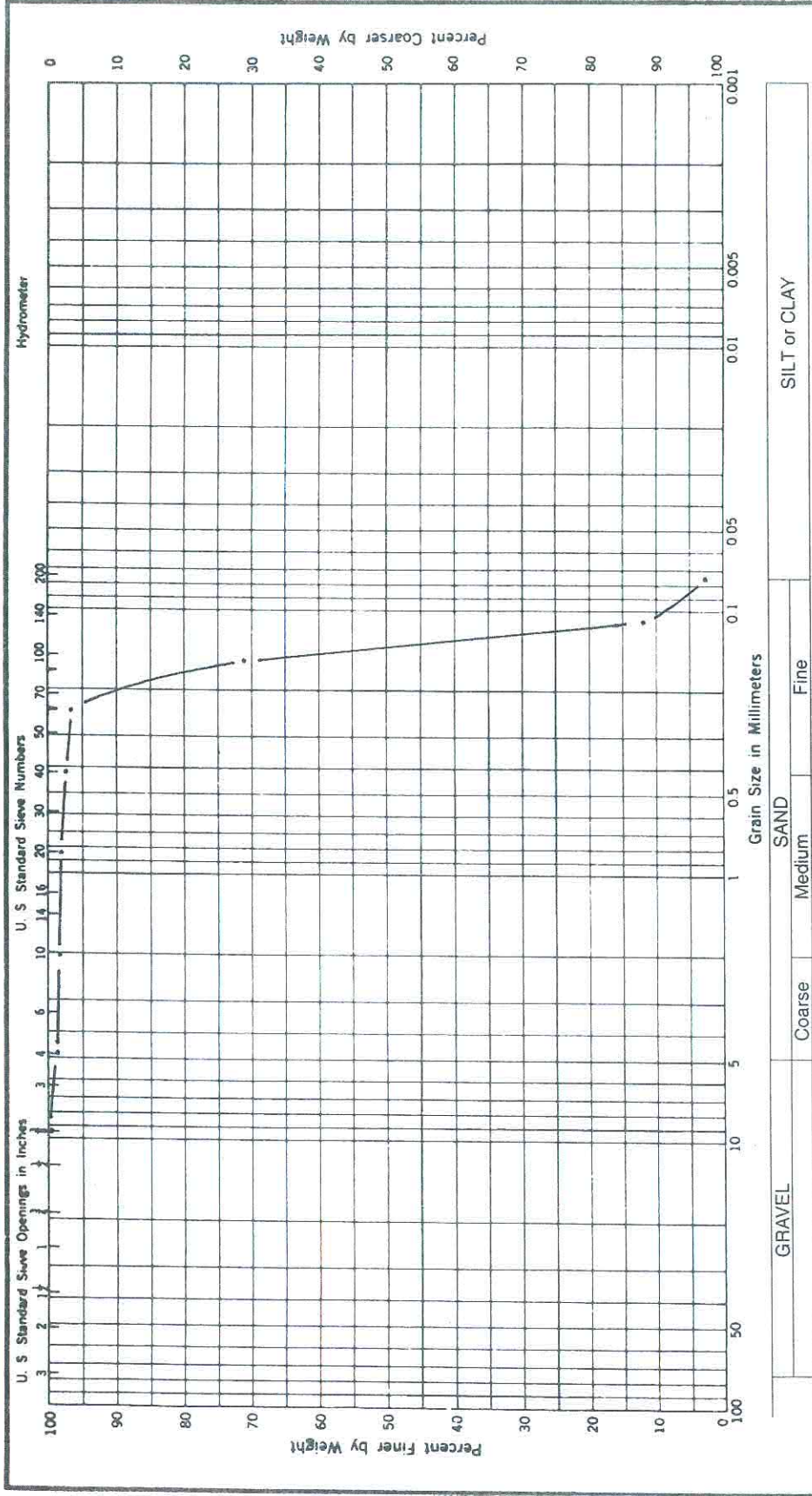
Number	Depth	Natural Moisture	L. L.	P. L.	P. I.	Classification
B-6	20.0' - 21.5'					Gray Fine SAND

GRAVEL: _____

SAND: Coarse Medium Fine

SILT or CLAY: _____

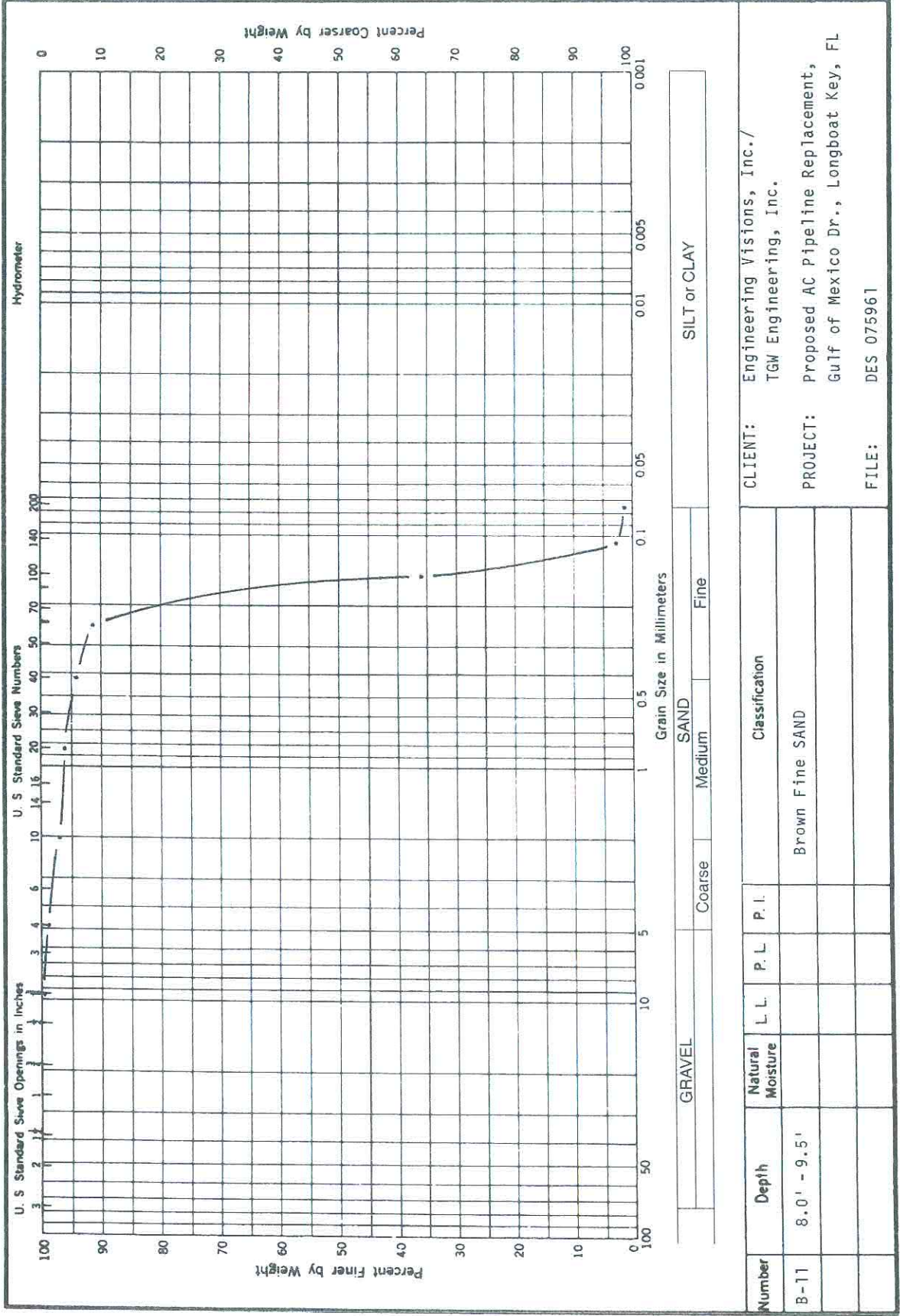
DRIGGERS ENGINEERING SERVICES, INC.



Number	Depth	Natural Moisture	L. L.	P. L.	P. I.	Classification	
						SAND	SILT or CLAY
B-8	12.0' - 13.5'					Light gray Fine SAND	

CLIENT: Engineering Visions, Inc. / T&W Engineering, Inc.
 PROJECT: Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 FILE: DES 075961

DRIGGERS ENGINEERING SERVICES, INC.



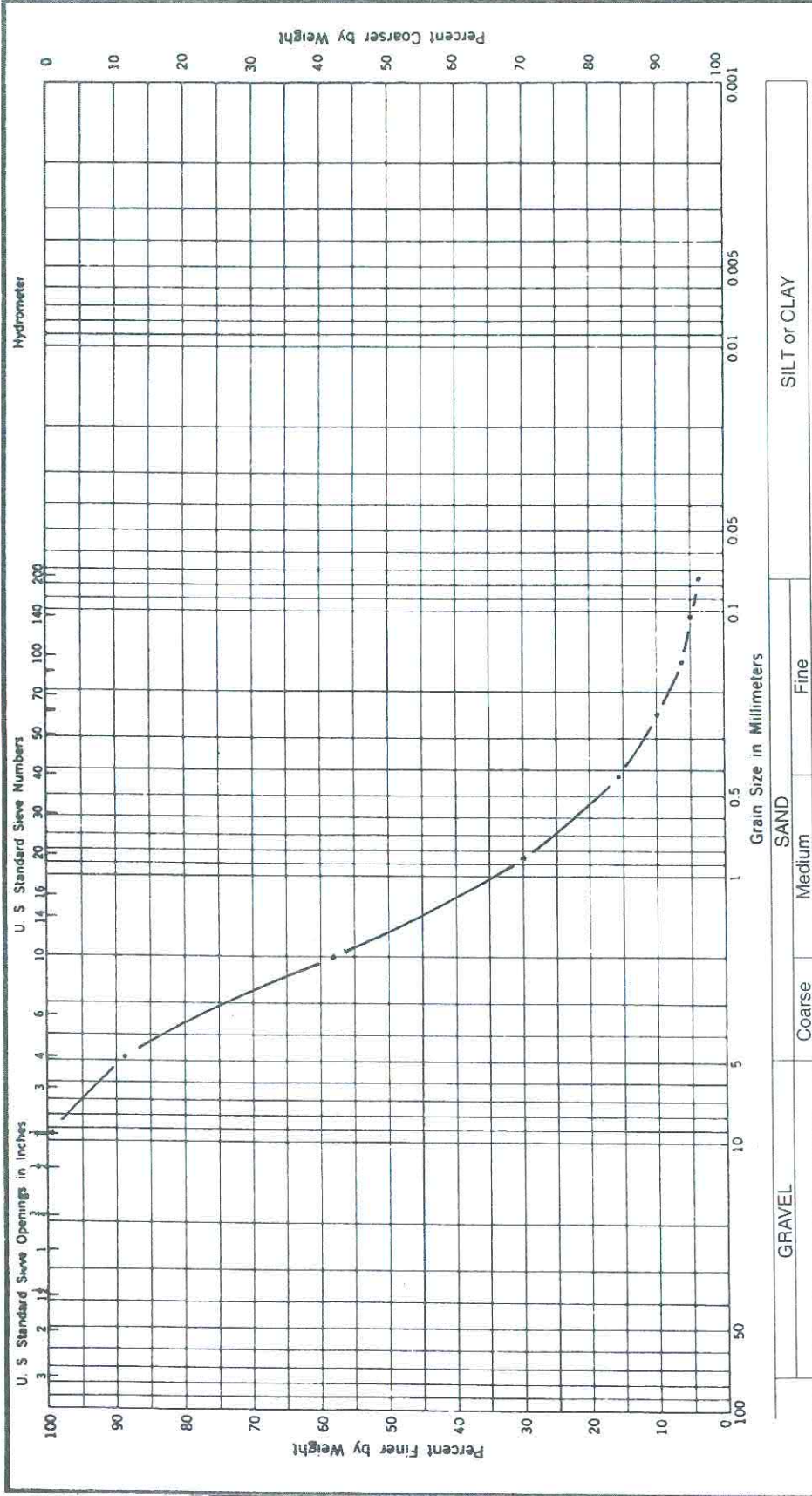
GRAVEL	SAND			SILT or CLAY		
	Coarse	Medium	Fine			
Number	Depth	Natural Moisture	L. L.	P. L.	P. I.	Classification
B-11	8.0' - 9.5'					Brown Fine SAND

CLIENT: Engineering Visions, Inc./
TGW Engineering, Inc.

PROJECT: Proposed AC Pipeline Replacement,
Gulf of Mexico Dr., Longboat Key, FL

FILE: DES 075961

DRIGGERS ENGINEERING SERVICES, INC.

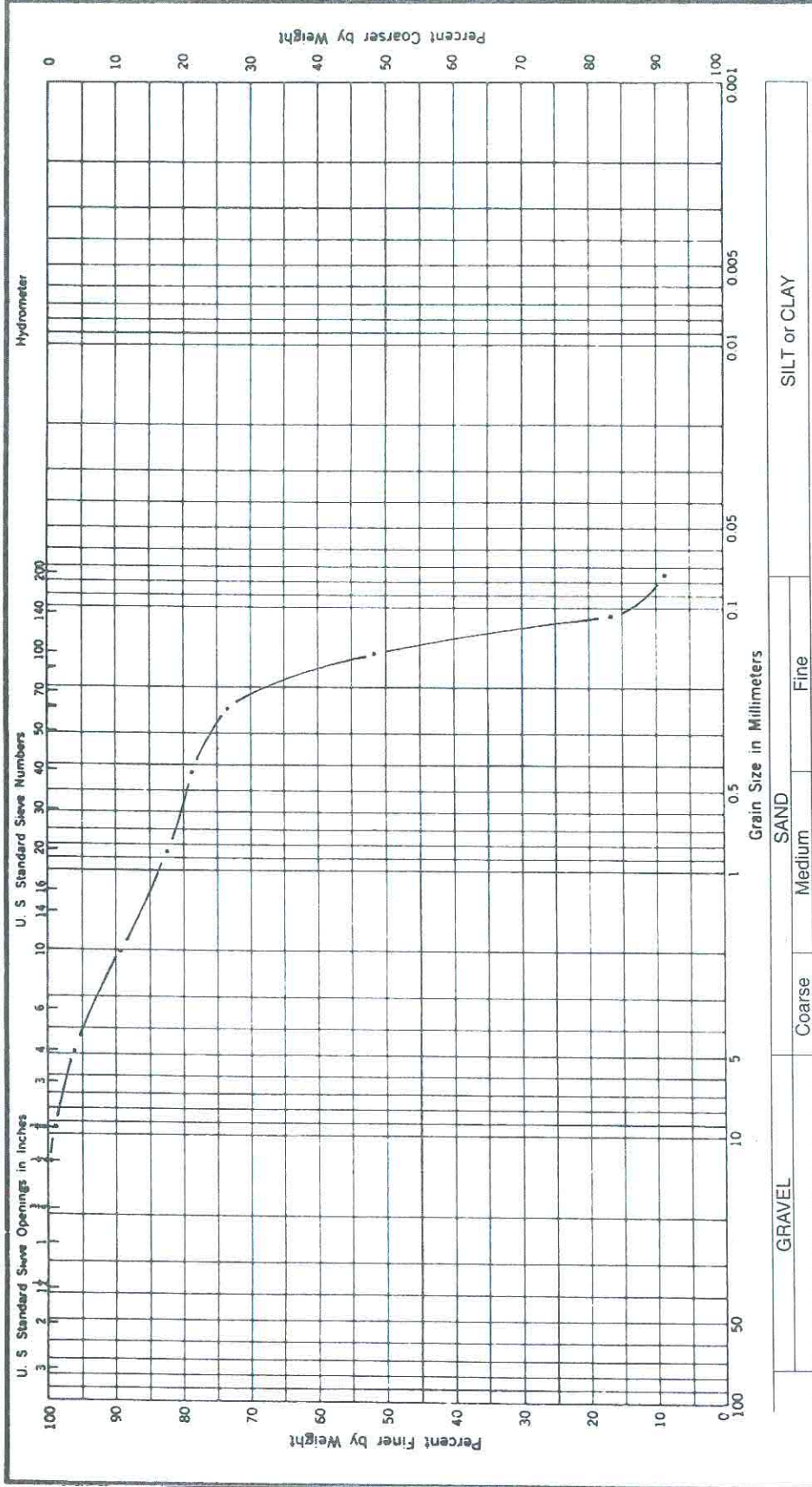


Number	Depth	Natural Moisture	L. L.	P. L.	P. I.	Classification
B-19	4.0' - 5.5'					Light brown Fine SAND with shell

GRAVEL Coarse Medium Fine SAND SILT or CLAY

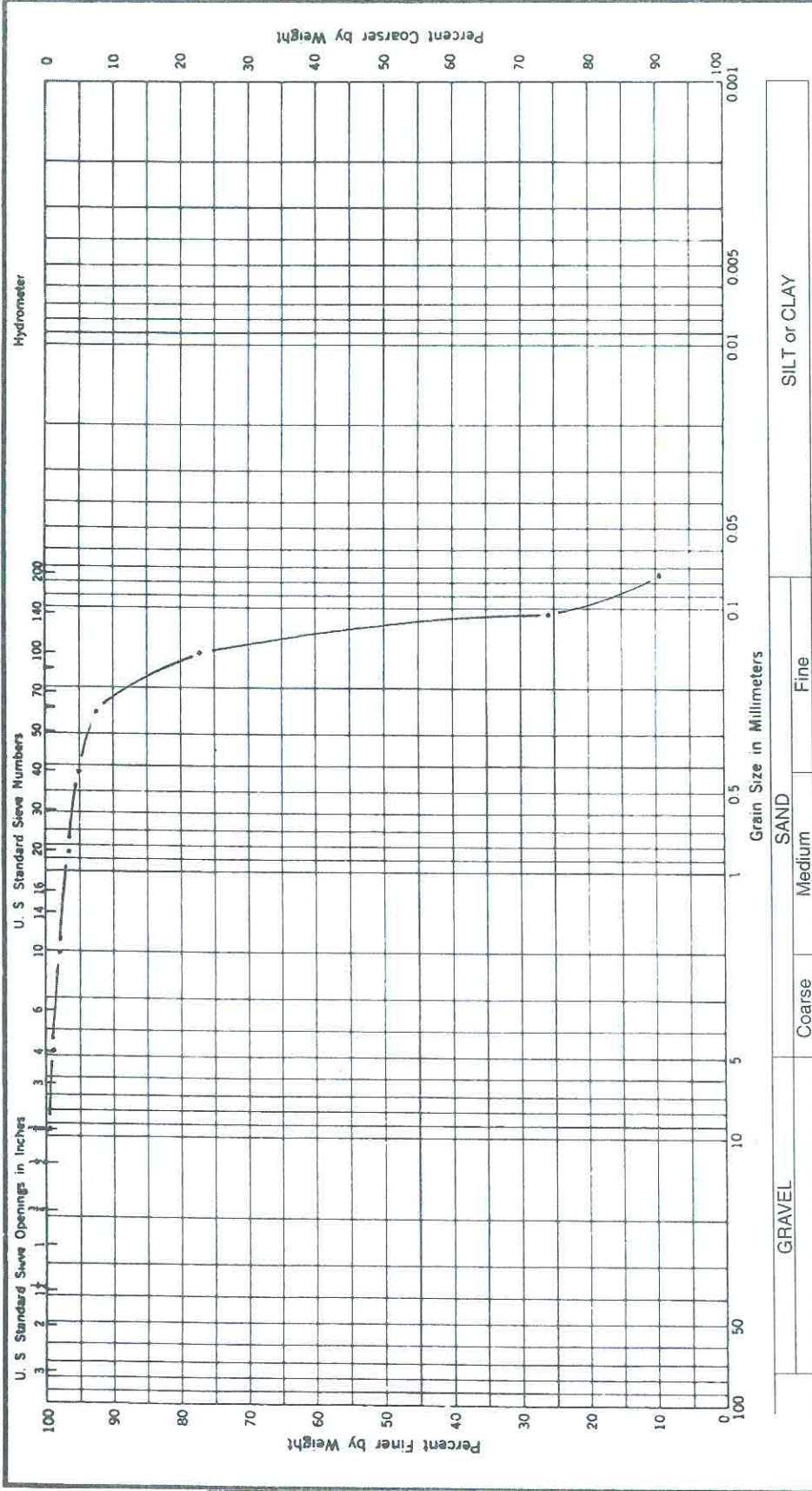
CLIENT: Engineering Visions, Inc./
 T&W Engineering, Inc.
 PROJECT: Proposed AC Pipeline Replacement,
 Gulf of Mexico Dr., Longboat Key, FL
 FILE: DES 075961

DRIGGERS ENGINEERING SERVICES, INC.



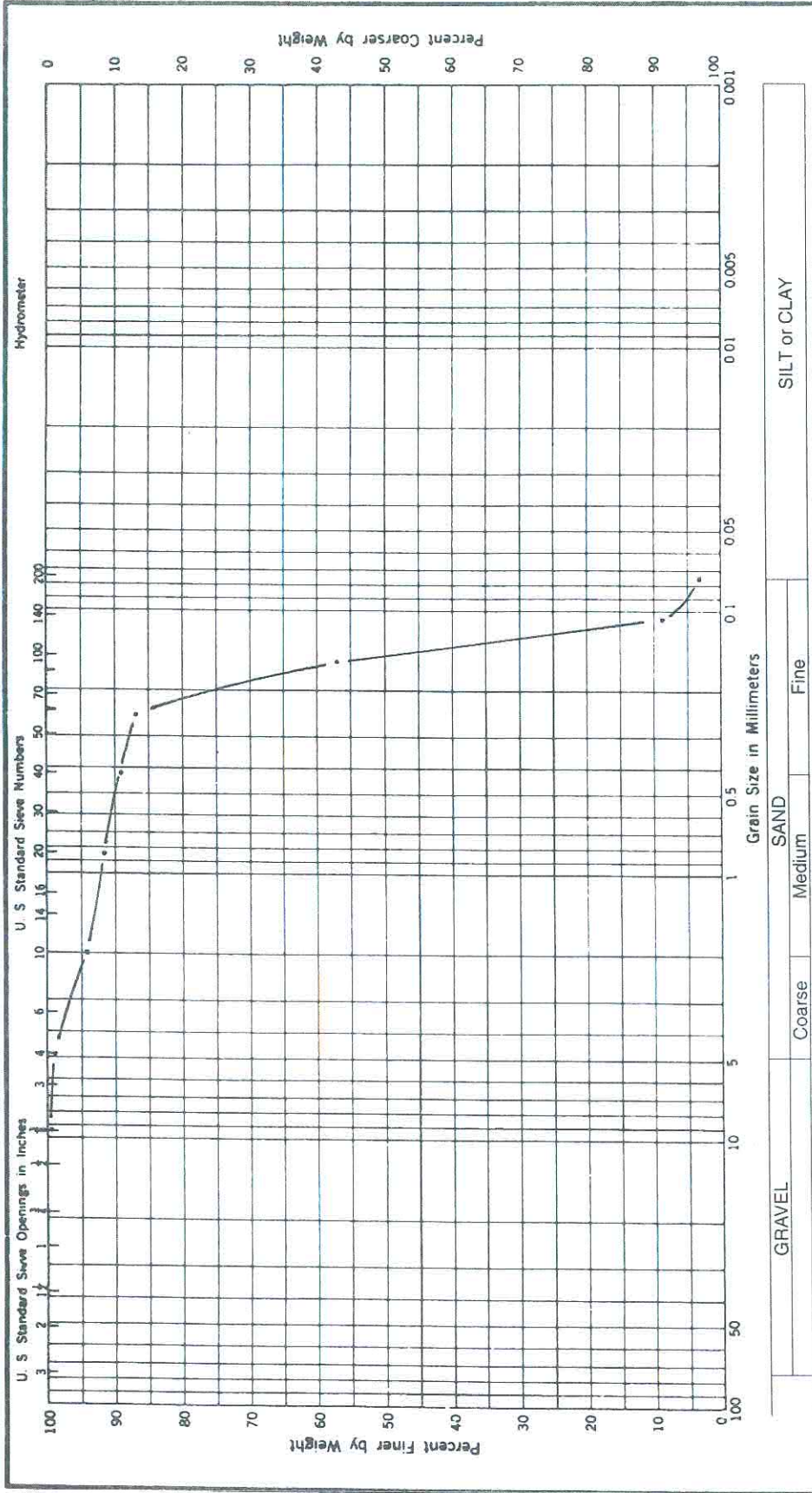
	GRAVEL	SAND	SILT or CLAY	
	Coarse	Medium	Fine	
Number	Depth	Natural Moisture	L. L.	P. I.
B-20	20.0' - 21.5'			
Classification				
Gray slightly silty Fine SAND with shell				
CLIENT: Engineering Visions, Inc./ TGW Engineering, Inc.				
PROJECT: Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL				
FILE: DES 075961				

DRIGGERS ENGINEERING SERVICES, INC.



GRAVEL		SAND		SILT or CLAY	
		Coarse	Medium	Fine	
Number	Depth	Natural Moisture	L. L.	P. L.	P. I.
B-21	20.0' - 21.5'				
CLIENT: Engineering Visions, Inc./ TGW Engineering, Inc.					
PROJECT: Proposed AC Pipeline replacement, Gulf of Mexico Dr., Longboat Key, FL					
FILE: DES 075961					

DRIGGERS ENGINEERING SERVICES, INC.



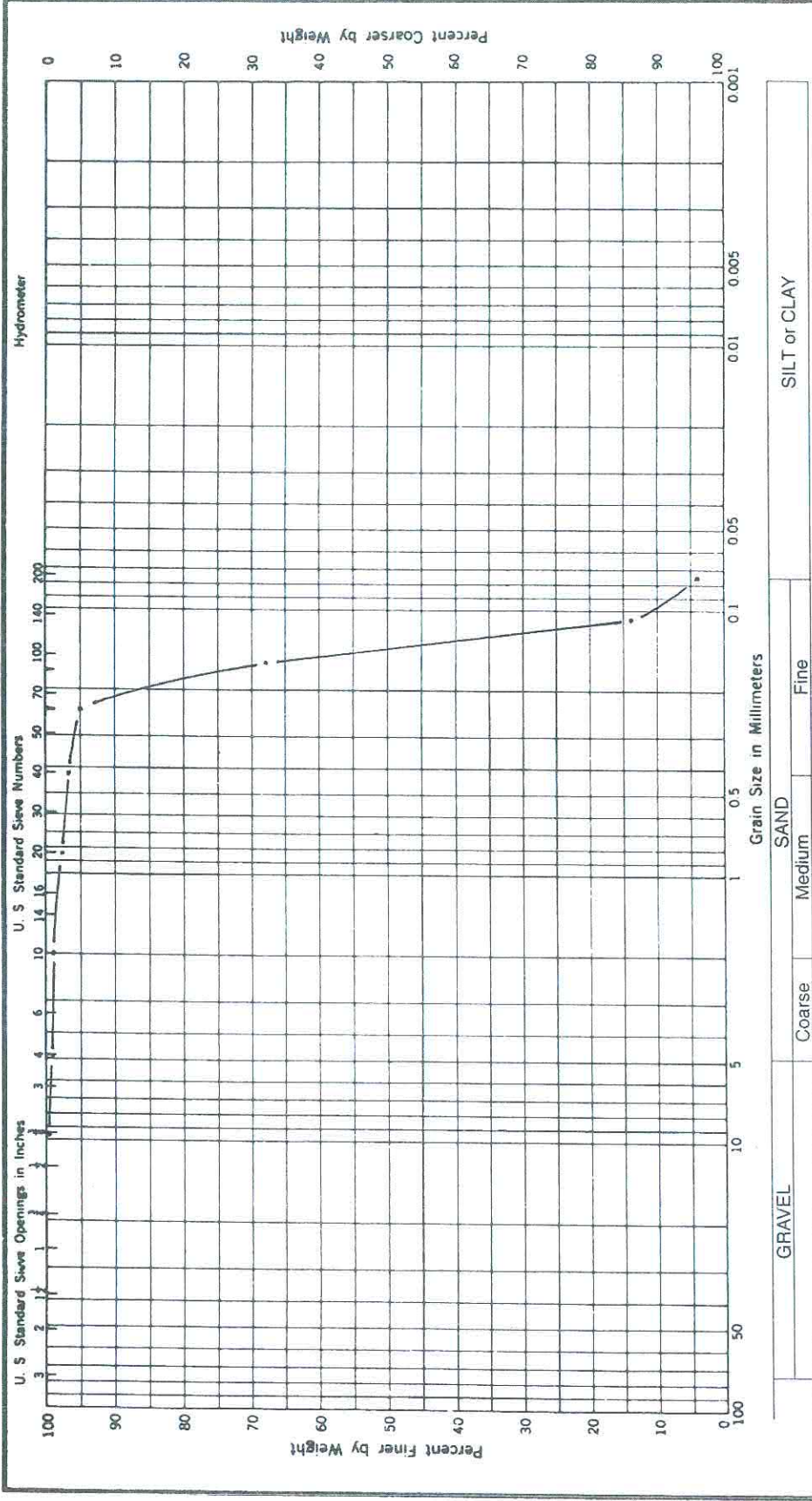
Number	Depth	Natural Moisture	L. L.	P. L.	P. I.	Classification
B-25	10.0' - 11.5'					Light gray Fine SAND with trace of shell

GRAVEL SAND SILT or CLAY

Coarse Medium Fine

CLIENT: Engineering Visions, Inc. / T&W Engineering, Inc.
 PROJECT: Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
 FILE: DES 075961

DRIGGERS ENGINEERING SERVICES, INC.

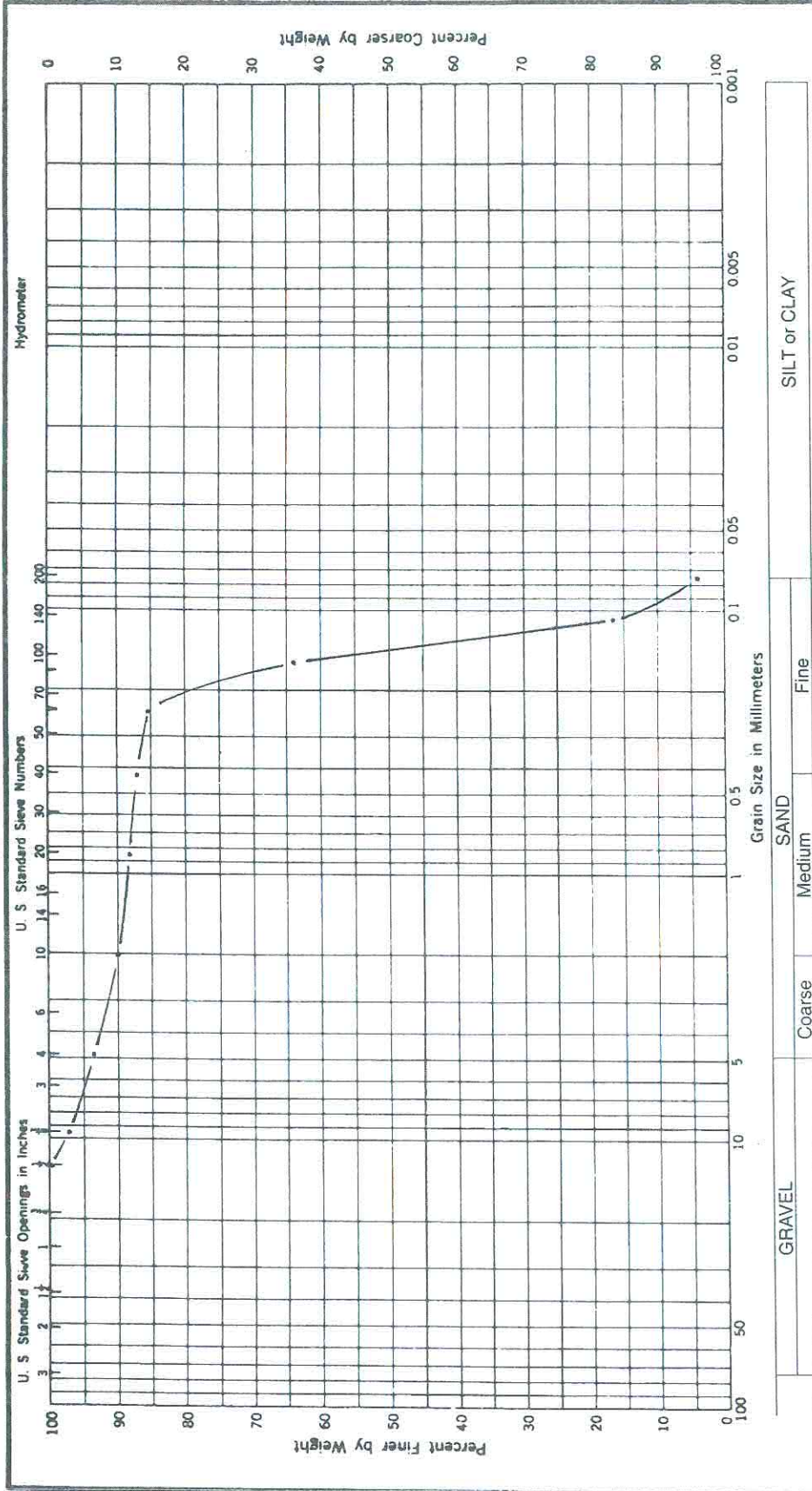


Number	Depth	Natural Moisture	L.L.	P.L.	P.I.	Classification
B-32	12.0' - 13.5'					Greenish-gray Fine SAND with trace of shell

GRAVEL	SAND	SILT or CLAY
Coarse	Medium	Fine

CLIENT:	Engineering Visions, Inc./
	TGW Engineering, Inc.
PROJECT:	Proposed AC Pipeline Replacement,
	Gulf of Mexico Dr., Longboat Key, FL
FILE:	DES 075961

DRIGGERS ENGINEERING SERVICES, INC.

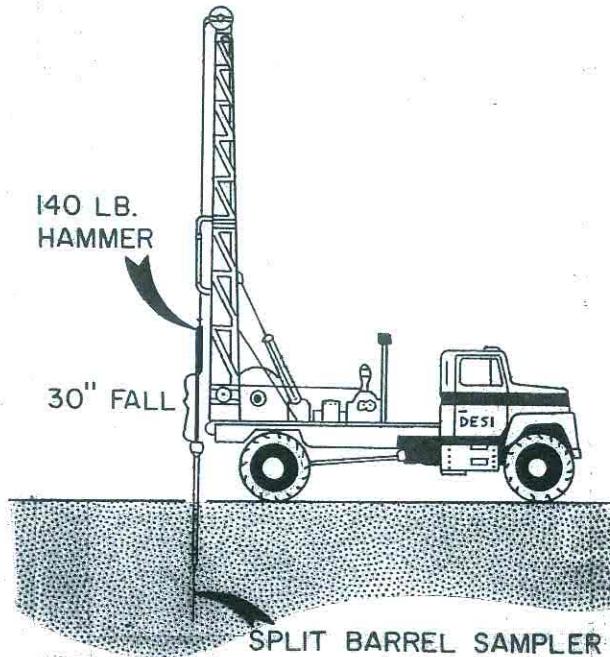


CLIENT:	Engineering Visions, Inc. / TGW Engineering, Inc.
PROJECT:	Proposed AC Pipeline Replacement, Gulf of Mexico Dr., Longboat Key, FL
FILE:	DES 075961

Number	Depth	Natural Moisture	L.L.	P.L.	P.I.	Classification
B-33	10.0' - 11.5'					Gray Fine SAND with trace of shell

METHOD OF TESTING

STANDARD PENETRATION TEST AND SOIL CLASSIFICATION

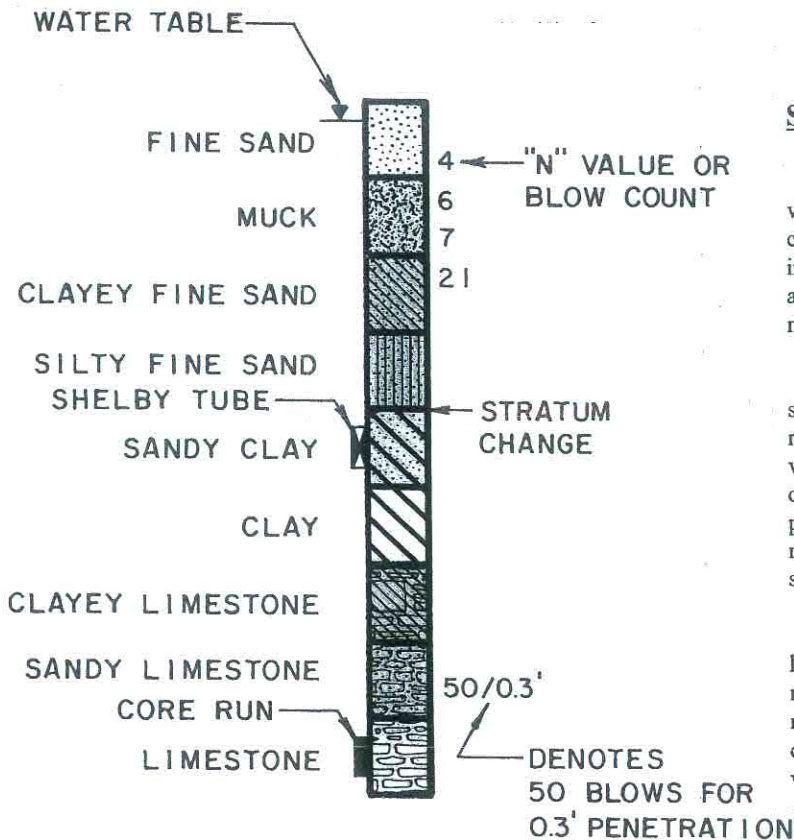


STANDARD PENETRATION TEST (ASTM D-1586)

In the Standard Penetration Test borings, a rotary drilling rig is used to advance the borehole to the desired test depth. A viscous drilling fluid is circulated through the drill rods and bit to stabilize the borehole and to assist in removal of soil and rock cuttings up and out of the borehole.

Upon reaching the desired test depth, the 2 inch O.D. split-barrel sampler or "split-spoon", as it is sometimes called, is attached to an N-size drill rod and lowered to the bottom of the borehole. A 140 pound hammer, attached to the drill string at the ground surface, is then used to drive the sampler into the formation. The hammer is successively raised and dropped for a distance of 30 inches using a rope and "cathead" assembly. The number of blows is recorded for each 6 inch interval of penetration or until virtual refusal is achieved. In the above manner, the samples are ideally advanced a total of 18 inches. The sum of the blows required to effect the final 12 inches of penetration is called the blowcount, penetration resistance of "N" value of the particular material at the sample depth.

After penetration, the rods and sampler are retracted to the ground surface where the core sample is removed, sealed in a glass jar and transported to the laboratory for verification of field classification and storage.



SOIL SYMBOLS AND CLASSIFICATION

Soil and rock samples secured in the field sampling operation were visually classified as to texture, color and consistency. Soil classifications are presented descriptively and symbolically for ease of interpretation. The stratum identification lines represent the approximate boundary between soil types. In many cases, this transition may be gradual.

Consistency of the soil as to relative density or undrained shear strength, unless otherwise noted, is based upon Standard Penetration resistance values of "N" values and industry-accepted standards. "N" values, or blowcounts, are presented in both tabular and graphical form on each respective boring log at each sample interval. The graphical plot of blowcount versus depth is for illustration purposes only and does not warrant continuity in soil consistency or linear variation between sample intervals.

The borings represent subsurface conditions at respective boring locations and sample intervals only. Variations in subsurface conditions may occur between boring locations. Groundwater depths shown represent water depths at the dates and time shown only. The absence of water table information does not necessarily imply that groundwater was not encountered.

SECTION 02012
PROTECTING EXISTING UNDERGROUND UTILITIES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section includes materials and procedures for protecting existing underground utilities.

1.02 RELATED WORK

- A. Project Drawings.
- B. Section 02225: Trenching and Backfilling

PART 2 - MATERIALS

2.01 REPLACEMENT

- A. Except as indicated below or as specifically authorized by the Town and Engineer, reconstruct utilities with new material of the same size, type, and quality as that damaged or removed. In the event there is a secondary utility impacted, coordination will need to occur with the owning entity and arrangements made for its repair or replacement. The Town will not be responsible for these related costs.

PART 3 - EXECUTION

3.01 GENERAL

- A. Replace in kind street improvements, such as curbs and gutters, barricades, traffic islands, signalization, fences, signs, etc., that are cut, removed, damaged, or otherwise disturbed by the construction.
- B. Where utilities are parallel to or cross the construction but do not conflict with the permanent work to be constructed, follow the procedures given below and as indicated in the drawings. Notify the utility owner 48 hours in advance of the crossing construction and coordinate the construction schedule with the utility owner's requirements. For utility crossings not shown in the drawings, refer to the General Conditions and the instructions of the Town and Engineer for guidance.
- C. Determine the true location and depth of utilities and service connections which may be affected by or affect the work. Determine the type, material, and condition

- D. Expose utilities 200 feet in advance of the pipeline construction.

3.02 PROCEDURES

- A. **Protect in Place:** Protect utilities in place, unless abandoned, and maintain the utility in service, unless otherwise specified in the drawings or in the specifications.
- B. **Cut and Plug Ends:** Cut abandoned utility lines and plug the ends. Plug storm drains and sewers with an 8-inch wall of brick and mortar. Cap waterlines with a cast-iron cap or install a 3-foot-long concrete plug. Dispose of the cut pipe as unsuitable material.
- C. **Remove and Reconstruct:** Where so indicated in the drawings or site conditions notified in advance to the Town and Engineer for direction, remove the utility and, after passage, reconstruct it with new materials. Provide temporary service for the disconnected utility.

3.03 COMPACTION

- A. **Utilities Protected in Place:** Backfill and compact under and around the utility so that no voids are left.
- B. **Utilities Reconstructed:** Prior to replacement of the utility, backfill the trench and compact to an elevation 1 foot above the top of the ends of the utility. Excavate a cross trench of the proper width for the utility and lay, backfill, and compact.

END OF SECTION

SECTION 02110 CLEARING AND GRUBBING

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall clear and grub the areas to be occupied by the facilities to be constructed including all areas to be excavated, filled, paved, or planted as shown on the Drawings and as specified herein.

1.02 DEFINITIONS

- A. Clearing shall consist of the cutting, removal and satisfactory disposal of all trees, stumps, brush, shrubs, rubbish, and any other objectionable material within the designated areas.
- B. Grubbing shall consist of the removal and disposal of all stumps larger than 1-1/2 inches in diameter and other objectionable material to a depth of at least 12 inches below the ground surface.
- C. The Contractor shall remove and dispose of the existing pavement section as indicated on the plans and described herein.

PART 2 - PRODUCTS - (NOT USED)

PART 3 - EXECUTION

3.01 PROTECTION OF ADJACENT AREAS

- A. The Contractor shall protect areas shown on the Drawings per FDOT standards or as designated by the Town to remain protected from damage by construction operations by erecting suitable barriers of other acceptable means. Areas outside the limits of construction as shown on the Drawings shall be protected and no equipment or materials shall be stored or allowed to damage these areas.

3.02 DISPOSAL

- A. All roots, vegetation, and other refuse shall be removed from the site and disposed of by the Contractor at no cost to the Town. Burning of any material on the site will not be permitted.

END OF SECTION

SECTION 02140 DEWATERING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section provides the furnishing for all permits, supporting information, labor, materials, equipment, power and incidentals for performing operations necessary to dewater, depressurize, drain and maintain excavations as described in Contract Specifications and Drawings and necessary for the installation of the pipeline and appurtenances. Included are the planning, permitting, installation, operation and maintenance, and removal of dewatering systems for the control of surface and groundwater during construction.

1.02 SUBMITTALS

- A. Section 01015: Permits and Fees
- B. Section 01300: Submittals
- C. Section 01500: Construction Facilities and Temporary Controls
- D. General Conditions including Town allowable noise levels and hours of operations.

1.03 DEWATERING PLAN

- A. As a minimum, include descriptions of proposed groundwater and surface water control facilities including, but not limited to, equipment; methods; standby equipment and power supply, pollution control facilities, discharge locations to be utilized, and provisions for immediate temporary water supply as required. Submittal by Contractor and approval by SWFWMD is required, if applicable, prior to dewatering activities may commence.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.01 GENERAL

- 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 groundwater as necessary for construction activities. The Contractor is responsible for monitoring the effectiveness of the installed facilities and making required adjustments for its operation.

3.02 DEWATERING PLAN AND PERMIT

- A. Within 14 calendar days before any excavation, submit a dewatering plan. The dewatering plan shall outline the dewatering method, pump capacities, pumping duration, noise abatement, point of discharge and associated water quality protection, methods of bypass associated with ditch crossings, and other pertinent information that may be required by Southwest Florida Water Management District (SWFWMD).
- B. The Contractor shall coordinate with the SWFWMD regarding the applicable rules and regulations. If a dewatering permit is required, the Contractor shall prepare an application to the District and pay any associated fees. Dewatering permit, if applicable, must be obtained prior to any dewatering activities. Remove and control water during periods when necessary to properly accomplish Work.

3.03 SURFACE WATER CONTROL

- A. See Section 01500 - Construction Facilities and Temporary Controls (1.13).

3.04 DEWATERING SYSTEMS

- A. Provide, operate, and maintain dewatering systems of sufficient size and capacity to permit excavation and subsequent construction in dry and to lower and maintain groundwater level a minimum of two feet below the lowest point of excavation. Continuously maintain excavations free of water, regardless of source, and until backfilled to final grade.
- B. Design and Operate Dewatering Systems:
 - 1. To prevent loss of soil as water is removed.
 - 2. To avoid inducing settlement or damage to existing facilities, completed Work or adjacent property and structures.

3. To relieve artesian pressures and resultant uplift of excavation bottom.

3.05 DISPOSAL OF WATER

- A. Treat water collected by dewatering operations, as required by regulatory agencies, prior to discharge.
- B. Discharge water as required by discharge permit and in manner that will not cause erosion or flooding, or otherwise damage existing facilities, completed Work, or adjacent property.
- C. Remove solids from treatment facilities and perform other maintenance of treatment facilities as necessary to maintain their efficiency.

3.06 PROTECTION OF PROPERTY

- A. Make assessment of potential for dewatering induced settlement. Provide and operate devices or systems, including but not limited to re-injection wells, infiltration trenches and cutoff walls, necessary to prevent damage to existing facilities, completed Work, and adjacent property.
- B. Securely support existing facilities, completed Work, and adjacent property vulnerable to settlement due to dewatering operation. Support shall include, but not be limited to, bracing, underpinning, or compaction grouting.

END OF SECTION

SECTION 02211 SITE GRADING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Remove topsoil and stockpile on site for later use.
- B. Excavate sub-soil and reform to grades, contours and levels.
- C. Excavate or fill for roadways, walks, curbs, gutters, parking areas, landscaped areas and as shown on the Drawings.

1.02 RELATED WORK

- A. Section 02110: Clearing and Grubbing.
- B. Section 02225: Trenching and Backfill.
- C. Road and concrete related activities.

1.03 EXISTING CONDITIONS

- A. Known underground, surface and aerial utility lines, and buried objects are based on best available data and indicated on the Drawings. Contractor shall verify all locations.

1.04 PROTECTION

- A. Protect trees, shrubs and lawns and other features remaining as part of final landscaping.
- B. Protect bench marks, and existing structures, fences, roads, sidewalks, paving and curbs against damage from equipment and vehicular traffic.
- C. Protect aerial, surface, or underground utility lines or appurtenance which are to remain.
- D. Repair any damage, at no cost to Town.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Excavated fill material: Soil free from roots, rocks larger than 3-inches, and building debris.
- B. Additional fill material: Shall be approved by Engineer.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Establish and identify required lines, levels, contours and datum.
- B. Maintain bench marks, monuments, and other reference points. Re-establish if disturbed or destroyed, at no cost to Town.
- C. Maintain, protect, reroute or extend as required existing utilities to remain which pass through the work area.

3.02 REMOVAL OF TOPSOIL

- A. Topsoil of horticultural value shall be stripped from areas of construction under this contract and stockpiled in area designated by Town and Engineer. Said material shall be stockpiled separately from fill material.
- B. Do not permit topsoil to be mixed with subsoil
- C. Do not strip topsoil when wet.
- D. Do not drive heavy equipment over stockpiled topsoil.

3.03 ROUGH GRADING

- A. Rough grade site to required levels, profiles, contours and elevations ready for finish grading and surface treatment. Maintain the following:
 - 1. Sodded areas - 4 1/2-inches below finished grade elevation.
 - 2. Seeded areas - 6-inches below finished grade.
 - 3. Paved areas - 18-inches below finished grade elevations.
 - 4. Shrub beds - 24-inches below finished grade elevations.
 - 5. Flower beds - 18-inches below finished grade elevations.
 - 6. Concrete sidewalks - 8-inches below finished grade elevations.

- B. Prior to placing fill material over undisturbed subsoil, scarify surface to depth of 6-inches.

3.04 SURPLUS MATERIAL

- A. Remove surplus materials from site.
- B. Dispose of surplus material at no cost to Town.

END OF SECTION

SECTION 02225 TRENCHING AND BACKFILL

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section includes materials, testing, and installation of earthwork for trench excavating, backfilling, and compacting for underground pipelines, conduits and appurtenant structures.

1.02 STANDARDS

- A. Determine the density of soil in place by the sand cone method, ASTM D1556; by nuclear methods, ASTM D2922.
- B. Determine optimum laboratory moisture-density relations of cohesive soils by ASTM A1557 (modified Proctor).
- C. Sample backfill materials by ASTM D75.
- D. For cohesive soils, "relative density" is the ratio, expressed as a percentage, of in the in-place dry density to the laboratory maximum dry density as determined by ASTM D 1557 (modified Proctor).
- E. Determine the relative density of cohesionless soil by ASTM D2049.

1.03 DEFINITIONS

- A. Subgrade: The undisturbed material immediately below the bottom of an excavation, below an area of fill, or below a structure.
- B. Trenching: Removal of earth or buried material, either temporarily or permanently, as specified or as necessary for construction of the project.
- C. Over-excavation: Excavation exceeding that specified or shown on the drawings.
- D. Backfill: Earth material placed permanently in a trench.
- E. Borrow: Earth material brought from off the site to be used as backfill.
- F. Structures: Buildings, foundations, and other man-made, stationary features above and below ground.
- G. Cables: Includes electrical raceways, wires and cables.

1.04 SUBMITTALS

- A. Submit copies of a certification from a testing laboratory that the material used for all backfills and structural backfills meets the specified criteria.

PART 2 - PRODUCTS

2.01 BACKFILL MATERIAL

- A. Use clean granular earth material composed of sand, clay and sand, sand and gravel or a combination thereof, obtained from the excavation. The material shall contain no more than 15% by weight passing the No. 200 sieve, 1% by weight organic matter (peat, humus, muck, leaves and carbon compounds), and no cobbles, clay, balls, or old pavement larger than 2 inches in their largest dimension. The gradation of this sand or well graded sand and gravel mixture shall be such as to achieve the specified compaction.
- B. In the event there is insufficient satisfactory material from the excavation to meet the requirements for backfill material, obtain borrow which meets the requirements for backfill material from sources secured by the Contractor.

2.02 STRUCTURAL BACKFILL

- A. Structural backfill shall consist of clean, fine to medium sand, contain less than 1% by weight organic matter (peat, humus, leaves, and carbon compounds), and conform to the following gradation requirements:

<u>Sieve Size</u> (Square Openings)	<u>Weight Percent Passing</u> (Square Mesh Size)
No. 4 (4.75 mm)	95 to 100
No. 10 (2.00 mm)	90 to 100
No. 40 (0.420 mm)	70 to 95
No. 60 (0.250 mm)	40 to 80
No. 100 (0.149 mm)	12 to 40
No. 200 (0.074 mm)	less than 12

- B. The structural backfill material may consist of either on-site granular material or imported fill from sources secured by the Contractor or a blend of suitable on-site and imported fill material satisfying the requirements for structural backfill.

2.03 WATER FOR COMPACTION

- A. Water used in compaction shall have a pH of between 7.0 to 9.0 and be free of acid, alkali, or organic materials injurious to the pipe coatings. Contractor to provide all water needed for compaction. Provide temporary piping, valves and trucks to convey water from the source to the point of use. In locations where public water supply is available, the Contractor may be allowed to use water without charge for construction purposes. The Town will provide any meters required for water taken from the public water system. The express approval of the Town shall be obtained before water is used. Waste of water shall be sufficient cause for withdrawing the privilege of unrestricted use. Hydrants shall only be operated under the supervision of Town staff. The Contractor will be responsible for costs associated with retests.

PART 3 - EXECUTION

3.01 DEWATERING

- A. Provide and operate equipment adequate to keep excavations and trenches free of water. Dewater subgrade to a minimum of 2-feet below the bottom of the excavation. Remove water during periods when concrete is being deposited, when pipe is being laid, during the placing of backfill, and for proper inspection and/or testing of the exposed subgrade. Do not drain trench water through the pipe under construction. Avoid settlement or damage to adjacent property.
- B. When dewatering trenches, dewater from outside the structural limits and from a point below the bottom of the excavation. Obtain and comply with all required discharge permits from appropriate regulatory authorities. Dispose of water in a manner that will not damage adjacent property or interfere with normal drainage.
- C. Dewatering must be conducted with care to avoid settlements of the nearby structures and in such a manner that the areas affected are as small as possible.

3.02 TRENCH

- A. Perform all trench excavation regardless of the type, nature, or condition of the material encountered to accomplish the construction.
- B. As the trench excavation progresses, the Town and Engineer will observe the exposed bottom of the trench to determine the need for any additional excavation beyond that specified above. It is intended that additional excavation be conducted in all areas within the influence of the trench where unacceptable subgrade materials exist at the exposed subgrade. Over-excavation shall include the removal

of all such unacceptable material that exists directly beneath the trench and to a depth required to reach suitable foundation material. Refill the over-excavated areas with structural backfill. All such over-excavation and refilling for an unforeseen condition shall be executed in accordance with a change order. Payment for over-excavation and refill shall be made in accordance with the General Conditions.

- C. No additional payment will be received for over-excavation or refill material used for convenience or which is not authorized by the Town and Engineer.
- D. Review and be aware of existing conditions and locate all structures and utilities within the project area in order to avoid conflicts.
- E. Protect any pipes, mains, footings or other underground structures encountered in trenching/excavating/backfilling from damage or displacement. Replace any pipes, mains, footings or other structures disturbed during construction.
- F. Contact all utility companies with underground utilities in the project area and obtain their assistance in locating facilities prior to excavation.
- G. Excavate sufficiently in advance of pipe laying to discover obstructions in time to modify alignment, if necessary, to avoid the obstruction. The Town and Engineer must review such alignment modifications.

3.03 TRENCH WIDTHS AND UTILITY BEDDING

- A. Cut trenches to a minimum width equal to the outside diameter of the pipe at the joint plus eight inches for unsheeted trenches, or 12-inches for sheeted trenches. The maximum width of trench, measured at the top of the pipe, shall not exceed the outside pipe diameter plus two feet, unless otherwise shown on the drawings.
- B. Maintain vertical trench walls from the bottom of the trench to a line measured 12-inches above the top of the pipe.
- C. Bedding: The minimum bedding allowable shall consist of a shaped trench bottom which provides firm bedding for the pipe. Bed the pipe in undisturbed firm soil of hand-shaped unyielding material, so that the pipe will be in continuous contact therewith for its full length and provide a minimum bottom segment support for the pipe equal to 0.6 of the outside diameter of the barrel.
- D. Construct special bedding as called for on the drawings or in the contract documents.

- E. Excavate bell holes at each joint to permit proper assembly and inspection of the entire joint.

3.04 TRENCH GRADE

- A. Excavate and grade the trench to the lines and grades shown on the drawings with allowance for pipe thickness and for pipe base or special bedding. Remove hard spots that would prevent a uniform thickness of bedding. Before laying each section of the pipe, check the grade with a straightedge and correct any irregularities found. The trench bottom shall form a continuous and uniform bearing and support for the pipe at every point between bell holes, except that the grade may be disturbed for the removal of lifting tackle.
- B. If the trench is excavated below the required grade, refill any part of the trench excavated below the grade at no additional cost to the Owner. Place the refilling material over the full width of trench in compacted layers not exceeding six inches deep to the established grade with allowance for the pipe base or special bedding.

3.05 TRENCH EXCAVATION IN BACKFILL AND FILL AREAS

- A. Construct trench excavation for pipe(s) in backfill or fill areas in accordance with the following procedures:
 - 1. Construct and compact the backfill or fill to an elevation of one foot minimum over the top of the pipe to be installed.
 - 2. Excavate trench in the compacted backfill or fill. Place pipe base material, install pipe, and backfill to 12-inches above the pipe as specified. Compact backfill above this point to the same relative density as the adjacent embankment.

3.06 TRENCH BACKFILLING

- A. Place backfill material in maximum 12-inch lifts and compact each lift to the specified relative density.
- B. Backfill the trench in accordance with the following procedures:
 - 1. After pipe has been bedded, place "First Lift" material simultaneously on both sides of the pipe, keeping the level of backfill the same on each side. Carefully place the material around the pipe so that the barrel is completely supported and that no voids or uncompacted areas are left beneath the pipe.

2. Compact material placed within 12-inches of the outer surface of the pipe by hand tamping only.
3. Place "Second Lift" material and push the backfill material carefully onto the backfill previously placed in the "First Lift". Do not permit free fall of the material until at least two feet of cover is provided over the top of the pipe. Do not drop sharp, heavy pieces of material directly onto the pipe or the tamped material around the pipe.

3.07 SIDEWALK, PAVEMENT AND CURB REMOVAL

- A. Cut and remove bituminous and concrete pavements, curbs and sidewalks prior to excavation of the trenches. Width of the pavement or brick pavement cut shall be at least one foot wider than the required width of the trench at ground surface. Haul pavement and concrete materials from the site to disposal site secured by Contractor. Do not use for trench backfill.

3.08 EXCAVATED MATERIAL

- A. During excavation, place the excavated material only within the project area. Do not obstruct any roadways or streets. Conform to federal, state, and local codes governing the safe loading of trenches with excavated material. Separate suitable and unsuitable material.
- B. Remove excess, unsuitable or cleared material resulting from the facility installation from the work site and dispose of at locations secured by the Contractor.
- C. Stockpile excess suitable material on the site, to a limited amount approved by the Town and Engineer, for project use only.

3.09 DRAINAGE, EROSION AND SEDIMENTATION

- A. Maintain all existing drainage patterns and control run-off from the construction area to prevent erosion, sedimentation, or flooding due to the construction.

3.10 SHEETING, SHORING AND BRACING OF TRENCHES

- A. Install adequate sheeting, shoring and bracing to prevent damage to property, roadway and injury to persons. Comply with applicable safety regulations and laws.
- B. Remove sheeting when the trench has been backfilled to at least one-half its depth or when removal will not endanger proper pipe alignment or support.

- C. When conditions or plans and specifications require that sheeting be left in place, cut off the top at an elevation 2.5 feet below finished grade, unless otherwise specified.
- D. When the performance of the Work requires the use of shoring, sheet piling, bracing and other special construction related to excavation, the Contractor shall cause the design of said shoring, sheet piling and other special construction to be performed by a registered professional engineer, licensed in the State of Florida. The Contractor shall submit, as a shop drawing, a certification by the registered engineer, stating that he has complied with this requirement.

3.11 COMPACTION

- A. Unless otherwise specified or shown on the drawings, compact soil in trenches to the following minimum compaction requirements:
 - 1. First Lift: 95% relative density.
 - 2. Second Lift not Under Pavement and Structures: 95% relative density.
 - 3. Second and Upper Lifts Under Pavement and Structures: 98% relative density.
 - 4. Refill for Over-excavation: 95% relative density.
- B. Compact the first 2 feet of backfill over pipe either by hand-operated tamping devices or with powered equipment which will not damage the pipe. Flooding or puddling with water to consolidate backfill is not acceptable, except where sand is encountered and the specified density can be obtained using this method.
- C. During the compacting operations, maintain material within +2% of optimum moisture. Aerate material containing excessive moisture by blading, discing, or harrowing to hasten the drying process.

3.12 SITE GRADING

- A. Shape the surface of trenches to conform to lines, grades and cross sections that existed prior to beginning work or as shown on the drawings, within 1/10 of a foot.

3.13 PROTECTION OF PROPERTY

- A. Protect the trunks of trees adjacent to this work by enclosure with padding or wood. Operate excavating machinery and cranes with care to prevent damage to trees, particularly to overhanging branches and limbs.

- B. Tree limbs and branches that are unavoidable by the Contractor's equipment during pipeline construction are to be trimmed by a professional landscaper.
- C. Do not cut branches, limbs and roots unless they are within six inches of the facility under construction. Make all necessary cuts smoothly and neatly without splitting or crushing. Neatly trim and cover the tree with healing paint at all cut or damaged portions.
- D. Do not operate on paved surface any equipment with treads or wheels which will cut or otherwise damage paved surfaces. Provide adequate protective measures to avoid damages to the paved surfaces.
- E. As promptly as practicable, restore existing property or structures. Do not leave restoration until the end of the construction period.

3.14 TESTING

- A. Field density tests will be made in locations as specified and reviewed by the Town and Engineer, normally in each vertical layer, and using the following approximate spacing:
 - 1. In trenches, one every 200 feet through each backfill lift in continuous trenches, intersection, pavement and driveway crossing.
 - 2. In all other areas, one per 500 square feet.
- B. If any field density tests are below the specified relative density, re-compact or re-excavate re-backfill and re-compact the area until the specific density is obtained. Make a minimum of two field density tests per re-compacted and/or re-excavated area, but do not exceed the spacing specified above.

3.15 ACCEPTANCE

- A. After the specified density tests have been successfully completed, the Town and Engineer may cross section the excavation and/or fill area to verify that the excavation or fill area conforms to the lines and grades shown on the plans and to determine quantities of material. Correct deviations from line and grade and densities in excess of the tolerances specified at no expense to the Town.

END OF SECTION

SECTION 02226 GRAVEL AND CRUSHED ROCK BASE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This includes materials, testing, and installation of gravel and crushed rock bases for structures such as vaults, driveways, roads, and other structures.

1.02 SUBMITTALS

- A. Report from a testing laboratory verifying that material conforms to the specified gradations or characteristics.

1.03 RELATED WORK

- A. Section 01300: Submittals.
- B. Section 02225: Trenching and Backfill.
- C. FDOT (Latest Edition) Standard Specifications Roads and Bridge Construction.
- D. Other related Specifications and Drawings.

1.04 TESTING FOR COMPACTION

- A. The Contractor will test for compaction or relative density as described in Section 02225-Trenching and Backfill.

PART 2 - MATERIALS

2.01 CRUSHED ROCK AND GRAVEL

- A. Crushed rock base shall be No. 57 stone conforming to Latest Edition, "Coarse Aggregate" of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.
- B. Gravel shall be smooth-edged, washed stone with no organic material, well-suited for drainage. Average stone size to be ½-inch with no stones greater than 1 ½-inches.

PART 3 - EXECUTION

3.01 PLACEMENT OF CRUSHED ROCK OR GRAVEL

- A. Place crushed rock or gravel base beneath structures where shown in the drawings, 6-inches thick unless otherwise indicated. Excavate below the required grade for the bottom of the structure and refill with crushed rock or gravel as specified above. The rock base shall extend a minimum of 12-inches beyond the structure base, floor slab, or footing.
- B. Compact base evenly with metal plates for gaining compaction as follows unless otherwise indicated:
 - 1. Lower Lift: 95% relative density.
 - 2. Upper Lifts: 98% relative density.
- C. Place base material in maximum lifts of 6 inches.

END OF SECTION

SECTION 02270
EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

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

1.02 STANDARDS

- A. Current Federal, State and Local Regulations and Codes.
- B. Latest Edition FDOT Road and Bridge Construction and Other applicable standards.

1.03 CONTROL OF CONTRACTOR'S OPERATIONS WHICH MAY RESULT IN POLLUTION

- A. Take sufficient precautions to prevent pollution of streams, canals, lakes, reservoirs, and other water impoundments, with fuels, oils, bitumen, calcium chloride, or other harmful materials. Conduct and schedule operations so as to avoid or otherwise minimize pollution or siltation of such streams, etc. and to avoid interference with movement of migratory fish. Do not dump the residue from dust collectors or washers into any water body.
- B. Construction operations in rivers, streams, lakes, tidal waters, reservoirs, canals, and other impoundments shall be restricted to those areas where it is necessary to perform filling or excavation to accomplish the work shown in the Contract Documents and to those areas which must be entered to construct temporary or permanent structures. As soon as conditions permit, promptly clear rivers, streams, and impoundments of all obstructions placed therein or caused by construction operations.
- C. Except as necessary for construction, do not deposit excavated material in rivers, streams, canals, or impoundments, or in a position close enough thereto, to be washed away by high water or runoff.

- D. Where pumps are used to remove waters from enclosed construction areas such as cofferdams or forms, treat the water prior to discharge into State waters. Pump the water into grassed swales, appropriate vegetated areas, or sediment basins per Section 02140: Dewatering, or confine it by an appropriate enclosure such as siltation curtains when other methods are not considered appropriate
- E. Do not disturb lands or waters outside the limits of construction, except as may be found necessary to complete the work.

1.04 START OF WORK

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

1.05 SUBMITTALS

- A. Submit erosion and control plan and materials per FDOT standards in ROW for Town and Engineer review. Reference Section 01300: Submittals.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Materials used for the construction of the temporary erosion and sedimentation control measures not to be incorporated into the completed project may be new or used.

PART 3 - EXECUTION

3.01 GENERAL

- A. Temporary erosion control features shall consist of, but not be limited to, temporary grassing, temporary sodding, temporary mulching, sandbagging, slope drains, sediment basins, artificial coverings, berms, baled hay or straw, floating silt barriers, staked silt barriers and staked silt fences. Design details for some of these items may be found in the Water Quality Section of the applicable edition of the FDOT Roadway and Traffic Design Standards.
- B. Incorporate permanent erosion control features into the project at the earliest practical time. Correct conditions, using temporary measures that develop during construction to control erosion prior to the time it is practical to construct permanent control features.

- C. Construct temporary and permanent erosion and sediment control measures to prevent the pollution of adjacent water ways in conformance with the laws, rules and regulations of Federal, State and local agencies.

3.02 INSTALLATION

- A. Temporary Mulching: This work shall consist of furnishing and applying a two-inch to four-inch thick blanket of straw or hay mulch and then mixing or forcing the mulch into the top two inches of the soil in order to temporarily control erosion in accordance with FDOT allowances. Only un-decayed straw or hay, which can readily be cut into the soil, shall be used. Other measures for temporary erosion control such as hydro-mulching, chemical adhesive soil stabilizers, etc. may be substituted for mulching with straw or hay. When permanent grassing operations begin, temporary mulch materials shall be plowed under in conjunction with preparation of the ground.
- B. Sandbagging: This work shall consist of furnishing and placing sandbags in configurations, so as to control erosion and siltation.
- C. Slope Drains: This work shall consist of constructing slope drains, utilizing pipe, fiber mats, rubble, cement concrete, asphaltic concrete plastic sheeting, or other acceptable materials, in accordance with the details shown in FDOT Roadway and Traffic Design Standards or as may be approved as suitable to adequately perform the intended function.
- D. Sediment Basins: Sediment basins shall be constructed in accordance with the details shown in FDOT Roadway and Traffic Design Standards or as suitable to adequately perform the intended function. Sediment basins shall be cleaned out as necessary.
- E. Artificial Coverings: This work shall consist of furnishing and applying fiber mats, netting, plastic sheeting, or other approved covering to the earth surfaces.
- F. Berms: This work shall consist of construction of temporary earth berms to divert the flow of water from an erodible surface.
- G. Baled Hay or Straw:
 - 1. This work shall consist of construction of baled hay or straw dams to protect against downstream accumulations of silt. The baled hay or straw dams shall be constructed in accordance with the details shown in latest version FDOT Roadway and Traffic Design Standards and incorporated in Drawings for reference.

2. The dam shall be placed so as to effectively control silt dispersion under conditions present on this project. Alternate solutions and usage of materials may be used if approved.

- H. Temporary Silt Fences and Staked Silt Barriers: This work shall consist of furnishing, installing, maintaining and removing staked turbidity barriers in accordance with the manufacturer's directions, these specifications and the details as shown in FDOT Roadway and Traffic Design Standards.
- I. Floating Silt Barriers: If applicable, barriers to contain turbidity that may occur as the result of dredging, filling, or other construction activities in waters of the State. The type barrier used, the deployment and maintenance of the barrier will be such as to minimize dispersion of turbid waters from the construction site. Alternate methods or materials may be used provided that compliance with applicable permit conditions and State water quality standards are maintained.

3.03 REMOVAL OF TEMPORARY EROSION CONTROL FEATURES

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

3.04 MAINTENANCE OF EROSION CONTROL FEATURES

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

3.05 PROTECTION DURING SUSPENSION OF CONSTRUCTION OR CONTRACT TIME

- A. In the event that it is necessary that the construction operations be suspended for any appreciable length of time, shape the top of the earthwork in such a manner as to permit runoff of rainwater and construct earth berms along the top edges of embankments to intercept runoff water. Provide temporary slope drains to carry runoff from cuts and embankments which are located in the vicinity of rivers, streams, canals, lakes, and impoundments. Should such preventive measures fail, immediately take such other action as necessary to effectively prevent erosion and siltation.

END OF SECTION

SECTION 02441 HORIZONTAL DIRECTIONAL DRILLING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section includes materials and installation of high-density polyethylene pipe by horizontal directional drilling.

1.02 RELATED SECTIONS

- A. Section 15000 – Pipe Scheduling and General Piping Requirements
- B. Section 15044 – Pressure Testing
- C. Section 15071 – HDPE Pipe, 20-inches or Smaller

1.03 REQUIREMENTS INCLUDED

- A. Pipe sizes and material as noted on Drawings refers to internal diameter requirements.
- B. Detailed submittals of drilling is required 30 days before horizontal directional drilling field work.
- C. Compliance with AWWA Manual M55 – Design and Installation of HDPE pipe.

1.04 SUBMITTALS

- A. Submit documents in accordance with Section 1300.
- B. Submit list and description of materials and equipment to be used.
- C. Submit detailed layout showing proposed method of construction including location of receiving and sending pits. Submit proposed sequence of construction. Layout to be consistent with project drawings in contract.
- D. Submit an accurate record of crossing locations in plan view and profile depth. Record all changes on the contract drawings as work progresses.
- E. Submit calculations signed and sealed by a Professional Engineer licensed in the state of Florida demonstrating a factor of safety of 2 against buckling of the pipe considering the materials and equipment to be used.

- F. Submit 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.
- G. Submit grouting techniques, including equipment, pumping procedures, pressure grout types, mixtures and plug systems.
- H. Submit method of controlling line and grade.
- I. Submit details of muck removal, including equipment type, number, and disposal location.
- J. Submit proposed contingency plans for critical phases and areas of directional drilling, including repair of any existing utilities damaged during construction activity.

PART 2 - PRODUCTS

2.01 HIGH DENSITY POLYETHYLENE PIPE (HDPE)

- A. Reference Section 15071 - HDPE Pipe, 20-inches or Smaller.

2.02 FITTINGS

- A. Reference Section 15000 - Pipe Scheduling and General Piping Requirements.

2.03 DRILLING FLUID

- A. Drilling fluid shall be bentonite and water or a combination of bentonite and polymers and water formulated to move cuttings to the surface and lubricate the pipe during pullback.

2.04 DRILL PIPE

- A. Drill pipe shall be steel with sufficient strength to withstand the maximum rated pullback and pushing load of the drilling equipment. Drill pipe joints shall be flush and capable of transmitting maximum rated torque of the drilling equipment.

2.05 DRILLING EQUIPMENT

- A. Drilling equipment shall have a not to exceed sound level as per Town Ordinance unless otherwise reviewed and approved by the Town.

- B. Mixing, pumping, and holding/separation tanks shall be capable of delivering mixed drilling fluid to the cutting head. Drilling fluids circulating equipment shall be designed to minimize spillage.

2.06 DOWNHOLE TOOLS

- A. Cutting heads, back-reamers, and hole openers shall be suitable for the soil conditions anticipated by the Contractor.
- B. Grips, pulling heads, and swivels shall be compatible with the pipe material. Design to transmit without distortion the maximum rated pullback force of the equipment used. Grips, pulling heads, and swivels shall be specifically engineered for directional drilling applications.
- C. Tracking equipment shall be capable of determining the location of the cutting head at depth within 3 inches.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Contractor shall comply with AWWA Manual M55 – Design and Installation of HDPE pipe.
- B. The pipe shall follow the line and grade shown in the drawings and shall exit the ground within 10 feet of the design location.
- C. Install the pipe in a manner that does not cause upheaval, settlement, cracking, movement, or distortion of the surface material including bridge walls, retaining walls, and channel bottoms.
- D. Pipe alignment, including entrance and exit pits to be within the right-of-way or easement.

3.02 PIPE JOINING

- A. Reference Section 15071 – HDPE Pipe, 20-inches or Smaller.
- B. Where the staging area permits, and approved by Engineer, join entire length of pipe to be pulled through bore prior to commencement of pullback operation. If not feasible because of the length of the bore and the size of the staging area, each pipe section may be fused or welded to the previous section before the pull back. Support weight of joined pipe suspended on rollers to minimize pulling forces.

3.03 PILOT BORE

- A. Construct a pilot bore at least 3- to 4-inches in diameter at the centerline alignment and grade as shown in the drawings. Circulate drilling fluids to maintain an open bore at all times. If the path of the pilot bore is successfully completed, then proceed with the reaming procedure, and pull the pipe from the receiving location (exit pit) to the sending location (entry pit). If the pilot bore could not be successfully completed, then do not proceed with the reaming procedure until the Owner, Engineer, and Contractor have met to discuss alternative options for the pipeline crossing. The pilot bore and reaming procedure shall be controlled by a magnetic survey system and shall be capable of measuring depth, location, pitch, and roll of the bore.

3.04 DRILLING FLUIDS

- A. Accomplish drilling with fluid –assist mechanical cutting. Use a mixture of bentonite and water or polymers and additives. Use bentonite sealants and water to lubricate and seal micro-tunnel, Use minimum pressures and flow rates during drilling operation as not to fracture the sub-grade material around and or above the bore. Contain and dispose of the drilling mud in accordance with state regulations and permit conditions. Install erosion and sedimentation control measures including straw bales to prevent drilling mud from spilling out of the entrance/exit pit. Monitor drilling fluids at the surface to avoid excessive downhole pressures which may buckle the surface or the pipe during installation.

3.05 BACKREAMING BORE AND PIPE INSTALLATION

- A. Upon completing the pilot bore, pull the drill pipe back through the bore using an oversized backreamer larger than the proposed pipe to be pulled back through the bore hole. Repeat backreaming as necessary to enlarge the bore to provide sufficient clearance for the pipe. Attach pulling head and swivel and pull pipe through with closed end. Pull pipe back in one continuous pull to avoid closure of the bore hole.

3.06 CONTROL OF BOREHOLE LINE AND GRADE

- A. Establish and be fully responsible for the accuracy of control for the construction of the pipeline to be installed, including structures, tunnel line and grade.
- B. Establish control points sufficiently far from the tunnel operation so as not to be affected by the construction operations.

- C. Maintain daily records of alignment and grade and submit three copies of these records to the Engineer. However, the Contractor remains fully responsible for the accuracy of work and correction of it, as required.
- D. 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 indicated by the Engineer.

3.07 INSTALLATION OF TRACKING (LOCATING) WIRE

- A. Install pipes such that their location can be readily determined by electronic designation after installation. Attach a minimum of two (2) separate and continuous conductive tracking (tone wire) materials, externally, or integral with the product. Use either a green sheathed solid conductor copper wire line (minimum #12 AWG) or a coated conductive tape wire. Conductors must be located on opposite sides. Connect any break in the conductor line before construction and installation to maintain the integrity of the connection. Clamp connections must be made of brass or copper. Tracking conductors must extend two (2) feet beyond the bore hole terminal points. Test conductors for continuity. Each conductor that passes must be identified as such by removing the last six-inches of the sheath. Conductor ends must be wound into a small coil and left for future attachment.

3.08 POST-BORE PRESSURE TESTING

- A. Perform pressure testing (Section 15044: Pressure Testing) after final installation of the HDPE pipe separate from other transmission main pipe and before final acceptance by the Town.
- B. If the pipe does not pass the pressure test after installation, then remove the entire pipe from the bore hole, repair the pipe, and perform pressure testing prior to reinstalling the pipe and again after reinstallation.
- C. The Town and Engineer will witness the pressure tests and shall be informed 48 hours in advance of pressure tests.

END OF SECTION

SECTION 02507 PRIME AND TACK COATS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The work includes the application of bituminous material on previously prepared bases per FDOT Latest Edition Roads and Bridges Standards.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Prime Coat: The material used for the prime coat shall be one of the following:
 - 1. Cutback asphalt, Grade RC-70 or RC-250 shall meet the requirements of AASHTO Specifications M81 except that the penetration range shall be from 60-120.
 - 2. Emulsified Asphalt SS-1 or CSS-1, SS-1H diluted in equal proportions with water and shall meet the requirements of AASHTO Specification M208.
 - 3. Emulsified Asphalt, grades AE-60, AE-90, AE-150 or AE-200 shall meet the requirements of AASHTO Specification M140.
- B. Tack Coat: The material used for the tack coat shall be one of the following:
 - 1. Emulsified Asphalt Grades SS-1, CSS-1 or AE-60, AE-90, AE-150 or 200 shall meet the requirements of AASHTO M140 or M200.
 - 2. Emulsified Asphalt, grade RS-2 or CRS-2 shall meet the requirements of AASHTO Specification M208.

2.02 EQUIPMENT

- A. The pressure distributor used for placing the tack or prime coat shall be equipped with pneumatic tires having sufficient width of rubber in contact with the road surface to avoid breaking the bond of or forming a rut in the surface. The distance between the centers of openings of the outside nozzles of the spray bar shall be equal to the width of the application required, within an allowable variation of 2-inches. The outside nozzle at

PART 3 - EXECUTION

3.01 PREPARATION

- A. Before applying any bituminous material, all loose material, dust, dirt, and foreign material, which might prevent proper bonding with the existing surface, shall be removed. Particular care shall be taken to clean the outer edges of the strip to be treated in order to insure that the prime or tack coat will adhere.
- B. When the prime or tack coat is applied adjacent to curb and gutter, or any other concrete surface (except where they are to be covered with a bituminous wearing course) such concrete surfaces shall be protected by heavy paper or other protective material while the prime or tack coat is being applied. Any bituminous material deposited on such air temperature is less than 50°F in the shade, or when the weather conditions or the condition of the existing surface is unsuitable. In no case shall bituminous material be applied while rain is falling or when there is water on the surface to be covered.

3.02 APPLICATION OF PRIME COAT

- A. After the base has been finished, the full width of surface shall be swept with a power broom supplemented with hand coat. Care shall be taken to remove loose dust, dirt and objectionable matter. If deemed necessary, the base shall be lightly sprinkled with water immediately in advance of the prime coat.
- B. The temperature of the prime material shall be such as to insure uniform distribution. The material shall be applied with a pressure distributor as specified above. The amount to be applied shall be sufficient to coat the surface thoroughly and uniformly without any excess to form pools or to flow off the base. For limerock base, the rate of application shall not be less than 0.10 gallons per square yard.
- C. If the roadway is to be opened for use following the application of the prime material, a light uniform application of clean sand shall be applied and rolled. The sand shall be non-plastic, shall be free from silt and rock particles and shall not contain any sticks, vegetation, grass, roots or

organic matter. After the sand covering has been applied, the surface may be opened to traffic.

3.03 APPLICATION OF TACK COAT

- A. A tack coat will not be used on primed bases or between leveling and surface course except in areas which have become excessively dirty and cannot be cleaned or where the prime has cured and lost all of its bonding effect.
- B. Tack coat shall not be applied until the surface has been cleaned and is free from sand, dust or other objectionable material.
- C. The tack coat shall be heated to a suitable consistency and applied in a thin uniform layer at the rate of between 0.02 gallons and 0.08 gallons per square yard and applied as specified above.
- D. The tack coat shall be applied sufficiently in advance of the laying of the asphaltic concrete to permit drying, but shall not be applied so far in advance or over such an area as to lose its adhesiveness as a result of being covered with dust or other foreign material. Suitable precautions shall be taken by the Contractor to protect the surface while the tack coat is drying and until the wearing surface is applied.
- E. Tack coat in quantities prescribed by 3.03 C above shall be applied prior to the application of any asphaltic concrete leveling course.

END OF SECTION

SECTION 02513 ASPHALTIC SURFACES

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The work specified in this section consists of the construction of an asphaltic concrete base course, asphaltic concrete leveling course, asphaltic concrete surface course in accordance with the specifications and in conformity with the line, grades, widths, and thickness indicated in contract documents. Asphaltic concrete shall be Type S-III.

1.02 QUALITY ASSURANCE

- A. Construction of an asphaltic concrete base course, leveling course and surface course shall be in accordance with the Latest Version Standard Specifications for Road and Bridge Construction, of the Florida Department of Transportation (FDOT).
- B. The FDOT latest edition standards and specifications are hereby made a part of the Contract to the extent they are applicable thereto and shall be binding upon the Contract as though reproduced herein in their entirety.
- C. Laboratory analysis by a Certified Testing Laboratory on all materials shall be complete prior to placement. The result of the laboratory analysis shall be submitted to the Town and Engineer upon request.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Bituminous Material: Asphalt cement, Viscosity Grade AC-20 or AC-30, shall conform with the requirements of FDOT Specifications, Section 916-1.
- B. Coarse Aggregate: Coarse aggregate, stone or slag shall conform with the requirements of FDOT Specifications, Section 901.
- C. Fine Aggregate: Fine aggregate shall conform with the requirements of FDOT Specifications, Section 902 and 332-2.2.3.
- D. Mineral Filler: Mineral filler shall conform with the requirements of FDOT Specifications, Section 917.

2.02 MIXTURES

A. The bituminous mixture shall be composed of a combination of aggregate (coarse, fine, or mixtures thereof), mineral filler, if required, and bituminous material. The several aggregate fractions shall be sized, uniformly graded and combined in such proportions that the resulting mixture will meet the grading and physical properties of the approved job mix formula. The composition of mixture will conform to FDOT (Latest Edition) Specifications in Sections 333-3.2, 333-3.3, 333-3.3, 333-3.4, 333-3.5 or relevant revised sections.

B. In all cases, the job mix formula shall be within the design ranges specified in the following table. Gradation Design Range Percent by Weight Passing

<u>Sieve Size</u>	<u>Gradation Design Range % by Weight Passing Type S-III</u>
1/2-inch	100
3/8-inch	88-100
No. 4	60-90
No. 10	40-70
No. 40	20-45
No. 80	10-30
No. 200	2-6

C. Proportions of silica sand and local materials shall be not more than 25 percent by weight of total aggregate. Local materials shall conform with all requirements of Section 902-6.

2.03 MIX FORMULA

A. The job mix formula shall conform to the requirements of FDOT Specifications, Section 331-4.3. In addition, the job mix formula shall include test data showing that the material as produced meets the requirements of the following table:

<u>Mix Type</u>	<u>Minimum Marshall Stability (#/kN)</u>	<u>Flow (0.01 in/mm)</u>	<u>Minimum VMA (%)</u>	<u>Air Voids (%)</u>	<u>VFA Voids Filled with Asphalt (%)</u>
S-III	1500/6.7	8 - 14/2.0-3.3	15.5	4-6	65-75

B. The minimum effective asphalt content for Type S-III shall be 5.5 percent.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Bike Path:
 - 1. 1-1/2" Type S-III (Leveling and Surface Courses)
 - 2. 2" Asphaltic Concrete Base Course, or 4" Limerock Base
- B. Roads: Type S-III.

3.02 ASPHALTIC CONCRETE BASE COURSE

- A. Excavate the area of the construction to the proper lines and grades. The underlying soil shall be compacted to the approximate density of the surrounding soil and primed.
- B. Place asphaltic base course material by mechanical spreading and finishing machine to the specified thickness. Prior to the placement, the Town and Engineer may require motor grader leveling. A motor grader may be used in spreading the first course of multiple course bases where the sub-grade will not support the use of a mechanical spreader.
- C. Place the base course separately from the surface course.
- D. Each layer of base course construction shall not be more than three inches on each pass.
- E. The compaction of base courses may be achieved using a steel roller, or a pneumatic tired roller that will effectively exert a compaction effort. The Contractor shall specify what equipment will be used. This must be approved by Town and Engineer prior to the start of work.
- F. The completed asphalt base course shall be contiguous to and level with the existing asphaltic pavement. The Contractor is reminded that while a representative slope from the centerline is not required, a measurable pitch in the road is required to assure adequate drainage.

3.03 ASPHALTIC CONCRETE LEVELING COURSE

- A. Requirements
 - 1. Requirements consist of the application of Type S-III asphaltic concrete to provide for leveling as shown on the Plans.

2. Where dips, bumps, surface irregularities, and etc. exist, they shall be filled with an asphalt leveling course to provide a smooth, uniform, and level surface. A site visit by the Contractor prior to bid is vital to determine how much “additional leveling” is needed. This additional asphalt should be included in the bid item for Asphalt Concrete Leveling Course. It is not the intent of the plans to identify any or all areas where additional leveling may be needed.
3. After a thorough brooming, a tack coat in quantities of 0.02 gallons to 0.08 gallons per square yard shall be applied to the existing pavement prior to the application of the leveling course. If a surfacing course is not applied over the leveling course the same day, a tack coat within the quantities above shall be applied to the leveling course prior to application of the surfacing course.
4. Spreading shall conform to the applicable provisions of FDOT Specifications, Section 330-9.3.
5. Streets have an elevated centerline to insure adequate drainage. Specific percentages of cross slope are not required, however, it is the intent that the application of the leveling course will follow existing cross slope; or where none exists, provide sufficient cross slope to insure adequate drainage.
6. The centerline of a roadway shall be an equal distance from each edge of new pavement.

3.04 ASPHALTIC CONCRETE SURFACE COURSE

A. Requirements

1. The surface course requirements consist of the application of compacted Type S-III asphaltic concrete to provide for surfacing as shown in the Plans.
2. After a thorough motorized brooming, a tack coat in quantities of .02 gallons to .08 gallons per square yard shall be applied to the base prior to the application of the surfacing course.
3. Spreading: Spreading shall conform to the applicable provisions of FDOT Specifications, Section 330-9.2. The surface course shall be completed in one pass. The longitudinal joint, if required due to the width of the pavement, will be at the center of the total proposed paving width, not offset.
4. Other items, such as materials, mixing, transporting, rolling, joints, etc. shall be as specified by other paragraphs of this section.

5. In cases where only a surface is required on top of a limerock base course, the contractor shall install a compacted asphaltic surface course that has a minimum of 1-1/2".

3.05 TRANSPORTATION OF MIXTURE

- A. The mixture shall be transported in tight vehicles cleaned of all foreign material &, if necessary, each load shall be covered with a waterproof canvas cover of sufficient dimensions to protect it from weather conditions. The inside surface of the truck may be thinly coated with a soapy water, or a mixture of water with not more than 5 percent of lubricating oil, but no excess of either shall be used. After the trucks are coated and before any mixture is placed therein, they shall be raised so that all excess water will drain out. Kerosene, gasoline or similar products shall not be used to prevent adhesion.

3.06 LIMITATIONS FOR SPREADING

- A. The mixture shall be spread only when the surface is properly prepared and is intact, firm, cured and dry. No mixture shall be spread when the air temperature is less than 40° F, nor when the spreading cannot be finished and compacted during the daylight hours. The temperature of the mix at the time of spreading shall not be less than 230° F.

3.07 PLACING MIXTURE

- A. The mixture shall be placed in accordance with the requirements of FDOT Specifications, Section 330-9.
- B. Thickness of layers for Type S-III asphaltic concrete construction shall be no more than 2" (inches) on each pass for surface and leveling courses.

3.08 COMPACTING MIXTURE

- A. The mixture shall be compacted in accordance with the requirements of FDOT Section 330-10, except that any portion of the project being constructed as an asphaltic concrete base shall be compacted as shown in Sec. 280-8.6.

3.09 JOINTS

- A. Joints shall conform with the requirements of FDOT Specifications, Section 330-11.

3.10 FIELD QUALITY CONTROL

A. Surface Requirements

1. For the purpose of testing the finished surface, a fifteen foot straightedge (large paved areas), a six foot straightedge (bike path), and a standard template cut to the true cross-section of the road shall be provided by the Contractor and available at all times. The Contractor shall provide or designate an employee whose duty it is to handle the straightedge and template in checking all rolled surfaces, under the direction of the Engineer or his representative.
2. The finished surface shall be such that it will not vary more than 1/4-inch from the template cut to the cross section of the road/path, nor more than 3/16 inch from the fifteen/six foot straightedge applied parallel to the centerline of the pavement. If necessary, the Contractor shall provide a fifteen foot rolling straightedge to demonstrate whether the leveled surface meets the specified criteria prior to the application of the surface course. Any irregularity exceeding the above limits shall be corrected. Depressions which may develop after the initial rolling shall be remedied by loosening or removing the mixture and adding new material to bring the areas to a true surface. No skin patching shall be done. Such portions of the completed pavement that are defective in surface compaction or in composition, or that do not comply with all other requirements of these specifications, shall be removed and replaced with suitable mixture, properly laid in accordance with these specifications; all at the expense of the Contractor.

B. Thickness Requirements: The finished thickness of the compacted asphaltic concrete surface course shall be no less than that indicated in the contract documents as determined by the coring. Any surface course found to be less than that thickness shall be removed and replaced.

C. Protection of Pavement: After the completion of the pavement, no vehicular traffic of any kind shall be permitted on the pavement until it has set sufficiently to prevent rutting or other distortion.

END OF SECTION

SECTION 02520 CONCRETE CURBS AND HEADERS

PART 1 - GENERAL

1.01 SCOPE

- A. The work covered by this section of the specifications consists of furnishing all plant, labor, equipment, appliances and materials and performing all operations in connection the construction of concrete curbs and headers, complete and in place, in strict accordance with these specifications and the applicable drawings and subject to the terms and conditions of this contract.

1.02 SUBMITTALS

- A. Section 1300: Submittals.

1.03 REFERENCES

- A. Latest Edition of FDOT Specifications for Road and Bridge Construction and Standards and Drawings for reference.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. The concrete mix shall produce standard weight concrete with the following properties to be verified by the use of the appropriate listed test methods.
- *Compressive strength:* 3,000 psi at 28 days - tested according to ASTM designation C31 (AASHTO T23)
 - *Slump Range:* 2-4 inches - tested according to ASTM designation C143 (AASHTO T119)
- B. Joint materials shall be in accordance with FDOT Specification Section 932

PART 3 - EXECUTION

3.01 CONSTRUCTION METHODS

- A. Concrete curbs and headers shall be constructed of the type and in the locations as shown on the plans.
- B. Forms: Forms for this work shall be made of either wood or metal. They shall be straight, free from warp or bends, and of sufficient strength, when staked, to resist the pressure of the concrete without springing. If made of wood, they shall be of two (2) inch surfaced plank; if made of metal, they shall be of approved section and shall have a flat surface on top.
- C. Construction: Excavation shall be made to the required depth; and the sub-grade or base upon which the curb or header is placed shall be compacted to 98% AASHTO T-180.
 - 1. The concrete shall be placed in the forms to the depth specified, and tamped and spaded to prevent honeycomb and until the top of the structure can be floated smooth and the edges rounded to the radius shown on the plans.
 - 2. Contraction joints shall be placed at intervals of ten feet except where a lesser interval is required for closure, but no section shall be less than four feet in length.
 - 3. Contraction joints shall be created while the concrete is still plastic by using a grooving tool or by inserting a premolded filler strip, or a groove may be saw cut into the concrete soon after it has hardened. Curb with irregular cracks due to late contraction joint construction will not be accepted.
 - 4. Expansion joints shall be constructed at all radius points and at other locations indicated on the plans. They shall be located at intervals of 500 feet between other expansion joints, or ends of a run. The joint shall be 1/2 inch in width.
 - 5. The forms shall be removed within twenty-four (24) hours after the concrete has been placed, and minor defects then filled with mortar composed of one (1) part of Portland Cement and two (2) parts of fine aggregate. Plastering shall not be permitted on the face of the curb; and all rejected curb, or header shall be removed and replaced without additional compensation. The curb top, face and/or header top shall be given a surface finish while the concrete is still green. A brush finish will be required unless noted otherwise; however, additional finishing may be required in areas considered too rough or with minor defects.

6. After the concrete has been rubbed smooth, it shall be rubbed again until a uniform color is produced, using a thin grout composed of one (1) part of Portland Cement and one (1) part of fine aggregate.
7. After concrete has set sufficiently, the spaces in front and back of the curb shall be refilled to the required elevation with suitable material, which shall be placed and thoroughly compacted in layers of not more than six (6) inches in thickness.

END OF SECTION

SECTION 02521 FLOWABLE FILL

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This Section specifies the requirements for flowable fill used for trenches, support for pipe structures, culverts, utility cuts and other works where cavities exist and where firm support is needed for pavements and structural elements. Flowable fill may also be used to fill water pipes that need to be abandoned in place and at other locations approved by the Engineer.

1.02 REFERENCE SPECIFICATIONS

- A. Section 01010: Summary of Work
- B. Section 01090: Reference Standards
- C. Section 01300: Submittals
- D. Section 02225: Trenching and Backfill
- E. Section 02574: Pavement Removal and Replacement
- F. FDOT Standards for Road and Bridge Construction, Latest Edition.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. The materials used shall conform with the requirements specified in of the F.D.O.T. Standard Specification for Road and Bridge Construction, latest edition, and herein. Specific references are as follows:

- | | | |
|----|---|-------------|
| 1. | Portland Cement (Type I, II or III) | Section 921 |
| 2. | Fly Ash, Slag and other Pozzolanic materials for Portland Cement Concrete | Section 929 |
| 3. | Fine Aggregate (Sand)* | Section 902 |
| 4. | Water | Section 923 |

*Any clean sand with 100% passing 3/8" sieve and not more than 10% passing with 200 mesh may be used.

2.02 MIX PROPORTIONS

- A. The Contractor shall be responsible for producing a flowable mixture using these guidelines and by adjusting his mixture design as called for by circumstances or as may be directed by the Engineer.
- B. Flowable fill material shall be proportioned to produce a 28-day compressive strength of a minimum of 100 psi.
- C. General mix quantities are as follows:

<u>Components</u>	<u>Pounds per Cubic Yard</u>
Cement	75-100*
Fly Ash or Granulated Blast Furnace Slag	None
Fine Sand	2,750 (Adjust to yield one cubic yard of flowable fill)
Water	500 (Max.)

*The percentage of cement may be increased above these limits only when early strength is required and future removal is unlikely.

- D. Weights for fine aggregates and water shall be adjusted for removability, pumpability and flowability. If required, strength test data shall be provided prior to batching.
- E. If required by the Engineer, the flowability can be measured by afflux time determined in accordance with ASTM C 939 and shall be 30 seconds +/- 5 seconds as measured on mortar passing the No. 4 sieve. The equipment required to perform this test shall be provided by the Contractor.

2.03 APPROVED MIXES OF "FLOWABLE FILL"

- A. CRS Rinker Mix Code Number 1180587 – Ready Mixed Flowable Fill – Excavatable or Engineer approved equal.

PART 3 - EXECUTION

3.01 PRODUCTION AND PLACING

- A. Flowable fill shall be produced and delivered using ready mix concrete trucks and placed easily by chute in a flowable condition directly into the cavity to be filled or into a pump for final placement.

- B. The flowable fill shall be placed to the designated fill line without vibration or other means of compaction. Placement shall be avoided during inclement weather, e.g. rain. The Contractor shall take all necessary precautions to prevent any damages caused by hydraulic pressure of the fill during placement prior to hardening. Also, necessary means to confine the material within the designated space shall be provided by the Contractor.

3.02 ACCEPTANCE

- A. The flowable shall be proportioned and placed as specified herein. In general, the strength desired is the maximum hardness that can be excavated at a later date using conventional excavation equipment. No curing protection is required.
- B. The fill shall be left undisturbed until material obtains sufficient strength. Sufficient strength is 50 psi penetration resistance as measured every 20 lf of trench using a hand held penetrometer. A recent and properly calibrated penetrometer shall be provided by the Contractor. Random laboratory testing to demonstrate compressive strength of 100 psi to be conducted per Section 02574: Pavement Repair, Removal and Replacement.
- C. All flowable fill areas subject to traffic loads must have a durable riding surface.
- D. An approved type of accelerator may be approved for the placement of “Flowable Fill” in traffic areas when submitted to the Engineer. Depending on the condition of the cavity, paving can begin from 8-24 hours after placement.

END OF SECTION

SECTION 02550
ASPHALTIC CONCRETE OVERLAY

PART 1 - GENERAL

1.01 SCOPE

- A. The work to be performed under this item shall include the selling, delivering and installing of final asphaltic concrete surface courses as herein specified.

1.02 REFERENCES

- A. Standards applicable in this Specification shall be:
1. Florida Department of Transportation - Standard Specifications for Road and Bridge Construction (latest ed.).
 2. Section 300 - Prime and Tack Coats for Base Courses. Subsections (1, 2.3, 3, 4, 5, 7).
 3. Section 320 - Hot Bituminous Mixtures - Plant, Methods and Equipment. Subsections (1, 2.1, 2.5, to 2.13, 3, 4, 5).
 4. Section 330 - Hot Bituminous Mixtures - General Construction Requirements. Subsections (1, 3 to 13).
 5. Section 331 - Type S-III, Asphaltic Concrete. Subsections (1 to 5).

1.03 SUBMITTALS

- A. Section 01300: Submittals.
- B. Manufacturer's Data - Prior to fabrication or installation of the final asphaltic concrete surface course, the Contractor shall furnish to the Engineer, for review and approval the following:
1. Certification from the manufacturer that their plant meets the requirements of Section 320 above.
 2. Formula for job mix.

PART 2 - MATERIALS

2.01 TACK COAT

- A. Unless otherwise specified by the Engineer, the material used for the tack coat shall be Emulsified Asphalt, Grade RS-2, Section 300-2.3 F.D.O.T. Specification.

2.02 ASPHALTIC CONCRETE

- A. Asphaltic concrete surface course - Type S-III asphaltic concrete wearing surface, 1 inch in compacted thickness or as indicated on the Drawings, in accordance with Sections 330-10 Compacting Mixture and 331 Type S-III Asphaltic Concrete of aforesaid DOT Standard Specification.

PART 3 - EXECUTION

3.01 CLEANING SURFACES

- A. Prior to the laying of the surface courses, the surface of the pavement or base to be covered shall be cleaned of all loose and deleterious material by the use of power brooming or hand brooming where necessary. All such material shall be collected and disposed of by the Contractor.

3.02 PATCHING AND LEVELING COURSES

- A. Where a surface course is to be constructed on an existing paved surface which is irregular, said surface shall be brought to proper grade and cross section by the application of patching or leveling courses.

3.03 APPLICATION OF TACK COAT

- A. The material shall be heated to a suitable temperature and applied in a thin, uniform layer at a rate of between 0.02 and 0.08 gallons per square yard. The tack coat shall be applied sufficiently in advance of the surface course laying to permit drying but not so far in advance as to lose its adhesiveness as a result of being covered with dust. The tack coat shall be kept free from traffic until the surface course has been laid.

3.04 TRANSPORTATION OF THE ASPHALT

- A. The surface course shall be transported in tight vehicles previously cleaned of all foreign material. The inside surface of the truck bodies shall be only thinly coated with soapy water or an approved emulsion containing not over 5 percent

oil. Kerosine, gasoline or similar products shall not be used. After coating and before loading, the truck bodies shall be raised and drained of all excess liquids.

3.05 INSTALLATION OF ASPHALTIC CONCRETE

- A. Prior to final acceptance, or as directed by the FDOT, Town and Engineer, the Contractor shall install a 3/4-inch layer of Type S-III Asphaltic Concrete over the entire street width as directed by the FDOT, Town and Engineer. A leveling course as indicated on the plan sheets shall be placed prior to the final asphaltic concrete surface course under this item.
- B. Mechanical spreading and screeding equipment shall be of an approved type that is self-propelled and can be steered. It shall be equipped with a receiving and disbursing hopper and a mechanical screed or strike-off member capable of adjustment to regulate the depth of material being spread. Tandem Type 5 to 12 ton steel- wheeled rollers shall be used for sealing. Self- Propelled, pneumatic-tired traffic rollers equipped with at least 7b smooth tread, low pressure tires, having a total weight of 6 to 10 tons shall be used for final rolling.

3.06 FIELD QUALITY CONTROL

- A. The final surface course of all pavements will be required to be checked by a rolling straightedge. The finished surface shall not vary more than 3/16 inch from the straightedge applied parallel to the centerline of the pavement. The straightedge shall have an effective length of 15 feet.

END OF SECTION

SECTION 02574
PAVEMENT REPAIR, REMOVAL AND REPLACEMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section addresses the pavement repair, removal and replacement and/or restoration as it applies to construction activities of this project. The FDOT is currently scheduled to re-surface Gulf of Mexico Drive roadway south of the Sarasota County line within calendar year 2009/2010. The FDOT and Town have agreed the Contractor will be allowed to trench restoration per crossing detail and patching pavement provided quality of material and compaction and final surfacing meet FDOT specifications. As such, the standard FDOT milling and restoration from centerline of GMD and 75-feet each direction is not required for travel lane reconstruction in this contract. Paved shoulder will need to match existing sub grade, base, structural asphalt and friction course. Contractor is required to take extreme caution to minimize all impacts and not enter into Gulf of Mexico Drive pavement. The FDOT maintains final inspection and authority in completed road work, repairs, and activity within their ROW.

1.02 WORK INCLUDED

- A. Work included under this Section consists of cutting, removing, protecting and replacing existing pavements of the various types encountered including roadways, driveways, sidewalks, curb, etc.
- B. The operations, beyond the limits of the work of pavement replacement as described herein, shall be repaired by the Contractor at their expense.
- C. Reference Latest Edition FDOT Specifications for Road and Bridge Construction and Project Drawings.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Materials, including limerock, bituminous prime and tack coat, and asphaltic concrete for the above work shall meet the requirements established by the FDOT Specifications.
1. Limerock shall be FDOT certified LBR 100.
 2. Flowable fill - section 121, FDOT Specifications, 28 day compressive strength of 75 to 100 psi, and excavatable.

3. Bituminous prime coat material shall be cutback asphalt Grade RC-70.
4. Bituminous tack coat material shall be emulsified asphalt Grade RS-2.
5. Asphaltic concrete shall be Type S-III in accordance with FDOT Standard Specifications for Road and Bridge Construction (Latest Edition).
6. Stabilized Sub-Base shall be clean fill with Florida Bearing Value of 75 or greater per FDOT Standard Specifications for Road and Bridge Construction.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Pedestrian or school crossings: Where the work crosses or interferes with school or pedestrian crossings, extreme care shall be taken by the Contractor to ensure the safety of school children or other pedestrians.
- B. FDOT requires the existing sidewalk remain open. In the event the sidewalk needs to be closed, an alternate path with appropriate path and safety markings must be provided for uninterrupted pedestrian traffic. Work arounds and detours shall be provided.

3.02 PERFORMANCE

- A. Removal:
 1. Pavement Removal: Where existing pavement is to be removed, the surfacing shall be mechanical saw cut prior to trench excavation, leaving a uniform and straight edge, with minimum disturbance to the remaining adjacent surfacing. The width of cut for this phase of existing pavement removal shall be minimal.
 2. Sidewalk, Drive, and Curb Removal: Concrete sidewalks, curbs, combination curb and gutter, walks, drive ribbons, or driveways shall be removed by initially sawing the structure, with a suitable power saw, as specified above for pavement. When a formed joint in the concrete exists within 3-feet of the proposed saw cut and parallels the proposed saw cut, the removal line shall be extended to the formed joint. After sawing, the material shall be removed.
- B. Restoration:
 1. General: Street or roadway pavement cut and removed in connection with trench excavation shall be replaced or restored in equal or better condition

than the original and as shown on the Standard Detail Drawings and per FDOT Standards.

2. Pavement Restoration - Asphalt:
 - a. Limerock base course shall be compacted for its full thickness to not less than 98 percent of maximum density as determined by AASHTO T-180.
 - b. Construction methods and equipment shall generally meet the requirements established in the FDOT Specifications. Deviations or modifications would require the prior approval of the Town and FDOT.
 - c. Joints with existing surface and base shall be straight and neat. If necessary to obtain a straight neat joint, the Contractor shall cut out sufficient existing material and replace it with new material.
 - d. Test local material for compliance with the required Florida Bearing Value. If the natural in-place soils do not meet the required stability, uniformly mix to depth shown in plans sufficient borrow material for stabilization with the in-place soils to produce the required bearing value. Compact the stabilized sub-base in both cuts and fills to a density of 98 percent of the maximum density as required by AASHTO T-180 (modified). Shape the sub-base to within 1/4 inch of the cross section grade shown in the plans prior to making the density tests. **PASS THE DENSITY TESTS BEFORE OTHER WORK PROCEEDS.** Maintain the required density and cross section until the base or pavement has been laid or until the aggregate materials for the base or pavement course have been spread in place.
 - e. The upper surface of the completed base course shall be compacted to an elevation to permit the full depth of the surface course to be of the pavement surface. The completed surface shall match the line and grade of the existing surface.
 - f. Density and bearing value tests shall be made by an independent testing laboratory at intervals not more than 200 feet through each lift of backfill. If any test results are unsatisfactory, re-excavate and re-compact the sub-base until the desired compaction is obtained. Make additional tests on each side of an unsatisfactory test to determine the extent of re-excavation, re-mixing and re-compaction necessary.

END OF SECTION

SECTION 02620
POLYETHYLENE SHEET ENCASUREMENT (AWWA C105)

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section includes materials and installation of a polyethylene sheet encasement for buried Ductile Iron pipe, fittings, and valves.

1.02 SUBMITTALS

- A. Submit shop drawings in accordance with the Standard Conditions and Section 01300.
- B. Submit manufacturer's catalog literature and product data sheets describing the physical, chemical, and electrical properties of the encasement material.

PART 2 - MATERIALS

2.01 POLYETHYLENE WRAP

- A. The encasement shall consist of low-density polyethylene wrap of at least 8-mil thickness conforming to AWWA C105. Color: Black.
- B. Polyethylene encasement for ductile-iron pipe shall be supplied as a flat tube meeting the dimensions of Table 1 in AWWA C 105 and shall be supplied by the ductile-iron pipe manufacturer.

2.02 PLASTIC ADHESIVE TAPE

- A. Tape shall consist of polyolefin backing and adhesive which bonds to common pipeline coatings including polyethylene.
- B. Minimum Width: 2 inches.
- C. Products: Canusa Wrapid Tape; Tapecoat 35; Polyken 934; AA Thread Seal Tape, Inc.; or equal.
- D. Tape shall be Blue with block lettering stating CAREFUL: DRINKING WATER.

PART 3 - EXECUTION

3.01 APPLYING SHEET COATING TO BURIED PIPING AND FITTINGS

- A. Apply wrapping per AWWA C 105 as modified herein.
- B. Apply a single wrapping.
- C. Install the polyethylene to completely encase the pipe and fittings to provide a watertight corrosion barrier. Continuously secure overlaps and ends of sheet and tube with polyethylene tape. Make circumferential seams with two complete wraps, with no exposed edges. Tape longitudinal seams and longitudinal overlaps, extending tape beyond and beneath circumferential seams.
- D. Wrap bell-spigot interfaces, restrained joint components, and other irregular surfaces with wax tape or moldable sealant prior to placing polyethylene encasement.
- E. Minimize voids beneath polyethylene. Place circumferential or spiral wraps of polyethylene tape at 2-foot intervals along the barrel of the pipe to minimize the space between the pipe and the polyethylene.
- F. Overlap adjoining polyethylene tube coatings a minimum of 1 foot and wrap prior to placing concrete anchors, collars, supports, or thrust blocks. Hand wrap the polyethylene sheet, apply two complete wraps with no exposed edges to provide a watertight corrosion barrier, and secure in place with 2-inch-wide plastic adhesive tape.

3.02 APPLYING SHEET COATING TO BURIED VALVES

- A. Wrap flanges and other irregular surfaces with wax tape or moldable sealant. Press tightly into place leaving no voids underneath and a smooth surface under coating for polyethylene sheet.
- B. Wrap with a flat sheet of polyethylene. Place the sheet under the valve and the flanges or joints with the connecting pipe and fold in half. Extend the sheet to the valve stem and secure the sheet in place with 2-inch-wide plastic adhesive tape. Apply a second layer and secure with tape. Make two complete wraps, with no exposed edges, to provide a watertight corrosion barrier. Secure the sheets with tape around the valve stem below the operating nut and around the barrel of the connecting pipe to prevent the entrance of water and soil. Place concrete anchor and support blocks after the wrap has been installed.

3.03 REPAIR OF POLYETHYLENE MATERIAL

- A. Repair polyethylene material that is damaged during installation. Use polyethylene sheet, place over damaged or tom area, and secure in place with 2-inch-wide plastic adhesive tape.

3.04 BACKFILL FOR POLYETHYLENE-WRAPPED PIPE VALVES. AND FITTINGS

- A. Place sand backfill within 1 foot of the pipe, valves, and fittings wrapped with polyethylene encasement.

END OF SECTION

SECTION 02675
DISINFECTION OF POTABLE WATER LINES

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Provide personnel, equipment and supplies to disinfect new water mains, existing water mains at connections, and flush out systems at completion of treatment.
- B. Contractor to provide disinfection and bacteriological sampling plan detailing method including schematic of sampling locations, flushing quantities, method of disposal for chlorinated waters, and schedule. Disinfection plan to follow AWWA C-651 (latest edition)-Disinfecting Water Mains and be in compliance with local Department of Health.
- C. Contractor will provide services of a certified lab for sampling and testing. The Town may elect to split samples.
- D. A Department of Health approved backflow preventer shall be used on the fill connection on the pig launcher assembly.

1.02 RELATED REQUIREMENTS

- A. Section 01300: Submittals.
- B. Section 01045: Connections to Existing Systems
- C. Section 15115: Water Mains
- D. AWWA C-651: Disinfection of Water Mains (Latest Edition)

1.03 DEFINITIONS

- A. Disinfectant Residual - The quantity of disinfectant in treated water.
- B. ppm - parts per million.

1.04 QUALITY ASSURANCE

- A. Contractor shall be experienced in performing work specified herein. Logs of sampling times and locations to be maintained; maintain all lab sampling records; and submit to Town upon receipt.

- B. Regulatory Agency Requirements: Comply with State and Local Requirements.

1.05 PROTECTION

- A. Provide necessary signs, barricades, and notices to prevent any person from accidentally consuming water or disturbing system being treated.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Disinfectant
 - 1. Utilize liquid Sodium Hypochlorite meeting ANSI/AWWA B300 for product use within potable water supply. Product shall have adequate hypochlorite concentration minimum of 5% available chlorine to provide specified chlorine residual in fill potable fill water for disinfection.

PART 3 - EXECUTION

3.01 PREPARATION OF WATER FOR TREATMENT

- A. Swab all tools, fittings, connections, materials, ends of pipe and interior with concentrated 1% to 5% hypochlorite solution.
- B. Use potable water obtained from the existing distribution system for disinfection and flushing. Provide a Department of Health approved backflow valve prevention device.
- C. Only drinking water approved (NSF compliant) hoses and related materials and chemicals shall be used at all times.
- D. Notify Town and Engineer 48 hours prior to starting tests.

3.02 INSPECTION

- A. Prior to starting work verify that potable water system is completed and cleaned.
- B. Coordinate sampling efforts for disinfection and bacteriological sampling with local Department of Health, Town and Engineer.

- C. Do not start disinfection work until conditions are satisfactory.

3.03 SYSTEM TREATMENT

- A. Inject disinfectant throughout system to obtain 50 to 80 ppm residual.
- B. Starting at outlet closest to water source, bleed water from each outlet until water produces odor of disinfectant. Repeat process at each outlet throughout system.
- C. Test for disinfectant residual at the end of each pipe run.
- D. Maintain disinfectant in system for 24 hours. The residual shall not drop below 25 ppm before it is flushed out.

3.04 FLUSHING

- A. Remove disinfectant from system; permit no more than residual rate of incoming water or one ppm, whichever is greater. Disposal of chlorinated water must be completed in compliance with Contractor disinfection plan and federal, state and local codes.

3.05 BACTERIOLOGICAL TEST

- A. Water samples will be collected by certified laboratory approved by Town and Engineer.
- B. Water samples will be analyzed in accordance with Standard Methods for the Examination of Water & Waste Water, latest edition, published by American Water Works Association, 6666 West Quincy Avenue, Denver, CO 80235.
- C. If bacteriological test proves water quality to be unacceptable, repeat system treatment. The Contractor will be responsible for all costs associated with retests.
- D. When the bacteriological tests prove satisfactory, submit to Town and Engineer the appropriate forms, results for certification of clearance for connection to existing system.

END OF SECTION

SECTION 02934 SODDING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Provide all labor, materials, and equipment necessary for complete sodding of areas affected by construction in FDOT ROW and any adjacent effected areas. This shall include, but not be limited to: fertilizing, sodding, watering, necessary barriers, tests, and all incidentals to make the work complete.
1. Testing of topsoil.
 2. Raking and leveling topsoil as required for sodding.
 3. Liming and fertilizing of topsoil.
 4. Laying and rolling of sod.
 5. Maintaining sod including watering. Watering and associated costs are the responsibility of the Contractor.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Fertilizer:
1. Fertilizer if necessary shall be commercial fertilizer, as manufactured by International Chemical Company or approved equal.
 2. Said fertilizer shall have a 10-20-6 N.P.K. content and contain a minimum of 60% of organic material.
 3. It shall be delivered at the site in the original sealed containers.
- B. Sod:
1. The sod shall be as grown by a certified turf nursery and Contractor shall inform the Town and Engineer as to the source of the sod to be utilized prior to ordering and delivery of sod.
 2. Sod shall be furnished and installed in rectangular sod strips measuring 12 to 16-inches in width of standard lengths of not less than 2 feet and delivered on pallets.

3. After the preparation of the areas to be sodded has been reviewed by the Town and Engineer sod all previously sodded areas where no permanent construction exists. Supply and install sod which is equal to or approved equal to sod which exists at the project site.
4. Replace sod in-kind to previous type prior to construction. Bahia sod may be placed in areas not irrigated.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. These areas shall be fine graded to achieve the finished subgrade after compaction which shall be obtained by rolling, dragging or by an approved method which obtains an equivalent compaction to that produced by a hand roller weighing from 75 to 100 pounds per foot of width. All depressions caused by settlement or rolling shall be filled with additional existing or furnished topsoil and regraded and prepared as specified above until it presents a reasonably smooth and even finish at the required sod sub-grade.
- B. All sod furnished shall be living sod containing at least 70% of thickly matter grasses as specified and free from noxious weeds.
- C. No broken pads or torn or uneven ends will be accepted. Standard size sections of sod shall be strong enough to support own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10% of the section. Sod shall not be harvested when its moisture content (excessively wet or dry) may adversely affect its survival.
- D. Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not installed within this time period shall be subject to inspection and rejection by the Town and Engineer, and shall be removed from the side and a fresh sod supply shall be furnished at no extra cost to Town.
- E. The topsoil shall not be moist at time of installation; however, it shall contain sufficient moisture so as not be powdery or dusty, both as determined by the supplier's representative.
- F. The overlapping of existing lawn with new sod along limit of work lines will not be permitted. Sod shall be laid in strips, edge to edge, with the lateral joints staggered. All minor or unavoidable openings in the sod shall be closed with sod plugs or with topsoil, as reviewed by the Town an Engineer. However, sod laid with joints determined to be too large shall be lifted and 43-laid as specified herein at no extra cost to Town.

- G. Immediately after the sod is laid, the sod shall be watered thoroughly by hand or mechanical sprinkling until the sod and at least 2-inch of the top soil bed have been thoroughly moistened.
- H. Contractor shall be responsible to furnish their own supply of water to the site at no extra cost. In locations where public water supply is available, the Contractor may be allowed to use water without charge for construction purposes. The Town will provide any meters required for water taken from the public water system. The express approval of the Town shall be obtained before water is used. Waste of water shall be sufficient cause for withdrawing the privilege of unrestricted use. Hydrants shall only be operated under the supervision of Town staff. However, if the Town's water supply is not available or not functioning, Contractor shall be responsible to furnish adequate supplies at their own cost. All work injured or damaged due to the lack of, or the use of too much water, shall be Contractor's responsibility to correct.

3.02 MAINTENANCE

- A. Maintain the entire sodded areas until final acceptance at the completion of the Contract. Maintenance shall include watering as specified, weeding and removal of stones which may appear. All bare or dead spots which become apparent shall be properly prepared, limed and fertilized, and resodded at Contractor's expense as many times as necessary to secure a good growth. In the event that the sod installation is not accepted by the Town and Engineer, the entire area shall be maintained and cut by Contractor until final acceptance of the sod installation. Maintenance shall be in accordance with Town of Longboat Key Ordinance 2008-04 and 2008-07.
- B. Take measures are necessary to protect the sod while it is developing. These measures shall include furnishing or warning signs, barriers, or any other necessary measures of protection.

END OF SECTION

SECTION 02935 LANDSCAPE PLANTING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section includes soil preparation, fine grading, planting, watering, and plant establishment and maintenance for the replacement of disturbed landscaping.

1.02 SUBMITTALS

- A. Submit shop drawings and other items in accordance with the General Terms and Conditions and Section 01300.
- B. Work schedule.
- C. Materials list noting product (generic) name and supplier.
- D. Submit plant materials list and supplier's name, address, and phone number to the Town and Engineer 14 days prior to securing plants.

1.03 GUARANTEE

- A. Immediately remove plant material that does not meet the specifications from the site. Replace these and any other plants that are missing with the same variety and size as originally designated in the plant list.
- B. See General Conditions for one-year guarantee.

1.04 ACTIVITY

- A. Request review by the Town and Engineer at least 48 hours in advance of the time work is required.
- B. Review will be required for the following parts of the work:
 - 1. Prior to completion of grading and soil preparation.
 - 2. Plant material when delivered to the project site.
 - 3. When shrubs and trees are spotted for planting but before planting pits are excavated.
 - 4. When planting and all other indicated or specified work has been completed.
 - 5. Upon completion of maintenance and plant establishment.

PART 2 - MATERIALS

2.01 AMENDMENTS AND FERTILIZERS

- A. Fertilizer and amendments shall be applied in accordance with the Town of Longboat Key Ordinance 2008-04.
- B. Deliver amendments and fertilizers in sacks with manufacturer's label showing weight and analysis attached to each sack. Use the following:
 - 1. Commercial fertilizer shall comply with the state and local fertilizer laws and codes.
 - 2. The numerical designation for fertilizer indicate the minimum percentages (respectively) of (1) total nitrogen, (2) available phosphoric acid, and (3) water soluble potash contained in the fertilizer.
 - 3. Fertilizer per landscape company recommendation by type of plant.

2.02 WATER FOR GRASSING

- A. Maintain a balanced watering program until the acceptance of work.
- B. Apply water in sufficient quantities and as often as seasonal conditions require to keep the grassed areas moist.

2.03 PLANT MATERIAL

- A. Boxed plant materials may be reviewed by Town and Engineer prior to delivery to jobsite. Review, when requested, shall be scheduled by the Contractor.
- B. Plant material shall be fresh, vigorous, of normal growth, and free from disease, weeds, insects, insect eggs, or larvae. Plants shall be free from knots, sunscald, injuries, abrasions, or other disfigurements. Container stock shall have grown in containers for at least six months, but not over two years. Tree trunks shall be sturdy and hardened.
- C. Plant materials shall meet the specifications of federal, state, and county laws requiring inspection for plant diseases and insect infestations. Any inspection certificates required by law shall accompany each shipment invoice or order for stock when such plants arrive at the site. File the certificates of inspection with the Owner.
- D. Plants shall be true to name. Tag one plant from each bundle or lot with the name and size of plants in accordance with the standards of practice recommended by the American Association of Nurserymen.

- E. Determine the root condition of plants furnished in containers or flats by removal of earth from the roots. The roots of no less than two plants nor more than 2% of each species or variety from each source shall be reviewed by the Town and Engineer. The selection of plants to be reviewed will be made by the Town and Engineer.
- F. Plants rendered unsuitable for planting because of this inspection shall be considered as samples, and replacements shall be provided at no additional cost to the Town. If the sample plants reviewed are found to be defective, the Town and Engineer reserves the right to reject the entire lot or lots of plants. Remove rejected plants from the site immediately.
- G. Sod shall be Bahia grass or other type necessary to match existing grown from high quality propagative material (seed, stolons, or plugs); be free from weeds, diseases, and insects; and well matted with grass roots.
 - 1. Sod shall be machine cut and at minimum thickness of 2 inch. Measurement for thickness shall exclude top growth and thatch.
 - 2. Broken pads and tom or uneven ends will not be acceptable.
 - 3. Pads of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically.
 - 4. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
 - 5. Reference Section 02934-Sodding.

2.04 TREE SUPPORTS

- A. Tree stakes shall be straight-grained lodgepole pine, treated with copper naphthenate. Stakes shall be free from knots, checks, splits, or disfigurements.
- B. Tree supports shall be new rubber hose and 10-gauge zinc-coated iron wire, cinch tie, or plastic covered steel twist braces.

2.05 GUYING MATERIALS

- A. Tree anchors for guying shall be by Maxwell Steel Co., or equal. Place anchor a minimum of 6 inches below finished grade.
- B. Wire shall be solid-core zinc-coated steel, 10 gauge minimum. Wire covering at tree shall be reinforced rubber or plastic two-ply garden hose, 1/2 inch in diameter minimum.

PART 3 - EXECUTION

3.01 PRUNING

- A. Persons engaged in this work shall be professional landscapers. Submit proof of qualifications to the Town and Engineer.
 - 1. Perform pruning in conformance with sound arboricultural practices and methods.
 - 2. Remove hazardous branches, weak limbs, and questionable double trunks.
 - 3. Cuts, including those of roots, shall be neat, square, and free from jagged edges and bruises. Treat cuts 1 inch in diameter and larger with an asphalt varnish which contains an antiseptic.

3.02 LANDSCAPE GRADING

- A. Bring planting areas to grade by filling or removing surplus dirt. Remove rock debris over 1 inch in diameter. Bring the surface to a smooth uniform grade. Areas shall slope to drain. Flow lines shall be established to existing road curbs and sidewalks as shown in the drawings.
- B. Final grades for the shrub and ground cover areas shall be 2 inches below the top of adjoining curbs or pathways. Final grades for turf areas shall be 1 inch below the top of adjoining curbs or pathways.

3.03 TREE PLANTING

- A. Tree planting pits shall be square with vertical sides.
- B. Do not plant trees if the root ball is broken or cracked either before or during the planting process.
- C. Tree planting pits shall be a maximum of 6 inches deeper than the root ball and twice the diameter of the root ball.
- D. Use prepared soil for backfill and compact before placing the tree in the pit.
- E. Soil to be used as backfill shall be enriched using the following blend per cubic yard (agronomic soils test recommendation shall take precedence over backfill mix herein specified):
 - 1. Six parts by volume onsite soil.
 - 2. Four parts by volume organic amendment.
 - 3. One pound fertilizer per cubic yard of mix.
 - 4. Ten pounds agricultural gypsum per cubic yard of mix.

- F. Plant trees approximately in the center of the tree planting pits. Scarify sides of root ball.
- G. Plant trees with the nursery dirt ring around the trunk 1 inch above finished grade.
- H. As soil is backfilled, water it sufficiently to settle as the tree is planted.
- I. After the tree is planted, stake the tree or guy as shown in the typical tree staking and guying details in the drawings. Prevent injury to the root ball.

3.04 PALM PLANTING

- A. Health and Vigor: All palms shall be free of any insects or diseases and shall be sprayed prior to delivery to the site for the disease *Penicillium vennoeseni*.
- B. Digging Requirements: While excavating root balls, keep root mass intact and in a moist condition. Generously apply antidesiccants, such as aerosol pruning paint to root hairs and severed roots throughout the digging process. Wrap root mass with burlap during transportation to site. Wrap crowns and fronds with shade cloth or saran cloth for palms being transported greater than 300 miles.
- C. Pruning Procedure: Remove 35% to 40% of palm fronds during the digging process with hand pruning saws. Remove fronds after palms have been approved by Project Manager and certified to be free of disease. Tie fronds in an upright position with 2-ply twine. Tie twine horizontally across fronds. Twine is to remain during all transportation and planting phases of work.
- D. Loading of Palms: Do not use chains in loading or unloading of palms. Rigging shall consist of wire rope. When rigging is to be in contact with trunk surface or crowns, place 2-inch by 6-inch lumber between rigging and tree surface to avoid any possible scaring to trees.
- E. Planting Requirements: Plant palms within 96 hours of their excavation. Use 100% washed plaster sand backfill. Plant trees plumb. Apply the sand backfill in layers and jet with water. Compaction of 80% minimum is required of planting pit backfill. Any adjustment necessary to straighten palms due to poor compaction shall be made by the Contractor at no charge to the Owner within 12 months after final acceptance of the project.
- F. Palms shall be warranted by the Contractor for 24 months after final acceptance of the project. Contractor liability shall be the cost of labor, equipment, and material to replace trees of similar size during the warranty period.

3.05 SHRUB PLANTING

- A. Dig shrub planting pits square with vertical sides twice the diameter and 6 inches deeper than the root ball.

- B. Use prepared soil for backfill. Place in the bottom of each hole to such a depth that will allow the shrub, when planted, to be at its normal growing depth. Soil to be used as backfill shall be the same as the tree backfill material.
- C. Scarify root ball sides before or after shrub is placed in plant pit.
- D. Add backfill material around and halfway up the root ball. Watering procedure shall be the same as for trees.
- E. Protect the trees and shrubs after planting. Any damage to trees and shrubs due to tamping and other procedures by the Contractor shall be repaired immediately at no expense to the Town. Protect trees and shrubs from drying out prior to planting.
- F. Water and maintain trees and shrubs during the installation and maintenance periods to assure a vigorous and thriving condition.

3.06 GROUND COVER PLANTING

- A. Furnish, deliver, and plant ground cover areas with specified plants at the rate shown in the drawings.
- B. Provide ground cover plants to cover the designated areas at the specified spacing.
- C. Ground cover plantings shall receive one 5-gram fertilizer tablet per plant at a maximum of 3 inches below finish grade.

3.07 SOD INSTALLATION - REPLACE IN-KIND

- A. Prepare soil as described under soil preparation section excluding the fertilizer. Fine grade. Area shall be free from weeds and other vegetation. Roll with a 250-pound water ballast roller. Grade shall be 2 inches below walks or curbs. Finish grade of sod, in place, shall be 1 inch below adjoining walk, curb, header, and/or other hard surface. Finished soil surface shall make positive contact with sod soil with a minimum of air spaces.
- B. Before applying fertilizer, the soil pH shall be brought to a range of 6.0 to 7.0.
- C. The fertilizer shall be spread uniformly over the area to be sodded at the rate of 700 pounds per acre, or 16 pounds per 1,000 square feet, by a spreading device capable of uniformly distributing that material at the specified rate. Immediately after spreading the fertilizers shall be mixed with soil to a depth of approximately 4 inches.
- D. On steep slopes, where the use of machine for spreading or mixing is not practicable, the fertilizer shall be spread by hand and raked and thoroughly mixed with the soil to a depth of approximately 2 inches.

- E. The sod shall be placed on the prepared surface, with the edges in close contact with staggered joints and shall be firmly and smoothly embedded by light tamping with appropriate tools.
- F. On slope greater than 2 to 1, the Contractor shall, if necessary, prevent the sod from sliding by means of wooden pegs driven through the sod into firm earth, at suitable intervals.
- G. Sod, which has been cut for more than 72 hours shall not be used unless specifically authorized by the Town and Engineer after their inspection thereof. Sod, which is not planted within 24 hours after cutting shall be stacked in an approved manner and maintained and properly moistened. Any pieces of sod which, after placing, show an appearance of extreme dryness shall be removed and replaced by fresh uninjured pieces.
- H. Sod installation shall not be performed when weather and soil conditions are unsuitable for proper results.
- I. The areas on which the sod is to be placed shall contain sufficient moisture, as determined by the Engineer, for optimum results. After being placed, the sod shall be kept in a moist condition to the full depth of the rooting zone for at least 2 weeks. Thereafter, the Contractor shall apply water as needed until sod roots and starts to grow for a minimum of 60 days (or until final acceptance, whichever is latest).
- J. Reference Section 02934-Sodding.

3.08 MAINTENANCE

- A. After planting and during the establishment period, in the event that ground cover or trees and shrubs exhibit iron chlorosis symptoms, apply Fe 138 Geigy or equivalent at manufacturer's recommended rates.
- B. Maintenance work shall include the following plant establishment work:
 - 1. Maintain the entire project for a minimum period of 90 calendar days, after the date of substantial completion. Such maintenance shall include repairing of any damage areas and replacing areas in which the establishment of the material does not appear to be developing satisfactorily.
 - 2. During this period, keep plants and planted areas well watered and weed-free.
 - 3. Maintain a sufficient number of personnel and adequate equipment to perform the work herein specified from the time any planting is done until the end of the maintenance period.

4. Repair damage to planting areas immediately and throughout the maintenance period.
5. Any planting areas that do not show a prompt establishment of plant material shall be replanted at 10-day intervals.
 - a. Depressions caused by vehicles, bicycles, or foot traffic shall be filled and leveled.
 - b. Replant damaged areas.
 - c. Apply fertilizer at 30-day intervals as recommended by landscaper.
6. Maintain lawn areas to assure prompt growth.
7. Protect lawn areas and all areas planted with ground cover from damage caused by foot traffic, vandalism, burrowing animals, or erosion. Repair and replant damaged areas.
8. Mow lawn areas at regular intervals with a reel mower. Mow lawns at a height of not less than 1 inch. Do not allow lawn to exceed a height of 2 inches. Remove lawn clippings from the site and dispose. Trim lawn edges to a neat and uniform line. Not less than two mowings shall have been completed prior to acceptance of all lawn areas.
9. Throughout the maintenance period, maintain plants in a disease- and pest-free condition. Use a licensed pest control operator to recommend and apply pesticides, herbicides, and fungicides.
10. Pinch prune shrubs and trees to encourage new growth and to eliminate rank sucker growth.
11. Remove old flowers and dead foliage and limbs. Do no major pruning without the review of the Project Manager.
12. Replanting or repair necessary due to the Contractor's negligence, carelessness or failure to provide routine maintenance shall be at the Contractor's expense.

END OF SECTION

SECTION 03000 CONCRETE

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. This section covers work necessary for providing, testing and placing ready mix concrete.

1.02 REFERENCE STANDARDS, CODES AND SPECIFICATIONS (LATEST ED.)

- A. ACI 214 "Recommended Practice for Evaluation of Compressive Test Results of Field Concrete".
- B. ACI 318 "Building Code Requirement for Reinforced Concrete".
- C. ASTM C31 "Standard Method for Making and Curing Concrete Compressive and Flexure Test Specimens in the Field".
- D. ASTM C33 "Standard Specification for Concrete Aggregates".
- E. ASTM C42 "Standard Method for Obtaining and Testing Drilling Cores and Sawed Beams of Concrete".
- F. ASTM C94 "Standard Specification for Ready-Mix Concrete".
- G. ASTM C150 "Standard Specification for Portland Cement".
- H. ASTM A185 "Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete".
- I. ASTM C260 "Standard Specification for Air-Entraining Admixtures for Concrete".
- J. ASTM C494 "Standard Specification for Chemical Admixtures for Concrete".
- K. ASTM A615 "Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement".
- L. ASTM C618 "Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete".

1.03 SUBMITTALS

- A. Submittals shall be in accordance with the Section 01300 and shall include the following:
 - 1. Concrete mix designs and trial mix laboratory reports.
 - 2. Manufacturer's certification of admixtures.

3. Contractor's schedule and sequence of placement.
4. All Test Results.
5. Drawings showing locations of construction joints.

1.04 QUALITY ASSURANCE

- A. Submit certificates of mill reports on all cements for review by Engineer before batching concrete.
- B. Secure the services of a reputable manufacturer for counseling regarding the use of any specified admixture, as required.
- C. The Engineer shall have access to and have the right to inspect all batch plants, cement mills, and supply facilities of suppliers, manufacturers, subcontractors, and contractors providing products included in these Specifications. Batch plants shall have current certification that all weighing scales have been tested and are within the tolerances as set forth in the National Bureau of Standards Handbook No. 44.

1.05 CERTIFICATION

- A. Submit batch delivery tickets to the Engineer in compliance with and in accordance to ASTM C94.

1.06 TESTING

- A. Testing to be performed by an independent Engineering Laboratory acceptable to the Town and Engineer at Contractor's expense. If required, Contractor shall assist in the collection of samples. Any retests shall be within the Scope of the Contract.
- B. Criteria:
 1. Each test: not less than 5 cylinders; retain one after 28 days.
 2. One test for every 10 consecutive cubic yards of concrete cast.
 3. Furnish Engineer with 4 certified copies of tests made of 2 at 7 days, and 2 at 28 days.
- C. Questionable strength of in-place concrete:
 1. Additional tests may be ordered by the Engineer.
 2. Execute the core tests in accordance with ASTM C42 procedure.
 3. Costs of additional tests showing strength of in-place concrete conforming to design criteria are the responsibility of the Town.

4. Costs of additional tests showing noncompliance with the design criteria are the responsibility of the Contractor.
5. Additional items at Contractor's expense:
 - a. Provide load tests as requested by the Engineer.
 - b. Reinforce structure as directed or remove and replace all under strength concrete structure in place.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cement
 1. Portland cement Type I or Type II conforming to ASTM C 150. In addition, the tricalcium aluminate content of Type I cement shall not exceed 12 percent.
 2. Type I or Type II cement, at the Contractor's option, may be used for nonhydraulic structures, slabs on grade, sidewalks, thrust blocks and miscellaneous.
- B. Water: potable, salt free.
- C. Fine Aggregate: salt free and clean, conforming to ASTM C33.
- D. Coarse Aggregate: salt free and clean, conforming to ASTM C33.
- E. All Aggregate: quarried/mined in fresh water only.

2.02 MIXES

- A. Slab on Grade, Thrust Blocks, sidewalks and Miscellaneous Cast-In-Place
 1. 28 day compressive strength: 3000 psi
 2. Minimum cement content: 5 ½ bags per cubic yard.
 3. Admixture: As required below, use only specified product.
 4. Slump: 2 to 3 inches.
 5. Air Content: (ASTM C231): 4 to 6 percent.
- B. Precast concrete:
 1. 28 day compressive strength: 4000 psi, minimum, or as illustrated on the Drawings.

2. Minimum cement content for 4000 psi concrete: 6 bags per cubic yard.
3. Admixture: As required below, use only specified products.

C. Flowable Fill

1. Cement: 200 lbs/Cy.
2. Fine Aggregate: 2750 lb/Cy.
3. Water: 500 lbs/Cy. (maximum)

2.03 ADMIXTURES

- A. Provide air-entraining admixture in all concrete. Admixture shall conform to ASTM C 260, except it shall be nontoxic after 30 days and shall contain no chlorides. Furnish manufacturer's compliance statement for these requirements.
- B. All concrete shall contain a water-reducing admixture. The admixture shall conform to ASTM C 494, Type A or Type D, except it shall contain no chlorides, shall be nontoxic after 30 days, and shall be compatible with the air-entraining admixtures. The amount of admixture added to the concrete shall be in accordance with the manufacturer's recommendations. Furnish a compliance statement that the admixture used satisfies all requirements of this Specification.

2.04 CURING COMPOUNDS

- A. Normal placement without special finish; approved products:
 1. Master Builders Company: "Masterseal".
 2. Sonneborn-Contech: "Kure-N'Seal".

2.05 DEFORMED REINFORCING BARS

- A. ASTM A615: "Standard Specification for Deformed and Plain Billet-Steel Bars for concrete Reinforcement".
 1. Grade: 60
 2. Minimum yield strength: 60,000 psi.
- B. Sizes shall be as indicated on the Drawings.

2.06 WELDED WIRE FABRIC

- A. Welded wire fabric shall conform to ASTM A185.

2.07 ACCESSORIES

- A. Tie wires shall be 16-gauge, black, soft-annealed wire.
- B. Bar supports shall be of proper type for use intended. Bar supports in beams and slabs exposed to view after stripping shall be galvanized or plastic coated. Use concrete supports for reinforcing in concrete placed on grade.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Place no concrete until all reinforcing steel, pipes, inserts, sleeves, etc., have been set in place and reviewed by the Town and Engineer. Notify the Town and the Engineer of scheduled pours 48 hours prior to placement.

3.02 PLACING

- A. Place concrete expeditiously in clean forms that are not hot to the touch; spray forms with water just prior to placing concrete. Before placing concrete directly against earth, install vapor barrier to prevent water absorption, secure reinforcement in position, inspect, and approve before placing concrete. Do not rest runways for transporting concrete on the reinforcing steel. Deposit concrete as nearly as practical in final position; and, do not allow concrete to drop freely more than 5 feet. Place all concrete during daylight, unless otherwise authorized. Where reinforcing steel above the top of the cast is coated with concrete while placing below, remove all concrete from such reinforcing steel after the placing is complete and prior to the next cast.
- B. Place slabs-on-grade carefully to avoid damages to the vapor barrier.
- C. Concrete shall not be placed in the rain or when it looks as if it is going to rain unless specifically authorized by the Town and Engineer.

3.03 CONSOLIDATION

- A. Consolidate concrete in layers by internal vibrating equipment, supplemented by hand rodding and tamping as required. Do not use vibrators to move the concrete laterally inside the forms.
- B. Maintain internal vibrators at speed of at least 5000 impulses per minute when submerged in concrete. Maintain at least 1 spare vibrator in working condition at site at all times.

- C. Limit duration of vibration to time necessary to produce satisfactory consolidation without causing segregation. In no case more than 15 seconds per square foot of exposed surface. Move the vibrator constantly and place in each specific spot only once.

3.04 SIDEWALKS

- A. Replace damaged sidewalk by removing damaged section to the joint. Replace with 4" concrete with contraction and expansion joints to match existing spacing. Use 1/2" expansion joint material at the intersection of the new and existing sidewalk. Abut to pre-cast structures. Slope sidewalk a minimum of 1/8" transversely or match existing, whichever is greater. Materials, placement, and curing shall meet the requirements of this Section and Section 03300: Cast-In-Place Concrete and Section 03732: Concrete Repairs.

3.05 JOINTS

- A. Construction joints:
 - 1. Locate as illustrated on the Drawings and as reviewed by the Town and Engineer for slabs.
 - 2. Key joints.
- B. Expansion Joints. Place pre-formed expansion joints as indicated on the Drawings.

3.06 CURING

- A. Begin curing of concrete as soon as practicable after placing, but not more than 3 hours thereafter.
- B. Begin curing of the structural elements immediately after removal of forms.
- C. Apply curing compounds as specified in the Manufacturer's written instructions.

3.07 FINISHES

- A. Formed surfaces:
 - 1. Patching: immediately after stripping forms, patch all defective areas with mortar similar to the concrete mix; but, without coarse aggregate. Patch minor honeycombs, bulges and other minor defects only where exposed to view. Clean, dampen, and fill all the holes with patching mortar.
 - a. Major defective areas, as judged by the ENGINEER, including those resulting from the leakage of forms, excessive honeycombs,

large bulges, large offsets at form joints and those in which reinforcing bars are exposed: chip away to a depth of at least 1/4 inch; and, the surfaces that are to be patched coat with an epoxy-polysulfide adhesive. Press patching mortar in for a complete bond and finish to match adjacent areas.

- b. Minor defective areas, as judged by the Town and Engineer, including honeycombs, air bubbles, holes resulting from removal of ties and those resulting from leakage of forms: patch with grout without resorting to chipping. Minor bulges and offsets at form joints: finish as specified herein below.
2. Finishes; locations:
 - a. Rough or board finish: for all concrete surfaces not exposed to public view.
 3. Finishes; definitions:
 - a. Rough or board finish: reasonably true to line and plane. Tie holes and defects patched, and the fins exceeding 1/4 inch rubbed down, otherwise, surfaces may be left with texture imparted by forms.
- B. Unformed surfaces (flatwork):
1. Finishes:
 - a. General: grade and screed slab to elevation indicated, as required. After screeding, and apply finish specified hereinafter.
 - b. Broom finish: slab on grade.
 2. Finishes; definition:
 - a. Broom finish: finish with street type broom as soon as surface water sheen has disappeared.

3.08 FIELD QUALITY CONTROL

- A. Only ready mixed concrete in accordance with ASTM C94 will be accepted.
- B. Place all concrete within 1-1/2 hours after introduction of water to mix.
- C. Under no circumstances may additional water be added to mix.
- D. Discard unused concrete older than 1-1/2 hours. Retempering is prohibited.

END OF SECTION

SECTION 03300
CAST -IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SCOPE

A. Work Included: Furnish all labor, materials, equipment, fabrication incidentals, transportation, placing and supervision necessary to complete all Cast-In-Place concrete work, its finishing, and all related work called for by the Drawings and/or Specifications or reasonably inferable from either or both, including but not limited to the following:

1. Shop Drawings; submit in accordance with Section 01300.
2. Materials and Storage – Section 01600.
3. Reinforcing - Bar and Fabric.
4. Accessories of every nature, including Tie System.
5. Formwork and removal thereof.
6. Proportions and mixes.
7. Placing.
8. Additives and Admixes.
9. Joints, Metal Joint Screeds, and Joint Fillers.
10. Finishes of all types.
11. Protection and curing.
12. Laboratory testing.
13. Patching.

1.02 REFERENCES (LATEST EDITIONS)

- A. ACI 301 "Specifications for Structural Concrete for Buildings" is in all respects part of these specifications, except as modified or specified herein or on the Drawings. Contractor shall keep two copies of ACI 301 on the job site.
- B. Reinforced Concrete shall conform to ACI 318 "Building Code Requirements for Reinforced Concrete."
- C. Formwork shall conform to ACI 347 "Guide to Formwork for Concrete" except as modified herein.

PART 2 - PRODUCTS

2.01 MODIFICATION AND SUPPLEMENTS

- A. Comply with ACI 301 with modifications and supplements listed herein.
- B. Modifications and supplements to ACI 301 (numbers in parentheses are ACI 301 designations):
 - 1. Chapter 1 - General:
 - a. (1.1.1) Including foundations, curbs, sidewalks, and utility structures.
 - 2. Chapter 2 - Materials:
 - a. (2.1.1) Portland Cement: ASTM C 150, Type II, Domestic, all of one type and from same source.
 - b. (2.2.1) Following admixtures will be permitted, all others require written approval:
 - 1) Air Entraining Admixtures - Specifications for Air Entraining Admixtures for Concrete (ASTM C-260).
 - 2) "Anti-Hydro" where specified for waterproofing grouts and coves at tank joints. Installed with supervision per manufacturer's written specifications.
 - c. (2.3) Water: Potable only shall be used.
 - d. (2.4) Aggregates: All aggregates quarried/mined in fresh water, aggregates from salt or brackish water unacceptable.
 - 3. Chapter 3 - Proportioning:
 - a. (3.5) Slump shall not exceed four inches. There shall be no waiver from this requirement. The contractor shall be hereby forewarned that any concrete placed with slump in excess of four inches shall be removed at Contractor expense. Any Contractor personnel or ready mix truck operator found adding water without specific permission of the engineer will not be permitted to engage in concreting operations on this project. The Contractor shall bear all costs of additional testing of concrete determined to have been placed after additional water was added to the mix, regardless of the outcome of tests.

PART 3 - EXECUTION

(For Execution, see ACI 301 and Modifications as delineated in PART 2 - PRODUCTS above which references also include Execution.)

END OF SECTION

SECTION 03315 GROUT

PART 1 - GENERAL

1.01 REQUIREMENT

- A. The Contractor shall furnish all materials for grout in accordance with the provisions of this Section and shall form, mix place, cure, repair, finish, and do all other Work as required to produce finished grout, all in accordance with the requirements of the Contract Documents.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS (LATEST EDITION)

- A. Specifications, codes, and standards shall be as specified in Section 03300 entitled "Cast-in-Place Concrete," and as referred to herein.
- B. Additional Commercial Standards
 - CRD-C 621 Corps of Engineers Specification for Nonshrink Grout.
 - ASTM C109 "Standard Test Method for Compressive Strength of Hydraulic Cement Mortars."
 - ASTM C827 "Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures."

1.03 SUBMITTALS

- A. The Contractor shall submit certified test results verifying the compressive strength, shrinkage, and expansion requirements specified herein; and manufacturer's literature containing instructions and recommendations on the mixing, handling, placement and appropriate uses for each type of grout used in the work.

PART 2 - PRODUCTS

2.01 PREPACKAGED NON-SHRINK CEMENTITIOUS GROUT

- A. Nonshrink grout shall be a prepackaged, inorganic, non-gas liberating, nonmetallic, cement-based grout requiring only the addition of water. Manufacturer's instructions shall be printed on each bag or other container in which the materials are packaged. The specific formulation for each class of

- B. Nonshrink grouts shall have a minimum 28 day compressive strength of 5000 psi (ASTM C109, restrained), shall have no shrinkage (0.0 percent) and a maximum 4.0 percent expansion in the plastic state when tested in accordance with ASTM C 827, and shall have no shrinkage (0.0 percent) and a maximum of 0.2 percent expansion in the hardened state when tested in accordance with CRD C 621.
- C. Cement based grout shall be Five Star Grout as manufactured by Five Star Products, Inc., Fairfield, Connecticut, or equal.
- D. Cementitious non-shrink grout shall be used at locations where there are no dynamic loads, the grout will not come in contact with wastewater or wastewater gases, and where non-shrink grout is identified on the Drawings. Applications include, but are not limited to, structural steel column base plates, gate frames and guides, and precast concrete to cast-in-place concrete joints.

2.02 PREPACKAGED NON-SHRINK EPOXY GROUT

- A. Epoxy-based non-shrink grout shall be a three component, 100 percent solids, solvent-free system designed for machinery grouting. Applications include, but are not limited to, anchoring, pump and motor bases, and any other equipment imparting dynamic loads to the support system.
- B. When non-shrink grout is identified on the Drawings in submerged (water or wastewater) or under wastewater gas environment, epoxy-based non-shrink grouts shall be used.
- C. The epoxy grout shall be delivered to site as prepackaged, three-component systems composing of the resin, hardener, and specially blended aggregates. The components shall be stored as recommended by the manufacturer until use.
- D. Non-shrink epoxy grout shall be Five Star DP Epoxy Grout by Five Star Products, Inc., Fairfield, Connecticut, or equal.

2.03 CEMENT GROUT

- A. Cement grout for fills in the bottom of the valve vault as needed and other structures shall conform to the requirements specified herein for Class B concrete, except the coarse aggregate shall have 100 percent passing the 1/2-inch sieve and 85 percent passing the 3/8-inch sieves.

2.04 DOWEL/ANCHOR BOLT ADHESIVE SYSTEM

- A. When rebar or anchor bolts are specified to be drilled in and grouted on the Drawings, an adhesive system amenable to the application shall be used.
- B. Hilti Company, Simpson, and Power Fastener, inc. products are pre-approved. Submit specific system for approval. Install in accordance with Manufacturer's written instructions. Reference Section 01300 – Submittals.

2.05 CURING MATERIALS

- A. Curing materials shall be as recommended by the manufacturer.

2.06 CONSISTENCY

- A. The consistency of grouts shall be that necessary to completely fill the space to be grouted for the particular application. Dry pack consistency is such that the grout is plastic and moldable but will not flow. Where "dry pack" is called for in the Contract Documents, it shall mean a grout of the above described consistency; the type of grout to be used shall be as specified herein for the particular application.

2.07 MEASUREMENT OF INGREDIENTS

- A. Prepackaged grouts shall have ingredients measured by means recommended by the manufacturer.

PART 3 - EXECUTION

3.01 GENERAL

- A. All surface preparation, curing, and protection of cement grout shall be as specified in Section 03300 entitled "Cast-in-Place Concrete." The finish of the grout surface shall match that of the adjacent concrete.
- B. All mixing, surface preparation, handling, placing, consolidation, and other means of execution for prepackaged grouts shall be done according to the instructions and recommendations of the manufacturer.

3.02 CONSOLIDATION

- A. Grout shall be placed in such a manner, for the consistency necessary for each application, so as to assure that the space to be grouted is completely filled.

END OF SECTION

SECTION 03410 PRECAST CONCRETE STRUCTURES

PART 1 - GENERAL

1.01 REQUIREMENT

- A. This section includes design, materials, testing, and installation of precast concrete structures. All Work in this section shall be accomplished by a recognized precast concrete composite framing system fabrication firm whose design, fabrication and erection operations are supervised and controlled by a Florida Registered Professional Engineer who is an officer or full time employee of the firm. The firm shall have had a minimum of 10 years in this specific business, shall have a fabrication plant in Florida capable of producing the required units on schedule and readily available for daily inspection.
- B. Upon installation, all precast units and their associated covers and hatches shall be in compliance with FDOT Truck Design Load and ASTM C857.

1.02 REFERENCES (LATEST EDITIONS)

- A. ASTM A48 "Standard Specification for Gray Iron Castings".
- B. ASTM C150 "Standard Specification for Portland Cement".
- C. ASTM C387 "Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete".
- D. ASTM C487 "Standard Specification for Precast Reinforced Concrete Manhole Sections".
- E. ASTM C595 "Standard Specification for Blended Hydraulic Cements".
- F. ASTM A849 "Standard Specification for Post-Applied Coatings, Pavings, and Linings for Corrugated Steel Sewer and Drainage Pipe".
- G. ASTM C857 "Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures".

1.03 RELATED WORK

- A. Section 09900 – Painting and Coatings

1.04 SUBMITTALS REQUIRED

- A. Shop drawings in accordance with Section 01300 and the following:

1. Dimensions
 2. Reinforcement
 3. Finishes and Coatings
 4. Casings
 5. Design calculations or manufacture's data sheets indicating that the system meet 1.01B.
- B. Manufacturer's catalog data on pre-cast concrete, frames, and covers.
- C. Dimensions and materials of construction by ASTM reference and grade.

PART 2 - MATERIALS

2.01 PRECAST CONCRETE STRUCTURES

- A. Precast Concrete minimum 4,000 P.S.I. (Class A).
- B. Precast concrete shall comply with ASTM C 478, except that the wall thickness shall be 6 inches or greater. Design for the dimensions and depths shown in the drawings, assuming a soil density of 110 pounds per cubic foot.
- C. Manufacturer shall design to prevent floating with a safety factor of 1.5.
- D. Minimum allowable steel shall be hoops of No. 4 wire cast into each unit
- E. Cast without steps (ladder rungs).

2.02 FRAMES AND WATERTIGHT COVERS

- A. Frames and covers shall be made of cast iron conforming to ASTM A 48, Class 30. Castings shall be smooth, clean, and free from blisters, blowholes, and shrinkage. Precast units, frames, and covers shall be designed in accordance with ASTM C857 and for H-20 traffic loads. The cover shall seat firmly into the frame without rocking.
- B. Grind or otherwise finish each cover so that it will fit in its frame without rocking. Frames and covers shall be match-marked in sets before shipping to the site.
- C. Water covers shall have the word "WATER" and the letters as indicated on the plans cast thereon.
- D. Before leaving the foundry, clean castings and subject them to a hammer inspection.

- E. Coat castings with an asphalt coating complying with ASTM A849, Class A, to a minimum thickness of 50 mils.
- F. Provide Model USF 751 ring with MS Cover Castings by US Foundry. Provide Nitile 60 Duro Gasket in cover and one (1) Cam Lock Penta Head Bolt.

2.03 CONCRETE

- A. Concrete for precast bases shall conform to ASTM C 150 and C 595, Type II.
- B. Concrete used in pouring the base shall be Class A.

2.04 SEALING COMPOUND AND MORTAR

- A. Plastic sealing compound shall be manufactured by Quickset Utility Vaults, Santa Ana, Ca., Quik-Seal or K.T. Snyder Co., RAM-Neck. Mortar shall comply with ASTM C 387. Type S, or use grout complying with Section 03315.

2.05 CRUSHED ROCK FOR BASE

- A. Crushed rock shall comply with Section 02226 – Gravel and Crushed Rock Base. Crushed rock shall be the same material as the pipe bedding.

PART 3 - EXECUTION

3.01 SIDEWALKS

- A. Replace damaged sidewalk by removing damaged section to the joint. Replace with 4" concrete with contraction and expansion joints to match existing spacing. Use 1/2" expansion joint material at the intersection of the new and existing sidewalk. Abut to pre-cast structures. Slope sidewalk a minimum of 1/8" transversely or match existing, which ever is greater. Materials, placement, and curing shall meet the requirements of this Section and Section 03000: Concrete and Section 03300: Cast-In-Place Concrete.

3.02 CONCRETE BASE

- A. Excavate for the structure and install a crushed rock base, 12 inches thick, per Section 02225 – Trenching and Backfill and Drawings. Crushed rock base material shall extend 1 foot beyond the outside edge of the concrete base. Compact to 95% relative density.
- B. Form and pour concrete bases as one monolithic pour. Form the portion above the invert elevation to provide a smooth section.

3.03 SEALING AND GROUTING

- A. Fill joints between precast sections with plastic sealing compound or mortar.

3.04 INSTALLING STRUCTURES

- A. Erection/installation by manufacturer of units and performed by experienced and competent mechanics regularly employed in this type of work under supervision of Firm's Registered Engineer. Adequate handling and lifting equipment must be used. Include all leveling, special anchorages and special cutting for finish fitting.
- B. All units shall be carefully lifted, transported and erected in such manner that they will suffer no damage. Provide soft wood shims for temporary support during transport and erection.
- C. Set each precast concrete unit plumb on a bed of sealant or mortar to make a watertight joint at least 1/2 inch thick with the concrete base or with the preceding unit. Point the inside joint and wipe off the excess sealant or mortar. Secure the frame to the grade ring with grout and cement mortar fillet. Backfill, compact, and replace pavement.
- D. Erectors shall inspect all bearing surfaces for level, smoothness and uniform bearing. Notify Engineer if for any reason there are defects detrimental to installation of units. Erection of units shall signify acceptance of surface.
- E. Clean all bearing surfaces prior to erection.
- F. Powder actuated fasteners not permitted in precast unit.
- G. Drilling of hole in units at jobsite not permitted unless done under the supervision of fabrication firm's Registered Engineer. All holes in units shall be thoroughly plugged with grout.

3.05 BACKFILL AROUND STRUCTURES

- A. Backfill and compact around the structures using native material, per Section 02225 – Trenching and Backfill and the pipe specification.

3.06 COATINGS

- A. The outside surfaces (including bottom) of precast structures shall be painted with two coats of Koppers 300-M Bitumastic or equal. Paint inside with two (2) coats of polyamide epoxy with tan/cream pigment per Section 09900: Paintings and Coatings, System 300. The total dry film thickness of each coat shall be 12 mils. All coating applications shall be done in strict accordance with the manufacturers recommendations.

END OF SECTION

SECTION 03732 CONCRETE REPAIRS

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. The Contractor shall furnish all materials, labor, equipment, tools, etc., required for the repair, renovation, and replacement of concrete and/or reinforcing steel as indicated on the Drawings, specified herein, and determined by activities in the field survey.

The Contractor, in conjunction with the Engineer, shall determine the extent of cracked or deteriorated concrete to be rehabilitated and/or resurfaced. A summary of the work to be performed shall be submitted to the Engineer for review, and such summary shall be approved by the Engineer prior to commencement of the Work.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Section 01090: Reference Standards.
- B. Section 03000: Concrete.
- C. Section 03300: Cast-In-Place Concrete.
- D. Section 03315: Grout.
- E. ASTM C881: Standard Specifications for Epoxy-Resin-Base Bonding Systems For Concrete.

1.03 SUBCONTRACTOR/APPLICATOR QUALIFICATIONS

The Contractor shall furnish the name of all subcontractors/applicators which he proposes to use for this work, including necessary evidence and/or experience records to ascertain their qualifications in the application of epoxy, urethane, and polymer-modified mortars, if applicable to the repair. Approved applicator qualifications shall include:

- A. A minimum of 5 years experience in applying epoxy, urethane, and polymer-modified and cement-based compounds similar to those specified in this Section.
- B. A letter from the manufacturer of the specified materials, on the manufacturer's letterhead, signed by an officer of the company, stating that the subcontractor (applicator) has been trained in the proper techniques for applying the product, including surface preparation and mixing, placing, curing, and caring for the

1.04 SUBMITTALS

- A. Material certifications and technical data sheets on all grouts, mortars, epoxy resins, aggregates and repair products specified in this Section.
- B. Subcontractor (Applicator) qualifications.
- C. Shop Drawings detailing any planned deviation from the proposed construction sequence and/or method of repair.
- D. The Contractor, based on their experience in their profession, may submit to the Engineer for approval, alternative materials and/or methods of work to assure the durability and watertight integrity of the repair work performed.

1.05 ADDITIONAL GUARANTEE

- A. The Contractor shall guarantee all repair work performed under this Contract against defects in workmanship resulting in leakage and/or failure of concrete bond for a period of two years from the date of the Certificate of Substantial Completion.

PART 2 - MATERIALS

2.01 WATER

- A. The water used for mixing concrete repair products shall be clean, potable, and free of deleterious substances.

2.02 AGGREGATE

- A. All aggregate shall conform to ASTM C-33. The aggregate supplier shall submit to the Engineer documentation that the proposed aggregates comply with ASTM C-33 and the requirements listed below:
- B. Pea Gravel - Pea gravel shall meet the gradation and material requirements of Standard Size 14 as defined by ASTM C-33. Pea gravel shall be clean and free from deleterious matter and shall contain no limestone.

2.03 EPOXY BONDING AGENT

- A. An epoxy bonding agent shall be used when applying fresh concrete to previously placed concrete. Epoxy bonding agent shall conform to ASTM C-881 Type I, II, IV or V; Grade 2 for epoxy resin adhesives, depending on the application. The class of epoxy bonding agent shall be suitable for all ambient and substrate temperatures. The epoxy resin shall be "Sika Armatec 110" as manufactured by the Sika Corp, Lyndhurst, NJ, "CR 246" as manufactured by Sto Concrete Restoration Division, Atlanta, GA, "Duralbond" as manufactured by Tamms Industries Co., Mentor OH, or equal.

2.04 ANTI-CORROSION REBAR COATING

- A. All reinforcing steel cut or exposed during demolition and/or repair operations shall be protected with an anti-corrosive coating. The anti-corrosive coating shall be a two- component, polymer-modified cementitious material such as "Sika Armatec 110" manufactured by Sika Corp., Lyndhurst, NJ, IOCR 246" manufactured by Sto Concrete Restoration Division, Atlanta, GA, or equal.

2.05 WATERPROOF INJECTION GROUT

- A. Waterproof crack repair material shall be a one-component, water-activated polyurethane hydrophilic/hydrophobic injection grout capable of 700% expansion. Polyurethane grout shall form a tough flexible/rigid foam seal that is impenetrable to water. Hydrophilic injection grout shall be "Prime Flex 900 LV" manufactured by Prime Resins, Conyers, GA, "Scotch-Seal 5600 Chemical Grout" manufactured by 3M Construction Markets, St. Paul, MN, "Hydro- Active Flex LV" manufactured by De Neef Construction Chemicals, Waller, TX, or approved equal. Hydrophobic injection grout shall be "Prime Flex 920" manufactured by Prime Resins, Conyers, GA, "Sikafix HH" manufactured by Sika Corp., Lyndhurst, NJ, "Hydro-Active Cut" manufactured by De Neef Construction Chemicals, Waller, TX, or equal.

2.06 SPALL REPAIR PATCHING MATERIAL

- A. All spall repairs not requiring formwork shall be repaired using a two-component, polymer- modified cementitious mortar and shall have a minimum 28-day compressive strength of 7000 psi. Spall repair mortar for use in horizontal applications shall be manufactured by Sika Corp., Lyndhurst, NJ, "Duraltop Fast Set" manufactured by Tamms Industries, Mentor, OH, IOCR 700" manufactured by Sto Concrete Restoration Division, Atlanta, GA, or approved equal.
1. Spall repair mortar for use in vertical applications shall be "Sikatop III" manufactured by Sika Corp., Lyndhurst, NJ, "Duraltop Gel" manufactured by Tamms Industries, Mentor, OH, "CR730" manufactured by Sto Concrete Restoration Division, Atlanta, GA, or equal.

- B. All spall repairs requiring formwork shall be repaired using a two-component, polymer- modified cementitious mortar/pea gravel mixture and shall have a minimum 28-day compressive strength of 6000 psi. Each unit of mortar shall be mixed with Saturated Surface Dry (SSD) pea gravel to form the repair material following the manufacturer's recommendations. Spall repair mortar shall be "Sikatop 111 Plus" manufactured by Sika Corp., Lyndhurst, NJ, "Duraltop Flowable Grout" manufactured by Tamms Industries, Mentor, OH, "CR 730" manufactured by Sto Concrete Restoration Division, Atlanta, GA, or equal.
- C. All spall repair materials shall conform to EPA/USPHS standards for surface contact with potable water supplies.

2.07 STORAGE OF MATERIALS

- A. The Contractor shall provide an area for repair material storage free from exposure to moisture in any form, before, during, and after delivery to the site. Manufactured materials shall be delivered in unbroken containers labeled with the manufacturer's name and product type. All mortar products shall be stored on raised platforms. Materials susceptible to damage by freezing shall be stored in a dry, heated, insulated area. Any material that has hardened, partially set, become caked and/or has been contaminated or deteriorated shall be rejected. All aggregates shall be stored in clean bins, scows or platforms.

PART 3 - INSTALLATION

3.01 GENERAL REQUIREMENTS

- A. No repair work shall be undertaken when ambient temperatures are below manufacturer's safe recommendations. No admixtures, except those required by the manufacturer, shall be used in the repairs specified herein. All products shall be applied in strict accordance with manufacturer's recommendations. The Contractor shall furnish and install safe scaffolding and ladders for the Engineer's prework inspection, the repair work activities, and the Engineer's final inspection
- B. Sandblast or waterblast (3000-4000 psi waterjet) deteriorated areas to remove all loose concrete, existing coatings, unsound material, debris, and laitance. All surfaces shall be clean, free of dirt, grease, loose particles, and deleterious substances and shall be prepared according to manufacturer's requirements.

3.02 SIDEWALKS

- A. Replace damaged sidewalk by removing damaged section to the joint. Replace with 4" concrete with contraction and expansion joints to match existing spacing. Use 1/2" expansion joint material at the intersection of the new and existing sidewalk. Abut to pre-cast structures. Slope sidewalk a minimum of 1/8"

transversely or match existing, whichever is greater. Materials, placement, and curing shall meet the requirements of this Section and Section 03000: Concrete and Section 03300: Cast-In-Place Concrete.

3.03 EPOXY BONDING AGENT

- A. Existing concrete surfaces shall be roughened prior to application of bonding agent. Concrete surface shall be clean and sound, free of all foreign particles and laitance. Repair material shall be placed while bonding agent is still tacky. If bonding agent cures prior to placement of repair material, bonding agent shall be reapplied.
- B. Repairing concrete with epoxy mortars shall conform to all the requirements of ACI 503.4 "Standard Specification for Repairing Concrete with Epoxy Mortars" (latest edition), except as modified herein.

3.04 ANTI-CORROSION REBAR COATING

- A. Reinforcing steel cut or exposed during demolition and/or repair operations shall be sandblasted and cleaned prior to coating with an anti-corrosive coating. Coating shall thoroughly cover all exposed parts of the steel and shall be applied according to manufacturer's recommendations.

3.05 WATERPROOF INJECTION GROUT

- A. All existing, leaking cracks 1/4" or smaller shall be repaired by pressure injecting a waterproof injection grout into the prepared crack. Seal crack surface and install injection ports per manufacturer's recommendations. Holes drilled for injection ports shall not cut rebar. If rebar is encountered during drilling, the hole shall be abandoned and relocated, and the abandoned hole shall be patched immediately with non-shrink grout flush with the surface of the existing concrete. Once the surface sealing material has cured, inject crack with waterproof injection grout using standard pressure injection equipment as directed by the manufacturer.

3.06 SPALL REPAIR PATCHING MATERIAL

- A. All voids or spalled areas to be repaired shall be chipped back to sound concrete a minimum 1/8" deep, cleaned and repaired with spall repair patching material according to manufacturer's recommendations. All patching shall provide a final finished surface which is flat, level and even with the existing concrete surface. Repair mortar shall not be feathered to meet existing concrete surface. Final patching on horizontal surfaces shall receive a broom finish consistent with the finish on the existing structure.

3.07 CURING

- A. All repair products shall be cured in strict accordance with manufacturer recommendations.

3.08 SIDEWALKS

- A. Replace damaged sidewalk by removing damaged section to the joint. Replace with 4" concrete with contraction and expansion joints to match existing spacing. Use 1/2" expansion joint material at the intersection of the new and existing sidewalk. Abut to pre-cast structures. Slope sidewalk a minimum of 1/8" transversely or match existing, which ever is greater. Materials, placement, and curing shall meet the requirements of this Section and Section 03000: Concrete and Section 03300: Cast-In-Place Concrete.

3.09 WORK IN CONFINED SPACES

- A. The Contractor shall provide and maintain safe working conditions for all employees and subcontractors. Fresh air shall be supplied continuously to confined spaces through the combined use of existing openings, forced-draft fans and temporary ducts to the outside, or by direct air supply to individual workers. Fumes shall be exhausted to the outside from the lowest level of the confined space. Electrical fan motors shall be explosion-proof if in contact with fumes. No smoking or open fires shall be permitted in or near areas where volatile fumes may accumulate.

END OF SECTION

SECTION 09900 PAINTING AND COATINGS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. This specification includes materials, and application of painting and coating systems.

1.02 SUBMITTALS

- A. Paint system data sheet, the manufacturer's technical data sheets, and paint colors available (where applicable) for each product used in paint system.
- B. Data on percent by volume, minimum and maximum dry film thickness for different coats, required surface preparation, and recommended thinners.
- C. Technical and performance information, application instructions, temperature limitations, and curing requirements.
- D. Manufacturer's certification stating factory applied coating system meets or exceeds requirements specified.
- E. Manufacturer's written instructions and special details for applying each type of paint.
- F. Manufacturer's written verification that submitted material is suitable for the intended use.

PART 2 - PRODUCTS

2.01 GENERAL

- A. List of Standards
 - 1. American National Standards Institute (ANSI)
 - a. Standard Colors for Color Identification and Coding.
 - b. A13.1, Scheme for the Identification of Piping Systems.
 - 2. American Water Works Association (AWWA):
 - a. C116, Fusion Bonded Epoxy Coating for interior and exterior of ductile iron pipe and fittings.
 - 3. NACE International: RP0188, Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates.

4. NSF International (NSF): 61 Drinking Water System Components - Health Effects.
5. Occupational Safety and Health Act (OSHA).
6. The Society for Protective Coatings (SSPC):
 - a. SP 13, Surface Preparation of Concrete.
 - b. PAI , Shop, Field, and Maintenance Painting.
 - c. PA 2, Measurement of Dry Coating Thickness with Magnetic Gages.
 - d. PA 3, Guide to Safety in Paint Applications.
7. Ductile Iron Pipe Research Association (DIPRA): Surface Preparation Specifications.

B. Definitions

1. Coverage: Total minimum dry film thickness in mils or square feet per gallon.
2. FRP: Fiberglass Reinforced Plastic.
3. HC1: Hydrochloric Acid.
4. MDFT: Minimum Dry Film Thickness, mils.
5. MDFTPC: Minimum Dry Film Thickness Per Coat, mils. Mil: Thousandth of an inch.
6. PSDS: Paint System Data Sheet.
7. PVC: Polyvinyl Chloride.
8. SFPG: Square Feet Per Gallon.
9. SFPGPC: Square Feet Per Gallon Per Coat.
10. SP: Surface Preparation.

- C. Only compatible materials from a single manufacturer shall be used in the Work. Particular attention shall be directed to compatibility of primers and finish coats. Thinners, cleaners, driers, and other additives shall be used as recommended by coating manufacturer

2.02 REGULATORY REQUIREMENTS

- A. Meet federal, state, and local requirements limiting the emission of volatile organic compounds.
- B. Perform surface preparation and painting in accordance with recommendations of the following:

1. Paint manufacturer's instructions.
2. SSPC P A 3, Guide to Safety in Paint Applications.
3. Federal, state, and local agencies having jurisdiction.

2.03 ABRASIVE MATERIALS

- A. Select abrasive type and size to produce surface profile that meets coating manufacturer's recommendations for specific primer and coating system to be applied.

2.04 PAINT MATERIALS

- A. Acrylic Latex: Single component, finish as required
- B. Acrylic Latex - Flat: Flat latex
- C. Acrylic Sealer: Clear acrylic
- D. Alkyd Semigloss: Gloss or semigloss, medium long oil
- E. Alkyd Wood Primer: Flat alkyd
- F. Bituminous Paint: Single component, coal-tar pitch based
- G. Block Filler Primer: Sealer designed for rough masonry surfaces, 100% acrylic emulsion
- H. Coal Tar Epoxy: Amine, polyamide, or phenolic epoxy type 70% volume solids minimum, suitable for immersion service
- I. Elastomeric Polyurethane: 100% solids, plural component, spray applied, high build, elastomeric polyurethane coating, suitable for the intended service
- J. Epoxy Filler/Surfacer: 100% solids epoxy trowel grade filler and surfacer, nonshrinking, suitable for application to concrete and masonry. Approved for potable water contact and conforming to NSF 61, where required
- K. Epoxy Nonskid Aggregated: Polyamide or amine converted epoxies aggregated; aggregate may be packaged separately
- L. Epoxy Primer: Ferrous metal anticorrosive, converted epoxy primer containing rust-inhibitive pigments

- M. Epoxy Primer: Other Epoxy primer, high-build, as recommended by coating manufacturer for specific galvanized metal, copper, or nonferrous metal alloy to be coated
- N. Fusion Bonded Coating: 100% solids, thermosetting, fusion bonded, dry powder epoxy or polyurethane resin, suitable for the intended service
- O. Fusion Bonded, TFE Lube or Grease Lube: Tetrafluoroethylene, liquid coating, or open gear grease
- P. High Build Epoxy Polyamide or polyamidoamine epoxy: Minimum 69% volume solids, capability of 4 to 8 MDFT per coat
- Q. Inorganic Zinc Primer Solvent or water based, having 85% metallic zinc content in the dry film; follow manufacturer's recommendation for top coating
- R. Latex Primer Sealer: Waterborne vinyl acrylic primer/sealer for interior gypsum board and plaster capable of providing uniform seal and suitable for use with specified finish coats
- S. NSF Epoxy: Polyamide epoxy, approved for potable water contact and conforming to NSF 61
- T. Polyamide Epoxy, High Solids: 80% volume solids, minimum, suitable for immersion service
- U. Polyurethane Enamel: Two-component, aliphatic or acrylic based polyurethane high gloss finish
- V. Rust-Inhibitive Primer: Single-package steel primers with anticorrosive pigment loading
- W. Sanding Sealer: Co-polymer oil, clear, dull luster
- X. Silicone, Silicone acrylic: Elevated temperature silicone or silicone/acrylic based
- Y. Stain, Concrete: Acrylic water repellent, penetrating stain
- Z. Stain, Wood: Satin luster, linseed oil, solid or transparent
- AA. Varnish: Nonpigmented vehicle based on a variety of resins (alkyd, phenolic, urethane) in gloss, semigloss, or flat finishes.
- BB. Water Base Epoxy: Two-component, polyamide epoxy emulsion.

2.05 MULTIPLE-COMPONENT COATINGS

- A. Prepare using each component as packaged by paint manufacturer. No partial batches will be permitted. Do not use multiple-component coatings that have been mixed beyond their pot life. Furnish small quantity kits for touchup painting and for painting other small areas. Mix only components specified and furnished by paint manufacturer. Do not intermix additional components for reasons of color or otherwise, even within the same generic type of coating.
- B. Colors: Formulate paints with colorants free of lead, lead compounds, or other materials that might be affected by presence of hydrogen sulfide or other gas likely to be present at site.

2.06 SHOP FINISHES

- A. Shop Blast Cleaning: Reference paragraph Shop Coating Requirements, this section.
- B. Shop Coating Requirements: Equipment shall be primed and finish coated in shop by manufacturer and touched up in field with identical material after installation.

2.07 DUCTILE IRON PIPE

- A. Use DIPRA Surface Preparation Specification equivalent to SSPC grade specified. The surface preparation and application of the primer and finish coats shall be performed by pipe manufacturer.
- B. For high performance (epoxy) coatings, follow additional recommendations of pipe and coating manufacturers. Prior to blast cleaning, grind smooth surface imperfections, including, but not limited to delaminating metal or oxide layers.
- C. For conventional (alkyd) coatings, clean asphalt varnish supplied on pipe and apply one full coat of a tar stop before two full coats of the color coats specified.

PART 3 - EXECUTION

3.01 SHIPPING AND HANDLING

- A. Shipping: Where precoated items are to be shipped to the site, protect coating from damage. Batten coated items to prevent abrasion.
- B. Shop painted surfaces shall be protected during shipment and handling by suitable provisions including padding, blocking, and use of canvas or nylon slings.

- C. Storage: Store products in a protected area that is heated or cooled to maintain temperatures within the range recommended by paint manufacturer. Primed surfaces shall not be exposed to weather for more than 2 months before being topcoated, or less time if recommended by coating manufacturer.

3.02 GENERAL

- A. Environmental Requirements: Do not apply paint in temperatures or moisture conditions outside of manufacturer's recommended maximum or minimum allowable.
- B. Do not perform final abrasive blast cleaning whenever relative humidity exceeds 85 percent, or whenever surface temperature is less than 5 degrees F above dew point of ambient air.
- C. Repair abraded or otherwise damaged areas on factory-finished items as recommended by coating manufacturer. Carefully blend repaired areas into original finish. If required to match colors, provide full finish coat in field.
- D. Surface Preparation Verification: Inspect and provide substrate surfaces prepared in accordance with these Specifications and printed directions and recommendations of paint manufacturer whose product is to be applied. The more stringent requirements shall apply.

3.03 PROTECTION OF ITEMS NOT TO BE PAINTED

- A. Remove, mask, or otherwise protect hardware, lighting fixtures, switchplates, aluminum surfaces, machined surfaces, couplings, shafts, bearings, nameplates on machinery, and other surfaces not specified elsewhere to be painted.
- B. Provide drop cloths to prevent paint materials from falling on or marring adjacent surfaces. Protect working parts of mechanical and electrical equipment from damage during surface preparation and painting process. Mask openings in motors to prevent paint and other materials from entering.
- C. Protect all surfaces adjacent to, or downwind of Work area from overspray.

3.04 SURFACE PREPARATION

- A. Field Abrasive Blasting: Perform blasting for items and equipment where specified and as required to restore damaged surfaces previously shop or field blasted and primed or coated. Refer to coating systems for degree of abrasive blasting required. Where the specified degree of surface preparation differs from manufacturer's recommendations, the more stringent shall apply.

B. Metal Surface Preparation

1. Meet requirements of SSPC Specifications summarized below:
 - a. SP1 - Solvent Cleaning: Removal of all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants by cleaning with solvent.
 - b. SP2 - Hand Tool Cleaning: Removal of loose rust, loose mill scale, loose paint, and other loose detrimental foreign matter, using nonpower hand tools.
 - c. SP3 - Power Tool Cleaning: Removal of loose rust, loose mill scale, loose paint, and other loose detrimental foreign matter, using power-assisted hand tools.
 - d. SP5 - White Metal Blast Cleaning: Removal of all visible oil, grease, dust, dirt, mill scale, rust, coatings, oxides, corrosion products, and other foreign matter by blast cleaning.
 - e. SP6 - Commercial Blast Cleaning: Removal of all visible oil, grease, dust, dirt, mill scale, rust, coatings, oxides, corrosion products, and other foreign matter, except for random staining limited to no more than 33 percent of each unit area of surface which may consist of light shadows, slight streaks, or minor discolorations caused by stains of rust, stains of mill scale, or stains of previously applied coatings.
 - f. SP7 - Brush-Off Blast Cleaning: Removal of all visible rust, oil, grease, soil, dust, loose mill scale, loose rust, and loose coatings. Tightly adherent mill scale, rust, and coating may remain on surface.
 - g. SP10 - Near-White Blast Cleaning: Removal of all visible oil, grease, dust, dirt, mill scale, rust, coatings, oxides, corrosion products, and other foreign matter, except for random staining limited to no more than 5 percent of each unit area of surface which may consist of light shadows, slight streaks, or minor discolorations caused by stains of rust, stains of mill scale, or stains of previously applied coatings.
 - h. SP11 - Power Tool Cleaning to Bare Metal: Removal of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxide, corrosion products, and other foreign matter using power-assisted hand tools capable of producing suitable surface profile. Slight residues of rust and paint may be left in lower portion of pits if original surface is pitted.
 - i. SP12 - Surface Preparation and Cleaning of Steel and Other Hard Materials by High and Ultrahigh Pressure Water Jetting Prior to

Recoating: Surface preparation using high- and ultrahigh-pressure water jetting to achieve specified surface cleanliness condition. Surface cleanliness conditions are defined in SSPC SP12 and are designated WJ-1 through WJ-4 for visual surface preparation.

2. The words "solvent cleaning", "hand tool cleaning", "wire brushing", and "blast cleaning", or similar words of equal intent in these Specifications or in paint manufacturer's specification refer to the applicable SSPC Specification.
3. Where OSHA or EPA regulations preclude standard abrasive blast cleaning, wet or vacu-blast methods at the coating manufacturers' recommendations for wet blast additives and first coat application shall be required.
4. Ductile Iron Pipe Supplied with Asphaltic Varnish Finish: Remove asphaltic varnish finish prior to performing specified surface preparation. Hand tool clean areas that cannot be cleaned by power tool cleaning. Round or chamfer sharp edges and grind smooth burrs, jagged edges, and surface defects.
5. Welds and adjacent areas shall be prepared to prevent undercutting or reverse ridges on weld bead, eliminate weld spatter on or adjacent to weld or any area to be painted, eliminate sharp peaks or ridges along weld bead. Grind embedded pieces of electrode or wire flush with adjacent surface of weld bead.
6. Preblast cleaning requirements includes removal of oil, grease, welding fluxes, and other surface contaminants prior to blast cleaning with steam, open flame, hot water, or cold water with appropriate detergent additives followed with clean water rinsing. Clean small isolated areas as above or solvent clean with suitable solvent and clean cloth.
7. Blast cleaning requirements includes selection of type and size of abrasive to produce surface profile that meets coating manufacturer's recommendations for particular primer to be used. Use only dry blast cleaning methods. Do not reuse abrasive, except for designed recyclable systems.
8. Postblast cleaning includes cleaning surfaces of dust and residual particles from cleaning operations by dry (no oil or water vapor) air blast cleaning or other method prior to painting. Vacuum clean enclosed areas and other areas where dust settling is a problem and wipe with a tack cloth. Paint surfaces the same day they are blasted. Reblast surfaces that have started to rust before they are painted.

- C. Galvanized Metal, Copper, and Nonferrous Metal Alloy Surface Preparation
1. Remove soil, cement spatter, and other surface dirt with appropriate hand or power tools.
 2. Remove oil and grease by wiping or scrubbing surface with suitable solvent, rag, and brush.
 3. Use clean solvent and clean rag for final wiping to avoid contaminating surface.
 4. Obtain and follow coating manufacturer's recommendations for additional preparation that may be required.
- D. Concrete Surface Preparation
1. Do not begin until 30 days after concrete has been placed.
 2. Remove grease, oil, dirt, salts or other chemicals, loose materials, or other foreign matter by solvent, detergent, or other suitable cleaning methods.
 3. Brush-off blast clean to remove loose concrete and laitance, and provide a tooth for binding. Acid etching of vertical or overhead surfaces shall not be allowed.
 4. Secure coating manufacturer's recommendations for additional preparation, if required, for excessive bug holes exposed after blasting. Unless otherwise required for proper adhesion, ensure surfaces are dry prior to painting.
- E. Plastic and FRP Surface Preparation:
1. Hand sand plastic surfaces to be coated with medium grit sandpaper to provide profile for coating system.
 2. Large areas may be power sanded or brush-off blasted, provided sufficient controls are employed so surface is roughened without removing excess material.
- F. Masonry Surface Preparation:
1. Complete and cure masonry construction for 14 days or more before starting surface preparation work.
 2. Remove oil, grease, dirt, salts or other chemicals, loose materials, or other foreign matter by solvent, detergent washing, or other suitable cleaning methods.
 3. Clean masonry surfaces of mortar and grout spillage and other surface deposits using one of the following:

- a. Nonmetallic fiber brushes and commercial muriatic acid followed by rinsing with clean water.
 - b. Brush-off blasting.
 - c. Water blasting.
4. Do not damage masonry mortar joints or adjacent surfaces.
 5. Leave surfaces clean and, unless otherwise required for proper adhesion, dry prior to painting.
 6. Masonry Surfaces to be Painted: Uniform texture and free of surface imperfections that would impair intended finished appearance.
 7. Masonry surfaces to be clear coated. Free of discolorations and uniform in texture after cleaning.
- G. Wood Surface Preparation:
1. Replace damaged wood surfaces or repair prior to start of surface preparation.
 2. Solvent clean (mineral spirits) knots and other resinous areas and coat with shellac or other knot sealer, prior to painting. Remove pitch by scraping and wipe clean with mineral spirits or turpentine prior to applying knot sealer.
 3. Round sharp edges by light sanding prior to priming.
 4. Fillers shall be synthetic-based wood putty approved by paint manufacturer for paint system.
 5. For natural finishes, color of wood putty shall match color of finished wood.
 6. Fill holes, cracks, and other surface irregularities flush with surrounding surface and sand smooth.
 7. Apply putty before or after prime coat, depending on compatibility and putty manufacturer's recommendations.
 8. Use cellulose type putty for stained wood surfaces. Ensure surfaces are clean and dry prior to painting.
- H. Gypsum Board Surface Preparation: Typically, new gypsum board surfaces need no special preparation before painting. Surface Finish: Dry, free of dust, dirt, powdery residue, grease, oil, or any other contaminants.

3.05 SURFACE CLEANING

A. Brush-off Blast Cleaning

1. Equipment, procedure, and degree of cleaning shall meet requirements of SSPC SP 7, Brush-off Blast Cleaning.
2. Abrasive: Either wet or dry blasting sand, grit, or nutshell.
3. Select various surface preparation parameters, such as size and hardness of abrasive, nozzle size, air pressure, and nozzle distance from surface such that surface is cleaned without pitting, chipping, or other damage. Verify parameter selection by blast cleaning a trial area that will not be exposed to view.

B. Acid Etching

1. After precleaning, spread the following solution by brush or plastic sprinkling can: 1 part commercial muriatic acid reduced by 2 parts water by volume. Adding acid to water in these proportions gives an approximate 10 percent solution of HCl. Application:
2. Application Rate: Approximately 2 gallons per 100 square feet.
3. Work acid solution into surface by hard-bristled brushes or brooms until complete wetting and coverage is obtained.
4. Acid will react vigorously for a few minutes, during which time brushing shall be continued.
5. After bubbling subsides (10 minutes), hose down remaining slurry with high pressure clean water.
6. Rinse immediately to avoid formation on the surface of salts that are difficult to remove.
7. Thoroughly rinse to remove any residual acid surface condition that may impair adhesion.
8. Ensure surface is completely dry before application of coating.
9. Apply acid etching to obtain a "grit sandpaper" surface profile. If not, repeat treatment.

C. Solvent Cleaning

1. Removal of foreign matter as oil, grease, soil, drawing and cutting compounds, and any other surface contaminants by using solvents, emulsions, cleaning compounds, steam cleaning, or similar materials and methods which involve a solvent or cleaning action shall meet the requirements of SSPC SP I.

3.06 APPLICATION

A. General

1. All new, interior and exterior masonry, concrete and metal surfaces shall be painted, whether specifically mentioned or not, except as specified otherwise.
2. Extent of Coating (Immersion): Coatings shall be applied to all internal vessel and pipe surfaces, nozzle bores, flange gasket sealing surfaces, carbon steel internals, and stainless steel internals, unless otherwise specified.
3. For coatings subject to immersion, obtain full cure for completed system. Consult coatings manufacturer's written instructions for these requirements. Do not immerse coating until completion of curing cycle.
4. Apply coatings in accordance with these Specifications and paint manufacturers' printed recommendations and special details. The more stringent requirements shall apply. Allow sufficient time between coats to assure thorough drying of previously applied paint.
5. Sand wood lightly between coats to achieve required finish.
6. Vacuum clean surfaces free of loose particles. Use tack cloth just prior to applying next coat.
7. Fusion Bonded Coatings Method Application: Electrostatic, fluidized bed, or flocking.
8. Coat units or surfaces to be bolted together or joined closely to structures or to one another prior to assembly or installation.
9. Water-Resistant Gypsum Board: Use only solvent type paints and coatings.
10. On pipelines, terminate coatings along pipe runs to 1 inch inside pipe penetrations.
11. Keep paint materials sealed when not in use.
12. Where more than one coat is applied within a given system, alternate colors to provide a visual reference showing required number of coats have been applied.

B. Galvanized Metal, Copper, and Nonferrous Metal Alloys

1. Concealed galvanized, copper, and nonferrous metal alloy surfaces (behind building panels or walls) do not require painting, unless specifically indicated herein.

2. Prepare surface and apply primer in accordance with System No.10 specification.
 3. Apply intermediate and finish coats of the coating system appropriate for the exposure.
- C. Porous Surfaces, Such As Concrete and Masonry:
1. Filler/Surfacer: Use coating manufacturer's recommended product to fill air holes, bug holes, and other surface voids or defects.
 2. Prime Coat: May be thinned to provide maximum penetration and adhesion.
 3. Type and Amount of Thinning: Determined by paint manufacturer and dependent on surface density and type of coating.
 4. Surface Specified to Receive Water Base Coating: Damp, but free of running water, just prior to application of coating.
- D. Film Thickness and Coverage
1. Additional coats may be required to obtain minimum required paint thickness, depending on method of application, differences in manufacturers' products, and atmospheric conditions.
 2. Application Thickness: Do not exceed coating manufacturer's recommendations. Measure using a wet film thickness gauge to ensure proper coating thickness during application.
 3. Film Thickness Measurements and Electrical Inspection of Coated Surfaces: Perform with properly calibrated instruments. Recoat and repair as necessary for compliance with Specification.
 4. Visually inspect concrete, masonry, nonferrous metal, plastic, and wood surfaces to ensure proper and complete coverage has been attained. Give particular attention to edges, angles, flanges, and other similar areas, where insufficient film thickness are likely to be present, and ensure proper millage in these areas.
 5. Apply additional coats as required to achieve complete hiding of underlying coats. Hiding shall be so complete that additional coats would not increase the hiding.

3.07 PROTECTIVE COATINGS SYSTEMS

- A. System No. 1 Submerged Metal, Potable Water
1. Surface Preparation: SP5, White Metal Blast Cleaning
 2. Paint: NSF Epoxy

3. Minimum Coats: 3 coats, 3 MDFTPC
- B. System No. 4 Exposed Metal, Highly Corrosive:
 1. Surface Preparation: SP10, Near-White Blast Cleaning
 2. Paint
 - a. Epoxy Primer, Ferrous Metal, 1 coat, 2.5 MDFT
 - b. Polyamide High Build Epoxy, 1 coat, 4 MDFT
 - c. Polyurethane Enamel, 1 coat, 3 MDFT
- C. System No.5 Exposed Metal, Mildly Corrosive
 1. Surface Preparation: SP10, Near-White Blast Cleaning
 2. Paint
 - a. Epoxy Primer, Ferrous Metal, 1 coat, 2.5 MDFT
 - b. Polyurethane Enamel, 1 coat, 3 MDFT
- D. System No.8 Buried Metal, General
 1. 1. Surface Preparation: SP10, Near-White Blast Cleaning
 2. 2. Paint
 - a. Hot Coal Tar Enamel or Coal Tar Epoxy, 2 coat, 16 MDFT
 - b. Tape Wrap System, AWWA C203, double wrap
 - c. For steel pipe and fittings, follow AWWA C209 and C214 with double outer wrap.
- E. System No. 10 Galvanized Metal, Copper, and Nonferrous Metal Alloy Conditioning
 1. Surface Preparation: Per surface preparation above
 2. Paint: Epoxy Primer, Number of coats as recommended by manufacture
- F. System No.27 Aluminum and Dissimilar Metal Insulation
 1. Surface Preparation: SP1, Solvent Clean
 2. Paint: Bituminous 1 coat, 10 MDFT

3.08 ARCHITECTURAL PAINT SYSTEMS

- A. System No.106 Galvanized Metal
 1. Surface Preparation: Per surface preparation above

2. Paint: Alkyd Enamel, 2 coats, 4 MDFT
- B. System No.115 Gypsum Board and Plaster, Semigloss
 1. Surface Preparation: Per surface preparation above
 2. Paint
 - a. Latex Primer, Sealer, 1 coat, 350 SFPG
 - b. Acrylic Latex, 2 coats, 400 SFPGPC
- C. System No.116 Gypsum Board and Plaster, Gloss Epoxy
 1. Surface Preparation: Per surface preparation above
 2. Paint
 - a. As recommended by manufacture, 1 coat, 350 SFPG
 - b. Water base epoxy, 1 coat, 250 SFPGPC
- D. System No.117 Concrete Masonry, Gloss Epoxy
 1. Surface Preparation: Per surface preparation above
 2. Paint
 - a. Block Filler, 1 coat, 75 SFPG
 - b. Water base epoxy, 2 coats, 300 SFPGPC
- E. System No.121 Concrete, Skid-Resistant:
 1. Surface Preparation: Per surface preparation above
 2. Paint: Epoxy Nonskid, 1 coat, 160 SFPG

3.09 COLORS

- A. Equipment Colors
 1. Equipment includes the machinery or vessel itself plus the structural supports and fasteners and attached electrical conduits. Paint equipment and piping one color as selected.
 2. Paint nonsubmerged portions of equipment the same color as the piping it serves, except as itemized below:
 3. Dangerous Parts of Equipment and Machinery: OSHA Orange.
 4. Fire Protection Equipment and Apparatus: OSHA Red.
 5. Radiation Hazards: OSHA Purple.

6. Physical hazards in normal operating area and energy lockout devices, including, but not limited to, electrical disconnects for equipment and equipment isolation valves in air and liquid lines under pressure: OSHA Yellow .
 7. Pipe Identification Painting:
- B. Pipe Identification
1. Color code nonsubmerged metal piping, except electrical conduit. Paint fittings and valves the same color as pipe, except equipment isolation valves.
 2. Piping Color Coding: In accordance with Piping Schedule.
 3. On exposed stainless steel piping, apply color 24 inches in length along pipe axis at connections to equipment, valves, or branch fittings, at wall boundaries, and at intervals along piping not greater than 9 feet on center. Pipe Supports: Painted light gray, as approved by ENGINEER.
 4. Fiberglass reinforced plastic (FRP) pipe, polyvinylidene fluoride
 5. (PVDF), and polyvinyl chloride (PVC) pipe located inside of buildings and enclosed structures will not require painting, except as noted or scheduled.

3.10 FIELD QUALITY CONTROL

- A. Testing Equipment
1. Provide magnetic type dry film thickness gauge to test coating thickness specified in mils, as manufactured by Nordson Corp., Anaheim, CA, Mikrotest.
 2. Provide low-voltage wet sponge electrical holiday detector to test completed coating systems, 20 mils dry film thickness or less, except zinc primer, high-build elastomeric coatings, and galvanizing, for pinholes, holidays, and discontinuities, as manufactured by Tinker and Rasor, San Gabriel, CA, Model M-I.
 3. Provide high-voltage spark tester to test completed coating systems in excess of 20 mils dry film thickness. Unit to be as recommended by coating manufacturer.
- B. Testing
1. Thickness and Continuity Testing
 - a. Measure coating thickness specified in mils with a magnetic type, dry film thickness gauge, in accordance with SSPC PA Check each

coat for correct millage. Do not make measurement before a minimum of 8 hours after application of coating.

- b. Holiday detect coatings 20 mils thick or less, except zinc primer and galvanizing, with low voltage wet sponge electrical holiday detector in accordance with NACE RP0188.
 - c. Holiday detect coatings in excess of 20 mils dry with high voltage spark tester as recommended by coating manufacturer and in accordance with NACE RP0188.
 - d. After repaired and recoated areas have dried sufficiently, retest each repaired area. Final tests may also be conducted by ENGINEER.
- C. Inspection: Leave staging and lighting in place until ENGINEER has inspected surface or coating. Replace staging removed prior to approval by ENGINEER. Provide additional staging and lighting as requested by ENGINEER.
- D. Unsatisfactory Application:
1. If item has an improper finish color or insufficient film thickness, clean surface and topcoat with specified paint material to obtain specified color and coverage. Obtain specific surface preparation information from coating manufacturer.
 2. Evidence of runs, bridges, shiners, laps, or other imperfections is cause for rejection.
 3. Repair defects in accordance with written recommendations of coating manufacturer.
- E. Damaged Coatings, Pinholes, and Holidays:
1. Feather edges and repair in accordance with recommendations of paint manufacturer.
 2. Hand or power sand visible areas of chipped, peeled, or abraded paint, and feather the edges. Follow with primer and finish coat. Depending on extent of repair and appearance, a finish sanding and topcoat may be required.
 3. Apply finish coats, including touchup and damage-repair coats in a manner that will present a uniform texture and color-matched appearance.

3.11 CLEANUP

- A. Place cloths and waste that might constitute a fire hazard in closed metal containers or destroy at end of each day. Upon completion of the Work, remove

staging, scaffolding, and containers from site or destroy in a legal manner. Remove paint spots, oil, or stains upon adjacent surfaces and floors and leave entire job clean.

3.12 APPLICATION SCHEDULE

- A. Surfaces Not Requiring Painting: Unless otherwise stated or shown below or in other sections, will not require painting or coating
1. Reinforcing steel
 2. Nonferrous and corrosion-resistant ferrous alloys such as copper, bronze, monel, aluminum, chromium plate, atmospherically exposed weathering steel, and stainless steel, except where:
 - a. Required for electrical insulation between dissimilar metals.
 - b. Aluminum and stainless steel are embedded in concrete or masonry, or aluminum is in contact with concrete or masonry.
 - c. Color coding of equipment and piping is required.
 3. Nonmetallic materials such as glass, wood, and porcelain, except as required for architectural painting or color coding.
 4. Prefinished electrical and architectural items such as motor control centers, switchboards, switch gear, panelboards, transformers, disconnect switches (if prefinished in OSHA yellow), acoustical tile, cabinets, elevators, building louvers, and wall panels; color coding of equipment is required.
 5. Cathodic protection anodes.
 6. Items specified to be galvanized after fabrication, unless specified elsewhere or subject to immersion.
 7. Insulated piping and insulated piping with jacket will require prime coat only, except as required for architectural painting or color coding. Fiberglass reinforced plastic (FRP) surfaces with an integral ultra-violet resistant colored gel coat do not require painting, provided the color is as selected.
- B. Unless otherwise shown or specified, paint surfaces in accordance with the following application schedule:
1. System No. 1 Submerged Metal-Potable Water: Use on the following items or areas: Metal surfaces existing items, such as wall pipes, pipes, pipe sleeves, access manholes, gate guides and thimbles, and structural steel that are embedded in concrete; and the following specific surfaces:
 - a. Interior surfaces of steel piping noted in the Piping Schedule.

2. System No.4 Exposed Metal-Highly Corrosive: Use on the following items or areas: Exposed metal surfaces, located inside or outside of structures and exposed to weather.
3. System No.8 Buried Metal -General: Use on the following items or areas: Buried, below grade portions of metal items, except buried stainless steel.
4. System No.10 Galvanized Metal, Copper, and Nonferrous Metal Alloy Conditioning: Use on the following items or areas: Galvanized copper, or alloy surfaces requiring painting. After application of System No.10, apply finish coats as required for exposure.
5. System No.27 Aluminum and Dissimilar Metal Insulation: Use on aluminum surfaces embedded or in contact with concrete.
6. System No.106 Galvanized Metal: Use on the following items or areas: Exposed interior and exterior galvanized metal.
7. System No.115 Plaster, Semigloss: Use on the following items or areas: All exterior exposed stucco surface.
8. System No. 116 Gypsum Board and Plaster, Gloss Epoxy: Use on the following items or areas: All exposed gypsum wallboard.
9. System No. 300 Concrete, Buried Structures: Use Bituminous for exterior and for interior use polyamide cured epoxy with a tan/cream pigment.
10. System No.117 Concrete Masonry, Gloss Epoxy: Use on the following items or areas: All exposed interior concrete and masonry surfaces.
11. System No.121 Concrete, Skid-Resistant: Use on the following items or areas: All floor surfaces.

END OF SECTION

SECTION 15000

PIPING SCHEDULE AND GENERAL PIPING REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section describes the application of the Piping Schedule shown in the specifications and the general requirements for selecting piping materials; selecting the associated bolts, nuts, and gaskets for flanges for the various piping services in the project; and miscellaneous piping items.

1.02 SUBMITTALS

- A. Submit shop drawings in accordance with the General Terms and Conditions and Section 01300.
- B. Submit affidavit of compliance with referenced standards (e.g., AWWA, ANSI, ASTM, etc.) Latest Editions.
- C. Submit certified copies of mill test reports for bolts and nuts, including coatings if specified. Provide recertification by an independent domestic testing laboratory for materials originating outside of the United States.
- D. Submit manufacturer's data sheet for gaskets supplied showing dimensions and bolting recommendations.

1.03 DEFINITIONS OF BURIED AND EXPOSED PIPELINE:

- A. Buried piping is piping buried in the soil, commencing at the wall or beneath the slab of a structure. Where a coating is specified, provide the coating up to the structure wall. Piping encased in concrete is considered to be buried. Do not coat encased pipe.
- B. Exposed piping is piping in any of the following conditions or locations:
 - 1. Above ground.
 - 2. Inside buildings, vaults, or other structures.
 - 3. In underground concrete trenches or galleries.

PART 2 - MATERIALS

2.01 MATERIALS SELECTION AND ALTERNATIVE MATERIALS

- A. The Piping Schedule in the specifications lists the material and specification for each piping service in the project. In locations where the piping material referenced on the Piping Schedule is not appropriate, the piping material is

- B. The Piping Schedule in the specifications may show alternative piping materials for certain services. In such cases, the same pipe material shall be used for all pipe sizes in all locations for the given piping service. Do not intermix piping materials.

2.02 BOLTS AND NUTS FOR FLANGES FOR DUCTILE IRON PIPING

- A. Bolts and nuts for Class 150 flanges (including AWWA C207, Class D) located indoors, outdoors above ground, and in vaults and structures shall be Type 316 stainless steel conforming to ASTM A 193, Grade B8M, for bolts and ASTM A 194, Grade 8M, for nuts.
- B. Bolts and nuts for buried or submerged Class 150 flanges and Class 150 flanges located outdoors above ground or in vaults and structures shall be Type 316 stainless steel conforming to ASTM A 193, Grade B8M, for bolts and ASTM A 194, Grade 8M, for nuts.
- C. Hex head machine bolts for use with lugged valves shall comply with ASTM A 193, Grade B7.
- D. Fit shall be Classes 2A and 2B per ANSI B 1.1 when connecting to cast-iron valves having body bolt holes.
- E. Provide washers for each nut. Washers shall be of the same material as the nuts.

2.03 BOLTS AND NUTS FOR FLANGES FOR PVC PIPE

- A. Bolts and nuts for flanges located indoors, outdoors above ground, and in vaults and structures shall be Type 316 stainless steel conforming to ASTM A 193, Grade B8M, for bolts and ASTM A 194, Grade 8M, for nuts.
- B. Bolts and nuts for buried and submerged flanges and flanges located outdoors above ground or in vaults and structures shall be Type 316 stainless steel conforming to ASTM A 193, Grade B8M, for bolts and ASTM A 194, Grade 8M, for nuts.
- C. Provide a washer under each nut and under each bolthead. Washers shall be of the same material as the nuts.

2.04 LUBRICANT FOR STAINLESS STEEL BOLTS AND NUTS

- A. Lubricant shall be chloride free and shall be RAMCO TG-50, Anti-Seize by RAMCO, Specialty Lubricants Corporation Husky™ Lube O'Seal, or equal.

2.05 GASKETS FOR FLANGES FOR PVC AND DUCTILE-IRON PIPING

- A. Gaskets shall be full face, 1/8-inch thick, EPR (aka EPDM) having a hardness of 55 to 65 durometers and in accordance with AWWA C111/A21.11. Gaskets shall be suitable for a water pressure of 200 psi at a temperature of 250°F. Gaskets shall have "nominal" pipe size inside diameters per ANSI B 16.21.

PART 3 - EXECUTION

3.01 INSTALLING PIPE SPOOLS IN CONCRETE

- A. Install pipes in walls and slabs before placing concrete.

3.02 RAISED FACE AND FLAT FACE FLANGES

- A. Where a raised face flange connects to a flat-faced flange, remove the raised face of the flange.

3.03 INSTALLING ABOVEGROUND OR EXPOSED PIPING

- A. Provide pipe hangers and supports as detailed in the drawings.
- B. Install pipe without springing, forcing, or stressing the pipe or any adjacent connecting valves or equipment.

3.04 INSTALLING FLANGED PIPING

- A. Set pipe with the flange bolt holes straddling the pipe horizontal and vertical centerline. Install pipe without springing, forcing, or stressing the pipe or any adjacent connecting valves or equipment. Before bolting up, align flange faces to the design plane within 1/16 inch per foot measured across any diameter. Align flange bolt holes within 1/8-inch maximum offset.
- B. Clean flanges by wire brushing before installing flanged fittings. Clean flange bolts and nuts by wire brushing, lubricate carbon steel bolts with oil and graphite, and tighten nuts uniformly and progressively.
- C. Bolt lengths shall extend completely through their nuts. Any which fail to do so shall be considered acceptably engaged if the lack of complete engagement is not more than one thread.
- D. Do not use more than one gasket between contact faces in assembling a flanged joint.

- E. If flanges leak under pressure testing, loosen or remove the nuts and bolts, reset or replace the gasket, reinstall or retighten the bolts and nuts, and retest the joints. Joints shall be watertight.

3.05 INSTALLING BLIND FLANGES

- A. At outlets not indicated to be connected to valves or to other pipes and to complete the installed pipeline hydrostatic test, provide blind flanges with bolts, nuts, and gaskets.
- B. Coat the inside face of blind flanges with fusion-bonded epoxy per Section 09900.

3.06 INSTALLING GROOVED-END PIPING

- A. Install grooved-end pipe and fittings in accordance with the coupling manufacturer's recommendations and the following.
- B. Clean loose scale, rust, oil, grease, and dirt from the pipe or fitting groove before installing coupling.
- C. Apply the coupling manufacturer's gasket lubricant to the gasket exterior including lips, pipe ends, and housing interiors.
- D. Fasten coupling alternately and evenly until coupling halves are seated. Use torques as recommended by the coupling manufacturer.
- E. Provide separate hangers and supports at both sides of flexible joints.

3.07 INSTALLATION OF STAINLESS STEEL BOLTS AND NUTS

- A. Prior to assembly, coat threaded portions of stainless steel bolts and nuts with lubricant.

3.08 PIPING SCHEDULE

PIPING SCHEDULE			
SERVICE	PIPE MATERIAL	TEST PRESSURE (PSIG)	COLOR
WATER MAIN PVC (4" – 16")	PVC C900/C905	150 psig	Blue
WATER MAIN PVC (< 4")	PVC Schedule 80	150 psig	Blue
WATER MAIN DIP	DIP CL 52	150 psig	Blue
WATER MAIN HDPE	MIN. DR 17	150 psig	Blue Stripe

END OF SECTION

SECTION 15012

PVC PIPE, 3 INCHES AND SMALLER

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section includes materials, installation, and testing of PVC pipe and fittings of size 3-inches and smaller for use in process piping having a maximum design pressure of 150 psi and having a maximum design temperature of 105°F.

1.02 SUBMITTALS

- A. Submit shop drawings in accordance with the General Terms and Conditions and Section 01300.
- B. Submit materials list showing materials of pipe and fittings with ASTM reference and grade. Submit manufacturer's certification of compliance with referenced standards, e.g., ASTM D 1784, D 1785, and D 2467. Show wall thickness of pipe and fittings. Show fitting dimensions.
- C. Submit data sheets for solvent cement and demonstrating compliance with ASTM D 2564 and F 656.

PART 2 - MATERIALS

2.01 PIPE

- A. Pipe shall be Schedule 80, Type I, Grade I (Class 12454-B), conforming to ASTM D 1784 and D 1785.

2.02 FITTINGS

- A. Fittings shall be Schedule 80 and shall conform to ASTM D 2464 for threaded fittings and ASTM D 2467 for socket-type fittings.

2.03 FLANGES

- A. Flanges shall be ductile iron per Section 15014: Ductile Iron Pipe and Fittings. Pressure rating shall be at least 150 psi at a temperature of 73°F. Minimum burst pressure shall be 500 psi. Flanges shall match the dimensions of ANSI B16.5, Class 150, steel flanges for outside diameter, bolt circle, and bolt holes.

2.04 UNIONS

- A. Unions shall have socket-type ends, Viton O-rings, and shall be Schedule 80. Material shall be Type I, Grade 1 PVC, per ASTM D 1784.

2.05 JOINTS

- A. Pipe and fitting joints shall be socket welded except where threaded and flanged joints are required to connect to valves and equipment.

2.06 SOLVENT CEMENT

- A. Solvent cement for socket joints shall comply with ASTM D 2564 and F 656.

2.07 GASKETS FOR FLANGES

- A. See Section 15000.

2.08 BOLTS AND NUTS FOR FLANGES

- A. See Section 15000.

2.09 LUBRICANT FOR STAINLESS STEEL BOLTS AND NUTS

- A. See Section 15000.

2.10 WYE STRAINERS

- A. PVC wye strainers shall be manufactured of the same material as the pipe, with 30-mesh screens and Viton seals. Connecting ends shall be the socket type, solvent welded. Provide one spare screen for each strainer.

PART 3 - EXECUTION

3.01 GENERAL

- A. Do not install PVC pipe when the temperature is below 40°F or above 90°F. Store loose pipes on racks with a maximum support spacing of 3 feet. Provide shades for pipe stored outdoors or installed outdoors until the pipe is filled with water.
- B. Store fittings indoors in their original cartons.
- C. Store solvent cement indoors or, if outdoors, shade from direct sunlight exposure. Do not use solvent cements that have exceeded the shelf life marked on the storage container.

- D. Before installation, check pipe and fittings for cuts, scratches, gouges, buckling, kinking, or splitting on pipe ends. Remove any pipe section containing defects by cutting out the damaged section of pipe.
- E. Do not drag PVC pipe over the ground, drop it onto the ground, or drop objects on it.

3.02 SOLVENT-WELDED JOINTS

- A. Prior to solvent welding, remove fittings and couplings from their cartons and expose them to the air at the same temperature conditions as the pipe for at least one hour.
- B. Cut pipe ends square and remove all burrs, chips, and filings before joining pipe or fittings. Bevel solvent-welded pipe ends as recommended by the pipe manufacturer.
- C. Wipe away loose dirt and moisture from the inside and outside of the pipe end and the inside of the fitting before applying solvent cement. Clean the surfaces of both pipes and fittings that are to be solvent welded with a clean cloth moistened with acetone or methylethyl ketone. Do not apply solvent cement to wet surfaces.
- D. The pipe and fitting socket shall have an interference fit. The diametrical clearance between pipe and entrance of the fitting socket shall not exceed 0.04 inch. Check the fit at every joint before applying solvent cement.
- E. Make up solvent-welded joints per ASTM D 2855. Application of cement to both surfaces to be joined and assembly of these surfaces shall produce a continuous bond between them with visual evidence of cement at least flush with the outer end of the fitting bore around the entire circumference.
- F. Allow at least eight hours of drying time before moving solvent-welded joints or subjecting the joints to any internal or external loads or pressures.
- G. Acceptance criteria for solvent-welded joints shall be as follows:
 - 1. Unfilled Areas in Joint: None permitted.
 - 2. Unbonded Areas in Joint: None permitted.
 - 3. Protrusion of Material into Pipe Bore, Percent of Pipe Wall Thickness: Cement, 50%.

3.03 FLANGED JOINTS

- A. Lubricate 316 SS (per Section 15000) bolt threads before installation.

- B. Tighten bolts on PVC flanges by tightening the nuts diametrically opposite each other using a torque wrench. Complete tightening shall be accomplished in stages and the final torque values shall be as shown in the following table:

Pipe Size (inches)	Final Torque (foot-pounds)
½ to 1-1/2	10 to 15
2 to 3	20 to 30

3.04 INSTALLATION OF STAINLESS STEEL BOLTS AND NUTS

- A. See Section 15000.

3.05 THREADED JOINTS

- A. Cut threaded ends on PVC to the dimensions of ANSI B 1.20.1. Ends shall be square cut. Follow the pipe manufacturer's recommendations regarding pipe hold-down methods, saw cutting blade size, and saw cutting speed.
- B. Pipe or tubing cutters shall be specifically designed for use on PVC pipe. Use cutters manufactured by Reed Manufacturing Company, Ridge Tool Company, or equal.
- C. If a hold-down vise is used when the pipe is cut, insert a rubber sheet between the vise jaws and the pipe to avoid scratching the pipe.
- D. Thread cutting dies shall be clean and sharp and shall not be used to cut materials other than plastic.
- E. Apply Teflon® thread compound or Teflon® tape lubricant to threads before screwing on the fitting.

3.06 INSTALLING UNIONS

- A. Provide unions on exposed piping 3 inches and smaller as follows:
1. At every change in direction (horizontal and vertical).
 2. 6 to 12 inches downstream of valves.
 3. Every 40 feet in straight pipe runs.
 4. Where shown in the drawings.

3.07 INSTALLING BURIED PIPE

- A. Install in accordance with Drawings and Specifications and as follows.

- B. Trench bottom shall be continuous, smooth, and free of rocks. See the details in the drawings for trench dimensions, pipe bedding, and backfill.
- C. Do not backfill the pipe trench until the solvent-welded joints have set. Support the pipe uniformly and continuously over its entire length on firm, stable soil. Do not use blocking to change pipe grade or to support pipe in the trench.
- D. Install buried PVC pipe in accordance with ASTM D 2774 and the pipe manufacturer's recommendations. Compact by means of vibratory equipment. Apply backfill in layers having a maximum thickness of 12 inches.

3.08 PAINTING AND COATING

- A. Coat piping per Section 09900.

3.09 HYDROSTATIC TESTING

- A. Perform hydrostatic testing for leakage in accordance with Section 15044.

END OF SECTION

SECTION 15014

DUCTILE IRON PIPE AND FITTINGS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section describes materials, testing, and installation of ductile iron pipe and fittings 54-inches and smaller.

- B. Submittals
 - 1. Submit shop drawings in accordance with the General Terms and Conditions and Section 01300.
 - 2. Provide an affidavit of compliance with standards referenced in this specification, e.g., AWWA C151. Submit copy of report of pressure tests for qualifying the designs of all sizes and types of AWWA C153 fittings that are being used in the project. The pressure test shall demonstrate that the minimum safety factor described in AWWA C153, Section 5.5 is met.
 - 3. Provide the following information:
 - a. Lining type and thickness (Class 52 required minimum).
 - b. Wall thickness.
 - c. Material test data for this project.
 - d. Show deflections at push-on and mechanical joints.
 - e. Submit joint and fitting details and manufacturer's data sheets.
 - 4. Submit calculations and test data proving that the proposed restrained joint arrangement can transmit the required forces with a minimum safety factor of 1.5.
 - 5. Submit copy of manufacturer's quality control check of pipe material and production. Include hydrostatic test records and acceptance test records. For each acceptance test, submit a stress-strain diagram showing yield strength, yield point, tensile strength, elongation, and reduction in area. Provide specimen test section dimensions and speed and method used to determine speed of testing, method used for rounding of test results, and reasons for replacement specimens, if any. Submit ring bending test of pipe of the same diameter and pressure class as the pipe required for this project to prove ring-bending stress at 48 ksi results in a factor of safety of 2.0.
 - 6. Submit certificate that lining complies with Section 09900 – Painting and Coatings.

7. Submit test report on physical properties of rubber compound used in the gaskets; ability to withstand chloramines is required.
8. Submit drawing or manufacturer's data sheet showing flange facing, including design of facing serrations.
9. Submit weld procedure specification, procedure qualification record, and welder's qualifications prior to any welding to ductile-iron pipe.

PART 2 - MATERIALS

2.01 PIPE

- A. Pipe shall be cast ductile iron, conforming to AWWA C151.

2.02 PIPE MARKING

- A. Plainly mark each length of straight pipe and each fitting at the bell end to identify the design pressure class, the ductile-iron wall thickness, and the date of manufacture. Mark the spigot end of restrained joint pipe to show clearly the required depth of insertion into the bell.

2.03 PIPE WALL THICKNESS

- A. Minimum wall thicknesses for pipe having grooved-end joints shall be as shown in the following table:

Pipe and Fitting Sizes (inches)	Wall Thickness*
16 and smaller	Special Class 52
18	Special Class 54
20	Special Class 55
24 to 36	Special Class 56

*Special Class and Pressure Class per AWWA C151.

- B. Minimum wall thickness for pipe having push-on or mechanical joints, restrained joints, plain ends, or cast flange ends shall be Class 250 for pipe diameter greater than 14-inches, Pressure Class 350 for pipe diameter less than 12-inches, unless otherwise shown in the drawings.
- C. Minimum wall thickness for pipe having threaded flanges shall be Special Class 53.

- D. Minimum pipe wall thickness required for corporation stops and tapped outlets shall be in accordance with Table A.1 of AWWA C151 for three full threads for design pressures up to 250 psi and four full threads for design pressures over 250 to 350 psi.

2.04 DESIGN CRITERIA

- A. Obtain the following information from the Drawings and applicable Contract Specifications:
 1. Elevation of the pipe invert and of the completed ground.
 2. Alignment of the pipeline.
 3. Field test hydraulic gradient elevation (HGL).
 4. Nominal internal diameter, ID.
 5. Design internal pressure class and thickness class.
 6. Joint types(s).

2.05 FITTINGS

- A. Fittings 48-inches and smaller shall conform to AWWA C110 with a minimum pressure rating of 250 psi. Material shall be ductile iron. Flanges shall be flat faced.
- B. Mechanical joint fittings conforming to AWWA C153 may be used in lieu of AWWA C110 fittings.

Mechanical joint ductile-iron fittings 18- through 48-inches conforming to AWWA C110 (except for laying length) with a minimum pressure rating of 250 psi may also be used.

- C. Grooved-end fittings shall conform to AWWA C110 with grooved ends conforming to AWWA C606, radius cut rigid joints. Fitting material shall conform to ASTM A 48, Class 30; ASTM A 126, Class B; or ASTM A 536, Grade 65-42-10. Wall thickness of ductile-iron (ASTM A 536) fittings shall conform to AWWA C110 or C153; wall thickness of cast-iron fittings shall conform to AWWA C110. Fittings and couplings shall be furnished by the same manufacturer.
- D. Material for fittings with welded-on bosses shall have a Charpy notch impact value of minimum 10 ft-lbs under the conditions defined in AWWA C151. Test completed welds by the liquid penetrant method per ASTM E 165.

2.06 FLANGES

- A. Flanges shall be solid back, Class 125 per AWWA C115. Flanges on pipe shall be either cast or threaded. Material shall be ductile iron.
- B. Flanged pipe and fittings shall be shop fabricated, not field fabricated. Threaded flanges shall comply with AWWA C115. Flanges shall be individually fitted and machine tightened in the shop, then machined flat and perpendicular to the pipe barrel. Flanges shall be backfaced parallel to the face of flange. Prior to assembly of the flange onto the pipe, apply a thread compound to the threads to provide a leak-free connection. There shall be zero leakage through the threads at a hydrostatic test pressure of 250 psi without the use of the gasket.

2.07 PIPE LINING-CERAMIC EPOXY

- A. Ductile iron pipe and fittings shall be shop-lined with an amine cured novalac epoxy containing at least 20 percent by volume of ceramic quartz pigment, Protecto 401 ceramic epoxy. This lining may be used where polyethylene lining has been called for on the drawings.
- B. Before application of the lining, prepare the pipe surfaces in accordance with the applicator's recommendations. Apply the lining to a thickness of 40 mils nominal dry film thickness. Do not line the face of flanges.
- C. For bell sockets and spigot ends, coat the gasket area and spigot end up to 6 inches back from the end of the spigot with 6 mils nominal, 10 mils maximum of Presto Joint Compound. Apply the joint compound with a brush without causing excess buildup in the gasket seat or on spigot ends.
- D. Test lining thickness using a magnetic film thickness gauge. Conduct testing in accordance with SSPC-P A-2, Film Thickness Rating. Test for pinholes with a non-destructive 2,500 volt test. Repair all defects prior to shipment.

2.08 GASKETS FOR FLANGES

- A. See Section 15000.

2.09 GASKETS FOR MECHANICAL PUSH-ON AND RESTRAINED JOINTS

- A. Synthetic rubber EPR (aka EPDM) in accordance with AWWA C111.

2.10 BOLTS AND NUTS FOR FLANGES

- A. See Section 15000.

2.11 OUTLETS AND NOZZLES

- A. Provide outlets 2-inches and smaller by tapping the pipe and attaching a service clamp.
- B. For outlets larger than 2-inches use a tee with a flanged outlet.

2.12 JOINTS

- A. Joints in aboveground or submerged piping or piping located in vaults and structures shall be flanged.
- B. Joints in buried piping shall be of the restrained push-on or mechanical-joint type per AWWA C111 except where flanged joints are required to connect to valves, meters, and other equipment.
- C. Restrained joints for piping 6-inches and larger shall be megalugs in the appropriate pressure class by EBAA Iron, or approved equivalent restraint. All restrained joints shall have a working pressure of 350 psi.
- D. Restrained joints in 4-inch-diameter buried piping shall be American Cast Iron Pipe Company "FastGrip," U.S. Pipe Field-10k gasket within Tyton joint pipe and fittings, or equal. Joint restraint shall be certified to four times rated pressure of 200 psi by Factory Mutual.
- E. Provide restraining devices per the Thrust Restraint Table shown in the Detail Drawings.

2.13 DUCTILE-IRON PIPE WELDMENTS

- A. All welding to ductile-iron pipe, such as for bosses, joint restraint, and joint bond cables, shall be done at the place of manufacture of the pipe. Perform welding by skilled welders experienced in the method and materials to be used. Welders shall be qualified under the standard qualification procedures of the ASME Boiler and Pressure Vessel Code, Section IX, Welding Qualifications.
- B. Welds shall be of uniform composition, neat, smooth, full strength, and ductile. Completely grind out porosity and cracks, trapped welding flux, and other defects in the welds in such a manner that will permit proper and complete repair by welding.
- C. Completed welds shall be inspected at the place of manufacture by the liquid penetrant method. Conform to the requirements specified in ASTM E 165, Method A, Type I or Type II. The materials used shall be water washable and nonflammable.

PART 3 - EXECUTION

3.01 DELIVERY, UNLOADING, AND TEMPORARY STORAGE OF PIPE AT SITE

- A. Limit onsite pipe storage to a maximum of 4 weeks.
- B. Use unloading and installation procedures that avoid cracking of the lining. If necessary, use plastic sheet bulkheads to close pipe ends and keep cement-mortar lining moist.
- C. Deliver the pipe alongside the pipe laying access road over which the pipe trailer-tractors can travel under their own power. Place the pipe in the order in which it is to be installed and secure it from rolling.
- D. Do not move pipe by inserting any devices or pieces of equipment into the pipe barrel. Field repair linings damaged by unloading or installation procedures.

3.02 SANITATION OF PIPE INTERIOR

- A. During laying operations, do not place tools, clothing, or other materials in the pipe.
- B. When pipe laying is not in progress, close the ends of the installed pipe by a child- and vermin-proof plug.

3.03 INSTALLING FLANGED PIPE AND FITTINGS

- A. Cut the bore of the gaskets such that the gaskets do not protrude into the pipe when the flange bolts are tightened.

3.04 INSTALLING BURIED PIPING

- A. Install in accordance with Section 02225-Trenching and Backfill and as follows.
- B. When installing piping in trenches, do not deviate more than 1 inch from line or 1/4 inch from grade. Measure for grade at the pipe invert.
- C. Provide restraining devices at fittings per Detail Drawings.
- D. Assemble restrained joints per manufacturer's instructions.

3.05 PAINTING AND COATING

- A. Coat pipe located above ground and in vaults and structures as shown in the Piping Schedule in the specifications per Section 09900. Apply prime coat in the shop before transporting pipe to the jobsite. Apply intermediate and finish coats in the field before installing the pipe, then touch up after installation.

- B. Provide bituminous coating on buried pipe.
- C. Coat buried flanges and buried mechanical and restrained joint bolts, nuts, and glands per Section 09900.
- D. Coat submerged pipe with fusion-bonded epoxy.

3.06 POLYETHYLENE ENCASEMENT OF BURIED PIPE AND FITTINGS

- A. Wrap buried pipe, fittings, and joints with polyethylene per Section 02620.

3.07 CLEANING PIPE

- A. After interior joints have been pointed and mortar has hardened, sweep pipe clean of all dirt and debris. If hardened mud exists in the pipe, remove with the use of pressurized water hoses.

3.08 HYDROSTATIC TESTING

- A. Test pressures are shown in the Piping Schedule in the specifications. Test in accordance with Section 15044.

END OF SECTION

SECTION 15044 PRESSURE TESTING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The work to be performed under this Section shall include the furnishing and installing equipment and appurtenances for conducting the hydrostatic pressure and leakage testing of water mains and associated connections.

1.02 REFERENCES

- A. Standards applicable in this Specification include:
1. American Water Works Association (AWWA) and American National Standards Institute (ANSI).
 2. AWWA C111 Rubber Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings.
 3. AWWA C150 Thickness Design of Ductile-Iron Pipe.
 4. AWWA C151 Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand Lined Molds for Water or Other Liquids.
 5. AWWA C600 Installation of Ductile Iron Water Mains and Appurtenances.
 6. AWWA C605 Installation of PVC Pressure Pipe & Fittings.
 7. AWWA C651 Standard for Disinfecting Water Mains.
 8. AWWA C900 Polyvinyl Chloride Pressure Pipe 4" through 12".
 9. AWWA C901 Polyethylene Pressure Pipe and Tubing for Water Service.
 10. AWWA C906 Polyethylene Pressure Pipe and Fittings 4" through 63".
 11. AWWA Manual of Practice M55 – PE Pipe Design and Installation.

1.03 SUBMITTALS

- A. Submit test bulkhead locations and design calculations, pipe attachment details, and methods to prevent excessive pipe wall stresses.

- B. Submit documents in accordance with General Conditions and Section 01300.

1.04 TEST PRESSURES

- A. All water mains shall be pressure tested at pressure of 150 psig.

1.05 TESTING RECORDS

- A. Provide records of each piping installation during the testing. These records shall include:
1. Date and times of test.
 2. Identification of pipeline, or pipeline section tested or retested.
 3. Identification of pipeline material.
 4. Identification of pipe specification.
 5. Test fluid.
 6. Test pressure.
 7. Amount of make-up water used to maintain pressure.
 8. Leaks identified (type and location), types of repairs, or corrections made.
 9. Certification by Contractor that the leakage rate measured conformed to the specifications.

PART 2 - MATERIALS

2.01 MANUAL AIR-RELEASE VALVES FOR BURIED PIPING

- A. Provide temporary manual air-release valves for pipeline test. Construct the pipe outlet in the same manner as for a permanent air valve and after use, seal with a blind flange, pipe cap, or plug and coat the same as the adjacent pipe.

2.02 TEST BULKHEADS

- A. Design and fabricate test bulkheads per Section VIII of the ASME Boiler and Pressure Vessel Code. Materials shall comply with Part UCS of said code. Design pressure shall be at least 2.0 times the specified test pressure for the section of pipe containing the bulkhead. Limit stresses to 70% of yield strength of the bulkhead material at the bulkhead design pressure. Include air-release and water drainage connections.

2.03 TESTING FLUID

- A. Testing fluid shall be potable water.
- B. Submit request for use of potable water from the Town a minimum of 72 hours in advance.
- C. The Contractor may obtain the water from the Town at no charge. The Contractor shall pay the Town for water on retests at current consumer usage rates.

2.04 TESTING EQUIPMENT

- A. Provide pressure gauges, pipes, bulkheads, pumps, and meters to perform the hydrostatic testing.

PART 3 - EXECUTION

3.01 DESCRIPTION

- A. The installation and testing of the water main shall be done in accordance with ANSI/AWWA C600, C605, C651 and M55 plus the additional requirements described herein or shown on the Drawings.

3.02 TESTING PREPARATION

- A. Pipes shall be in place and anchored before commencing pressure testing.
- B. Conduct pressure tests on exposed and aboveground piping after the piping has been installed and attached to the pipe supports, hangers, anchors, expansion joints, valves, and meters.
- C. For buried piping, the pipe may be partially backfilled and the joints left exposed for inspection during an initial leakage test. Perform the final test, however, after completely backfilling and compacting the trench.
- D. Provide any temporary piping needed to carry the test fluid to the piping that is to be tested. After the test has been completed and demonstrated to comply with the specifications, disconnect and remove temporary piping. Do not remove exposed vent and drain valves at the high and low points in the tested piping; remove any temporary buried valves and cap the associated outlets. Plug taps or connections to the existing piping from which the test fluid was obtained.
- E. Provide temporary drain lines needed to carry testing fluid away from the pipe being tested. Remove such temporary drain lines after completing the pressure testing. Drain the pipes after they have been tested.

3.03 CLEANING

- A. Before conducting hydrostatic tests, fill and flush pipes with water to remove dirt and debris. Fill lines slowly (Maximum 1 fps) while venting air. Maintain a flushing velocity of at least 3 fps for water testing. Flush pipes for time period as given by the formula

$$T = (2L)/3$$

in which: T = flushing time (seconds) and L= pipe length (feet).

3.04 TESTING AND DISINFECTION SEQUENCE FOR POTABLE WATER PIPING

- A. Locate and install test bulkheads, valves, connections to existing pipelines, and other appurtenances in a manner to provide Department of Health approved air gap separation between existing potable water pipelines and the pipeline being tested. Disinfect water and pipeline being tested before hydrostatic testing when connected to a potable waterline.
- B. All pipe, valves, and fittings within the test limits shall be prepared for and required to hold the test pressure. Any thrust blocks required to provide system restraint shall be poured and cured a minimum of 10 days prior to the date of either initial flushing or pressure testing.

3.05 LENGTH OF TEST SECTION FOR BURIED PIPING

- A. The maximum length of test section for buried pipe of all sizes is 2,000 ft. Provide intermediate test bulkheads where the pipeline length exceeds these limits.

3.06 INITIAL PIPELINE FILLING FOR HYDROSTATIC TESTING

- A. Maximum rate of filling shall not cause water velocity in pipeline to exceed 1 fps. Filling may be facilitated by removing automatic air valves and releasing air manually.

3.07 TESTING NEW PIPE CONNECTIONS TO EXISTING PIPING

- A. Prior to testing new pipelines which are to be connected to existing pipelines, isolate the new line from the existing line by means of Department of Health approved air gap separation test bulkheads, or blind flanges. After the new line has been successfully tested, remove test bulkheads or flanges and connect to the existing piping.

3.08 HYDROSTATIC TESTING OF ABOVEGROUND OR EXPOSED PIPING

- A. Open vents at high points of the piping system to purge air while the pipe is being filled with water. Venting during system filling may also be provided by temporarily loosening flanges. Subject the piping system to the test pressure indicated on the Piping Schedule in the drawings. Maintain the test pressure for a minimum of two (2) hours. Examine joints, fittings, valves, and connections for leaks. The piping system shall show zero leakage or weeping. Correct leaks and retest until zero leakage is obtained.

3.09 HYDROSTATIC TESTING OF BURIED PIPING FOR PVC AND DUCTILE IRON

- A. Where any section of the piping contains concrete thrust blocks or encasement, do not make the pressure test until at least 10 days after the concrete has been placed. When testing mortar-lined or PVC piping, fill the pipe to be tested with water and allow it to soak for at least 48 hours to absorb water before conducting the pressure test.
- B. Apply and maintain the test pressure by means of a positive displacement hydraulic force pump.
- C. Maintain the test pressure of 150 psig for 2 hours. The allowable pressure drop during this test period is equal to or less than 5 psig. If the pressure drop exceeds this limit, then the Contractor is responsible for correcting cause(s) and retesting.
- D. After the 2 hour test period is completed, use a flow meter or other accurate means of measuring quantity of water used to return pressure to 150 psig. This amount of water is the loss due to leakage in the piping system. The allowable leakage volume (L) in gallons is defined by the formula

$$L = [(SD(P)^{1/2})/148,000]$$

in which:

S = length of pipe (feet)

D = diameter of the pipe (inches)

P = Average test pressure during hydrostatic test in (psig)

- E. The allowable leakage for buried piping having threaded, brazed, or welded (including solvent welded) joints shall be zero.
- F. Repair and retest any pipes showing leakage rates greater than that allowed in the above criteria.

3.10 HYDROSTATIC TESTING OF BURIED PIPING FOR HDPE

- A. Pressure testing of the HDPE pipe shall be performed after the pipe has been installed and backfilled, but before the HDPE pipe is connected to any other pipeline.
- B. An initial expansion period shall be applied to the HDPE pipe at 150 psi for water mains and held at this pressure for a period of 3 hours. This expansion period will allow for diametric expansion and pipe stretching. Pipe to remain idle during expansion period unless pressure drops below 140 psi; in which case, slowly add water to return pressure to 150 psig.
- C. After the initial expansion period, the pressure test shall be performed by adding potable water to regain water pressure of 150 psi for water mains and held constant for 2 hours.
- D. Due to the butt-fused joints, leakage shall not occur at the joints; however, there will be an allowance by makeup water for added incremental expansion of the HDPE pipe after the 2 hour pressure test. This allowance is summarized in the following table:

Nominal Pipe Size I.D. (inches)	Allowance for Expansion (Gallons per 100 ft)
4	0.2
6	0.3
8	0.5
10	0.7
12	1.15
16	1.65
18	2.15
20	2.75
24	4.40

- E. If visual leaks, significant pressure changes, or water loss greater than the allowable volume occur during the pressure test, the contractor shall make appropriate repairs and perform the pressure test until successful results are obtained.

3.11 REPETITION OF TEST

- A. If the actual leakage exceeds the allowable, locate and correct the faulty work and repeat the test. Restore the work and all damage resulting from the leak and its repair. Eliminate visible leakage.

3.12 BULKHEAD AND TEST FACILITY REMOVAL

- A. After a satisfactory test, remove the testing fluid, remove test bulkheads and other test facilities, and restore the pipe coatings.

3.13 TEST PRESSURE AND TESTING FLUIDS

- A. Potable water main shall be tested and retested, if applicable, with potable water at 150 psig.

END OF SECTION

SECTION 15064 PVC DISTRIBUTION PIPE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section includes materials, installation, and testing of polyvinyl chloride (PVC) distribution pipe conforming to AWWA C900 (size range 4 through 12 inches) and AWWA C905 (size 14 inches and larger).

1.02 REFERENCES

- A. Standards applicable in this Specification include:
1. American Water Works Association (AWWA) and American National Standards Institute (ANSI).
 2. AWWA C605 Installation of PVC Pressure Pipe & Fittings.
 3. AWWA C651 Standard for Disinfecting Water Mains.
 4. AWWA C900 Polyvinyl Chloride Pressure Pipe 4" through 12"
 5. AWWA C905 Polyvinyl Chloride Pressure Pipe 14" and Larger.

1.03 SUBMITTALS

- A. Submit shop drawings in accordance with the General Conditions and Section 01300.
- B. Provide affidavit of compliance with AWWA C900 or AWWA C905.
- C. Submit fully dimensioned cross section of the bell and barrel of the pipe. Show the bell maximum outside diameter in the pressurized area and its minimum wall thickness at the same location.
- D. Submit copies of the following manufacturer-required tests conducted on project pipe:
1. Quick-burst strength of pipe and couplings.
 2. Flattening resistance of pipe.
 3. Record of additional tests after test sample failure.

- E. Submit manufacturer's literature for ductile-iron fittings including dimensions, thickness, weight, coating, lining, and a statement of inspection and compliance with the acceptance tests of AWWA C110 or AWWA C153.
- F. Submit outline drawings and materials description of service connection saddles, corporation stops, and pipe plugs.
- G. Submit restrained joint system installation instructions. Include bolt torque limitations and assembly tolerances.

PART 2 - MATERIALS

2.01 PIPE

- A. AWWA C900 or AWWA C905, rubber-ring gasket bell end or plain end with elastomeric gasket coupling, Class 150 (DR18) or Class 200 (DR14) as shown in the drawings, cast iron equivalent OD, material cell classification 12454-B per ASTM D 1784.

2.02 FITTINGS

- A. Fittings shall be ductile iron and shall conform to AWWA C110 or AWWA C153 with a minimum pressure rating of 250 psi. Size bells specifically for OD of cast iron equivalent PVC pipe including rubber-ring retaining groove.

2.03 RESTRAINED JOINTS

- A. Provide restrained joints where indicated in the drawings. Restrained joints shall be provided by restraining systems that incorporate a series of machined serrations on the inside diameter of a restraint ring to provide positive restraint. Restraining systems shall meet or exceed the requirements of UNI-B-13-94 and the following:
 1. Restraint devices for bell-and-spigot joints shall consist of a split restraint ring installed on the spigot, connected to a solid backup ring seated behind the bell.
 2. Restraint devices for connection to ductile iron mechanical joints shall consist of a split restraint ring installed behind the ductile iron fitting follower gland and gasket and shall retain the full deflection capability of the joint.
 3. The split restraint ring shall be machined to match the OD of the pipe, provide full 360-degree support around the barrel of the pipe, and shall

incorporate a series of machined serrations for gripping the outside surface of the pipe. The serrations shall be uniform and extend the full circumference of the clamp. The ring shall also incorporate a positive means of avoiding applying excessive clamping force to the pipe.

4. Materials used in the restraint device shall be ductile iron conforming to ASTM A 536, Grade 65-45-12.
5. T-bolts, studs, and connecting hardware shall be high strength, low alloy material in accordance with AWWA C111.
6. Design restraining devices to have a 2:1 safety factor based on the design strength of the pipe.
7. Restraining devices shall be UNI-Flange Block Buster Series 1300 or equal.

2.04 FLANGES

- A. Flanges on outlets of fittings shall be Class 125 per ANSI B16.1.

2.05 LINING AND COATING FOR FITTINGS

- A. Provide cement-mortar lined fittings per AWWA C104. Lining thickness shall be the double thickness listed in AWWA C104, Section 4.8. Cement for lining shall conform to ASTM C 150, Type II. Coat fittings per Section 09900, System No. 21.

2.06 GASKETS AND FITTINGS

- A. Reference Section 15000.

2.07 BOLTS AND NUTS FOR FLANGES

- A. Reference Section 15000.

2.08 OUTLETS AND NOZZLES

- A. Provide outlets 2 inches and smaller by attaching a service clamps.
- B. For outlets larger than 2 inches, use a tee with a flanged outlet.

PART 3 - EXECUTION

3.01 PRODUCT MARKING

- A. Legibly mark pipe at 5-foot intervals and each coupling to identify the nominal diameter, the ID base, that is, cast-iron or steel pipe (IPS), the material code for pipe and couplings, the dimension ratio number, AWWA C900 and C905, and the seal of the testing agency that verified the suitability of the material for potable water service (NSF in the United States).

3.02 PVC PIPE COLORING AND MARKING FOR WATER SERVICE

- A. PVC pipe shall be blue and shall be marked on both sides of the pipe with the wording "POTABLE." The lettering shall be minimum 1-inch-high black letters and shall be repeated every 36 inches. The blue coloring shall be achieved by adding pigment to the PVC material as the pipe is being manufactured.

3.03 DELIVERY AND TEMPORARY STORAGE FOR PIPE

- A. Ship, store, and place pipe at the installation site, supporting the pipe uniformly. Avoid scratching the pipe surface. Do not stack higher than 4 feet nor stack with weight on bells. Cover to protect from sunlight. Reference Section 01600 – Material and Equipment.
- B. Do not install pipe that is gouged or scratched forming a clear depression.

3.04 PIPE LAYOUT FOR CURVED ALIGNMENT

- A. Pipe lengths may be bent for curved alignment but to no smaller radius curve than the following:

<u>Pipe Diameter</u>	<u>Minimum Curve Radius</u>
4-inch	400 feet
6-inch	600 feet
8-inch	800 feet
10-inch	1,000 feet
12-inch	1,200 feet

3.05 HANDLING PIPE

- A. Hoist pipe with mechanical equipment using a cloth belt sling or a continuous fiber rope which avoids scratching the pipe. Do not use a chain. Pipes up to 12 inches in diameter may be lowered by rolling on two ropes controlled by snubbing. Pipes up to 6 inches in diameter may be lifted by hand.

3.06 INSTALLING BURIED PIPE

- A. Install in accordance with Section 02225 and as follows:
 - 1. When installing pipe in trenches, do not deviate more than 1 inch from line or 1/4 inch from grade. Measure for grade at the pipe invert.
 - 2. Backfill material in the zone between the trench bottom and to a point 12 inches above the top of the pipe shall meet the requirements of backfill as specified in Section 02225. Compact the first lift materials by means of hand-operated vibratory equipment or by hand tamping. Apply backfill in layers having a maximum thickness of 12 inches. Compact to densities as specified in Section 02225.
 - 3. Compact material placed within 12 inches of the outer surface of the pipe by hand tamping only.
 - 4. Compact trench backfill to the specified relative compaction. Compact by using mechanical compaction or hand tamping. Do not float pipe. Do not use high-impact hammer-type equipment except where the pipe manufacturer warrants in writing that such use will not damage the pipe.

3.07 ASSEMBLY OF PIPE JOINT

- A. The spigot and bell or bell coupling shall be dirt free and slide together without displacing the rubber ring. Lay the pipe section with the bell coupling facing the direction of laying.
- B. Insert the rubber ring into the groove in the bell in the trench just before joining the pipes. First clean the groove. Observe the correct direction of the shaped ring. Feel that the ring is completely seated.
- C. Lubricate the spigot over the taper and up to the full insertion mark with the lubricant supplied by the pipe manufacturer. If the lubricated pipe end touches dirt, clean the pipe end and reapply lubricant.
- D. Insert the spigot into the bell and force it slowly into position.

- E. Check that the rubber ring has not left the groove during assembly by passing a feeler gauge around the completed joint.

3.08 MARKING TAPE AND INDICATING WIRE

- A. Install indicator wire and marking tape per Drawings.

3.09 HYDROSTATIC TESTING

- 1. Test in accordance with Section 15044.

END OF SECTION

SECTION 15071
HDPE PIPE, 20-INCHES AND SMALLER

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section includes materials and testing of PE3408 high density, very high molecular weight polyethylene (HDPE) pipe and fittings of size 20 inches and smaller for use in directional boring having a hydrostatic design basis of 1,600 psi at a service temperature of 73°F. Pipe diameter basis is IPS, with dimension ratio and pressure class capable of handling 150 psi test pressure. Pipe shall be DR 17, unless Contractor demonstrates need for thicker pipe barrel to perform means and methods for pulling lengths and constraints shown on plans or anticipated by Contractor.
- B. Pipe 1-1/2 inches through 3 inches shall conform to AWWA C901 and the following options and restrictions. Pipe 4 inches through 20 inches shall conform to AWWA C906 and the following.

1.02 SUBMITTALS

- A. Submit shop drawings in accordance with the General Conditions.
- B. Submit materials list for review. Submit manufacturer's recommended method of installing including methods for butt-fusing joints.
- C. The polyethylene pipe manufacturer shall provide certification that stress regression testing has been performed on the specific product. Certification shall include a stress life curve per ASTM D 2837.
- D. Provide certification that the material is listed by the Plastics Pipe Institute in PPI TR-4 with a 73°F hydrostatic design stress rating of 1,600 psi and a 140°F hydrostatic design stress rating of 400 psi. The PPI listing shall be in the name of the pipe manufacturer and shall be based on ASTM D 2837 and PPI TR-3 testing and validation of samples of the pipe manufacturer's production pipe, to meet PE 3408 standards.
- E. The manufacturer's certification shall state that the pipe was manufactured from one specific resin in compliance with these specifications. The certificate shall state the specific resin used, its source, and list its compliance to these specifications.
- F. Submit certified lab data to verify specified physical properties. Certify that tests are representative of pipe supplied for this project.

- G. Submit affidavit of compliance with referenced standards (e.g., AWWA C901, C906, etc.).
- H. Submit recommended locations of flanged joints, unions, shop-fabricated fittings and connections to other pipe materials. Submit detailed drawings of fittings.
- I. Submit installation schedule.
- J. Submit qualification certificates for operators of heat fusion equipment.
- K. Submit schedule for placement of and removal of test bulkheads.

1.03 INSPECTION

- A. All materials furnished under this specification are subject to inspection by the Town and Engineer.

PART 2 - PRODUCTS

2.01 PIPE

- A. Pipe shall have a nominal IPS (iron pipe size) OD. The SDR and the pressure rating of the pipe supplied shall be in accordance with Table 5 of AWWA C901 for NPS 1-1/2 inches through NPS 3 inches. The minimum wall thickness (inches) for pipe 4 inches through 20 inches shall be in accordance with Table 5 of AWWA C906, for the project required pressures and pulling lengths. The pipe shall be produced to the dimensions and tolerances specified in ASTM F 714. The pipe shall be homogenous throughout and free of visible cracks, holes, voids, foreign inclusions, or other deleterious defects and shall be identical in color, density, melt index, and other physical properties throughout.
- B. Pipe shall have a minimum hydrostatic design basis (HDB) of 1,600 psi, as determined in accordance with ASTM D 2837.
- C. Materials used for the manufacture of polyethylene pipe and fittings shall be very high molecular weight, high density ethylene/hexene copolymer PE 3408 polyethylene resin meeting the physical property and pipe performance requirements current applicable ASTM standards.

2.02 NIPPLES AND FLANGED STUB ENDS

- A. Short nipples and stub ends shall be of the same material as the HDPE pipe.

2.03 JOINTS

- A. Sections of polyethylene pipe shall be joined into continuous lengths on the jobsite above ground. The joining method shall be the butt fusion method and shall be performed in strict accordance with the pipe manufacturer's recommendations. The butt fusion equipment used in the joining procedures shall be capable of meeting all conditions recommended by the pipe manufacturer requirements of 500øF, alignment, and 150-psi interfacial fusion pressure.
- B. Butt fusion joining shall result in a joint weld strength equal to or greater than the tensile strength of the pipe. Socket fusion shall not be used. Extrusion welding or hot gas welding of HDPE shall not be used. Flanges, unions, grooved-couplers, transition fittings, and some mechanical couplers may be used to connect HDPE pipe mechanically without butt fusion where shown in the drawings and at elbows and tees.

2.04 QUALITY AND WORKMANSHIP

- A. The pipe and fitting manufacturer's production facilities shall be open for inspection by the Owner or his designated agents. During inspection, the manufacturer shall demonstrate that he has facilities capable of manufacturing the pipe and fittings required by this specification, that a quality control program meeting the minimum requirements of ASTM D 3035 and ASTM F 714 is in use, and that facilities for performing the tests required by this specification are in use.

2.05 FLANGES

- A. Flanges shall be ductile iron, conforming to the dimensions of ANSI B16.5, Class 150.

2.06 UNIONS

- A. Unions shall be pressure rated at the same or greater rating as the pipe. Material shall be the same as the pipe.

2.07 BOLTS AND NUTS FOR FLANGES

- A. Reference Section 15000-Piping Schedule and General Piping Requirements.

2.08 GASKETS FOR FLANGES

- A. Reference Section 15000-Piping Schedule and General Piping Requirements.

PART 3 - EXECUTION

3.01 QUALIFICATION OF FUSION OPERATORS

- A. Each operator performing fusion joining shall be qualified in the use of the manufacturer's recommended fusion procedure(s) by the following:
 - 1. Appropriate training or experience in the use of the fusion procedure.
 - 2. Making a sample joint according to the procedure that passes the following inspections and tests:
 - a. The joint shall be visually examined during and after joining and found to have the same appearance as a photograph or sample of an acceptable joint that was joined in accordance with the procedure; and
 - b. The joint shall be tested or examined by one of the following methods:
 - (1) Pressure and tensile test as described in 49 CFR 192.283;
or
 - (2) Ultrasonic inspection and found to be free of flaws that would cause failure; or
 - (3) Cut into at least three longitudinal straps, each of which is:
 - (a) Visually examined and found to be free of voids or unbonded areas on the cut surface of the joint, and
 - (b) Deformed by bending, torque, or impact and if failure occurs, it must not initiate in the joint area.
 - c. Each operator shall be re-qualified under the procedure, if, during any 12-month period they:
 - (1) Does not make joints under the procedure; or
 - (2) Has three joints or three percent of the joints he has made, whichever is greater, that are found unacceptable by testing under 49 CFR 192.513.

3.02 DELIVERY AND TEMPORARY STORAGE OF PIPE AT SITE

- A. Limit onsite pipe storage to a maximum of one week.
- B. Transport pipe to the jobsite on padded bunks with nylon tie-down straps or padded bonding to protect the pipe. Protect the pipe from sharp objects. Anchor pipe securely to prevent slippage.

- C. Store pipe on earth berms or timber cradles adjacent to the trench in the numerical order of installation. Stack the heaviest series of pipe at the bottom. Do not stack pipe in excess of the following limits:

Allowable Stacking Heights For Storage of PE Pipe (pieces)

Nominal Pipe Size (inches)	For DRs 18 and Under	For DRs over 18 & up to 26	For DRs over 26 & up to 32.5
4	25	20	12
6	22	16	10
8	20	12	8
10	16	10	6
12	14	8	5
14	10	7	4
16	10	6	4
18	8	6	4
20	8	6	3

- D. Protect the pipe from stones and sharp objects.
- E. Store fitting in their original cartons.

3.03 HANDLING OF PIPE

- A. Lift pipes with handling beams or wide belt slings near the middle of joints as recommended by the pipe manufacturer. Do not use cable slings, chains, or hooks.
- B. Before installation, check pipe and fittings for cuts, scratches, gouges, buckling, kinking, or splitting. Remove any pipe section containing defects by cutting out the damaged section in a complete cylinder.

3.04 SANITATION OF PIPE INTERIOR

- A. During fusion operations and laying operations, do not place tools, clothing, or other materials in the pipe.

- B. When pipe laying is not in progress, including the noon hour, close the ends of the pipe by a vermin and child-proof plug or seal.

3.05 HEAT FUSION

- A. Use fusion equipment specially designed for heat fusion of HDPE such as offered by McElroy Manufacturing, Inc., Tulsa, Oklahoma. The equipment utilized shall be regulated for the different melt strength materials. Compatibility fusion techniques shall be used when polyethylenes of different melt indexes are fused together.
- B. Maintain the proper temperature of the heater plate as recommended by the pipe manufacturer. Check it with a tempilstik or pyrometer for correct surface temperature.
- C. Clean pipe ends inside and outside with a clean cotton cloth to remove dirt, water, grease, and other foreign materials.
- D. Square (face) the pipe ends using facing tool of the fusion machine. Remove all burrs, chips, and filings before joining pipe or fittings.
- E. Check line-up of pipe ends in fusion machine to see that pipe ends meet squarely and completely over the entire surface to be fused. Make sure the clamps are tight so that the pipe does not slip during the fusion process.
- F. Insert clean heater plate between aligned ends and bring ends firmly in contact with plate but do not apply pressure while achieving melt pattern. Allow pipe ends to heat and soften. Approximate softening depths are as follows:

<u>Pipe Size</u> (inches)	<u>Approximate Melt Bead</u> (inches)
2 and below	1/16
3 to 5	1/8
6 to 12	3/16
12 to 22	1/4 to 5/16
24 to 54	5/16 to 7/16

- G. Carefully move the pipe ends away from the heater plate and remove the plate (if the softened material sticks to the heater plate, discontinue the joint, clean heater plate, resquare pipe ends, and start over).

- H. Bring melted ends together rapidly. Do not slam. Apply enough pressure to form a double roll-back bead to the body of the pipe around the entire circumference of the pipe about 1/8- to 3/16-inch wide. Pressure is necessary to cause the heated material to flow together.
- I. Allow the joint to cool and solidify properly. Remove the pipe from the clamps and inspect the joint appearance. Check line-up of pipe ends in fusion machine to see that pipe ends meet squarely and completely over the entire surface to be fused. Make sure the clamps are tight so that the pipe does not slip during the fusion process.

3.06 SIDEWALL FUSION

- A. Side fusion procedure for HDPE shall be accomplished in the field using 2- through 12-inch McElroy (or equal) fusion units and proper heater plate adapters. Where branch outlets are larger than 12 inches in outside diameter, sidewall fusion shall be accomplished in a fitting fabrication shop.
- B. Clean the pipe with a clean cotton cloth. Prepare surface of pipe (main) by roughing with 60 grit or coarser utility cloth.
- C. Prepare the base of the branch by roughing with 60 grit or coarser utility cloth.
- D. Align branch on the main and tighten clamp.
- E. Check branch for square alignment on main.
- F. Retract moveable clamp, roll in, and center heater plate with adapter between base of branch and main.
- G. For all sizes, apply a strong, firm, continuous pressure until complete melt bead can be seen on main. Release pressure to light pressure. Continue heat soak cycle on branch and main. Watch base of branch for:

<u>Main Sizes</u>	<u>Heat Soak Cycle Fitting Base Bead</u>
1-1/4	1/16" Melt Bead
2	1/8" Melt Bead
3 and larger	1/8" to 3/16" Melt Bead

- H. Retract moveable clamp and cleanly remove heater plate.

- I. Bring melted surfaces together rapidly. Do not slam. Apply continuous progressive pressure until proper fusion bead is formed. Maintain pressure until joint has cooled.

3.07 COMPATIBILITY FUSION

- A. Manufacturer of pipe shall provide technical personnel to instruct and demonstrate the fusion procedure for joining dissimilar HDPE materials.
- B. Compatibility heat fusion and sidewall fusion shall be accomplished in the same manner as described above with the following exception:

To achieve proper melt pattern, insert the heater plate and place a compatibility insulator between the heater plate and the lower melt material. After the higher melt achieves proper melt, then remove the insulator and bring the heater plate in contact with the lower melt material for proper melt. Continue heating both surfaces until proper melt develops. For manually operated fusion equipment, form a double roll-back bead as previously described in the fusion procedures.

3.08 HANDLING OF PIPE

- A. Consideration shall be given to pull-out forces caused by circumferential as well as longitudinal thermal contraction when flanged and mechanical joints are used. If necessary, provisions shall be made for sealing as well as restraining to compensate for the axial loading due to expansion or contraction and/or pipe settlement.
- B. HDPE may be cold-bent to a minimum radius of no less than 30 times the pipe diameter as it is installed along curved alignment. The minimum bending radius that can be applied to the pipe without kinking it varies with the diameter and wall thickness of the pipe and shall not exceed the recommendations of the manufacturer. If adequate space is not available for the required radius, fuse a fitting of the required angle into the piping system to obtain the necessary change in direction.
- C. Static electricity:
 1. Static electricity charges are generated on polyethylene pipe by friction, particularly during the handling of pipe in storage, shipping, and installation. The flow of air or gas containing dust or scale will also build up significant static charges, as will the flow of dry materials through the pipe. These charges are a safety hazard, particularly in areas where there is leaking gas or an explosive atmosphere.

2. Plastic pipe is a nonconductor of electricity and the static charge will remain in place until some grounding device comes close enough to allow it to discharge.
 3. The discharge of these static electric charges is the responsibility of the Contractor.
- D. Do not drag HDPE pipe over the ground, drop it onto the ground, or drop objects on it.

3.09 OPERATIONS INCIDENTAL TO JOINT COMPLETION

- A. Install metallic tracer wire as detailed in Drawings.
- B. Plan joint completion to accommodate temporary test bulkheads for hydrostatic testing.

3.10 FLANGED CONNECTIONS

- A. Mechanical joining to other piping materials (fittings, valves, tanks, pumps, etc.) shall be accomplished with factory-made flange adapters and ductile-iron backup flanges. Flanges shall be used to connect lengths of HDPE together when heat fusion is impractical.
- B. Flange adapters shall be pressure rated the same as the pipe. Flange adapters shall be heat fused to the pipe as outlined in the heat fusion section.
- C. Gaskets shall be used between the polyethylene flange adapters when recommended by the HDPE pipe manufacturer. Sufficient torque shall be applied evenly to the bolts to prevent leaks. After initial installation and tightening of flanged connections, allow the connections to set for a few hours. Then conduct a final tightening of the bolts.
- D. Lubricate nuts and bolts with oil or graphite prior to installation.
- E. Wrap buried flanges, bolts, and metal with the sheet polyethylene film specified for the valves and equipment. Extend the wrap over the flanges and bolts and secure it around the adjacent pipe circumference with tape.
- F. Check operation of valves connected to molded stub end flange adapters. Insert polyethylene spacer if recommended by pipe manufacturer for clearance.

END OF SECTION

SECTION 15115 WATER MAINS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The work to be performed under this Section shall include the furnishing and installing of water mains and appurtenances as herein described and as shown on the Drawings. The Contractor shall perform all excavation, backfilling, and related work required for the construction of these mains, in accordance with the provisions set forth under the applicable items of this Specification and of the General Conditions of the Contract. Where not otherwise set forth, all work shall be in accordance with AWWA (ANSI) C600.

1.02 REFERENCES

- A. Standards applicable in this Specification include:
1. American Water Works Association (AWWA) and American National Standards Institute (ANSI).
 2. AWWA C111 (ANSI A21.11) Rubber Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings.
 3. AWWA C150 (ANSI A21.50) Thickness Design of Ductile-Iron Pipe.
 4. AWWA C151 (ANSI A21.51) Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand Lined Molds for Water or Other Liquids.
 5. AWWA C600 Installation of Ductile Iron Water Mains and Appurtenances.
 6. AWWA C605 Installation of PVC Pressure Pipe & Fittings.
 7. AWWA C651 Standard for Disinfecting Water Mains.
 8. AWWA C900 Polyvinyl Chloride Pressure Pipe 4" through 12"
 9. AWWA C901 Polyethylene Pressure Pipe and Tubing for Water Service.
 10. AWWA C906 Polyethylene Pressure Pipe and Fittings 4" through 63".
 11. AWWA Manual of Practice M55 – PE Pipe Design and Installation.
 12. American Association of State Highway and Transportation Official (AASHTO).

1.03 SUBMITTALS

- A. Submit shop drawings in accordance with General Conditions and Section 01300.
- B. Submit fully dimensioned cross section of the bell and barrel of the pipe. Show the bell maximum outside diameter in the pressurized area and its minimum wall thickness at the same location.
- C. Submit copies of the following manufacturer-required tests conducted on project pipe:
 - 1. Quick-burst strength of pipe and couplings
 - 2. Flattening resistance of pipe
 - 3. Record of additional tests after test sample failure
- D. Submit manufacturer's literature of ductile-iron fittings including dimensions, thickness, weight, coating, lining, and a statement of inspection and compliance with the acceptance tests of AWWA C110 or C153. Submit copy of report of pressure tests for qualifying the designs of all sizes and types of AWWA C153 fittings that are being used in the project. The pressure test shall demonstrate that the minimum safety factor described in AWWA C153, Section 53-15 is met.
- E. Submit outline drawings and materials description of service connection saddles, corporation stops, and pipe plugs.
- F. Submit test results for the restrained joint system to be used certified by an independent test laboratory demonstrating compliance with these specifications for each size and pressure rating.
- G. Submit restrained joint system installation instructions. Include bolt torque limitations and assembly tolerances.

PART 2 - MATERIALS

2.01 PIPE

- A. Polyvinyl Chloride Pipe (PVC): PVC pipe shall meet requirements of AWWA C900 DR-18 for pipe 4" to 12" in diameter and C905 DR-18 for pipe 14-inches through 48-inches for water distribution and transmission mains. Pipe shall be furnished in cast-iron pipe equivalent outside diameters with rubber gasket joints. Pressure class shall be 150 psi (DR-18). Reference Section 15064 – PVC Distribution Pipe.
- B. High Density Polyethylene HDPE. Reference Section 15071 – HDPE pipe 20-inches and Smaller.

- C. Ductile Iron Pipe: Ductile iron pipe shall conform to AWWA C151 (ANSI A21.51) and shall be Pressure Class 350. Reference Section 15014 – Ductile Iron Pipe.
- D. Coating: Buried ductile iron pipe shall be bituminous coated per AWWA C151/A21.10 and wrapped in an 8 mil polyethylene encasement. Reference Section 02620-Polyethylene Encasement.

2.02 FITTINGS

- A. Fittings shall be ductile iron mechanical joint type conforming to AWWA/ANSI C153/A21.53 with MEGALUGS, or approved equivalent restraint. All fittings shall have a working pressure of 350 psi in size 4" through 12", and shall be coated and lined as specified for ductile iron pipe. Ductile iron fittings on PVC pipe shall be wrapped in an 8 mil polyethylene encasement extending 1 foot from each end of the fitting. Reference Section 02620-Polyethylene Encasement.
- B. Fittings for HDPE shall meet the requirements of AWWA C906 for PE Pipe and Fittings, 4-inches through 63-inches.
- C. Fittings for Ductile Iron Pipe shall meet AWWA C151 for 3-inches through 64-inches DIP for push-on and mechanical joints.

2.03 JOINTS

- A. Pipe shall be furnished with integral bell joints with locked in rubber gaskets.
- B. Restrained joint pipe shall be used for changes in elevation or alignment as shown on the Drawings. Restrained joints shall be megalugs in the appropriate pressure class by EBAA Iron, or approved equivalent restraint. All restrained joints shall have a working pressure of 350 psi.

PART 3 - EXECUTION

The installation and testing of the water main shall be done in accordance with AWWA C600 for DIP, AWWA C605 for PVC and AWWA M55 for HDPE in addition to requirements described herein or shown on the Drawings.

3.01 PREPARATION

- A. The layout of some of the piping systems shown on the Drawings may be diagrammatic but shall be followed as closely as the work will permit.
- B. In shipping, delivery, and installing pipe and accessories, they shall be handled in such manner as to insure a sound, undamaged condition. Particular care shall be

taken not to injure pipe coating and no other pipe or material of any kind shall be placed inside a pipe or fitting after the coating has been applied.

3.02 INSTALLATION

A. General

1. All pipe, fittings and valves shall be installed according to AWWA Specifications. Prior to installation, all pipe and appurtenances shall be examined for damage and defects. Under no circumstances shall defective pipe be installed. All lumps, blisters and excess coating materials shall be removed from the bell and spigot ends of each pipe. While being placed in the trench, care shall be taken to prevent foreign material from entering the pipe. As each length of pipe is placed in the trench, the joint shall be assembled and the pipe brought to correct line and grade.
2. At times when pipe laying is not in progress, the open end of the pipe shall be closed by a watertight plug. When practical, the plug shall remain in place until the trench is pumped completely dry. When it is necessary to deflect the pipe from a straight line in either the vertical or horizontal plane, or where long radius curves are permitted, the amount of deflection shall not exceed that of Table 3 for push-on joints and Table 4 for mechanical joints in AWWA Specification C600.

B. Flanged Joints

1. Before making up flanged joints in ductile iron pipe and fittings, the back of each flange under the bolt heads and the face of each flange shall have all lumps, blisters and excess bituminous coating removed and shall be wire brushed and wiped clean and dry. Flange faces shall be kept clean and dry when making up the joint, and the workmen shall exercise caution to prevent damage to the gasket or the adherence of grease or particles of sand or dirt. Bolts and nuts shall be tightened by opposites in order to keep flange faces square with each other, and to ensure that bolt stresses are evenly distributed.

C. Mechanical Joints

1. Mechanical Joints are to be made in accordance with manufacturer's recommendations and requirements of pipe joint specifications. Care shall be taken to tighten bolts in each holes and evenly around circumference of pipe and in no case shall bolts be overstressed.

D. Valve Settings

1. All valves placed on branch lines or bends shall be restrained via anchor couplings or anchor tees as specified hereinabove. Valves and valve boxes shall be set plumb at the locations indicated, and in accordance with the details shown on the Drawings. After being positioned, backfill shall be carefully placed and hand tamped. Before installation, care shall be taken to see that all foreign matter has been removed from the interior of the barrel. Stuffing boxes shall be tightened and the valves opened and closed to see that all parts are in working condition.

E. Connection to Existing Mains

1. Connection to existing water mains shall be made by the Contractor. The Contractor shall be responsible for making all necessary arrangements with the Town for these connections and shall bear any costs incurred at no additional cost to the Town. Prior to commencing the work of connecting to existing facilities, the Contractor shall uncover or expose the point of connection and insure himself that he has all materials, equipment and all other facilities required to complete the installation, and that such connections can be made in accordance with the details shown on the Drawings. Contractor is responsible for providing restraints for existing pipe to handle thrusts from new connections.
2. The Contractor shall take every precaution to insure that the alignment or gradient of the existing facilities are not disturbed, or otherwise damaged, as a result of his construction procedures. In the event the existing facilities are damaged or otherwise disturbed, the Contractor will be required to do such necessary repair, re-alignment, or replacement, so as to restore these facilities to a watertight, workable, acceptable condition.
3. No existing valves shall be operated by the Contractor. These valves shall only be operated by personnel of the Town. The Contractor shall advise the Town and Engineer, 7 days in advance of making these connections. This work shall be done under direct supervision of personnel of the Town. The valves and fittings to be employed in these connections, shall be thoroughly swabbed with a 300 ppm solution of chlorine and water. The connections shall be made as rapidly as possible, and any water in the excavation shall be kept below the level of pipe and fittings. The Contractor may have to make connections at off-peak hours. Shut-downs shall be kept to a maximum of 2 hours, unless previously approved by the Town, pending extenuating circumstances. Once valves are installed, they shall only be operated by Town personnel.

F. Customer Service Connections

1. Service connections shall be installed of the type and size and at the locations shown on the Drawings. All materials shall be as shown on the Drawings and as stated in these specifications. All taps to the distribution main may be made with the main under pressure, or dry tapped. Customer Service connections shall be direct tapped on mains 6" in diameter or greater and shall have corporation stop Ford F-1000 or approved equal. For connections to 4" diameter mains, use brass tapping saddle Rockwell Style 323 or approved equal and corporation stop Ford F-1000 or approved equal. For connections to 2" diameter mains, use Pack Joint Tee Ford T441-774 or approved equal and corporation stop Ford F-1100 or approved equal.

G. Miscellaneous

1. All excavated material shall be stockpiled in a manner that will not hinder the work or obstruct sidewalks, roadways, and driveways. All utility control structures shall be kept accessible. This shall be designed to mean those areas as designed by the Permitting Agency unless otherwise specified. Material stockpiles on private property must have written consent with a copy to Town.
2. Trench bottom shall be constructed to provide a firm, stable and uniform support for the full length of the pipe and/or fittings. Bellholes shall be provided at each joint to permit proper assembly and pipe support. When an unstable subgrade condition is encountered that could provide inadequate pipe support, additional trench bottom shall be excavated, refilled with suitable foundation material, and compacted as required to provide firm support. All pipe shall be installed in dry trenches.

3.03 CUTTING AND CAPPING RETIRED WATER MAINS

- A. As shown on the Drawings, some of the existing water mains are to be retired. The Contractor shall be responsible for cutting and capping or plugging, leak free, the existing water mains at the locations shown on the Drawings. Thrust blocks shall be installed at the capped end if required, dependent upon the type of existing pipe and method of capping to ensure that there is no movement in the pipe remaining in service. The Contractor shall obtain the approval of the Town prior to cutting any existing water mains.

3.04 CUSTOMER SERVICE LINES

A. Location of Meters

1. All meters and meter boxes shall be located in the right-of-way as shown on the Drawings. Where meter relocations are required, the Contractor shall also install new service piping between the relocated meter and the point of connection on the customer's property.
2. If the meters are in "back" easements or at the back of lots it may be better to install the new meter boxes and run the on-site customer service piping up to the point of connection prior to relocating any meter. The exact sequence of operations will be decided by the Town in the field.

3.05 FIELD QUALITY CONTROL

A. Vertical and Horizontal Control

1. Pipeline to be installed as shown on Drawings. Contractor is responsible to maintain and record alignment and grade per Drawings and Section 01051- Lines and Grades. Record daily the elevation and alignment for documentation and control. If conflict is encountered in the design alignment Town and Engineer immediately to determine acceptable remedies prior to any field deviation.

B. Hydrostatic Tests

1. The Contractor shall provide all necessary material and shall perform all work required in connection with the test, including temporary plugs where required. All pipe on low pressure side of pressure reducing valves on distribution systems shall be tested to a hydrostatic pressure of 150 psig. The required pressure as measured at the point of highest elevation shall be applied for not less than two hours, and all pipe, fittings, valves, and joints shall be made water tight if leakage is evident.
2. No pipe installation will be accepted unless and until the leakage is less than that as specified under AWWA C600 standards and Section 15044- Pressure Testing.

C. Pigging

1. All water main installations shall be cleaned with a polypropylene pigging device to clean all dirt, sand, and debris from the newly installed water main where determined by the Town field representative. The Town Field Representative shall determine the extent and type of pigging required. At

a minimum, a bare type, B3 style pig shall be used as manufactured by Pipeline Pigging Products Inc., or approved equal.

D. Sterilization of Complete Line

1. Before being placed in service, each line shall be sterilized in accordance with the directions of the Florida Department of Health Permit and in accordance with AWWA C601 to AWWA C651, and Section 02675-Disinfection of Potable Water Line and Section 01045-Connections to Existing Systems.

E. Connections to the Existing System

1. Connections to be made by the Contractor are shown on the Drawings. Connections shall not be made until the new water mains are cleared by the Town and Sarasota County Department of Health. Reference Section 02675-Disinfection of Potable Water Line and Section 01045-Connections to Existing Systems.

F. Density Tests

1. Locations for density tests shall be as required in Section 02225-Trenching and Backfilling and Section 01410-Laboratory Testing to determine adequacy of the compaction operation. Density tests are the Contractor's responsibility will be performed by Certified personnel and certified lab at Contractor's expense.

3.06 ADJUSTING AND CLEANING

A. Restoring Surfaces

1. The top surfaces of the backfill shall be restored to present standards or better conditions. Trenches shall be carefully examined upon the completion of backfilling and surface irregularities, that are dangerous or obstructive to traffic, are to be removed.
2. Paved sections shall conform in grade with adjacent areas and shall be of at least equal quality. Design mixes for flexible pavement shall be subject to approval by the FDOT and the Town and Engineer. All damaged or undermined areas of existing pavement, not previously removed, shall be removed and restored to original conditions or in the specified manner. Equipment shall not travel over loose rock fragments, or other hard material, lying on sections or pavements which are not to be removed. Removal, replacement and restoration of areas of pavement shall be as indicated on drawings.

END OF SECTION

SECTION 15120 VALVES AND APPURTENANCES

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Gate valves
- B. Ball Valve Curb Stops
- C. Ball Valve Meter Stops
- D. Saddles
- E. Corporation Stops
- F. Pump Suction Control Valves
- G. Fire Hydrants
- H. Tapping Sleeves and Valves
- I. Valve Boxes
- J. Polyethylene Tubing
- K. Valve Identification Systems
- L. Detectable Warning Tape
- M. Air Release Valves (Vacuum and Manual)
- N. Blow-Offs

1.02 RELATED WORK

- A. Section 15115: Water Mains

1.03 REFERENCES

- A. AWWA - American Waterworks Association.
- B. ASTM - American Society for Testing Materials
- C. FS - Federal Specification.

1.04 SHOP DRAWINGS

- A. Submit detailed Shop Drawings in accordance with Section 01300. Clearly indicate make, model, location, type, size, and pressure rating.

PART 2 - PRODUCTS

2.01 VALVES - GENERAL

- A. All valves shall be furnished with affidavits from the manufacturers that the valves furnished under this Contract comply with all the applicable provisions of the respective AWWA Specifications, cited below. All valves shall be factory tested in accordance with AWWA Standard Leakage and Hydrostatic Tests and a certified test report shall be furnished stating that the valves have met the requirements of the test.
- B. Valves shall be furnished with mechanical joint or flanged ends. Valve ends with mechanical joints or flanged joints shall conform to AWWA Standard C110 "Ductile Iron and Gray-Iron Fittings, 3" through 48" for Water and other Liquids". In addition, mechanical joints shall conform to ANSI/AWWA Standard C111/A21.11. Bolt holes in the flanges of the mechanical joint shall straddle the vertical and horizontal centerline. Flanges shall be ANSI Standard Class 250 plain faced and drilled.
- C. All valves three inches through 16-inch in diameter, shall be resilient seated or resilient wedge gate valves and all valves 18 inch in diameter and larger, shall be as specified and shown on the Drawings. All valves shall be polyethylene encased, from one foot on each side of the valve.

2.02 GATE VALVES

- A. Gate valves shall be resilient seated wedge gate valves for 150 psi working pressure, AWWA Standard C-509. The gate valves shall have a high strength bronze non-rising stem. Valves shall have neoprene, Buna-N or equal, but not natural rubber, O-ring stem seals (compatible with chloramines) and be of a design that permits the replacement of the O-ring seals while the valve is in service under pressure. The valves shall open by turning the operating nut counterclockwise. Operating nuts shall be AWWA two inch square nuts with skirts.
- B. Valve body, bonnet, and gate shall be Ductile Iron conforming to ASTM A-536. Shell thickness of body and bonnet components shall conform to Table 2 Section 4.4 AWWA C-509 and C-500. So-called "thin-wall" valves, not included in this Standard, are not allowed.
- C. Valve body and bonnet shall be coated on all exterior and interior surfaces with a fusion bonded epoxy conforming to the requirements of AWWA Standard for Protective Epoxy Interior Coatings for Valves and Hydrants; C-550. Manufacturer shall certify that the coating will conform to following sections of the Standard:

1. Section 2 - Materials (relating to the suitability of the coating for use in a potable water system).
 2. Section 4 - Testing and Inspection (relating to qualification and production testing).
- D. Gate shall be covered with rubber over all interior and exterior ferrous surfaces. The rubber shall be securely bonded to the gate body, including the part which houses the stem nut. The stem hole through the gate shall be full opening top to bottom and shall also be covered with rubber.
- E. Body and bonnet shall be coated inside and out with a fusion bonded epoxy that meets or exceeds requirements of AWWA C550.
- F. Direct buried gate valves shall be polyethylene encased and shall have Type 316 stainless steel bonnet bolts.
- G. Gate valves shall be as manufactured by Mueller Water Products, or an approved equal.

2.03 BALL VALVE CURB STOPS

- A. Curb stops shall be solid brass and manufactured by Mueller or approved equal. Ball valves shall have locking lugs and 2" square operating nut which opens to the left on 1 ½" and 2" valves and shall be rated for 300 psi.

2.04 BALL VALVE METER STOPS

- A. Meter stops shall be Mueller H-14265, or an approved equal. Valves shall have lockable padlock wings, and open to the left.

2.05 SADDLES

- A. Saddles shall be Rockwell International, Type 323, style double strap bronze saddles, for PVC and ductile iron pipe, or approved equal. Tapping saddles shall be used for all taps on 4" PVC pipe.

2.06 CORPORATION STOPS

- A. Corporation stops shall be Ford F-1000, FB-1000, or approved equal. The largest corporation stop which can be tapped directly into the pipe is 2-inch.

2.07 FIRE HYDRANTS

- A. Fire hydrants shall be 6-inch, mechanical joint pipe connection with a minimum 5.25 inch valve opening. Hydrants shall be of AWWA approved type, designed for a 150 psi working pressure.
- B. Provisions shall be made for two 2.5 inch hose nozzles and one 4.5 inch pumper nozzle, open left (counter clockwise). All base threads shall conform to the national standard hose coupling thread specifications. Fire hydrants shall have a safety stem coupling to prevent bending of the operating stem, and a safety flange to prevent breaking of the hydrant barrel if hit by a vehicle. The hydrant base (shoe) shall be coated with a two-part thermo-setting epoxy, not less than 4 mils thick. Weather cap shall be metal. The maximum pressure loss allowable for the 5-1/4" valve opening shall be 2.2 psi at 1000 gpm flow based on 5 foot bury with 6" diameter inlet. The hydrant shall be a Mueller Figure No. A-423. The drain hole in the foot of the fire hydrant shall be plugged and all buried bolts shall be AISI Type 316 stainless steel.
- C. Fire hydrants shall be painted with one coat of rust proof primer and two finish coats of an approved paint of the color directed by Town.

2.08 TAPPING SLEEVES AND VALVE

- A. Tapping Sleeves shall be 316 SS and be pressure rated to withstand 150 psi working pressure. Tapping Sleeves shall utilize ANSI Type 316 stainless steel bolts and nuts. Tapping Sleeves shall be as manufactured by Mueller Water Product, or approved equal.
- B. Tapping valves shall be as specified for gate valves, hereinabove, and as further specified herein. Valve body, bonnet, and gate shall be Ductile Iron conforming to ASTM A-536. Tapping valves for use in tapping distribution mains shall be resilient seat gate valves. Inlet shall be Class 125, ductile iron flange with centering ring to match tapping sleeve. Outlet shall be a mechanical joint. Tapping valves shall be compatible for use with a drilling machine. Tapping valves shall be attached to tapping sleeves with stainless steel nuts and bolts which shall be heavy hex-head ANSI Type 316 stainless steel. Approved tapping valves shall be manufactured by Mueller Water Product, or approved equal.

2.09 VALVE BOXES

- A. Furnish, assemble, and place a valve box over the operating nut for each buried valve. The valve box shall be installed so as to prevent the transmission of surface loads directly to the valve or piping. Valve boxes shall be U.S. Foundry No. 7615, No. 7630 or approved equal.

- B. Valve extension stems shall be provided for all buried valves when operating nut is deeper than 3 feet below final grade.

2.10 POLYETHYLENE TUBING

- A. Service lines shall be polyethylene tubing conforming to ASTM D2737; SDR 9 with a minimum working pressure of 200 psi. Tubing shall be IPS diameter for ¾" and 1 inch, and CTS for 2 inch.

2.11 VALVE IDENTIFICATION SYSTEMS

A. Buried Valves:

1. In paved areas, tops of valve box covers shall be set flush with pavement. Following paving operations, a 30-inch square shall be neatly cut in the pavement around the box and the paving removed. The top of the box shall then be adjusted to the proper elevation and a 30-inch square by 6-inch thick concrete pad poured around the box cover. Concrete pads in traffic areas shall be reinforced with No. 4 reinforcement bars as shown on the drawings. Concrete for the pad shall be 4,000 psi compressive strength.
2. In unpaved areas, tops of valve box covers shall be set 0.20 foot above finished grade. After the top of the box is set to the proper elevation, a 30-inch square by 6-inch thick concrete pad shall be poured around the box cover. Concrete for the pad shall be 4,000 psi compressive strength.
3. Shall have valve boxes protected by a concrete pad. The concrete pad for the valve box cover shall have a 2 2 -inch diameter, bronze disc embedded in the surface as shown on the drawings. The bronze disc shall have the following information neatly stamped on it:
 - a. Size of valve, inches
 - b. Type of valve:
 - 1) GV - Gate Valve
 - 2) BFV - Butterfly Valve
 - 3) Ball Valve
 - c. Number of turns to fully open
 - d. Direction to open
 - e. Year of installation

2.12 DETECTABLE WARNING TAPE

- A. Detectable warning tapes shall be provided for all water, wastewater and reclaimed water mains. Such tape shall be magnetic type, 5 mils thick, 2 mil

thick aluminum center core, encased in mylar. Tape shall be imprinted with the following words:

- "Caution: Water Line Below" (color shall be blue)
- "Caution: Wastewater Line Below" (color shall be green)
- "Caution: Reclaimed Line Below" (color shall be purple)

Printing shall appear on both sides of the tape. The tape shall be placed between 6 and 12 inches below finish grade.

2.13 COMBINATION AIR RELEASE AND VACUUM VALVE (NOT USED)

- A. The large orifice assembly air and vacuum valve shall automatically exhaust air from a pipeline during the initial filling of the pipeline. The large orifice assembly shall not blow shut while exhausting air, even while venting air at sonic velocity. When all air has been exhausted from the pipeline, the large orifice float ball shall be buoyed up to seat tightly against a resilient seat ring. The large orifice float ball shall remain tightly closed while the pipeline is under positive pressure. Should the pipeline pressure fall below atmospheric pressure (such as during draining or a line break), the large orifice float ball shall automatically fall away from the seat ring and permit air to enter the pipeline.
- B. The large orifice assembly shall be furnished with cast iron body and cover (ASTM A126 Class B). A resilient, Buna N seat ring shall be affixed to the valve cover. The float ball shall be constructed of stainless steel with a minimum pressure rating of 1,000 psi.
- C. Valve to include flood safe device to prevent stormwater or other inflow through air release mechanism.
- D. Unit shall be manufactured by GA; APCO; Val Matic or equal

2.14 MANUAL AIR RELEASE VALVE

- A. Contractor to furnish and install 2-inch ballcorp corporation stop designed for 300 psi working pressure, and shall conform to AWWA C800. Valve material shall be solid red brass and compatible with 316 stainless steel saddle with AWWA Taper threads.
- B. Corporation stop outlet shall include solid brass, downward turning discharge nozzle with unthreaded discharge for air release toward the ground.

2.15 BLOW-OFFS

- A. Furnish, assemble, and install dead-end blow-off assemblies at locations shown on Drawings.

- B. The Contractor shall install a 2-inch corporation stop in the blind flange at the dead-end of all pipe branches. The stop shall be drilled and fitted into the top 1/3 of the blind flange fitting. A valve box shall be provided for the corporation stop locations.
- C. Schedule 80 PVC shall be connected to the outlet of the corporation stop and restrained. Piping shall include fittings to bring discharge blow-off to 18-inches above grade during construction activity.
- D. A second corporation stop shall be installed in the meter box with H2O loading and locking lid. Blow-off piping shall be permanent through both the corporation stops and just below the lid of meter box.
- E. Contractor to extend piping 18-inches above grade during construction activity.
- F. Above ground extension piping to be removed and 2-inch cam lock placed on end of pipe.

PART 3 - EXECUTION

3.01 INSTALLATION OF VALVES

- A. Valves of the size and type shown on the Drawings shall be set plumb and installed at the locations indicated on the Drawings. Valves shall be installed in accordance with manufacturer's installation instructions and with the details shown on the Drawings.
- B. Valves shall be installed such that they are supported properly in their respective positions, free from distortion and strain. Valves shall be installed such that their weight is not borne by pumps and equipment that are not designed to support the weight of the valve.
- C. Valves shall be carefully inspected during installation; they shall be 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. Check and adjust all valves for smooth operation.
- D. Install valves with the operating stem in either horizontal or vertical position as shown on the drawings.
- E. Allow sufficient clearance around the valve operator for proper operation.
- F. Clean iron flanges before installing flanged valves. Clean carbon steel flange bolts and nuts by wire brushing, lubricate threads with oil or graphite, and tighten nuts uniformly and progressively.

- G. For buried valves, a valve box shall be centered accurately over the operating nut and the entire assembly shall be plumb. The tops of valve boxes shall be adjusted to the proper elevation as specified below and as shown on the Drawings.
- H. Valves shall be tested hydrostatically, concurrently with the pipeline in which they are installed. Protect or isolate any parts of valves, operators, or control and instrumentation systems whose pressure rating is less than the pressure test(s). If valve joints leak during pressure testing, loosen or remove the nuts and bolts, reseal or replace the gasket, reinstall or retighten the bolts and nuts and hydrostatically retest the joints.
- I. All buried valves shall be wrapped with polyethylene (8 mils). Reference Section 2620-Polyethylene Encasement.

END OF SECTION

