

**SOUTH SEMINOLE & NORTH ORANGE COUNTY
WASTEWATER TRANSMISSION AUTHORITY**

MEMORANDUM

DATE: December 10, 2009

TO: Distribution

FROM: Marc A. Cannata, Project Manager, Reiss Engineering, Inc (REI)

SUBJECT: **Addendum No. Four, RFP No. 2009-003
Request for Proposal
Wastewater Pump Station Construction and Rehabilitation
Contractor Continuing Services
(Due Date December 14, 2009, 1:00PM EST)**

This Addendum is being issued to provide information as a result of written questions received since the non-mandatory pre-proposal meeting Thursday, December 3, 2009, at 10:00 a.m. at the Authority's offices. Please note the requirement to acknowledge all Addendum numbers in final RFP Submittal package. Please note no additional question will be taken at this time.

Question: Two questions from page 40 23 21 4 of your specifications on the above project. Under swing check valves, section 2.03

1. The specs call for 3-50 lb weights, is this correct? The AFC valve can offer single or double lever and weights but 50 lb would be the maximum.
2. In the same section, par. B calls for the valve to be rated to 350 psi with 125 ANSI flanged ends. AFC can rate our swing check valve for 200 psi and TEST to 350 psi. Do you want the valve tested to 350 psi or rated at 350 psi?

Answer: *1. Specification Section 402321, Paragraph 2.03 A, the last sentence is deleted.
2. Specification Section 402321, Paragraph 2.03 B, is revised to read "Check valves shall be rated for a minimum of 200 PSIG CWP and shall be furnished with 125# ANSI flanged end connections".*

Question: It was mentioned in the pre-proposal meeting that controls and instrumentation scope is not required for the Lakes of Aloma Pump Station. Controls and instrumentation is also not a specific bid item in Attachment A for future pump stations. Are the bidders still required to list any controls and instrumentation subs for reference in the proposal package? If so, can you provide the list of approved vendors for the municipalities in which we will be working?

Answer: *Please list any control and instrumentation sub-consultants planned to be used as part of your team. No formal list of approved vendors, however the Authority has worked with DCR Engineering, System Tech. LLC, ITT Flygt on past projects.*

Question: In reference to bid item 49, Installing Valve Vault Drain to Wetwell. Can more information be provided? What size drain? 2-inch, 3-inch? What type of material? Galv, PVC? Any valves required in the drain line?

Answer: *The drain line will be Schedule 80 PVC 3-inch line with rubber flapper check valve in the wetwell.*

Question: In reference to the incidental pipe identification material for both PVC and HDPE, can specs be provided as to the Gauge of identification wire required, diameter of tracer tape, acceptable manufacturer of locate discs.

Answer: *Specification 331116 Force Main Piping and Fittings has been provided with this Addendum (Attachment A) for reference to address these items.*

Question: Could Bell Joint restraint specifications be provided?

Answer: *Specification Section 40 23 21, Paragraph 2.07 is added per Attachment B provided.*

Question: What are the materials that the control panel support system are to be made of and who supplies the materials?

Answer: *Please see Addendum No. 3 for response to this question, and Measurement and Payment Specification 01 22 00 provided in Addendum No. 3 for reference.*

Question: The control panel support system size would depend on the control panel size (duplex, triplex, hp) and the size of the electrical gear (voltage and amperage), how should we price this with all of the different variations?

Answer: *Please see Addendum No. 3 for response to this question.*

Question: On line # 66 when you refer to pedestal are you referring to the power companies pedestal?

Answer: *Please see Addendum No. 3 for response to this question, and Measurement and Payment Specification 01 22 00 provided in Addendum No. 3 for reference.*

Question: Who is supplying the electrical gear?

Answer: *The intent is for the contractor to supply when a project outlines specific electrical gear and requirements.*

Question: How are we supposed to determine the size of the conduits and wire?

Answer: *Please see Addendum No. 3 for response to this question, and Measurement and Payment Specification 01 22 00 provided in Addendum No. 3 for reference.*

Note: *Specification Section 40 23 21, Paragraph 1.01, Subparagraph C, Item 1 is revised to read as follows: All of the equipment and materials specified herein are intended to be standard for use in controlling the flow of raw wastewater.*

Note: *Under Cementitious Coating or 100% Solid Epoxy Line, Line item 14 and 15 should be “and” and NOT “or”.*

ATTACHMENT A

SECTION 33 11 16

FORCE MAIN PIPING AND FITTINGS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section specifies the requirements for the underground piping and fittings.

1.02 QUALITY ASSURANCE

- A. All piping shall be in accordance with the specifications herein.

1.03 SUBMITTALS

- A. Product literature and data on the pipe, fittings, valves and other accessories shall be submitted for approval.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Pipe and fittings shall be handled and stored in a manner which will ensure installation in sound, undamaged condition. Handling methods and equipment used shall prevent damage to the protective coating and shall include the use of end hooks, padded calipers, and nylon or similar fabric slings with spreader bars. Bare cables, chains, or metal bars shall not be used. Coated pipe shall be stored off the ground on wide padded skids. Whenever the storage period on the job exceeds 30 days, plastic coated pipe shall be covered or otherwise protected from exposure to sunlight.

1.05 WARRANTY AND GUARANTEES

- A. Provide warranty and guarantees for all equipment and work in accordance with the County's General Conditions.

PART 2 - PRODUCTS

2.01 PVC PIPE AND FITTINGS FOR PVC PIPE

- A. All PVC pipe shall conform to ASTM D1784 and shall be made from virgin resin compounds. Pipe 4-inches through 12 inches shall be AWWA C900, DR 18, pressure class 150, and meet all the requirements of the AWWA C900 standard, latest edition. Pipe 14 inches and greater shall be AWWA C905 with a dimension ratio of DR-18 and pressure class of 150 psi or greater.
- B. All PVC shall have push-on joints using elastomeric gaskets conforming to the requirements of ASTM F477.
- C. Fittings shall be push-on mechanical joint ductile iron fittings conforming to ANSI/AWWA C110/A21.10 with cement mortar lining and asphaltic seal coating, or all fittings, under this section, shall be supplied with a fusion applied epoxy coating, both inside and outside for total protection. The epoxy coating system used shall be suited for potable water contact and protection in wastewater applications for sewer gases. The epoxy coating system must have NSF 61 certification and be recognized and certified by the manufacturer as approved for use in both potable water and wastewater application with total protection. The epoxy coating shall meet or exceed ANSI/AWWA C-550 and C116/A21.116 requirements. Nominal coating and lining thickness shall be 6 to 8 mils dry film thickness. The coating and lining system shall be applied for secure adhesion and shall have a smooth surface. Gaskets for push-on or mechanical joints shall be vulcanized styrene butadiene rubber. Tee-bolts and nuts for mechanical joints shall be high strength low-alloy steel having the characteristics listed in Table 6 of AWWA C111.
- D. PVC pressure pipe shall be color coded. Green shall be used for sanitary piping.

2.02 HIGH DENSITY POLYETHYLENE (HDPE) PIPE AND FITTINGS

- A. Materials used for the manufacture of polyethylene pipe and fittings shall be made from a PE 3408 high density polyethylene resin compound meeting cell classification 345464C per ASTM D3350; and meeting Type III, Class C, Category 5, Grade P34 per ASTM D1238.
- B. Dimensions and workmanship shall be as specified by ASTM F714. HDPE fittings and transitions shall meet ASTM D3261. HDPE pipe shall have a density greater than 0.955 grams per cubic centimeter. All HDPE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi. All molded fittings and fabricated fittings shall be fully pressure rated to match the pipe SDR pressure rating to which they are made. All fittings shall be molded or fabricated by the manufacturer. No Contractor fabricated fittings shall be used unless approved by the Engineer.
- C. All transition from HDPE pipe to ductile iron or PVC shall be made per the HDPE pipe manufacturer's recommendations and specifications. A molded flange connector adapter within a carbon steel back-up ring assembly shall be used for pipe type transitions. Ductile iron back-up rings shall mate with cast iron flanges per ANSI

- B16.1. A 316 stainless steel back-up ring shall mate with a 316 stainless steel flange per ANSI B16.1.
- D. The pipe shall be joined with butt, heat fusion joints as outlined in ASTM D2657 and conform to the Generic Butt Fusion Joining Procedure for Field Joining of Polyethylene Pipe, Technical Report TR-33/2005, published by the Plastic Pipe Institute (PPI). All joints shall be made in strict compliance with the manufacturer's recommendations. A factory qualified joining technician as designated by pipe manufacturer or experienced, trained technician shall perform all heat fusion joints.
- E. Sections of pipe with cuts, scratches or gouges exceeding 5 percent of the pipe wall thickness shall be removed completely and the ends of the pipeline rejoined.
- F. Mechanical connections of the polyethylene pipe to auxiliary equipment such as valves, pumps and tanks shall be through flanged connections which shall consists of the following:
1. A polyethylene flange shall be thermally butt-fused to the stub end of the pipe.
 2. A 316 stainless steel back up ring shall mate with a 316 stainless steel flange.
 3. 316 stainless steel bolts and nuts shall be used.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Force main piping shall be installed as follows:
1. Pipe Preparation and Handling
 - a. All pipe and fittings shall be inspected prior to lowering into trench to insure no cracked, broken, or otherwise defective materials are being used.
 - b. The Contractor shall clean the ends of pipe thoroughly and remove foreign matter and dirt from the inside of pipe and keep the pipe clean during and after laying.
 - c. The Contractor shall use proper implements, tools, and facilities for the safe and proper protection of the WORK. The Contractor shall lower pipe into the trench in such a manner as to avoid any physical damage to the pipe and shall remove all damaged pipe from the job site. Care shall be taken to not drop or dump pipe into trenches under any circumstances.
 2. Trench Dewatering and Drainage Control

- a. The Contractor shall prevent water from entering the trench during excavation and pipe laying operations to the extent required to properly grade the bottom of the trench and allow for proper compaction of the backfill. Pipe shall not be laid in water.
3. Survey Line and Grade
 - a. Pipe shall be laid to the lines and grades shown on the design drawings, within a tolerance of plus or minus 0.10 feet. The Contractor shall provide line and grade stakes at 25' intervals. The Contractor shall provide Temporary Bench Marks (TBM'S) on site. The minimum pipe depth shall be three (3) feet below the finished grade surface.
4. Pipe Installation in Trench
 - a. The Contractor shall prevent foreign material from entering the pipe while it is being placed in the trench. The Contractor shall remove all foreign material from the pipe or joint ring before the next pipe is placed. If the pipe laying crew cannot put the pipe into the trench and in place without getting earth into the pipe, the County Engineer or designee may require that snugly-fitted, tightly-woven canvas bags be placed over each end before lowering the pipe. The bags shall be left in place until the connection is to be made to the adjacent pipe. During laying operations, the Contractor shall keep debris, tools, clothing, or other materials out of the pipe.
5. Installation of Ductile Iron Pipe
 - a. All ductile iron pipe shall be installed in accordance with AWWA C600 unless such standards conflict with these specifications in which case these specifications shall apply. The Contractor shall cut pipe only as necessary to comply with alignment shown on the design drawings. Flame cutting of pipe shall not be allowed. The Contractor shall provide special tools and devices, such as special jacks, chokers, and similar items required for proper installation. Lubricant for the pipe gaskets shall be furnished by the pipe manufacturer, and no substitutes shall be permitted under any circumstances.
6. Installation of PVC Pipe
 - a. All PVC pipe shall be installed in accordance with standards set forth in the UNI-BELL "Handbook of PVC Pipe Design and Construction" unless such standards conflict with these specifications in which case these specifications shall apply.
7. Laying of Pipes on Curves
 - a. Long radius curves, either horizontal or vertical, may be laid with standard pipe by deflections at the joints. Maximum deflections at

pipe joints and laying radius for the various pipe lengths shall be as recommended by the pipe manufacturer.

8. Pipe Restraining

a. General

- i. All pressure pipe, fittings, mechanical joints, and other items shall be restrained with restraining assemblies as specified herein and as shown on the design drawing details. The use of thrust blocks for pressure pipe and fittings shall be prohibited.

b. Restrained Joint Construction

- i. Sections of piping shall be constructed using pipe and fittings with restrained "Locked-type" joints (Tyton Joint with Field Lok Gasket) manufactured by U. S. Pipe and Foundry Company or equal. The joints shall be capable of holding against withdrawal for line pressures 50 percent above the normal working pressure. Any restrained joints that allow for elongation upon pressurization will not be allowed in those locations where the pipe comes out of the ground.

c. Mechanical Restraining Devices

- i. Mechanical restraining devices as specified herein may be substituted for the restrained "Locked-Type" joints manufactured by the ductile iron pipe and fitting manufacturer. The restraining devices shall be "Megalug 2000PV" or approved equal.

d. Joint Restraint Devices

- i. Mechanical joint restraint shall be incorporated in the design of the follower gland and shall include a restraining mechanism which, when actuated, imparts multiple wedging action against the pipe, increasing its resistance as the pressure increases. Flexibility of the joint shall be maintained after burial. Glands shall be manufactured of ductile iron conforming to ASTM A536-80. Restraining devices shall be of ductile iron heat treated to a minimum hardness of 370 BHN. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to ANSI A21.11 and ANSI/AWWA C153/A21.53. Twist-off nuts shall be used to insure proper actuating of the restraining devices. The mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1.

3.02 PIPE MARKING

A. General

1. Electronic marker balls, a continuous, insulated copper wire, and warning tape shall be installed with all underground piping for location purposes.

B. Marker Balls

1. Electronic marker balls shall be installed with all underground piping for location purposes.
 - a. Marker balls shall consist of a passive device capable of reflecting a specifically designated repulse frequency tuned to the utility being installed. Balls shall be four inches (4") in diameter with a high density polyethylene shell. Marker balls shall be color coded in accordance with American Public Works Association's Utility Location and Coordinating Council Standards. Balls shall be as manufactured by Scotch-Mark Locator System or Omni Markers. Marker balls shall be Omni Markers or Scotch-Marker balls as follows:
 - i. Potable Water – Blue
 - ii. Sanitary - Green
 - iii. Reclaim Water – Pantone Purple
 - b. Marker balls shall be installed so that a marker will be located at one hundred foot (100') intervals along the pipeline length. Markers shall also be placed at changes in direction, tees, or other points of connection and as directed by the Engineer.
 - c. Marker balls shall be placed in a position directly above the pipe and hand backfilled one foot (1') above the ball to prevent damage or movement during subsequent backfilling. Depth of burial shall not be less than one and one half feet (1½') nor more than two feet (2').

C. Locating Wire

1. All pressure mains shall be installed with a continuous color-coded insulated 10 gauge solid core copper wire.

D. Warning Tape

1. During the backfilling operating, pipe-locating tape shall be place one foot below grade directly above and parallel to the pipe run with the printed side up for visual identification. The tape shall be Lineguard as manufactured by Lineguard, Inc., Wheaton, IL consisting of a two inch (2") minimum width plastic and metallized foil for detection by pipeline locating equipment. Tape shall be coded as follows:

PIPE	COLOR	PRINTING
Potable Water	Blue	"Caution Buried Water Line Below"
Reclaimed Water	Purple	"Caution Buried Reclaimed Water Line Below"
Wastewater	Green	"Caution Buried Wastewater Line Below"

3.03 SEPARATION OF WATER, SEWER, AND RECLAIMED WATER PIPING

A. General

1. Water mains that are laid in the vicinity of pipelines designated to carry raw wastewater or reclaimed water (wastewater effluent) shall meet the horizontal and vertical separations specified below.

B. Horizontal Separation

1. Normal Conditions: Water mains shall be located at least 6 feet horizontally from pipes carrying raw wastewater, and 3 feet horizontally from pipes carrying reclaimed water. The distance shall be measured from inside edge of pipe to inside edge of pipe.
2. Unusual Conditions: When local conditions prevent a horizontal separation of 6 feet, a water main may be laid closer to a pipe carrying raw wastewater provided that the bottom of the water main is at least 18 inches above the top of the sewer pipe and water main is laid in a separation trench or on an undisturbed earth shelf. This configuration shall receive approval from the Florida Department of Environmental Protection (FDEP) and the County Engineer or designee, IN WRITING, prior to initiation in the field.

C. Vertical Separation

1. Normal Conditions: Water mains shall be laid to provide a separation of at least 18 inches between the bottom of the water main and the top of the sewer.
2. Unusual Conditions: When construction conditions prevent a vertical separation of 18 inches as described hereinabove, the sewer pipe shall be constructed of ductile iron pipe with mechanical joints.

D. Crossing of Water Mains and Sewer Mains

1. Water mains shall be above the sewer whenever they cross.
2. Adequate structural support for both the water main and sewer mains shall be provided to prevent excessive deflection of joints and settling.
3. If separation is less than required, sewers shall be constructed of ductile iron pipe with mechanical joints and the length of the ductile iron pipe shall be a

minimum of 18 feet and centered at the point of crossing so that the joints will be equidistant and as far as possible from the water main.

3.04 HYDROSTATIC TESTING OF PRESSURE PIPING

A. General

1. Hydrostatic tests shall consist of pressure test and leakage test. Hydrostatic tests shall be conducted on all newly installed pressure piping, joints and valves including all service lines to the curb stops. Air testing of pressure piping will not be permitted under any circumstance. Tests may be made on sections not exceeding 2,000 feet, when this procedure is acceptable to the Seminole County Environmental Services Department. Contractor shall furnish all necessary equipment and material, make all taps, and furnish all closure pieces in the pipe as required. Equipment to be furnished by the Contractor shall include graduated containers, pressure gauges, hydraulic force pumps, and suitable hoses and piping. The Seminole County Environmental Services Department will monitor and approve a satisfactory test.
2. The Contractor may conduct hydrostatic tests after the trench has been partially backfilled with the joints left exposed for inspection for his informational purposes only. The hydrostatic tests for acceptance shall only be conducted after the trenches have been completely backfilled and compacted as specified.
3. All pipe sections to be pressure tested shall be subjected to a minimum hydrostatic pressure of 150 psi. The duration of each pressure test shall be for a period of 2 hours. If during the test, the integrity of the tested line is in question, the Seminole County Environmental Services Department may require a 6-hour pressure test. The basic provisions of AWWA C-600 shall be applicable.
4. Procedure for Pressure Test
 - a. Each section of pipe to be tested, as determined by the Seminole County Environmental Services Department, shall be slowly filled with water and the specified test pressure shall be applied by means of a pump connected to the pipe in a satisfactory manner. Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this, taps shall be made, and appropriate valves installed to ensure bleeding of all air from the main. If defective pipes, fittings, valves, or hydrants are discovered in consequence of this pressure test, all such items shall be removed and replaced by the Contractor with sound material and the test shall be repeated until satisfactory results are obtained. Provisions of AWWA C600, where applicable, shall apply.
5. Procedure for Leakage Test
 - a. After completion of the pressure test, a leakage test shall be conducted to determine the quantity of water lost by leakage under the specified test pressure. Applicable provisions of AWWA C600 shall apply.

- b. Allowable leakage in gallons per hour for pipeline shall not be greater than that determined by the formula:

$$L = \frac{SD(P)^{1/2}}{133,200}$$

- Note: L = Allowable leakage in gallons per hour.
S = Length of pipe tested, in feet.
D = Nominal diameter of the pipe in inches.
P = Average test pressure during leakage test in pounds per square inch gauge.

6. Leakage is defined as the quantity of water to be supplied in the newly laid pipe or any valved section under test, which is necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled. Should any test of pipe laid disclose leakage greater than that allowed, Contractor shall locate and replace or repair the defective joints, pipe or valve until the leakage from subsequent testing is within the specified allowance.

3.05 FINAL CLEANING

- A. Prior to Final Inspection and acceptance of the force main by the Seminole County Environmental Service Department, Contractor shall flush and clean all portions of the system. Flushing and cleaning shall remove all accumulated construction debris, rocks, gravel, sand, silt, and other foreign material from the sewer system at or near the downstream end.
- B. Upon the County's final inspection of the pressure pipe systems, if any foreign matter is still present in the system, Contractor shall clean the sections and portions of the lines as required.

END OF SECTION

ATTACHMENT B

2.07 JOINT RESTRAINTS

A. Mechanical Joints

1. Joint restraints for mechanical joint fittings 3” through 48” shall be constructed of ductile iron conforming to ASTM A536 and shall have a working pressure rating of 350 PSI for 3–16 inch fittings and 250 PSI for 18–48 inch fittings.
2. Restraint shall be accomplished by multiple gripping wedges incorporated into a follower gland meeting the requirements of ANSI/AWWA C110/A21.10.
3. Restraints shall be Megalug Series 1100 (DI pipe) or Series 2200 PV (PVC pipe) restraints with Mega-Bond coating as manufactured by EBBA Iron or approved equal.

B. Pipe Joints

1. Joint restraints for push-on pipe joints 3” through 48” shall be constructed of ductile iron conforming to ASTM A536 and shall have a working pressure rating of 350 PSI for 3–16 inch fittings and 250 PSI for 18–48 inch fittings.
2. Restraint shall be accomplished by a wedge action restraint ring on the spigot joined to a split ductile iron ring behind the bell. Torque limiting twist off nuts shall be used to insure proper actuation of the restraining wedges.
3. Restraints shall be Megalug Series 1700 (DI pipe) or Series 2800 (PVC pipe) Megalug restraint harnesses with Mega-Bond coating as manufactured by EBBA Iron or approved equals.