

Solicitation OPN2118442B1

Well Rehabilitation

Bid Designation: Public



Broward County Board of County Commissioners

Bid OPN2118442B1 Well Rehabilitation

Bid Number OPN2118442B1
Bid Title Well Rehabilitation

Bid Start Date Apr 16, 2019 2:55:33 PM EDT
Bid End Date May 20, 2019 2:00:00 PM EDT
Question & Answer End Date May 3, 2019 5:00:00 PM EDT

Bid Contact Amy Almanzar
Purchasing
aalmanzar@broward.org

Contract Duration 1 year
Contract Renewal 2 annual renewals
Prices Good for 120 days
Pre-Bid Conference Apr 24, 2019 3:00:00 PM EDT
Attendance is optional
Location: Broward County
Water and Wastewater Services
2555 West Copans Road
Building 2, 1st Floor Training Room
Pompano Beach, FL 33069

Attendance at the site visit/pre-bid conference is optional. This information session presents an opportunity for vendors to clarify any concerns regarding the bid requirements. The vendor is cautioned that, although the site visit/pre-bid conference is optional, no modification or any changes will be allowed in the pricing because of the failure of the vendor(s) to have visited the site or to have attended the conference.
If you require any auxiliary aids for communication, please call 954-357-6066 so that arrangements can be made in advance.

Bid Comments **Scope:**
Scope includes, but is not limited to, the furnishing of all labor, materials, equipment, services and incidentals for Well Rehabilitation.

Goal Participation:
This solicitation includes participation goals for Broward County certified County Business Enterprises. Refer to Special Instructions and the Office of Economic and Small Business Development Requirements section for additional information.

Workforce One Investment Program applies to this contract. Refer to Workforce Investment Program Requirements section for additional information.

County/State License Requirements: In order to be considered a responsive and responsible Vendor for the scope of work set forth in this solicitation, the Vendor must possess a specified license at the time of submittal (refer to Special Instructions for requirements).

Bid Guaranty: Each submittal shall be accompanied by a bid guaranty in an amount equal to five percent (5%) of the bid amount (refer to Bid Guaranty, Performance and Payment Guaranties, and Qualifications of Surety Requirements).

Questions and Answers: The County provides a specified time for Vendors to ask questions and seek clarification regarding the requirements of the solicitation. All questions or clarification inquiries must be submitted through BidSync by the date and time referenced in the solicitation document (including any addenda). The County will respond to all questions via Bid Sync.

Vendor **MUST** submit its solicitation response electronically and **MUST** confirm its submittal in order for the County to receive a valid response through BidSync. Refer to the Purchasing Division website or contact BidSync for submittal instructions. It is the Vendor's sole responsibility to assure its response is submitted and received through BidSync by the date and time specified in the solicitation. The County will not consider solicitation responses received by other means. Vendors are encouraged to submit their responses in advance of the due date and time specified in the solicitation document. In the event that the Vendor is having difficulty submitting the solicitation document through BidSync, immediately notify the Purchasing Agent and then contact BidSync for technical assistance.

This is a group bid. A bidder must bid on all items within the group to be considered for award of that group. Bidder to indicate "no charge" for those items that are included at no additional charge.

The bid allowance amount of \$180,000 will be added automatically to each vendor's bid in Bidsync. Refer to Special Instructions to Vendors, Section J, Allowances for additional information.

Item Response Form

| | |
|-------------------|---|
| Item | OPN2118442B1--01-01 - Group 1: Well Evaluation Testing, Site Mobilization/Demobilization for New Well Construct |
| Lot Description | Group 1 |
| Quantity | 2 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners Refer to Specifications and Requirements N/A N/A FL 33301 Qty 2 |

Description

Well Evaluation Testing, Site Mobilization/Demobilization for New Well Construction Work - Unit price per each mobilization and demobilization is based upon the number of new wells to be constructed, all in accordance with Bid Specification/Measurement and Payment - Item 1.

| | |
|-------------------|---|
| Item | OPN2118442B1--01-02 - Group 1: Well Evaluation Testing, Two-Hour (Pre-Rehabilitation) Constant Rate Pump Test |
| Lot Description | Group 1 |
| Quantity | 6 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners Refer to Specifications and Requirements N/A N/A FL 33301 Qty 6 |

Description

Well Evaluation Testing, Two-Hour (Pre-Rehabilitation) Constant Rate Pump Test with Countys Pump - Unit price is based per each constant rate pumping tests performed with the County's pumping facilities, all in accordance with Bid Specification/Measurement and Payment - Item 2.

| | | | |
|-------------------|--|--|--|
| Item | OPN2118442B1--01-03 - Group 1: Well Evaluation Testing, Disconnect, Remove and Inspect County's Pump Facilities | | |
| Lot Description | Group 1 | | |
| Quantity | 6 each | | |
| Unit Price | <input type="text"/> | | |
| Delivery Location | Broward County Board of County Commissioners | | |
| | Refer to Specifications and Requirements | | |
| | N/A | | |
| | N/A FL 33301 | | |
| | Qty 6 | | |

Description

Well Evaluation Testing, Disconnect, Remove and Inspect County's Pump Facilities - Unit price is based per each pump removed and inspected within the County's pumping facilities, all in accordance with Bid Specification/Measurement and Payment - Item 3.

| | | | |
|-------------------|--|--|--|
| Item | OPN2118442B1--01-04 - Group 1: Well Evaluation Testing, Clean and Video Survey Well Casing and Production Inter | | |
| Lot Description | Group 1 | | |
| Quantity | 6 each | | |
| Unit Price | <input type="text"/> | | |
| Delivery Location | Broward County Board of County Commissioners | | |
| | Refer to Specifications and Requirements | | |
| | N/A | | |
| | N/A FL 33301 | | |
| | Qty 6 | | |

Description

Well Evaluation Testing, Clean and Video Survey Well Casing and Production Interval - Unit price is based per each time that a casing cleaning and video survey are collectively performed, all in accordance with Bid Specification/Measurement and Payment - Item 4.

| | | | |
|-------------------|---|--|--|
| Item | OPN2118442B1--01-05 - Group 1: Well Evaluation Testing, Video Survey of Casing and Production Interval | | |
| Lot Description | Group 1 | | |
| Quantity | 1 each | | |
| Unit Price | <input type="text"/> | | |
| Delivery Location | Broward County Board of County Commissioners | | |
| | Refer to Specifications and Requirements | | |
| | N/A | | |
| | N/A FL 33301 | | |
| | Qty 1 | | |

Description

Well Evaluation Testing, Video Survey of Casing and Production Interval - Unit price is based per each time that a video survey of casing and production interval is performed, all in accordance with Bid Specification/Measurement and Payment - Item 5.

| | | | |
|-------------------|---|--|--|
| Item | OPN2118442B1--01-06 - Group 1: Well Evaluation Testing, Casing Brushing/Swabbing | | |
| Lot Description | Group 1 | | |
| Quantity | 3 each | | |
| Unit Price | <input type="text"/> | | |
| Delivery Location | Broward County Board of County Commissioners | | |

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 3

Description

Well Evaluation Testing, Casing Brushing/Swabbing - Unit price is based per each time that a casing brushing/swabbing is performed, all in accordance with Bid Specification/Measurement and Payment - Item 6.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-07 - Group 1: Well Evaluation Testing, Wire-to-Water Pump Efficiency Test |
| Lot Description | Group 1 |
| Quantity | 1 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 1 |

Description

Well Evaluation Testing, Wire-to-Water Pump Efficiency Test - Unit price is based per each time that a wire-to-water pump efficiency test is performed, all in accordance with Bid Specification/Measurement and Payment - Item 7.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-08 - Group 1: Well Evaluation Testing, Biological Activity Reaction Tests (BARTs) |
| Lot Description | Group 1 |
| Quantity | 1 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 1 |

Description

Well Evaluation Testing, Biological Activity Reaction Tests (BARTs) - Unit price is based per each time that a biological activity reaction tests is performed, all in accordance with Bid Specification/Measurement and Payment - Item 8.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-09 - Group 1: Well Evaluation Testing, Water Quality Sample and Laboratory Analyses |
| Lot Description | Group 1 |
| Quantity | 1 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 1 |

Description

Well Evaluation Testing, Water Quality Sample and Laboratory Analyses - Unit price is based per each time that a water quality sample

and laboratory analyses is performed, all in accordance with Bid Specification/Measurement and Payment - Item 9.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-10 - Group 1: Well Evaluation Testing, Production Sand Testing |
| Lot Description | Group 1 |
| Quantity | 1 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 1 |

Description

Well Evaluation Testing, Production Sand Testing - Unit price is based per each time that a production sand testing is performed, all in accordance with Bid Specification/Measurement and Payment - Item 10.

| | |
|-------------------|---|
| Item | OPN2118442B1--01-11 - Group 1: Well Evaluation Testing, Silt Density Index (SDI) Testing |
| Lot Description | Group 1 |
| Quantity | 1 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 1 |

Description

Well Evaluation Testing, Silt Density Index (SDI) Testing - Unit price is based per each time that a silt density index testing (per well; minimum 4 valid samples) is performed, all in accordance with Bid Specification/Measurement and Payment - Item 11.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-12 - Group 1: Well Evaluation Testing, Water Level Monitoring with Pressure Transducer and Log |
| Lot Description | Group 1 |
| Quantity | 1 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 1 |

Description

Well Evaluation Testing, Water Level Monitoring with Pressure Transducer and Logging Unit - Unit price is based per each time that a water level monitoring with pressure transducer and logging unit is performed, all in accordance with Bid Specification/Measurement and Payment - Item 12.

| | |
|-----------------|---|
| Item | OPN2118442B1--01-13 - Group 1: Well Evaluation Testing, Two-Hour Constant Rate Test with CONTRACTOR's Pump |
| Lot Description | Group 1 |

Quantity **1 each**

Unit Price

Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 1

Description

Well Evaluation Testing, Two-Hour Constant Rate Test with CONTRACTOR's Pump - Unit price is based per each time that a 2-hour constant rate test with contractors pump is performed, all in accordance with Bid Specification/Measurement and Payment - Item 13.

Item **OPN2118442B1--01-14 - Group 1: Well Evaluation Testing, Rehabilitation Recommendation Report**

Lot Description **Group 1**

Quantity **6 each**

Unit Price

Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 6

Description

Well Evaluation Testing, Rehabilitation Recommendation Report - Unit price is based per each time that a rehabilitation recommendation report is performed, all in accordance with Bid Specification/Measurement and Payment - Item 14.

Item **OPN2118442B1--01-15 - Group 1: Well Evaluation Testing, Post Rehabilitation Report**

Lot Description **Group 1**

Quantity **6 each**

Unit Price

Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 6

Description

Well Evaluation Testing, Post Rehabilitation Report - Unit price is based per each time that a post rehabilitation report is performed, all in accordance with Bid Specification/Measurement and Payment - Item 15.

Item **OPN2118442B1--01-16 - Group 1: Well Rehabilitation Procedures, Casing and Screen/Open Hole Jetting**

Lot Description **Group 1**

Quantity **1 each**

Unit Price

Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301

Qty 1

Description

Well Rehabilitation Procedures, Casing and Screen/Open Hole Jetting - Unit price is based per each time that a casing and screen/open hole jetting is performed, all in accordance with Bid Specification/Measurement and Payment - Item 16.

Item OPN2118442B1--01-17 - Group 1: Acidization of Screen/Open Hole Interval**Lot Description** Group 1**Quantity** 1 each**Unit Price** **Delivery Location** Broward County Board of County Commissioners[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 1

Description

Acidization of Screen/Open Hole Interval - Unit price is based per each time that an acidization of screen/open hole interval is performed, all in accordance with Bid Specification/Measurement and Payment - Item 17.

Item OPN2118442B1--01-18 - Group 1: Well Rehabilitation Procedures, CO2 Injection in**Lot Description** Group 1**Quantity** 1 each**Unit Price** **Delivery Location** Broward County Board of County Commissioners[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 1

Description

Well Rehabilitation Procedures, CO2 Injection into the well - Unit price is based per each time that a CO2 injection into the well is performed, all in accordance with Bid Specification/Measurement and Payment - Item 18.

Item OPN2118442B1--01-19 - Group 1: Chlorination with Swabbing of Well Casing and Screen/Open Hole**Lot Description** Group 1**Quantity** 1 each**Unit Price** **Delivery Location** Broward County Board of County Commissioners[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 1

Description

Chlorination with Swabbing of Well Casing and Screen/Open Hole - Unit price is based per each time that a chlorination with swabbing of well casing and screen/open hole is performed, all in accordance with Bid Specification/Measurement and Payment - Item 19.

Item **OPN2118442B1--01-20 - Group 1: Well Rehabilitation Procedures, Pressure Grout Cement Squeeze**

Lot Description Group 1

Quantity **1 each**

Unit Price

Delivery Location **Broward County Board of County Commissioners**

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 1

Description

Well Rehabilitation Procedures, Pressure Grout Cement Squeeze - Unit price is based per each time that a pressure grout cement squeeze is performed, all in accordance with Bid Specification/Measurement and Payment - Item 20.

Item **OPN2118442B1--01-21 - Group 1: Well Rehabilitation Procedures, Well Development AirLift (Completion Requirement)**

Lot Description Group 1

Quantity **50 hour**

Unit Price

Delivery Location **Broward County Board of County Commissioners**

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 50

Description

Well Rehabilitation Procedures, Well Development AirLift (Completion Requirement: Sand <5ppm) - Unit price is based per hour that a well development airlift (completion requirement: sand <5ppm) is performed all in accordance with Bid Specification/Measurement and Payment - Item 21.

Item **OPN2118442B1--01-22 - Group 1: Well Rehabilitation Procedures, Well Development Pumping**

Lot Description Group 1

Quantity **50 hour**

Unit Price

Delivery Location **Broward County Board of County Commissioners**

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 50

Description

Well Rehabilitation Procedures, Well Development Pumping (Completion Requirement: Sand <1ppm; SDI <3) - Unit price is based per hour that a well development pump (completion requirement: sand <1ppm; sdi <3) is performed, all in accordance with Bid Specification/Measurement and Payment - Item 22.

Item **OPN2118442B1--01-23 - Group 1: Well Rehabilitation Procedures, Open Hole Drilling and Clearing (assumes 30 feet)**

Lot Description Group 1

Quantity **10 linear foot**

Unit Price Delivery Location **Broward County Board of County Commissioners**[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 10

Description

Well Rehabilitation Procedures, Open Hole Drilling and Clearing (assumes 30 feet of Open Hole for 20 wells) - Unit price is based per linear foot of open hole drilling and clearing (assumes 30 feet of open hole for 20 wells) is performed, all in accordance with Bid Specification/Measurement and Payment - Item 23.

Item **OPN2118442B1--01-24 - Group 1: Well Rehabilitation Procedures, Drill New Well (assumes pilot and ream for 6, 24**Lot Description **Group 1**Quantity **10 linear foot**Unit Price Delivery Location **Broward County Board of County Commissioners**[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 10

Description

Well Rehabilitation Procedures, Drill New Well (assumes pilot and ream for 6, 24 inch production wells to 150 feet) - Unit price is based per linear foot of drilling a new well (assumes pilot and ream for 6, 24 inch production wells to 150 feet) is performed, all in accordance with Bid Specification/Measurement and Payment - Item 24.

Item **OPN2118442B1--01-25 - Group 1: Well Rehabilitation Procedures, Furnish and Install Temporary Discharge Piping A**Lot Description **Group 1**Quantity **800 linear foot**Unit Price Delivery Location **Broward County Board of County Commissioners**[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 800

Description

Well Rehabilitation Procedures, Furnish and Install Temporary Discharge Piping Above-Grade - Unit price is based per linear foot of temporary discharge piping above-grade is furnished and installed, all in accordance with Bid Specification/Measurement and Payment - Item 25.

Item **OPN2118442B1--01-26 - Group 1: Well Rehabilitation Procedures, Furnish and Install Temporary Discharge Piping B**Lot Description **Group 1**Quantity **200 linear foot**Unit Price Delivery Location **Broward County Board of County Commissioners**[Refer to Specifications and Requirements](#)

N/A
N/A FL 33301
Qty 200

Description

Well Rehabilitation Procedures, Furnish and Install Temporary Discharge Piping Below-Grade - Unit price is based per linear foot of temporary discharge piping below-grade is furnished and installed, all in accordance with Bid Specification/Measurement and Payment - Item 26.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-27 - Group 1: Post-Rehabilitation Baseline Testing, 8-Hour, 4-Step Drawdown Test (8 Sand; 8 SD |
| Lot Description | Group 1 |
| Quantity | 1 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 1 |

Description

Post-Rehabilitation Baseline Testing, 8-Hour, 4-Step Drawdown Test (8 Sand; 8 SDI Tests) - Unit price is based per each time that a 4-step drawdown test (8 sand; 8 sdi tests) is performed, all in accordance with Bid Specification/Measurement and Payment - Item 27.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-28 - Group 1: Post-Rehabilitation Baseline Testing, 8-Hour Constant Rate Specific Capacity Tes |
| Lot Description | Group 1 |
| Quantity | 1 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 1 |

Description

Post-Rehabilitation Baseline Testing, 8-Hour Constant Rate Specific Capacity Test (4 Sand; 4 SDI Tests; Final WQ) - Unit price is based per each time that 8-hour constant rate specific capacity test (4 sand; 4 sdi tests; final wq) is performed, all in accordance with Bid Specification/Measurement and Payment - Item 28.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-29 - Group 1: Post-Rehabilitation Baseline Testing, Video Survey of Well Casing and Open Hole/ |
| Lot Description | Group 1 |
| Quantity | 4 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 4 |

Description

Post-Rehabilitation Baseline Testing, Video Survey of Well Casing and Open Hole/Screen-Post Rehabilitation - Unit price is based per each time that a video survey of well casing and open hole/screen-post rehabilitation is performed all in accordance with Bid Specification/Measurement and Payment - Item 29.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-30 - Group 1: Post-Rehabilitation Baseline Testing, Reinstall Surficial wellhead, column pipe, |
| Lot Description | Group 1 |
| Quantity | 6 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | <u>Refer to Specifications and Requirements</u> |
| | N/A |
| | N/A FL 33301 |
| | Qty 6 |

Description

Post-Rehabilitation Baseline Testing, Reinstall Surficial wellhead, column pipe, and well pump with motor and accessories - Unit price is based per each time that a well pump with motor and accessories is reinstalled, all in accordance with Bid Specification/Measurement and Payment - Item 30.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-31 - Group 1: Post-Rehabilitation Baseline Testing, Disinfect Well and Pump Facilities for Hea |
| Lot Description | Group 1 |
| Quantity | 6 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | <u>Refer to Specifications and Requirements</u> |
| | N/A |
| | N/A FL 33301 |
| | Qty 6 |

Description

Post-Rehabilitation Baseline Testing, Disinfect Well and Pump Facilities for Health Department Clearance - Unit price is based per each time that a well and pump disinfection is performed for health department clearance, all in accordance with Bid Specification/Measurement and Payment - Item 31.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-32 - Group 1: Post-Rehabilitation Baseline Testing, Bacteriological Testing for Health Departm |
| Lot Description | Group 1 |
| Quantity | 6 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | <u>Refer to Specifications and Requirements</u> |
| | N/A |
| | N/A FL 33301 |
| | Qty 6 |

Description

Post-Rehabilitation Baseline Testing, Bacteriological Testing for Health Department Clearance (Each Event) - Unit price is based per each time that a bacteriological testing for health department clearance is performed, all in accordance with Bid Specification/Measurement and Payment - Item 32.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-33 - Group 1: Well Reconfiguration, Furnish and Install reinforced cement well pad, head, supp |
| Lot Description | Group 1 |
| Quantity | 30 cubic yard |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 30

Description

Well Reconfiguration, Furnish and Install reinforced cement well pad, head, support or pedestal - Unit price is based per cubic yard that reinforced cement is poured all in accordance with Bid Specification/Measurement and Payment - Item 33.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-34 - Group 1: Well Reconfiguration, Replace existing wellhead with new 316 S.S. with 8 inch we |
| Lot Description | Group 1 |
| Quantity | 1 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 1

Description

Well Reconfiguration, Replace existing wellhead with new 316 S.S. with 8 inch well discharge - Unit price is based per each time that a replacement of existing wellhead with new 316 SS. with 8 inch well discharge is performed, all in accordance with Bid Specification/Measurement and Payment - Item 34.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-35 - Group 1: Well Reconfiguration, Replace existing wellhead with new 316 S.S. with 10 inch w |
| Lot Description | Group 1 |
| Quantity | 1 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 1

Description

Well Reconfiguration, Replace existing wellhead with new 316 S.S. with 10 inch well discharge - Unit price is based per each time that a replacement of existing wellhead with new 316 SS. with 10 inch well discharge is performed, all in accordance with Bid Specification/Measurement and Payment - Item 35.

| | |
|-----------------|--|
| Item | OPN2118442B1--01-36 - Group 1: Well Reconfiguration, Replace existing wellhead with new 316 S.S. with 12 inch w |
| Lot Description | Group 1 |

Quantity **1 each**

Unit Price

Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 1

Description

Well Reconfiguration, Replace existing wellhead with new 316 S.S. with 12 inch well discharge - Unit price is based per each time that a replacement of existing wellhead with new 316 SS. with 12 inch well discharge is performed, all in accordance with Bid Specification/Measurement and Payment - Item 36.

Item **OPN2118442B1--01-37 - Group 1: Well Reconfiguration, Furnish and Install pedestal with new 3 inch diameter pipe**

Lot Description Group 1

Quantity **8 each**

Unit Price

Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 8

Description

Well Reconfiguration, Furnish and Install pedestal with new 3 inch diameter pipe support 316 stainless steel up to 4 feet height - Unit price is based per each time that a new 3 inch pedestal pipe support 316 stainless steel up to 4 feet height is furnished and installed, all accordance with Bid Specification/Measurement and Payment - Item 37.

Item **OPN2118442B1--01-38 - Group 1: Pump Rehabilitation/Maintenance Procedures, Pump motor retrieval**

Lot Description Group 1

Quantity **40 hour**

Unit Price

Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 40

Description

Pump Rehabilitation/Maintenance Procedures, Pump motor retrieval - Unit price is based per hour that a pump motor retrieval is performed, all in accordance with Bid Specification/Measurement and Payment - Item 38.

Item **OPN2118442B1--01-39 - Group 1: Pump Rehabilitation/Maintenance Procedures, Welding - On-site**

Lot Description Group 1

Quantity **4 hour**

Unit Price

Delivery Location **Broward County Board of County Commissioners**

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 4

Description

Pump Rehabilitation/Maintenance Procedures, Welding - On-site - Unit price is based per hour that welding on site is performed, all in accordance with Bid Specification/Measurement and Payment - Item 39.

Item **OPN2118442B1--01-40 - Group 1: Pump Rehabilitation/Maintenance Procedures, Welding at the Machine Shop**

Lot Description Group 1

Quantity **2 hour**

Unit Price

Delivery Location **Broward County Board of County Commissioners**

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 2

Description

Pump Rehabilitation/Maintenance Procedures, Welding at the Machine Shop - Unit price is based per hour that welding in the machine shop is performed, all in accordance with Bid Specification/Measurement and Payment - Item 40.

Item **OPN2118442B1--01-41 - Group 1: Pump Rehabilitation/Maintenance Procedures, Pump disassembly and inspection in**

Lot Description Group 1

Quantity **1 hour**

Unit Price

Delivery Location **Broward County Board of County Commissioners**

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 1

Description

Pump Rehabilitation/Maintenance Procedures, Pump disassembly and inspection in shop - Unit price is based per hour that a pump disassembly and inspection in shop is performed, all in accordance with Bid Specification/Measurement and Payment - Item 41.

Item **OPN2118442B1--01-42 - Group 1: Pump Rehabilitation/Maintenance Procedures, Pump maintenance in shop**

Lot Description Group 1

Quantity **4 hour**

Unit Price

Delivery Location **Broward County Board of County Commissioners**

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 4

Description

Pump Rehabilitation/Maintenance Procedures, Pump maintenance in shop - Unit price is based per hour time that pump

maintenance in shop is performed, all in accordance with Bid Specification/Measurement and Payment - Item 42.

Item **OPN2118442B1--01-43 - Group 1: Pump Rehabilitation/Maintenance Procedures, Trim impeller in shop**

Lot Description Group 1

Quantity 1 each

Unit Price

Delivery Location **Broward County Board of County Commissioners**

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 1

Description

Pump Rehabilitation/Maintenance Procedures, Trim impeller in shop - Unit price is based per hour time that a trim impeller in shop (per impeller) is performed, all in accordance with Bid Specification/Measurement and Payment - Item 43.

Item **OPN2118442B1--01-44 - Group 1: Pump Rehabilitation/Maintenance Procedures, Pump Motor maintenance**

Lot Description Group 1

Quantity 4 hour

Unit Price

Delivery Location **Broward County Board of County Commissioners**

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 4

Description

Pump Rehabilitation/Maintenance Procedures, Pump Motor maintenance - Unit price is based per hour that a pump motor maintenance (assume in shop) is performed, all in accordance with Bid Specification/Measurement and Payment - Item 44.

Item **OPN2118442B1--01-45 - Group 1: Pump Rehabilitation/Maintenance Procedures, Furnish and Install SS Well motor s**

Lot Description Group 1

Quantity 1 each

Unit Price

Delivery Location **Broward County Board of County Commissioners**

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 1

Description

Pump Rehabilitation/Maintenance Procedures, Furnish and Install SS Well motor safety cables and appurtenances 60 to 80 feet deep - Unit price is based per each time that a SS well motor safety cables and appurtenances 60 to 80 feet deep is furnished and installed, all in accordance with Bid Specification/Measurement and Payment - Item 45.

Item **OPN2118442B1--01-46 - Group 1: Site Restoration, Site Grading**

Lot Description Group 1

Quantity **5 hour**
Unit Price
Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 5

Description

Site Restoration, Site Grading - Unit price is based per hour that a site grading (bulldozer and crew) is performed, all in accordance with Bid Specification/Measurement and Payment - Item 46.

Item **OPN2118442B1--01-47 - Group 1: Site Restoration, Sod Replacement with Crew**
Lot Description **Group 1**
Quantity **75 square yard**
Unit Price
Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 75

Description

Site Restoration, Sod Replacement with Crew - Unit price is based per square yard that sod replacement with crew is performed, all in accordance with Bid Specification/Measurement and Payment - Item 47.

Item **OPN2118442B1--01-48 - Group 1: Site Restoration, Site Fill Material**
Lot Description **Group 1**
Quantity **25 cubic yard**
Unit Price
Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 25

Description

Site Restoration, Site Fill Material - Unit price is based per cubic yard that site fill material is performed, all in accordance with Bid Specification/Measurement and Payment - Item 48.

Item **OPN2118442B1--01-49 - Group 1: Miscellaneous, On Site Emergency Site Evaluation Meeting**
Lot Description **Group 1**
Quantity **1 each**
Unit Price
Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 1

Description

Miscellaneous, On Site Emergency Site Evaluation Meeting - Unit price is based per each time that an on site emergency site evaluation meeting is performed, all in accordance with Bid Specification/Measurement and Payment - Item 49.

| | |
|-------------------|---|
| Item | OPN2118442B1--01-50 - Group 1: Miscellaneous, Mobilize Drilling Rig and Crew |
| Lot Description | Group 1 |
| Quantity | 1 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners Refer to Specifications and Requirements N/A N/A FL 33301 Qty 1 |

Description

Miscellaneous, Mobilize Drilling Rig and Crew - Unit price is based per each time that a mobilization of drilling rig and crew to perform Extra Work, all in accordance with Bid Specification/Measurement and Payment - Item 50.

| | |
|-------------------|---|
| Item | OPN2118442B1--01-51 - Group 1: Miscellaneous, Geophysical Logging Suite |
| Lot Description | Group 1 |
| Quantity | 1 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners Refer to Specifications and Requirements N/A N/A FL 33301 Qty 1 |

Description

Miscellaneous, Geophysical Logging Suite - Unit price is based per each time that a Geophysical Logging Suite is performed, all in accordance with Bid Specification/Measurement and Payment - Item 51.

| | |
|-------------------|---|
| Item | OPN2118442B1--01-52 - Group 1: Miscellaneous, Dynamic Geophysical Logging Suite (Dynamic Flow and Video Log) |
| Lot Description | Group 1 |
| Quantity | 1 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners Refer to Specifications and Requirements N/A N/A FL 33301 Qty 1 |

Description

Miscellaneous, Dynamic Geophysical Logging Suite (Dynamic Flow and Video Log) - Unit price is based per each time that a dynamic geophysical logging suite (dynamic flow and video log) is performed, all in accordance with Bid Specification/Measurement and Payment - Item 52.

| | |
|------|---|
| Item | OPN2118442B1--01-53 - Group 1: Miscellaneous, Furnish and Install 14-inch diameter Certa-Lok or equal |
|------|---|

Lot Description Group 1
Quantity 20 linear foot
Unit Price
Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 20

Description

Miscellaneous, Furnish and Install 14-inch diameter Certa-Lok or equal - Unit price is based per linear foot that a 14-inch diameter certa-lok or equal is furnished and installed, all in accordance with Bid Specification/Measurement and Payment - Item 53.

Item **OPN2118442B1--01-54 - Group 1: Miscellaneous, F & I 17.4-inch diameter Certa-Lok or equal**
Lot Description Group 1
Quantity 20 linear foot
Unit Price
Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 20

Description

Miscellaneous, F & I 17.4-inch diameter Certa-Lok or equal - Unit price is based per linear foot that a 17.4-inch diameter certa-lok or equal is furnished and installed, all in accordance with Bid Specification/Measurement and Payment - Item 54.

Item **OPN2118442B1--01-55 - Group 1: Miscellaneous, F & I 24 inch diameter Certa-Lok or equal**
Lot Description Group 1
Quantity 20 linear foot
Unit Price
Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 20

Description

Miscellaneous, F & I 24 inch diameter Certa-Lok or equal - Unit price is based per linear foot that a 24 inch diameter certa-lok or equal is furnished and installed, all in accordance with Bid Specification/Measurement and Payment - Item 55.

Item **OPN2118442B1--01-56 - Group 1: Miscellaneous, Johnson Screens Services - Screen Slot and Gravel Pack Evaluation**
Lot Description Group 1
Quantity 1 each
Unit Price
Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A

N/A FL 33301

Qty 1

Description

Miscellaneous, Johnson Screens Services - Screen Slot and Gravel Pack Evaluation - Unit price is based per each time that a Johnson screens services - screen slot and gravel pack evaluation is performed, all in accordance with Bid Specification/Measurement and Payment - Item 56.

Item **OPN2118442B1--01-57 - Group 1: Miscellaneous, Furnish and Install Wire-Wound 316 stainless steel 14 inch Diam S**

Lot Description **Group 1**

Quantity **10 linear foot**

Unit Price

Delivery Location **Broward County Board of County Commissioners**

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 10

Description

Miscellaneous, Furnish and Install Wire-Wound 316 stainless steel 14 inch Diam Screen - Unit price is based per linear foot that a wire-wound 316 stainless steel 14 inch diam screen is furnished and installed, all in accordance with Bid Specification/Measurement and Payment - Item 57.

Item **OPN2118442B1--01-58 - Group 1: Miscellaneous, Furnish and Install Wire-Wound 316 stainless steel 17.4 inch Diam**

Lot Description **Group 1**

Quantity **10 linear foot**

Unit Price

Delivery Location **Broward County Board of County Commissioners**

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 10

Description

Miscellaneous, Furnish and Install Wire-Wound 316 stainless steel 17.4 inch Diam Screen - Unit price is based per linear foot that a wire-wound 316 stainless steel 17.4 inch diam screen is furnished and installed, all in accordance with Bid Specification/Measurement and Payment - Item 58.

Item **OPN2118442B1--01-59 - Group 1: Miscellaneous, Furnish and Install Wire-Wound 316 stainless steel 24 inch Diam S**

Lot Description **Group 1**

Quantity **5 linear foot**

Unit Price

Delivery Location **Broward County Board of County Commissioners**

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 5

Description

Miscellaneous, Furnish and Install Wire-Wound 316 stainless steel 24 inch Diam Screen - Unit price is based per linear foot time that a wire-wound 316 stainless steel 24 inch diam screen is furnish and install, all in accordance with Bid Specification/Measurement and Payment - Item 59.

| | |
|-------------------|---|
| Item | OPN2118442B1--01-60 - Group 1: Miscellaneous, Furnish and Install Potable Water DIP Fittings |
| Lot Description | Group 1 |
| Quantity | 2 ton |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 2 |

Description

Miscellaneous, Furnish and Install Potable Water DIP Fittings - Unit price is based per ton for potable water DIP fittings is furnished and installed, all in accordance with Bid Specification/Measurement and Payment - Item 60.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-61 - Group 1: Miscellaneous, Gravel Fill (clean limestone) |
| Lot Description | Group 1 |
| Quantity | 30 cubic foot |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 30 |

Description

Miscellaneous, Gravel Fill (clean limestone) - Unit price is based per cubic foot that gravel fill (clean limestone) is furnished and installed, all in accordance with Bid Specification/Measurement and Payment - Item 61.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-62 - Group 1: Miscellaneous, Gravel Fill (6/20 sand) |
| Lot Description | Group 1 |
| Quantity | 30 cubic foot |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 30 |

Description

Miscellaneous, Gravel Fill (6/20 sand) - Unit price is based per cubic foot that gravel fill (6/20 sand) is furnished and installed, all in accordance with Bid Specification/Measurement and Payment - Item 62.

| | |
|-----------------|---|
| Item | OPN2118442B1--01-63 - Group 1: Miscellaneous, Primary & Secondary Water Quality Laboratory Analysis (Chp 62-550) |
| Lot Description | Group 1 |

Quantity **1 each**

Unit Price

Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 1

Description

Miscellaneous, Primary & Secondary Water Quality Laboratory Analysis (Chp 62-550, FAC) - Unit price is based per each time that water quality laboratory analysis is performed, all in accordance with Bid Specification/Measurement and Payment - Item 63.

Item **OPN2118442B1--01-64 - Group 1: Miscellaneous, Furnish and Install 2 inch diameter schedule 40 PVC casing**

Lot Description **Group 1**

Quantity **20 linear foot**

Unit Price

Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 20

Description

Miscellaneous, Furnish and Install 2 inch diameter schedule 40 PVC casing - Unit price is based per linear foot of a 2 inch diameter schedule 40 PVC casing is furnished and installed, all in accordance with Bid Specification/Measurement and Payment - Item 64.

Item **OPN2118442B1--01-65 - Group 1: Miscellaneous, Furnish and Install 1 2 inch diameter schedule 40 PVC 10 slot scr**

Lot Description **Group 1**

Quantity **10 linear foot**

Unit Price

Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)
N/A
N/A FL 33301
Qty 10

Description

Miscellaneous, Furnish and Install 1 2 inch diameter schedule 40 PVC 10 slot screen - Unit price is based per linear foot of 2 inch diameter schedule 40 PVC 10 slot screen is furnish and install, all in accordance with Bid Specification/Measurement and Payment - Item 65.

Item **OPN2118442B1--01-66 - Group 1: Miscellaneous, Furnish and Install 6 inch Protective Monitor Well Wellhead, Pad,**

Lot Description **Group 1**

Quantity **1 each**

Unit Price

Delivery Location **Broward County Board of County Commissioners**
[Refer to Specifications and Requirements](#)

N/A
N/A FL 33301
Qty 1

Description

Miscellaneous, Furnish and Install 6 inch Protective Monitor Well Wellhead, Pad, and Locking Cap - Unit price is based per each time that Protective Monitor Well Wellhead, Pad, and Locking Cap, is furnished and installed, all accordance with Bid Specification/Measurement and Payment - Item 66.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-67 - Group 1: Miscellaneous, Abandon Existing Wellhead Pedestals and Well Pads |
| Lot Description | Group 1 |
| Quantity | 30 cubic yard |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 30 |

Description

Miscellaneous, Abandon Existing Wellhead Pedestals and Well Pads - Unit price is based per cubic yard for abandon and remove existing wellhead pedestals and well pads is performed, all in accordance with Bid Specification/Measurement and Payment - Item 67.

| | |
|-------------------|---|
| Item | OPN2118442B1--01-68 - Group 1: Miscellaneous, Abandon Existing Well Vaults |
| Lot Description | Group 1 |
| Quantity | 1 each |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 1 |

Description

Miscellaneous, Abandon Existing Well Vaults - Unit price is based per each time that an existing well vaults is abandon, all in accordance with Bid Specification/Measurement and Payment - Item 68.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-69 - Group 1: Miscellaneous, Remove and replace fencing to original condition (per well, as ne |
| Lot Description | Group 1 |
| Quantity | 50 linear foot |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 50 |

Description

Miscellaneous, Remove and replace fencing to original condition (per well, as needed) - Unit price is based per linear foot of fence

removed and replaced to its original condition, all in accordance with Bid Specification/Measurement and Payment - Item 69.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-70 - Group 1: Miscellaneous, Project Manager |
| Lot Description | Group 1 |
| Quantity | 200 hour |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 200 |

Description

Miscellaneous, Project Manager - Unit price is based per hour of project manager services, all in accordance with Bid Specification/Measurement and Payment - Item 70.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-71 - Group 1: Miscellaneous, Foreman |
| Lot Description | Group 1 |
| Quantity | 300 hour |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 300 |

Description

Miscellaneous, Foreman - Unit price is based per hour of requested labor services, all in accordance with Bid Specification/Measurement and Payment - Item 71.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-72 - Group 1: Miscellaneous, Laborer |
| Lot Description | Group 1 |
| Quantity | 700 hour |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |
| | Refer to Specifications and Requirements |
| | N/A |
| | N/A FL 33301 |
| | Qty 700 |

Description

Miscellaneous, Laborer - Unit price is based per hour of requested labor services, all in accordance with Bid Specification/Measurement and Payment - Item 72.

| | |
|-------------------|--|
| Item | OPN2118442B1--01-73 - Group 1: Miscellaneous, Contractor-Owned Crane Truck and Crew |
| Lot Description | Group 1 |
| Quantity | 4 hour |
| Unit Price | <input type="text"/> |
| Delivery Location | Broward County Board of County Commissioners |

[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 4

Description

Miscellaneous, Contractor-Owned Crane Truck and Crew - Unit price is based per hour when a contractor-owned crane truck and crew spent doing work, all in accordance with Bid Specification/Measurement and Payment - Item 73.

Item OPN2118442B1--01-74 - Group 1: Miscellaneous, Rental Crane Truck Company and Crew**Lot Description** Group 1**Quantity** 4 hour**Unit Price** **Delivery Location** Broward County Board of County Commissioners[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 4

Description

Miscellaneous, Rental Crane Truck Company and Crew - Unit price is based per hour when a crane truck with crew spent doing work, all in accordance with Bid Specification/Measurement and Payment - Item 74.

Item OPN2118442B1--01-75 - Group 1: Miscellaneous, OWNER-Directed Standby Time**Lot Description** Group 1**Quantity** 4 hour**Unit Price** **Delivery Location** Broward County Board of County Commissioners[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 4

Description

Miscellaneous, OWNER-Directed Standby Time - Unit price is based per hour when an owner-directed standby time wait, all in accordance with Bid Specification/Measurement and Payment - Item 75.

Item OPN2118442B1--01-76 - Group 1: Miscellaneous, OWNER-Directed Standby Time Equipment Only**Lot Description** Group 1**Quantity** 4 hour**Unit Price** **Delivery Location** Broward County Board of County Commissioners[Refer to Specifications and Requirements](#)

N/A

N/A FL 33301

Qty 4

Description

Miscellaneous, OWNER-Directed Standby Time Equipment Only - Unit price is based per hour when an owner-directed equipment is on stand by time wait, all in accordance with Bid Specification/Measurement and Payment - Item 76.

SPECIFICATIONS AND REQUIREMENTS WELL REHABILITATION

1. SCOPE OF WORK

The work to be performed under this contract shall consist of furnishing and installing all tools, equipment, materials, supplies, and manufactured articles and furnishing all bonding, insurance, labor, transportation and services, including fuel, power, water, and essential communications, and performing all work, or other operations required for wells rehabilitation services, including evaluation, testing, wells, wellheads and pumps rehabilitation, post-rehabilitation testing, well pads, wellhead and pump rehabilitation and maintenance procedures within Broward County Water and Wastewater Services (BCWWS) service area; all in accordance with requirements of the Contract Documents, BCWWS "Minimum Design and Construction Standards" including all appurtenances thereto, and all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA).

The work is located in the vicinity of the four existing Broward County wellfields, (Attachment "A-1"). The wellfields are located in the following municipalities:

1. District 1 Wellfield is located in the City of Lauderdale Lakes near US 441/SR 7 at the South Florida Water Management District's C-13 Canal.
2. District 2 Water Treatment Plant Wellfield is located in the City of Pompano Beach on the east and west side of Dixie Highway, north of NE 48 Street, Pompano Beach.
3. District 2 North Regional Wellfield is located in Deerfield Beach in and near Quiet Waters Park.
4. District 3 South Regional Wellfield is located in Cooper City in Brian Piccolo Park.

The purpose of the Well Rehabilitation Program is to improve the production and water quality and maintain peak performance, lower operational costs and extend service life of existing County's Surficial Aquifer System (SAS) production and monitoring wells, (Attachment "A-2").

The work shall be complete, and all work, materials, and services, not expressly shown or called for in the Contract Documents, which may be necessary for the complete and proper construction of the Work in good faith shall be performed, furnished, and installed by the Contractor as though originally so specified or shown, at no increase in cost to the County.

2. MEASURE OF PERFORMANCE

The Contractor will be evaluated on performance, including but not limited to the following:

- a. Adhering to the purchase order or work order issued by the Project Coordinator.
- b. Accurately recording and reporting the work performed.
- c. Accurately reporting all problems discovered in the course of performing the particular work.
- d. Maintaining strict control of the work procedure and maintaining a level of professionalism consistent with County's Minimum Standards.
- e. Submitting to Project Coordinator or authorized designee all Daily Service Reports within 24 hours (Attachment "A-3").
- f. Maintaining a clean and tidy appearance.
- g. Being courteous and respectful to all customers.
- h. The County reserves the right to scrutinize, and reject as unsuitable, any employee of the Contractor for just cause.

- i. Contractor's vehicle must be clearly marked with the company's name.

3. CONTRACTOR REQUIREMENTS

- a. Shut down of water systems must be requested to BCWWS by the Contractor. Contractor shall submit a Request for Service Form (Attachment "A-4") for this purpose.
- b. The Contractor shall not start work on any project until specifically authorized by the Project Coordinator or written designee.
- c. The Contractor shall keep the Project Coordinator informed at all time periods of work on all authorized work.
- d. The Contractor is to resolve any complaint as a result from their work.
- e. The Project Coordinator will be the final authority for determining the extent of repair under this Agreement.
- f. The Daily Service Report must be signed and submitted to Project Coordinator via email when work is completed. Failure to have the report signed may result in Contractor not being paid for the service.
- g. The Contractor shall contact Sunshine One for all line locates.
- h. If the Contractor requires assistance from the County due to an unforeseeable situation, the Contractor shall immediately stop work and contact BCWWS Project Coordinator or WWS 24/7 dispatch at (954) 831-0850. Contractor shall remain at site until WWS' staff arrives.

4. CONTRACTOR RESPONSIBILITY

- a. The Contractor shall not start work on any project until specifically authorized by the Project Coordinator or designee.
- b. All work must be approved in advance by Project Coordinator, including purchase order and work order issued. All changes, alterations or instructions regarding work that differs from the approved work order must be approved in writing by the Project Coordinator.
- c. The Contractor shall investigate the job and determine the requirements necessary to complete the job in accordance with the technical specifications requirements of the Bid.
- d. The Contractor shall coordinate with any other governmental agencies, private companies, etc. in order to complete any scheduled work.
- e. Services and materials shall be in accordance with Broward County Water and Wastewater Services Minimum Design and Construction Standards.
- f. The Contractor may be required to provide the necessary personnel and equipment to work on two or more project areas simultaneously. Work order(s) will be provided to the Contractor in ample time to permit advance scheduling of the work so as not to delay the completion of work in progress.
- g. The Contractor shall at all times provide sufficient labor, material, tools and equipment to complete work in the manner and time specified. Failure to do so may result in default of the contract.
- h. The Contractor shall submit to the County estimates, progress schedules, records and other data as the County may request concerning Work performed or to be performed.
- i. The Contractor shall provide a written estimate for any rehabilitation work if is requested by the County. The estimate shall be based on the requirements of labor hours, specific bid lines, parts and materials, etc., for a specific repair job and in accordance with the established prices of this contract. Estimated time for completion of repairs shall be included. Lump sum estimates shall not be accepted. Quotations shall remain valid for 30 days. All estimation and quotation preparation shall be provided at no cost or obligation to the County. The County will not pay for travel or lunch time.
- j. The County will not pay for a site mobilization or demobilization fee for any requested rehabilitation work.

- k. Contractor must submit a list of products and materials that will be used for each job. The products must be checked on the Broward County form (can be found in the web link below) and returned to Project Coordinator, or designee. Please refer to the product specifications sheets to download the form from the following website:

<http://www.broward.org/WaterServices/Documents/ProductSpecificationSheets.pdf>

5. HOURS OF WORK

Unless otherwise authorized by the Project Coordinator in writing, work will only be done Monday through Friday between the hours of 7:30 a.m. and 4:00 p.m. local time. If Contractor plans to do any work after hours or on weekends and/or holidays, the Project Coordinator must be notified 24 hours in advance. No work may start without the Project Coordinator approval.

6. QUALIFICATIONS

The Contractor must be a General Contractor Licensed in the State of Florida. The Contractor or subcontractor performing Well Rehabilitation, Testing or Drilling activities shall be a State of Florida Licensed Water Well Contractor, licensed to engage in the business of construction, repair or abandonment of water wells and a minimum of three years' experience at the time of bid submittal.

Prospective Contractors must be able to demonstrate that they are qualified and capable of fulfilling and abiding by the bid requirements. The Contractor may be required to perform a practical demonstration of verbal communication and mechanical skills and show that they have the necessary equipment to perform the work and has recently supplied services to, on a continuing basis within the last three years.

Contractor shall at its own expense, wherever necessary or required, furnish safety devices and take such other precautions as may be necessary to protect life and property.

The Contractor shall supervise and direct the work. An experienced superintendent and necessary assistant(s) competent to supervise the particular types of work involved shall be assigned to the Project by the Contractor and shall be available at all times when work is in progress. The name of the superintendent shall be submitted with qualifications and approved by Project Coordinator prior to starting the Work. The superintendent shall be employed by the Contractor and shall have previously served in a supervisory capacity of at least one project of like description and size during the previous three years. Under no circumstances shall an employee of any Subcontractor serve as project superintendent.

The Contractor shall provide the necessary protection to prevent damage, injury or loss to all employees on the work and other persons who may be affected by the work. The Contractor shall erect and maintain, as required by the conditions and progress of the work, all necessary warning safeguards for devices and safety and protection of the work, the public and adjoining property.

Contractor must supply service personnel with personal protection equipment as per OSHA requirements.

The Contractor shall keep a record of all training of each employee. The record shall show, at a minimum, the employee's name, and date of employment, date and type of training for each class attended. A transcript of the training records shall be made available to the County upon request.

Bids shall be considered only from firms possessing the required current and valid licenses, if

applicable, and normally engaged in performing the type of work specified within the Contract Documents. Contractor must have adequate organization, facilities, equipment, and personnel to ensure prompt and efficient service to County.

7. COMPLETION TIME

The work to be performed under this contract shall be commenced within seven (7) calendar days after receipt of Purchase Order, work order or as coordinated with Broward County Project Coordinator.

The Contractor shall notify the Project Coordinator by e-mail, fax or phone a minimum of 48 hours in advance to schedule the repair and request any service from the County.

The Contractor will be held responsible for restoration for any damaged property caused by Contractor during this contract. Landscaping is the responsibility of the Contractor and is to be completed within five business days of starting the job.

Contractor shall be required to respond to Emergency Request by arriving at locations within three (3) hours of receiving a call from an authorized representative of Broward County Water and Wastewater Services.

8. DAMAGE TO PUBLIC OR PRIVATE PROPERTY

Extreme care shall be taken to safeguard all existing facilities, site amenities and vehicles on or around the job sites. Damage to public and/or private property shall be the responsibility of the Contractor and shall be repaired and/or replaced immediately at no additional cost to the County. The Contractor shall remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor and Subcontractor will be held liable.

9. UNDERGROUND UTILITIES

The Contractor shall be responsible for achieving and paying for clearances or locations of underground utilities.

UTILITIES TO BE MOVED

In instances when it shall be necessary to move the property of any public utility or franchise holder, such utility company or franchise holder will, upon request of the Contractor, be notified by the County to move such property within a specified reasonable time. When utility lines to be removed are encountered within the area of operations, the Contractor shall notify the Project Coordinator with at least 72 hours advance notice for the necessary measures to be taken to prevent interruption of service. The Contractor shall be liable for the costs associated with moving utilities.

UNDERGROUND UTILITIES INDICATED

Existing utility lines indicated or the locations made known to the Contractor prior to excavation and to be retained, and all utility lines uncovered during excavation operations shall be protected from damage during excavation and backfilling and, if damaged, shall be immediately repaired or replaced by the Contractor. The Contractor shall mark the location of existing utilities and structure, not otherwise readily visible, with flagging, stakes, barricades, or other suitable means, and shall preserve and protect all utilities and structures not designated for removal, relocation or replacement in the course of construction.

UNDERGROUND UTILITIES NOT INDICATED

In the event that the Contractor damages any existing utility lines not indicated or locations are not made known to the Contractor prior to excavation, a written report thereof shall be made immediately to the Project Coordinator. The locating company will be held liable for damages to utilities.

10. TRAFFIC CONTROL

Contractor is solely responsible for obtaining Maintenance of Traffic (MOT) permits from Broward County, municipalities in which the job site is located, and the Florida Department of Transportation (FDOT) as required. A MOT Plan from the Broward County Traffic Engineering Division (BCTED) shall be required when work is being performed within Broward County right-of-way regardless of whether a permit is required. The MOT Plan shall be on site prior to and during the entire operation.

Ensure the Certified Worksite Traffic Supervisor is present to direct the initial setup of the traffic control plan, is available on a 24-hour basis, participates in all changes to traffic control and reviews the project on a daily basis. A MOT Plan shall conform to, unless otherwise noted in the Broward County Minimum Standards, the latest editions of the FDOT Design Standards 600 Series and the manual on Uniform Traffic Control Devices (MUTCD). An approved MOT Plan and copy of the permit, if issued, must be onsite at all times. The MOT is valid for the duration of the permit or completion of the project, whichever is sooner. Once the MOT is approved by BCTED, the permittee shall be solely responsible for the installation and maintenance of the approved work zone traffic control devices throughout the length of the project.

11. MAINTENANCE OF TRAFFIC AND PROTECTION OF WORK SITE

- a. The Contractor shall furnish and install all items necessary in order to re-direct, protect, warn and/or maintain existing vehicular and/or pedestrian traffic during the course of construction, including, as necessary, flaggers and off-duty Police Officers/Sheriff's Deputies. Items to be provided shall include, but not be limited to, barricades, signs, arrow boards, warning/flashing lights, pavement markings and traffic signal modifications.

Prior to beginning work, the Contractor shall prepare a MOT Plan drawn to a suitable scale. This plan shall be submitted to BCTED for review and shall be amended as requested by BCTED. No work shall begin until such time that the "Maintenance of Traffic Plan" has been approved in writing by BCTED.

- b. The MOT Plan, provided by the Contractor, shall include provisions for pedestrian and/or school student traffic as well as vehicular traffic. The following are minimum requirements:

A safe walk route for all school students within the vicinity of the construction zone shall be maintained during the times students are arriving at or leaving school. If the current walking surface cannot be maintained, then a temporary road-rock 4 foot in width walk way shall be created. The safe walk route shall be separated from the construction activity by a 4 foot high orange construction fence for the entire length of the project or the length of the walk route, whichever is less.

All construction equipment around any designated crosswalk shall cease to operate during the times students are arriving at or leaving school. All construction equipment adjacent to a designated walk route shall cease operation during these times unless satisfactorily barricaded from the walk route.

In the case that a designated crossing or any portion of the designated walk route cannot be maintained, then the Contractor shall notify the "School Safety Coordinator" at BCTED, phone (954)-847-2600, a minimum of 10 working days prior to closing that route in order that an alternate crossing/route can be established.

Contractor SHALL install any necessary Pavement, Road Rock, Pavement Marking and Signage and/or any Pedestrian Signalization and/or Signal Modification to accommodate an existing or alternate walk route.

Contractor SHALL provide State Certified School Crossing Guards or off duty Police Officers to cross students at any locations other than those previously designated. Contractor may use flag person, ONLY if they are State Certified as a School Crossing Guard.

Ten (10) days prior to the beginning of construction, Contractor SHALL notify the "School Safety Coordinator" at BCTED, 954-847-2600, to arrange a "pre-construction safety" meeting.

Contractor SHALL BE RESPONSIBLE for providing a safe and adequate walking surface for all school children/pedestrians. This safe walk route SHALL be part of the "Maintenance of Traffic Plan".

- c. The Contractor, at all times, shall conduct the work in such a manner as to ensure the least obstruction to traffic as is practical. Convenience of the general public and of the residents adjacent to the work shall be provided for in a safe and satisfactory manner.
- d. Sidewalks, gutter, drains, fire hydrants and private drives shall, insofar as practical, be kept in condition for their intended uses. Fire hydrants on or adjacent to the work shall be kept accessible to fire apparatus at all times, and no material or obstruction shall be placed within 10 feet of any such hydrant.
- e. Construction materials stored upon the public street shall be placed so as to cause as little obstruction to the general public as is reasonably possible.
- f. Streets shall not be closed, except when and where allowed by the BCTED and, whenever the street is not closed, the work must be conducted with the provision for a safe passageway for vehicular and pedestrian traffic at all times. The Contractor shall make all necessary arrangements with the BCTED concerning maintenance of traffic and selection of detours required.
- g. All existing traffic control devices shall be maintained by the Contractor for the duration of the project. If any signs or signals are damaged or lost during the construction period, such signs and signals shall be repaired or replaced by Contractor at Contractor's expense.
- h. When traffic is diverted temporary pavement, markings may be required. Existing pavement markings that conflict with the new work zone traffic pattern must be obliterated by sandblasting and/or water jet. Painting over existing markings (black out) is not permitted.
- i. The Contractor may be required to reposition existing traffic heads in order to maintain traffic flows at diverted intersections. If this should be necessary, the Contractor must submit a plan for approval showing the course of work and the planned repositioning. No separate payment for repositioning the existing traffic signal heads will be made.

12. JOB RESTORATION

The Contractor is to complete all landscaping restoration. The Contractor is to use care in preserving the well-being of all landscaping. The actual cost of landscaping will be invoiced per line item.

Any landscape destroyed beyond parameters approved by the Project Coordinator will be restored by Contractor at own expense.

Wherever sidewalks or private driveways have been removed for purposes of construction, the Contractor shall place suitable temporary asphalt promptly after backfilling.

Open construction pits shall be backfilled and closed at the end of each working day. Exceptions shall be permitted only by the approval of the Project Coordinator. Open pits and road cuts shall be covered utilizing steel plates.

If a mailbox must be removed, the Contractor shall replace it in the same order as original, so as to not cause any disruption of mail delivery.

The Contractor shall use considerable care in protecting the riding surface of all roadways. Gouges, edge failures and curb damage will be corrected to the satisfaction of the Project Coordinator.

13. CLEAN UP

Upon completion of the work specified herein and before acceptance and final payment, Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish and temporary materials and temporary structures provided by the Contractor. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily. Asphalt and concrete sites shall be swept or hosed clean.

14. QUALITY OF WORK

The Contractor shall perform work covered under this contract to the best of its ability and conforming to specifications contained or referred to in this contract and shall pursue the project in a professional manner.

The Contractor shall follow contract documents including drawings, Broward County Water and Wastewater Minimum Design and Construction Standards, and to follow instructions, either verbally or written, issued by the Project Coordinator.

The Contractor shall comply with the appropriate specifications, regulations, and safety procedures, including excavation safety.

The Contractor shall use construction equipment which is safe and maintained in good workable condition and to furnish proper direction and supervision to work crews and personnel doing work under this contract.

15. BID PRICE

The "bid price" will be the unit cost paid by the County for each individual line item. The cost incurred for labor, material, tests, tools, equipment, bonding, insurance, coordination with County personnel,

connections to existing pipelines, excavation, trenching, backfill and compaction, storing and transporting materials, saw-cutting, removal and disposal of unsuitable and excess material, cleaning, painting, sanitary seals replacement, flushing, disinfection of new pipe and fittings, cleanup and restoration of all improvements incidental to construction are to be billed as part of the line items.

No claims for extra cost will be considered based on an escalation of material prices throughout the period of the contract.

The Contractor will not be compensated for any delay or damage caused by the utility facilities, obstruction, or any other item not being removed or relocated to clear construction in advance of the work. The County will not pay for travel time.

16. EMERGENCY CALL OUT

Emergency call out is the procedure of responding in short notice, which is defined as three hours response time, to perform any of the services previously stated. Emergency call out may be required outside of the normal working hours such as after 5:00 p.m. or anytime on weekends.

17. CONTRACTOR DELIVERY LOGS

The Contractor shall provide a daily log of deliveries to the site for the project. The daily log shall include deliveries received each day with the driver's name and vehicle license number, in addition to expected deliveries for the following day. The log shall be submitted to the County at the end of each day. This log will be used by the County at its discretion for security purposes at the job site.

18. UTILITIES

All oil and gasoline pipelines, power and telephone or the communication cable ducts, gas and water mains, irrigation lines, sewer lines, storm drain lines, poles, and overhead power and communication wires and cables encountered along the line of the work shall remain continuously in service during all operations under the contract, unless other arrangements satisfactory to the Project Coordinator are made with the owner of said pipelines, duct, main, irrigation line, sewer, storm drain, pole, or wire or cable. The Contractor shall be responsible for and shall repair all damage due to its operations.

It shall be the Contractor's responsibility to exercise all caution in the vicinity of any utility and obtain locations prior to any work commencement.

Contractor shall be responsible for contacting the appropriate utility company for location of any buried or serial utilities in the work area which could be damaged by the Contractor's operation. Contractor shall call 811 or visit www.callsunshine.com for more information.

Contractor shall be solely responsible for any damage to utilities due to their failure to contact Sunshine 811 prior to work.

19. REPORTS

Reports resulting from the inspections, test, recommendations and summary rehabilitated actions must be compiled in electronic format using Word or excel. Reports must be provided on Compact Disks-CD-R, Flash Drive or DVDs.

20. INSPECTION AND ACCEPTANCE OF WORK

Before final acceptance of the work and payment to the Contractor by the County, the following requirements shall be complied with:

- a. All work will be inspected and signed off by the Project Coordinator, Inspector, or designee. Inspectors shall be authorized to inspect all work done and all materials furnished, including preparation, fabrication and manufacture of the materials to be used.
- b. All materials and equipment furnished and all work done that is not in accordance with Broward County Water and Wastewater Services Minimum Design and Construction Standards, and manufacturer's recommendations or that is defective will be rejected. All rejected materials, equipment or Work shall be removed immediately. If rejected Materials, equipment or work is not removed within 48 hours from the date of notification, the Project Coordinator shall have the right and authority to stop the Contractor and the work immediately, and/or shall have the right to arrange for the removal of said rejected materials, equipment or work at the cost and expense of the Contractor.
- c. No job will be considered complete without the Project Coordinator, or designee's approval and sign off of job.

21. METHOD OF PAYMENT

- a. Upon completion of work, Contractor shall submit an invoice to accounts payable.
- b. All invoicing shall contain the following information:
 1. Broward County Purchase Order or work order number authorizing work.
- c. Contractor must submit to Water and Wastewater Services Project Coordinator the Daily Service Report to initiate payment.
- d. The actual cost of permits/licenses will be invoiced as pass-through and Contractor shall supply documentation verifying cost.

22. MATERIALS, SERVICES AND FACILITIES

Materials and equipment shall be stored and handled as to ensure the preservation of their quality and fitness for the work. Stored materials and equipment to be incorporated in the work shall be located so as to facilitate prompt inspection. No product which has in any way become unfit for the intended purpose shall be incorporated into the work. The Contractor shall be required to protect all work and materials against damage or injury from the weather.

Only new valves, pipes, parts, certified and warranted as new, and equal or better quality, shall be used for maintenance, installation or repairs.

The Contractor is required to expressly warrant that all replacement parts are new, free from defects, and meet the performance specifications of the original equipment.

23. SHUTDOWNS

Contractor must submit a Request for Service to Broward County Water and Wastewater Services to shut down water mains. The County will tag all houses and businesses affected by the shut down two (2) working days prior to the shutdown.

24. PERMITS AND INSPECTION FEES

The Contractor shall secure and pay for any permits and inspection fees required by any other governmental entity or agency. Permits will be paid on Pass-Thru for Non-County Agency, Permits and Fees.

25. LAND AND RIGHT-OF-WAY (ROW)

Prior to entering on any land or right-of-way, the Contractor shall ascertain the requirements of applicable permits or easements obtained by the County, and shall conduct the work in accordance with requirements thereof including the giving of notice. The Contractor shall be fully responsible for performing work to the requirements of any permit or easement granting entity even though such requirements may exceed or be more stringent than that otherwise required by the contract Documents, and shall compensate the County fully for any loss or expense arising from failure of the Contractor to perform as required by such entity.

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SECTION 01010 - SUMMARY OF WORK

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. The work to be performed under this contract shall consist of furnishing all plant, tools, equipment, materials, supplies, and manufactured articles, and furnishing all labor, transportation, and services, including fuel, power, water, and essential communications, and performing all work or other operations required for the fulfillment of the contract in strict accordance with the Contract Documents. The work shall be complete, and all work, materials, and services not expressly indicated or called for in the Contract Documents, which may be necessary for the complete and proper construction of the work, in good faith, shall be provided by the Contractor as though originally so indicated, at no increase in cost to the County.
- B. Work site sequence will be as directed by the County in coordination with the Contractor.

1.2 CONTRACT METHOD

- A. The work hereunder will be constructed under a **Unit Price** contract.
- B. Measurement and Payment descriptions for the specific items covered under these Contract Documents are provided under Section 01025 – Measurement and Payment.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. The work of this contract includes the testing and rehabilitation of existing Surficial Aquifer System (SAS) production and monitoring wells using different testing and rehabilitation methods and combinations of testing and rehabilitation methods in standard industry use to improve well performance and update equipment along with all appurtenant work in accordance with the Contract Documents.
- B. The work may include replacement and abandonment of existing wells if rehabilitation efforts do not improve well performance, as determined by the County.
- C. Work Locations: The work is located in the vicinity of the four (4) existing Broward County wellfields. The wellfields are located in the following municipalities:
 - 1. District 1 Wellfield is in the City of Lauderdale Lakes near US 441/SR 7 at the South Florida Water Management District's C-13 Canal.
 - 2. District 2 Water Treatment Plant Wellfield is located in the City of Pompano Beach on the east and west side of Dixie Highway, north of NE 48 Street,

Pompano Beach.

3. District 2 North Regional Wellfield is located in Deerfield Beach in and near Quiet Waters Park.
 4. District 3 South Regional Wellfield is located in Cooper City in Brian Piccolo Park.
- D. Evaluation/Confirmation: Potential evaluation and confirmation test methods may include, but are not limited to, the following:
1. Pre-Rehabilitation Constant Rate pump testing with County's pump (2-hour pre-pump static period, a minimum of 2-hours pumping, and 2-hour recovery period).
 2. Post-Rehabilitation Step-Rate pump testing (12-hour pre-pump static period, four [4], 2-hour pumping steps at rates that are 50%, 75% 100% and 125% of the well design discharge rate, and 12-hour recovery period).
 3. Post-Rehabilitation Constant Rate pump testing (12-hour pre-pump static period, minimum 8-hour pumping duration, 12-hour recovery period).
 4. Wire-to-Water efficiency testing (during constant rate testing using County's pump only).
 5. Water Levels (manometer, electric tape, and data logger).
 6. Laboratory Water Quality Pre- and Post- Rehabilitation (dissolved oxygen, dissolved iron, turbidity, calcium hardness, total hardness, hydrogen sulfide, sulfate, alkalinity, calcium, magnesium, potassium, ammonia, strontium, phosphate, silica, boron, bromide, carbonate, bicarbonate, chloride, pH, color and total coliform bacteria).
 7. Field Water Quality Pre- and Post- Rehabilitation (pH, temperature, conductivity, dissolved oxygen).
 8. Geophysical Logging.
 9. Pilot Hole (XY Caliper, Gamma Ray, Dual Induction and Spontaneous Potential)
 10. Reamed Hole (XY Caliper and Gamma Ray with Hole Volume)
 11. Static (minimum 12-hour static period before logging) and Dynamic (at flow rate up to 1,000 gpm) Flow Log with Temperature, at the request of the County
 12. Pre- and Post-Rehabilitation Video Survey in Color with a 360 Degree Side View capability and dynamic (at flow rate up to 1,000 gpm) video survey.

E. Measuring Devices: The Contractor shall provide and operate the following measurement devices during the applicable portions of the work.

1. Rossum Centrifugal Sand Testing Device.
2. Silt Density Index (SDI) Testing Device.
3. Manometer System.
4. Water Level Pressure Transducer and Logging System (Insitu Troll or equal).
5. Totalizing Flow Meter.
6. Pressure Gauge.
7. Biological Activity Reaction Test (BART), taken during Pre-Rehabilitation Constant Rate Pump Test, only.
8. Field Water Quality meters (pH, Temperature, Conductivity, Dissolved Oxygen).

F. Rehabilitation Methods and Operations: Potential rehabilitation methods may include, but are not limited to, the following:

1. Application of descaler solution, acidization, chlorination.
2. Acid Contact Times: one (1) hour closed-in wait time; potable water flush; eight (8) hours closed-in wait time.
3. Liquid Acid Descaler: A minimum of twenty-four (24) hours of contact time inclusive of agitation.
4. Chlorination Contact Times: A minimum of eighteen (18) hours of contact time inclusive of agitation.
5. Brushing and swabbing.
6. Jetting.
7. Air and pump development, after rehabilitation as appropriate.
8. Plumbness and alignment testing.
9. Well screen and riser pipe, well pump or wellhead piping installation, modification or upgrade.
10. Cement placement by tremie or pressure (squeeze) grout methods.
11. Gravel placement by tremie method.

12. Instrumentation or electrical modification/upgrade.
13. Soil Borings or geoprobe sampling, as requested by the County.
14. Well replacement and abandonment of existing well, as directed by County.
15. Two (2)-inch diameter poly vinyl chloride (PVC) riser with 5-foot screened interval monitor well installation (variable depths).

1.4 WORK SEQUENCE

- A. The work sequence may be changed by the County. Change may include alterations to the order of occurrence, deletions, or additions. The Contractor shall begin the work within seven calendar days following the completion of permitting (60 days) and the authorization from Project Coordinator. The work schedule and operations shall progress from one site to another in sequence as directed by the County.
- B. General Work Sequence: The following list of work activities is representative of general work that will be executed at each of the existing wells requiring rehabilitation. The Contractor shall coordinate the Contractor's work activities at each existing well with the County to minimize impact to daily utility operations.
 1. The County will determine the number of existing wells that can be out of service at any one time.
 2. At no time during the performance of work, will the Contractor cause a shutdown of the County's water treatment plant(s) or distribution system or interfere with any other utility(s) operations without the written consent of the County or utility.
 3. Well Rehabilitation/Pump Replacement: The following sequence of work is representative of the work that will be executed by the Contractor's at each well site.
- C. Site Setup:
 1. Coordinate work with County Water Treatment Plant (WTP) Superintendent prior to mobilization.
 2. Obtain all permits and authorizations required.
 3. Photo document existing site conditions.
 4. Removing fencing and establish access to the well site, as needed, for entry of Contractor's and subcontractors' equipment.
 5. Configure storage and work areas as approved by the County and in

compliance with health and safety, wellhead protection and other regulatory requirements.

6. Secure the work site to prevent public access to the site and ensure that adjacent residents are not impacted from the use of their property, driveway, street, etc.
7. Install noise barriers, as necessary.

D. Well/Pump Evaluation:

1. Perform Pre-Rehabilitation Constant Rate Test at production flow rate using the County's existing pump and the Contractor's discharge piping.
2. If the County's pump is not operable, the Contractor shall install a temporary test pump of comparable size and horsepower to perform the pre-rehabilitation testing.
3. Shutdown pump and record static water levels during static period prior to pump testing. Record totalizer reading at the end of the "no pumping" period.
4. Begin pumping and record pumping rate, water level, discharge pressure, silt and sand content (minimum of 2 sand and silt content tests) and periodic totalizer readings.
5. Collect and analyze Field water quality parameters every 15 minutes throughout pump testing.
6. Perform wire-to-water efficiency test on the County's pump, if used for pump testing.
7. Collect Laboratory water quality sample for analysis.
8. Collect Biological Activity Reaction Test (BART) sample.
9. Shutdown pump and begin recovery period.
10. Record water level measurements during the recovery period.
11. Disassemble County's Pump and Wellhead
12. Disconnect all controls and electrical power.
13. Remove production pump, column pipe, and pump motor from well
14. Inspect and store production pump, column pipe, and pump motor in a manner to prevent contamination or damage.
15. Remove raw water connections, as needed to provide access to the well.

16. Prepare a detailed report for submittal to the County for approval. This report shall include pictures with findings.

E. Clean and Video Survey Well:

1. Clean the well casing interior using a brushing tool compatible with the casing material.
2. Circulate casing scale, rust, and other solids from the well and dispose of developed material based on Contractor's approved disposal plan and any applicable regulations and requirements.
3. Install Contractor's pump (pump size and capacity should be similar to County's pump), video camera, and discharge piping for dynamic video and manometer/orifice plate for specific capacity testing.
4. Pump at least three well volumes of potable water into the well and continue pumping until clear static video image can be obtained.
5. Perform color downhole video survey with 360 degree side view rotation. The video shall show the date and name of the well.
6. Prepare a detailed report for submittal to the County. This report shall include testing summary and pictures with findings.

F. Rehabilitation Recommendation Report:

1. Prepare a detailed report with a summary of all collected well testing information with analyses, pictures with findings and recommended actions.
2. Submit shop drawings with measurements of the proposed recommendation actions as well with the actual condition.
3. Submit a list of permits to be acquired.
4. Submit a cost estimate of the proposed recommended actions.
5. Submit draft report to the County for review and comment.
6. Meet with County to discuss report comments, analyses and recommendations.

G. Perform Rehabilitation Action approved by County.

1. Well Rehabilitation and repair actions are listed above and may be performed individually or as a group of sequential rehabilitation actions.
2. Pump Rehabilitation will be performed based on materials and specialty services required on or off site.

3. Rehabilitation may include geophysical logging to verify well construction, borehole material and water quality as approved by County.
 4. Re-Install existing or new production pump, column pipe and pump motor.
 5. Re-connect information and control and electrical systems.
 6. Following the completion of all Rehabilitation action(s), The Contractor shall re- development the rehabilitated well using air and pump development methods, as appropriate until the well specific capacity, field water quality and sand and silt contents have improved and stabilized and as approved by the County.
 7. Disinfect the well and obtain regulatory clearances.
 8. Demobilize Contractor's equipment and restore the well site to original or better condition.
- H. Post-Rehabilitation Verification (see quality assurance requirements for acceptable rehabilitation criteria):
1. Perform Post-Rehabilitation Step-Rate Pumping Test.
 2. Shutdown pump and record static water levels during static period prior to pump testing.
 3. Record static water level and totalizer reading at the end of the "no pumping" period.
 4. Begin first step at 50% of design total rated capacity.
 5. Record pumping rate, water level, discharge pressure, field water quality, silt and sand content (minimum of two sand and silt content tests per step) and totalizer readings at the end of each step before proceeding to the next step.
 6. Repeat item 4 for each of the remaining three steps (75%, 100%, and 125% of design capacity).
 7. Shutdown pump and begin recovery period.
 8. Record water level measurements during the recovery period.
 9. Perform Post-Rehabilitation Constant Rate Test at production flow rate.
 10. Shutdown pump and record static water levels during static period prior to pump testing.
 11. Record static water level and totalizer reading at the end of the "no pumping"

period.

12. Begin pumping and record pumping rate, water level, discharge pressure, field water quality, silt and sand content (minimum of [4] sand and silt content tests) and periodic totalizer readings.
13. Collect and analyze Field water quality parameters every 30 minutes throughout testing.
14. Collect Laboratory water quality sample for analysis.
15. Shutdown pump and begin recovery period.
16. Record water level measurements during the recovery period.
17. Perform Post-Rehabilitation Video Survey.
18. Perform Casing Plumbness and Alignment Test following verification that the well meets silt and sand production criteria.

I. Final Rehabilitation Report:

1. Prepare a final rehabilitation report with the efforts, test, analysis, information collected, permits and all recommended actions performed. This report shall include pictures and shop drawings with measurements of the rehabilitated well.
2. Submit draft report, to the County for review and comment. Meet with County to discuss report and receive comments.
3. Prepare a final report for submittal to the County.

J. Replacement Well/ Existing Well Abandonment, if required and approved by County:

1. Drill a nominal 8-inch diameter pilot borehole to a depth of approximately 150 feet.
 - a. Collect six split-spoon samples and three discrete 10-foot well point water samples for laboratory parameters as specified in Section 02635 during pilot-hole drilling at depths determined by the County, or
 - b. Perform geoprobe evaluations with continuous split-spoon sampling and a minimum of three discrete 10-foot well point water samples for laboratory parameters as specified in Section 02635 at depths determined by the County inclusive of zone development and drill a nominal 6-inch diameter pilot hole to a depth of approximately 150 feet for geophysical logging.

2. Collect and deliver cuttings samples/ split-spoon samples to the County.
3. Deliver water quality samples to the approved certified laboratory for water quality analyses.
4. Perform geophysical logs on the pilot hole including caliper, gamma ray, spontaneous potential, and 16/64-inch long and short normal resistivity.
5. Within 3 business days of receipt of geophysical logs and well point water quality analysis results, the County shall inform the Contractor of the outer casing setting depth, production zone interval, and the total depth of the well.
6. Deliver split spoon samples from the production zone as selected by the County to the well screen supplier for particle-size analysis and well screen design recommendations.
7. Abandon pilot hole beneath production zone, if required.
8. Furnish and install surface casing to a depth determined by the Contractor.
9. Ream the pilot borehole to a nominal 48-inch diameter from the depth of the surface casing to a depth of approximately 100 feet, as determined by the County.
10. Perform caliper log on reamed hole.
11. Furnish, install, and cement 36-inch, 0.375 wall thickness steel outer casing to a depth of approximately 100 feet and grout into place.
12. Ream the pilot borehole to a nominal 36-inch diameter from the bottom of the outer casing to a depth of approximately 150 feet, as determined by the County.
13. Conduct a caliper log upon completion of the reamed hole.
14. Furnish the County with grain-size analysis of gravel pack and design recommendations prior to ordering screen and gravel materials.
15. Install stainless steel screen with sump and 24-inch diameter PVC riser pipe (inner casing) and gravel fill tube assembly, and fill the annular space up from the base of the well with gravel pack to a depth of 30 feet bls.
16. Perform an alignment test on the inner casing.
17. Develop the well by airlift pumping at rates up to 3,000 gpm.
18. Install a test pump assembly, including settling tank(s), pump and prime mover, discharge line, orifice manometer and totalizing flowmeter, PVC access pipe, and check valve in the pump column.
19. Develop the well by pump surging at rates up to 3,000 gpm.

20. Perform a post-rehabilitation step-rate test as described under rehabilitation above.
21. Perform a post-rehabilitation constant rate test as described under rehabilitation above.
22. Collect and analyze a laboratory water sample prior to the end of the test.
23. Complete the well by finishing the outer casing, inner casing, and surface casing to fit wellhead, pump, and raw water pipeline modifications.
24. Disinfect and clear well for service.
25. Abandon existing well in compliance with South Florida Water Management District (SFWMD) requirements.

1.5 CONTRACTOR USE OF SITE

- A. The County will designate and arrange for the Contractor's use, a portion of the property for its exclusive use during the term of the Work as a storage and shop area for rehabilitation and testing operations. At completion of work, the Contractor shall grade, sod, and landscape the area to return it to its original condition as depicted in the existing site photo log provided by the Contractor.
- B. The Contractor shall submit for approval by the County, a layout plan showing staging and storage areas within the designated work area. The Contractor shall provide and install a secure fence around the work area.
- C. The Contractor's use of the site shall be limited to its rehabilitation and testing operations, including on-site storage of materials, on-site fabrication facilities, and field offices.
- D. The Contractor shall not use the private property of the surrounding parcels, unless written permission is obtained from the property County for any work operations. A copy of the written permission received by the Contractor shall be provided to the County.

1.6 WORK BY OTHERS

- A. Where two or more Contractors are performing work for the County at one time on the same work site or adjacent land in such a manner that work under one contract may interfere with work under another, the County will determine the sequence and order of the work in either or both contracts. When the site of one contract is the necessary or convenient means of access for performance of work under another, the County may grant privilege of access or other reasonable privilege to the Contractor so desiring, to the extent, amount, and in manner and at time that the County may determine. No County determination of method or time or sequence or order of the work or access privilege shall be the basis for a claim for delay or damage except under provisions of the General Conditions for temporary suspensions of the work. The Contractor shall conduct its operations

so as to cause a minimum of interference with the work of such other contractors, and shall cooperate fully with such Contractors to allow continued safe access to their respective portions of the Site, as required to perform work under their respective contracts.

- B. Interference With Work On Utilities: The Contractor shall cooperate fully with all utility forces of the County or forces of other public or private agencies engaged in the access, relocation, altering, or otherwise rearranging of any facilities which interfere with or are needed for the progress of the work, and shall schedule the WORK so as to minimize interference with said access, relocation, altering, or other rearranging of facilities.

1.7 OUTAGE PLAN AND REQUESTS

- A. Unless the Contract Documents indicate otherwise, the Contractor shall not remove from service, de-energize, or modify settings for any existing operating tank, well, pipeline, valve, channel, equipment, structure, road, or any other facility without permission from the County.

1.8 OWNER USE OF THE SITE

- A. The County may utilize all or part of the existing site and facilities during the entire period of the work to conduct the County's normal operations. The Contractor shall not impede deliveries to County facilities during the entire period of the work. The Contractor shall cooperate and coordinate with the County to facilitate the County's operations and to minimize interference with the Contractor's operations at the same time. In any event, the County shall be allowed access to the site during the period of the work.

1.9 PROJECT MEETINGS

A. PRECONSTRUCTION MEETING

1. Prior to the commencement of work at the site and within seven (7) days after the date of commencement as stated in the Notice to Proceed, a preconstruction meeting will be held at a mutually agreed time and place. The meeting shall be attended by the Contractor's Project Manager, its superintendent, and its subcontractors as the Contractor deems appropriate. Other attendees will be:
 - a. Resident Project Representative.
 - b. Representatives of County.
 - c. Others as requested by Contractor or County.
2. The Contractor shall bring the preconstruction meeting submittals in accordance with Section 01300 - Contractor Submittals.

3. The purpose of the meeting is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The complete agenda will be furnished to the Contractor prior to the meeting date. However, the Contractor should be prepared to discuss all of the items listed below.
 - a. Status of Contractor's insurance and bonds.
 - b. Contractor's tentative schedules.
 - c. Transmittal, review, and distribution of Contractor's submittals.
 - d. Processing applications for payment.
 - e. Maintaining record documents.
 - f. Critical work sequencing.
 - g. Field decisions and Change Orders.
 - h. Use of Site, and storage areas, security, housekeeping, and County needs.
 - i. Major equipment deliveries and priorities.
 - j. Contractor's TCP and Site Safety/Security Plans.
 - k. Contractor's assignments for safety and first aid.
 - l. Daily Report Form which the Contractor will furnish.
 - m. Submittal Transmittal Form which the County will furnish.
4. The County will preside at the preconstruction meeting and will arrange for keeping and distributing the minutes to all persons in attendance.
5. The Contractor and its subcontractors should plan on the meeting taking no less than one full working day.

B. Progress Meetings

1. The County will schedule and hold regular progress meetings at least monthly during periods of low activity and more frequently during active periods of testing and rehabilitation, as requested by the Contractor or as required by the progress of the WORK. The Contractor, County, and all subcontractors active at the site shall attend each meeting. The Contractor may at its discretion request attendance by representatives of its suppliers, manufacturers, and other subcontractors.

2. The County will preside at the progress meetings and will arrange for keeping and distributing the minutes. The purpose of the meetings is to review the progress of the work, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop. During each meeting, the Contractor shall present any issues that may impact its progress with a view to resolve these issues expeditiously.

1.10 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. In addition to a Project Superintendent, the Contractor shall provide a dedicated Project Manager specific to this project as a supervisor to oversee proper performance of the work. The Project Manager shall attend all meetings and have the authority to make decisions on behalf of the Contractor. The Project Manager shall visit the site at a minimum once a day to evaluate the work progress and to prepare a daily job report. The Project Manager shall be responsible for all coordination, document handling, submittals review and processing, quality control, and project scheduling. The Project Manager, once assigned, shall not be replaced without prior consent of the County.

1.11 CONTRACTOR

- A. The Contractor must be a General Contractor Licensed in the State of Florida or a State of Florida Licensed Water Well Contractor as described in Chapter 62-531 of the Florida Administrative Code (FAC). The Contractor or subcontractor performing Well Rehabilitation, Testing or Drilling activities shall be a State of Florida Licensed Water Well Contractor, licensed to engage in the business of construction, repair or abandonment of wells.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

- END OF SECTION -

SECTION 01025 - MEASUREMENT AND PAYMENT

PART 1 -- GENERAL

1.1 SCOPE

- A. Payment for the various items of the Schedule of Bid Prices (Bid Schedule), as further specified herein, shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of work being described, as necessary to complete the items of the work all in accordance with the requirements of the Contract Documents, including all appurtenances thereto, and including all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA). No separate payment will be made for any item that is not specifically set forth in the Bid Schedule, and all costs therefore shall be included in the prices named in the Bid Schedule for the various appurtenant items of work.
- B. The omission of reference to any item of work in this description shall not alter the intent of the Bid Schedule or relieve the Contractor of the necessity of furnishing such as a part of the contract.
- C. The unit quantities set forth in the Schedule of Prices Bid are approximate and are given to establish a uniform basis for the comparison of Bids. The County reserves the right to increase or decrease the quantity of any class or portion of the work during the progress of construction in accordance with these Contract Documents.
- D. The unit prices as provided in the detailed Bid Schedule are used for periodic partial payments for work performed, for determining the value of additions and/or deletions associated with approved Change Orders to the contract, and wherever else reasonable.
- E. For bidding purposes, the County has estimated the quantities of materials. The Contractor shall be paid for only the actual amounts of materials required and services rendered under these Contract Documents. There is no minimum amount of work guaranteed. The County reserves the right to cancel the contract without any further restitution other than payment for services rendered and material installed in accordance with the Contract Documents.
- F. The Contractor shall account for the construction and testing sequencing of the rehabilitation work in Bid Schedule development.

1.2 ALLOWANCES

ALLOWANCE FOR NON-BROWARD COUNTY PERMIT FEES

- A. Measurement for Permit Fees will be based on the fees actually spent as indicated by an original receipt submitted to and approved by the County in accordance with the Contract Documents.
- B. Included in this item is an allowance for permit fees paid to agencies other than Broward County. The local municipalities, South Florida Water Management District or other permitting entity's permit and inspection fees may include, but are not limited to: Construction Permits, Building Permits, Electrical Permits, Plumbing Permits, Mechanical Permits, Discharge Permits and any other associated permit costs as deemed necessary. The Contractor shall not add any markup or overhead charges to these fees. The price of the fee paid to the respective permitting agency shall be full compensation to the Contractor. All amounts remaining in this account upon completion of the project shall be credited to the County. Documentation verifying actual costs shall be submitted by the Contractor with payment request.

ALLOWANCE FOR MAINTENANCE OF TRAFFIC (MOT)

- A. Measurement for Maintenance of Traffic (MOT) will be based the fees actually spent with the approval of the County in accordance with the Contract Documents.
- B. Included in this item is an allowance for equipment, services and personnel, with traffic control and protective devices, as required to expedite vehicular traffic flow around the working area where Maintenance of Traffic will be required. A copy of the invoice(s) shall be submitted with the Contractor's invoice for payment. No markup shall be allowed.

ALLOWANCE FOR MISCELLANEOUS PARTS AND MATERIALS

- A. Measurement for the Contractor's purchase of miscellaneous parts and fittings as requested by the County will be based on the actual spent value of parts and fittings spent by the Contractor as indicated by an Original receipt submitted to and approved by the County in accordance with the Contract Documents.
- B. This item is intended for specialized small parts and fittings and procurement of items not stocked in the County's warehouse that are needed to avoid delays associated with placing wells back into service to meet demand for treated water.
- C. Included in this item is an allowance for the Contractor's purchase of miscellaneous parts and fittings as requested by the County. The Contractor shall not add any markup or overhead charges to the purchase price. The purchase price of the part(s), above ground pipe, fitting(s), valves, accessories (mechanical,

structural, electrical), control panels, control systems, valves, and instrumentation shall be full compensation to the Contractor. All amounts remaining in this account upon completion of the project shall be credited to the County. Documentation verifying actual costs shall be submitted by the Contractor with payment request.

ALLOWANCE FOR SPECIALTY SUBCONTRACTOR SERVICES

- A. This pass-thru line will allow Contractor to hire specialized contractual services to perform activities not identified in the bid, but related to the scope of work, including engagement of specialty subcontractors to engage specialized contractual services after obtaining written approval from the Project Manager.
- B. Payment for specialized subcontractor activities shall be reimbursed to the Contractor utilizing this "pass-thru" line item. Such activities not identified in the bid, but related to the scope of work shall include, but no limited to, demolition, concrete, metals, plumbing, mechanical, special construction, instrumentation and electrical. Contractor will invoice the County for reimbursement. A copy of the subcontractor's invoice(s) shall be submitted with the Contractor's invoice for payment. No mark-up shall be allowed on subcontractor's fees and/or invoices.

1.3 MEASUREMENTS – GENERAL

- A. Units of measure shown on the Bid Schedule shall be as follows unless otherwise specified in the Contract Documents.

| UNIT | MEASUREMENT |
|------|--|
| CF | Cubic Feet – Field Count |
| SY | Square Yards – Field Count |
| CY | Cubic Yards – Field Count |
| EA | Per Each – Field Count |
| HR | Hours – Number of hours of work performed as documented by the Project Manager |
| LF | Linear Feet – Field Count |

1.4 ITEM 01 – WELL EVALUATION TESTING, SITE MOBILIZATION/DEMobilIZATION FOR NEW WELL CONSTRUCTION WORK

- A. Measurement for mobilization and demobilization will be based upon the number of new wells to be constructed all in accordance with the Contract Documents.
- B. Payment for well site mobilization/ demobilization for new well construction work which includes, performance of pre-mobilization condition documentation, Coordination of subconsultant services, Transportation of equipment and materials, Establishment and release of site access and storage (not including permit fees), Installation, monitoring and removal of temporary environmental controls, establishment and release of traffic control, setup and teardown of

temporary containment, drilling pads, settling tanks, pumping equipment, filtering equipment, and piping, establishment and restoration of existing facility protection measures, and Development and administration of health and safety and hurricane preparedness programs will be made at the per EACH price named in the Bid Schedule, which price shall constitute full compensation for the work of modifying, monitoring, and restoring site conditions in accordance with the Contract Documents. Payment for well site mobilization/ demobilization for rehabilitation work does not include delivery, setup, use and removal of a drilling rig which is covered under a separate line item.

- C. Payment for mobilization will be limited to 60 percent of the per EACH price provided in the Bid Schedule. Payment for demobilization shall constitute the remaining 40 percent of the per EACH price provided in the Bid Schedule and is predicated on the completion of well rehabilitation activities and site restoration in accordance with the Contract Documents.

1.5 ITEM 02 - WELL EVALUATION TESTING, TWO-HOUR (PRE-REHABILITATION) CONSTANT RATE TESTING WITH COUNTY'S PUMP

- A. Measurement for pre-rehabilitation constant rate testing with the County's pumping facilities will be based on the number of pre-rehabilitation constant rate pumping tests performed with the County's pumping facilities.
- B. Payment for pre-rehabilitation constant rate testing with the County's pumping facilities will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for the pre-rehabilitation constant rate test inclusive of Monitoring and documentation of pump flow rate and static, pumping and recovery water levels, Collection and documentation of sand and silt content, performance and documentation of wire-to-water pump testing, Collection and laboratory analysis of water quality sample, and Collection and analysis of BARTs testing and all other required monitoring and testing all in accordance with the Contract Documents. The Contractor shall submit a final report with pictures, drawings as well any other necessary information.
- C. No payment will be made for standby time during pre-pumping static and post-pumping recovery periods, time spent transporting and setting up equipment and facilities, nor time, equipment or materials used in a test aborted due to power failure, malfunction of pumping equipment, potential damages caused by discharge or malfunction of measuring devices.

1.6 ITEM 03 – WELL EVALUATION TESTING, DISCONNECT, REMOVE, AND INSPECT COUNTY'S PUMP FACILITIES

- A. Measurement for the removal and inspection of the County's pump facilities will be based on the number of pump facilities removed and inspected.
- B. Payment for removal and inspection of the County's pump facilities will be made at the per EACH unit price named in the Bid Schedule which unit price shall

constitute full compensation for the disconnection of electrical and instrumentation and controls, disconnection of raw water piping, meters and gauges, removal of the pump and pump column pipe from the well, and storage and inspection of pump facilities all in accordance with the Contract Documents. A final report shall be submitted with pictures and findings.

1.7 ITEM 04 - WELL EVALUATION TESTING, CLEAN AND VIDEO SURVEY WELL CASING AND PRODUCTION INTERVAL

- A. Measurement for cleaning and videoing the well casing and production interval will be based on the number of times a casing cleaning and video survey are collectively performed by the Contractor to evaluate the well condition.
- B. Payment for cleaning and videoing the well casing and production interval will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for the Brushing and swabbing of the casing and open hole, Removal, containment, and proper disposal of loosened debris from the well, Installation of temporary pumping facilities comparable to County's existing facilities, Clearing the well for the video survey, and performing the pre-rehabilitation video survey all in accordance with the Contract Documents. The Contractor shall submit with the video a final report including pictures with findings, as well any other necessary information.

1.8 ITEM 05 - WELL EVALUATION TESTING, VIDEO SURVEY OF CASING AND PRODUCTION INTERVAL

- A. Measurement for the video surveying of the casing and production interval will be based on the number of individual occurrences of video surveying that not incorporated in any other activity, as requested by the County during rehabilitation efforts and assumes that no additional mobilization activities are required.
- B. Payment for video surveying of the casing and production interval will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials needed for the pre-video clearance of the well, video surveying from the top to the bottom of the well, and submittal of completed surveys to the County all in accordance with the Contract Documents. The Contractor shall submit a final report with the video survey including pictures with findings, as well any other necessary information.
- C. No payment shall be made for standby time, right or pump charges while video surveying is in progress. If the County determines that the video is unacceptable due to poor quality, the Contractor shall provide all necessary materials, equipment, subcontractors, and crew to perform additional surveys to the satisfaction of the County.

1.9 ITEM 06 - WELL EVALUATION TESTING, CASING BRUSHING AND SWABBING

- A. Measurement for casing brushing and swabbing will be based on the number of individual occurrences of casing brushing and swabbing that not incorporated in any other activity, as requested by the County during rehabilitation efforts and assumes that no additional mobilization activities are required.
- B. Payment for casing brushing and swabbing will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials needed for the brushing, swabbing, debris removal, storage, discharge and clearing of turbid water from the well all in accordance with the Contract Documents.

1.10 ITEM 07 - WELL EVALUATION TESTING, WIRE-TO-WATER PUMP EFFICIENCY TEST

- A. Measurement for a wire-to-water pump test will be based on the number of individual occurrences of testing that not incorporated in any other activity, as requested by the County during rehabilitation efforts and assumes that no additional mobilization activities are required.
- B. Payment for a wire-to-water pump test will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, level transducers voltage of each leg with calculation of overall system efficiency with incidentals necessary to perform wire-to-water pump testing and submit a report of results all in accordance with the Contract Documents.
- C. No payment will be made for standby time during pre-pumping static and post-pumping recovery periods, time spent transporting and setting up equipment and facilities, nor time, equipment or materials used in a test aborted due to power failure, malfunction of pumping equipment, potential damages caused by discharge or malfunction of measuring devices.

1.11 ITEM 8 - WELL EVALUATION TESTING, BIOLOGICAL ACTIVITY REACTION TESTS (BART)

- A. Measurement for performance of a BART will be based on the number of individual occurrences of testing that not incorporated in any other activity, as requested by the County during rehabilitation efforts and assumes that no additional mobilization activities are required.
- B. Payment for BART will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials needed to perform BART all in accordance with the Contract Documents.

1.12 ITEM 09 - WELL EVALUATION TESTING, WATER QUALITY SAMPLE AND LABORATORY ANALYSES

- A. Measurement for water quality sample collection and laboratory analyses will be based on the number of individual occurrences of sample collection and analyses that not incorporated in any other activity, as requested by the County during rehabilitation efforts and assumes that no additional mobilization activities are required.
- B. Payment for water sample collection and laboratory analyses will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials needed to collect and analyze the water sample for the parameters listed in Section 02635 – Well Development and Sampling, 3.1A4 all in accordance with the Contract Documents.

1.13 ITEM 10 - WELL EVALUATION TESTING, PRODUCTION SAND TESTING

- A. Measurement for production sand testing will be based on the number of individual sand tests performed that are not incorporated in any other activity as a requirement, as requested by the County during rehabilitation efforts and assumes that no additional mobilization activities are required.
- B. Payment for production sand testing will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials needed to quantify the sand produced during well pumping all in accordance with the Contract Documents.

1.14 ITEM 11 - WELL EVALUATION TESTING, PRODUCTION SDI TESTING (PER WELL; MINIMUM 4 VALID SAMPLES)

- A. Measurement for SDI testing will be based on the number of individual SDI tests performed that are not incorporated in any other activity as requirement, and submittal of the SDI filter disks for the completed test, as requested by the County during rehabilitation efforts and assumes that no additional mobilization activities are required.
- B. Payment for SDI testing will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all SDI equipment, assembly, and materials needed to quantify the silt produced during well pumping all in accordance with the Contract Documents.
- C. The County may independently run SDI testing to verify Contractor results. If County results for the same pump test period differ more than 25 percent from the Contractor's results, the Contractor will not be paid for the unverified test.

1.15 ITEM 12 - WELL EVALUATION TESTING, WATER LEVEL MONITORING WITH PRESSURE TRANSDUCER AND LOGGING UNIT

- A. Measurement for water level monitoring using a pressure transducer and logging unit will be based on the number of individual occurrences of transducer/logging unit installations performed that not incorporated in any other activity, as requested by the County during rehabilitation efforts and assumes that no

additional mobilization activities are required.

- B. Payment for water level monitoring using a pressure transducer and logging unit will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials installed, and removed in a well to monitor water levels and the water level data downloaded from the logging unit and submitted to the County all in accordance with the Contract Documents.
- C. The pre-rehabilitation constant rate test inclusive of monitoring and documentation of pump flow rate and static, pumping and recovery water levels, collection and documentation of sand and silt content, performance and documentation of wire-to- water pump testing, collection and laboratory analysis of water quality sample, and collection and analysis of BARTs testing.

1.16 ITEM 13 - WELL EVALUATION TESTING, TWO-HOUR CONSTANT RATE PUMP TEST WITH CONTRACTOR'S TEST PUMP

- A. Measurement for conducting a two-hour constant rate pump test with the Contractor's pumping facilities will be based on the number of individual occurrences of a 2-hour constant rate test with the Contractor's pumping facilities that are not incorporated in any other activity, as requested by the County during rehabilitation efforts Contractor's pump will be used and no additional mobilization activities are required.
- B. Payment for conducting a two-hour constant rate pump test will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials necessary to record flow, flow rates, field water quality, water levels, and sand and silt production, and summarize and submit recorded pump test information to the County all in accordance with the Contract Documents.
- C. No payment will be made for standby time during pre-pumping static and post-pumping recovery periods, time spent transporting and setting up equipment and facilities, nor time, equipment or materials used in a test aborted due to power failure, malfunction of pumping equipment, potential damages caused by discharge or malfunction of measuring devices.

1.17 ITEM 14 - WELL EVALUATION TESTING, REHABILITATION RECOMMENDATION REPORT

- A. Measurement for the preparation of a rehabilitation recommendation report will be based on the number of reports submitted by the Contractor and accepted by the County.
- B. Payment for the preparation of a rehabilitation recommendation report will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for the summarization of the flow, water level, sand and silt production, water quality, and wire-to-water information collected by

the Contractor during pump testing, Documentation of the pump, pump column, raw water piping and wellhead evaluation findings by the Contractor, documentation, assembly, recommended actions, shop drawings with measurements of the proposed recommendation actions as well with the actual condition, pictures with findings, rehabilitation cost estimate, permits needed, coordination with other agencies or entities, attendance at one meeting, and all in accordance with the Contract Documents.

1.18 ITEM 15 - WELL EVALUATION TESTING, POST REHABILITATION REPORT

- A. Measurement for the preparation of a rehabilitation report will be based on the number of reports submitted by the Contractor and accepted by the County.
- B. Payment for the preparation of a rehabilitation report will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for the summarization of all the efforts involved during the rehabilitation (test, analysis, etc.), description of all implemented rehabilitation actions, shop drawings of the rehabilitated well with measurements, pictures, permits, attendance at one meeting and all in accordance with the Contract Documents.

1.19 ITEM 16 - WELL REHABILITATION PROCEDURES, CASING AND SCREEN/OPEN HOLE JETTING

- A. Measurement for casing and screen/open hole jetting will be based on the number of individual occurrences of jetting operations performed during rehabilitation efforts and authorized by Project Coordinator.
- B. Payment for casing and screen/open hole jetting will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials to jet, circulate, and discharge water as necessary to clean the well all in accordance with the Contract Documents.

1.20 ITEM 17 - ACIDIZATION OF SCREEN/OPEN HOLE INTERVAL

- A. Measurement for acidization of the screen/open hole interval of the well will be based on the number of individual occurrences of acidization operations performed during rehabilitation efforts.
- B. Payment for acidization of the screen/open hole interval of the well will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, holding and mixing tanks, and chemicals as necessary to clean the well and neutralize the discharge all in accordance with the Contract Documents.

1.21 ITEM 18 - WELL REHABILITATION PROCEDURES, CO2 INJECTION INTO THE WELL

- A. Measurement for CO2 injection into the well will be based on the number of individual occurrences of CO2 injection operations performed during rehabilitation efforts and authorized by Project Coordinator.
- B. Payment for CO2 injection will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, all injection licensing required, holding and mixing tanks, gravel, cement, monitoring equipment, and chemicals as necessary to clean the well and neutralize the discharge all in accordance with the Contract Documents.

1.22 ITEM 19 - CHLORINATION WITH SWABBING OF WELL CASING AND SCREEN/OPEN HOLE

- A. Measurement for chlorination of the well with swabbing will be based on the number of individual occurrences of chlorination and swabbing operations performed during rehabilitation efforts and authorized by Project Coordinator.
- B. Payment for chlorination will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, holding and mixing tanks, and chemicals as necessary to clean the well and neutralize the discharge all in accordance with the Contract Documents.

1.23 ITEM 20 - WELL REHABILITATION PROCEDURES, PRESSURE GROUT "CEMENT SQUEEZE"

- A. Measurement for cement squeeze operations will be based on the number of individual occurrences of cement squeeze operations performed during rehabilitation efforts and authorized by Project Coordinator.
- B. Payment for cement squeeze operations will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, installation and removal of gravel, cement basket placement and other processes to place under pressure up to 40 cubic feet of cement as necessary to seal the base of the well casing all in accordance with the Contract Documents.

1.24 ITEM 21- WELL REHABILITATION PROCEDURES, WELL DEVELOPMENT AIRLIFT (COMPLETION REQUIREMENT: SAND <5PPM)

- A. Measurement for airlift development operations will be based on the number of hours spent airlift developing a well following rehabilitation efforts.
- B. Payment for airlift development operations will be made at the per HOUR unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, settling tanks, temporary piping, erosion control measures, testing, and other activities as necessary to develop the well all in accordance with the Contract Documents.

1.25 ITEM 22 - WELL REHABILITATION PROCEDURES, WELL DEVELOPMENT PUMPING (COMPLETION REQUIREMENT: SAND <1PPM;SDI<3)

- A. Measurement for pump development operations will be based on the number of hours spent pump developing a well following rehabilitation efforts.
- B. Payment for pump development operations will be made at the per HOUR unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, settling tanks, temporary piping, erosion control measures, testing, and other activities as necessary to develop the well all in accordance with the Contract Documents.

1.26 ITEM 23 - WELL REHABILITATION PROCEDURES, OPEN HOLE DRILLING AND CLEANING (ASSUME 30 FEET OPEN HOLE FOR 20 WELLS)

- A. Measurement for re-drilling and cleaning the open hole of an existing well will be based on the number of linear feet drilled and cleaned as part of rehabilitation efforts.
- B. Payment for re-drilling and cleaning an existing well open hole will be made at the LINEAR FOOT unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, settling tanks, temporary piping and other activities as necessary to re-drill and clear the well open hole all in accordance with the Contract Documents.

1.27 ITEM 24 - WELL REHABILITATION PROCEDURES, DRILL NEW WELL (ASSUME PILOT AND REAM FOR 6, 24" PRODUCTION WELLS TO 120 FEET)

- A. Measurement for drilling a new 24-inch diameter production well will be based on the number of linear feet of well inclusive of open hole interval are drilled.
- B. Payment for drilling a new 24-inch diameter production well will be made at the LINEAR FOOT unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, drilling rig and crew, settling tanks, temporary piping, lithologic/ core and water sample collection, geophysical logging, casing, casing cementing as described in Section 01010 – Summary of Work, 1.4J and in accordance with all other sections applicable to production well installation as necessary to drill and ream the pilot hole to the selected total depth of the well as determined by the County all in accordance with the Contract Documents.

1.28 ITEM 25 - WELL REHABILITATION PROCEDURES, FURNISH AND INSTALL TEMPORARY DISCHARGE PIPING - ABOVE GRADE

- A. Measurement for furnishing and installing temporary discharge piping above ground will be based on the number of linear feet of temporary discharge piping installed as part of rehabilitation efforts.
- B. Payment for furnishing and installing temporary discharge piping above ground

will be made at the LINEAR FOOT unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, traffic control ramps and other public safety requirements necessary to furnish and install temporary discharge piping above ground all in accordance with the Contract Documents.

1.29 ITEM 26 - WELL REHABILITATION PROCEDURES, FURNISH AND INSTALL TEMPORARY DISCHARGE PIPING – BELOW GRADE

- A. Measurement for furnishing and installing temporary discharge piping below ground will be based on the number of linear feet of temporary discharge piping installed as part of rehabilitation efforts.
- B. Payment for furnishing and installing temporary discharge piping below ground will be made at the LINEAR FOOT unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, excavation, fill, grading, abandonment, removal and other requirements necessary to furnish and install temporary discharge piping below ground and maintain public safety all in accordance with the Contract Documents.

1.30 ITEM 27 - POST-REHABILITATION BASELINE TESTING, 8-HOUR, 4-STEP STEP RATE PUMPING TEST (8 SAND; 8 SDI TESTS)

- A. Measurement for an 8-hour, 4-step step rate pumping test will be based on the number of uninterrupted 8-hour, 4-step step rate pumping tests successfully performed inclusive of a minimum of two silt and sand content tests per step all in accordance with the Contract Documents.
- B. Payment for an 8-hour, 4-step step rate pumping test will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, pumping facilities, meters, readings, field water quality tests, static and recovery periods, documentation and other requirements necessary to complete the step rate pumping test all in accordance with the Contract Documents. The Contractor shall submit a report with the results.
- C. No payment will be made for standby time during pre-pumping static and post-pumping recovery periods, time spent transporting and setting up equipment and facilities, nor time, equipment or materials used in a test aborted due to power failure, malfunction of pumping equipment, potential damages caused by discharge or malfunction of measuring devices.

1.31 ITEM 28 - POST-REHABILITATION BASELINE TESTING, 8-HOUR CONSTANT RATE PUMPING TEST (8 SAND; 8 SDI TESTS; FINAL WQ)

- A. Measurement for an 8-hour constant rate pumping test will be based on the number of uninterrupted 8-hour constant rate pumping tests successfully performed inclusive of a minimum of four silt and sand content tests and laboratory water quality sample all in accordance with the Contract Documents.

- B. Payment for an 8-hour constant rate pumping test will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, pumping facilities, meters, readings, field water quality tests, laboratory water quality sample collection and analyses, static and recovery periods, documentation and other requirements necessary to complete the constant rate test all in accordance with the Contract Documents. The Contractor shall submit a report with the results.
- C. No payment will be made for standby time during pre-pumping static and post-pumping recovery periods, time spent transporting and setting up equipment and facilities, nor time, equipment or materials used in a test aborted due to power failure, malfunction of pumping equipment, potential damages caused by discharge or malfunction of measuring devices.

1.32 ITEM 29 – POST-REHABILITATION BASELINE TESTING, VIDEO SURVEY OF WELL CASING AND OPEN HOLE/SCREEN POST REHABILITATION

- A. Measurement for a video of the well casing and production interval following successful rehabilitation will be based on the number of times a video survey of the well casing and production interval are performed.
- B. Payment for a video of the well casing and production interval will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for the Clearing the well for the video survey, and Performing the post- rehabilitation video survey all in accordance with the Contract Documents. The Contractor shall submit a report with pictures and findings.

1.33 ITEM 30 - POST-REHABILITATION BASELINE TESTING, REINSTALL SURFICIAL WELLHEAD, COLUMN PIPE, AND WELL PUMP WITH MOTOR AND ACCESSORIES

- A. Measurement for reinstallation and reconnection of the County's pump facilities inclusive of wellhead, column pipe and well pump with motor and accessories will be based on the number of individual pump facilities reinstalled and reconnected by the Contractor, as requested by the County, during rehabilitation efforts and assumes that no additional mobilization activities are required.
- B. Payment for reinstallation and reconnection of the County's pump facilities will be made at the per EACH unit price named in the Bid Schedule and submittal of the Well Pump And Motor Identification Information sheet which unit price shall constitute full compensation for all equipment and materials, mobilization, performing all work, cleanup and demobilization with a crane, transportation of items from temporary storage to the site, removing the temporary well cover, reinstalling the surficial wellhead with sanitary seal, column pipe and well pump with motor including level transducers and stilling wells, furnish and install new column gaskets and restraint splines for PVC Certa-Lok or equal column pipe, furnish and install electrical splices, megger test readings before and after installing pump with motor, conduit and electrical connections and

sealing conduits to prevent water from entering electrical panel, coordination of lock-out and tag-out and other all incidentals necessary to complete the work all in accordance with the Contract Documents.

- C. The Well Pump and Motor Identification Information sheet shall include pump facility megger readings before and after removal, length and diameter of column pipe, and depth of level transducer.

1.34 ITEM 31 - POST-REHABILITATION BASELINE TESTING, DISINFECT WELL AND PUMP FACILITIES FOR HEALTH DEPARTMENT CLEARANCE

- A. Measurement for the disinfection of the County's well and pump facilities per ANSI/AWWA C654-03 and FDEP Chapter 62-555, FAC will be based on the number of disinfections performed on County's well and pump facilities reinstalled.
- B. Payment for disinfection of the County's well and pump facilities will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for the equipment and materials, chemicals, holding and mixing tanks, piping, and other activities required to disinfect the County's well and pump facilities all in accordance with the Contract Documents.

1.35 ITEM 32 - POST-REHABILITATION BASELINE TESTING, BACTERIOLOGICAL TESTING FOR HEALTH DEPARTMENT CLEARANCE (EACH EVENT)

- A. Measurement for bacteriological testing for health department clearance will be based on the number of successful events that satisfied health department clearance requirements.
- B. Payment for bacteriological testing for health department clearance will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for the equipment and materials, sample collection and analyses and all other incidentals required to satisfy the health department clearance requirements all in accordance with the Contract Documents.
- C. If health department clearance requirements are not satisfied because of failed test results, the Contractor shall pay all costs associated with the failed test results. If the chain of custody is broken, Bacteriological testing will be performed again at the Contractor's expense.
- D. Bacteriological tests shall be performed as directed by the County once or twice a day, per well, at the specified interval to obtain a Health Department clearance. Sampling shall be done by certified and trained personnel and shall include both weekday and weekend sample collection. The samples shall be properly stored and an unbroken chain of custody shall be established and documented.

1.36 ITEM 33 - WELL RECONFIGURATION, FURNISH AND INSTALL CEMENT WELL PAD, HEAD, SUPPORT OR PEDESTAL

- A. Measurement for furnish and install cement on well pad, head, support or pedestal will be based on the quantity of cubic yard pour during construction efforts.
- B. Payment for furnish and install cement on well pad, head, support or pedestal will be made at the CUBIC YARD unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, formation of a new structure, and all other placement facilities and materials to establish a new well pad all in accordance with the Contract Documents.

1.37 ITEM 34 - WELL RECONFIGURATION, REPLACE EXISTING WELLHEAD WITH NEW 316 SS WITH 8-INCH DIAMETER DISCHARGE

- A. This item would be preceded by the Bid Schedule Item "Disconnect and Remove County's Pump Facilities" and followed by Bid Schedule Item "Reinstall Surficial Wellhead, Column Pipe and Well Pump with Motor and Accessories" above.
- B. Measurement for replacement of an existing wellhead with new 316 Stainless Steel with 8-inch diameter discharge will be based on the number of cement well pads replaced during rehabilitation efforts.
- C. Payment for replacement of an existing wellhead with new 316 Stainless Steel with 8- inch diameter discharge will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials to replace the wellhead and notification to the Health Department fourteen (14) days prior to wellhead replacement all in accordance with the Contract Documents.

1.38 ITEM 35 - WELL RECONFIGURATION, REPLACE EXISTING WELLHEAD WITH NEW 316 SS WITH 10-INCH DIAMETER DISCHARGE

- A. This item would be preceded by the Bid Schedule Item "Disconnect and Remove County's Pump Facilities" and followed by Bid Schedule Item "Reinstall Surficial Wellhead, Column Pipe and Well Pump with Motor and Accessories" above.
- B. Measurement for replacement of an existing wellhead with new 316 Stainless Steel with 10-inch diameter discharge will be based on the number of cement well pads replaced during rehabilitation efforts.
- C. Payment for replacement of an existing wellhead with new 316 Stainless Steel with 10- inch diameter discharge will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials to replace the wellhead and notification to the Health Department fourteen (14) days prior to wellhead replacement all in accordance with the Contract Documents.

1.39 ITEM 36 - WELL RECONFIGURATION, REPLACE EXISTING WELLHEAD WITH NEW 316 SS WITH 12-INCH DIAMETER DISCHARGE

- A. This item would be preceded by the Bid Schedule Item "Disconnect and Remove COUNTY's Pump Facilities" and followed by Bid Schedule Item "Reinstall Surficial Wellhead, Column Pipe and Well Pump with Motor and Accessories" above.
- B. Measurement for replacement of an existing wellhead with new 316 Stainless Steel with 12-inch diameter discharge will be based on the number of cement well pads replaced during rehabilitation efforts.
- C. Payment for replacement of an existing wellhead with new 316 Stainless Steel with 12- inch diameter discharge will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials to replace the wellhead and notification to the Health Department fourteen (14) days prior to wellhead replacement all in accordance with the Contract Documents.

1.40 ITEM 37 - WELL RECONFIGURATION, FURNISH AND INSTALL NEW 3 INCH DIAMETER SS PIPE SUPPORT THEREAD BELL ADJUSTABLE UP TO 4 FEET HEIGHT

- A. Measurement for replacement of an existing pedestal with new 3-inch diameter Stainless Steel pipe support thread bell adjustable up to 4 feet height will be based on the number of pedestals replaced during rehabilitation efforts.
- B. Payment for replacement of an existing pedestal with new 3-inch diameter Stainless Steel pipe support will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials to replace the existing pedestal.

1.41 ITEM 38 - PUMP REHABILITATION/MAINTENANCE PROCEDURES, PUMP MOTOR RETRIEVAL

- A. Measurement for pump motor retrieval will be based on the number of hours spent retrieving pump motors performed by the Contractor.
- B. Payment for pump motor retrieval will be made at the per HOUR unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, crane and crew, video camera, fishing and removal of pump motor, transportation of motor from the well to storage as approved by the County, securing of the wellhead and all other incidentals necessary to retrieve the motor all in accordance with the Contract Documents.

1.42 ITEM 39 - PUMP REHABILITATION/MAINTENANCE PROCEDURES, WELDING ON SITE

- A. Measurement for welding on site by a certified welder will be based on the number of hours spent by a certified welder performing welding services at the well site plus one hour of travel time.

- B. Payment for welding at the site by a certified welder will be made at the per HOUR unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials and certified welders all in accordance with the Contract Documents.

1.43 ITEM 40 - PUMP REHABILITATION/MAINTENANCE PROCEDURES, WELDING AT A MACHINE SHOP

- A. Measurement for welding at a machine shop by a certified welder will be based on the number of hours spent on welding that does not occur at the well site.
- B. Payment for welding off site performed by a certified welder will be made at the per HOUR unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials necessary for welding to occur off site all in accordance with the Contract Documents.

1.44 ITEM 41 - PUMP REHABILITATION/MAINTENANCE PROCEDURES, PUMP DISASSEMBLY AND INSPECTION IN SHOP

- A. Measurement for pump disassembly and inspection in shop will be based on the number of pump dis-assemblies and inspections performed.
- B. Payment for pump disassembly and inspection will be made at the per HOUR unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, delivery from the well site to the shop, disassembly of pump in the shop, preparing a Pump Report and transmitting the report to the County, and all incidentals necessary to inspect the pump all in accordance with the Contract Documents.
- C. Pump Report shall include the well number, pump manufacturer, pump size, pump speed, serial number of pump, photographs, report detailing deficiencies and recommendation for repair with associated costs.

1.45 ITEM 42 - PUMP REHABILITATION/MAINTENANCE PROCEDURES, PUMP MAINTENANCE IN THE SHOP

- A. Measurement for pump maintenance in the shop, which shall follow and not include work accounted for in the pay item above (Pump Disassembly and Inspection), will be based on the number of hours spent performing pump maintenance.
- B. Payment for pump maintenance in the shop will be made at the per HOUR unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials necessary to perform pump maintenance in the shop and delivery the pump back to the Owner all in accordance with the Contract Documents.
- C. Replacement of shafts, bearings, wear rings, adapters, etc. shall be paid for under pay item (Misc. Parts and Fittings Supplied by Contractor) below.

1.46 ITEM 43 - PUMP REHABILITATION/MAINTENANCE PROCEDURES,
TRIM IMPELLER IN THE SHOP

- A. Measurement for trimming an impeller in shop as directed by the County will be based on the number of impellers trimmed.
- B. Payment for impeller trimming in the shop will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials necessary to trim impellers all in accordance with the Contract Documents.

1.47 ITEM 44 - PUMP REHABILITATION/MAINTENANCE PROCEDURES,
PUMP MOTOR MAINTENANCE (ASSUME IN SHOP)

- A. Measurement for pump motor maintenance in the shop will be based on the number of hours spent performing pump maintenance.
- B. Payment for pump motor maintenance in the shop will be made at the per HOUR unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials necessary to deliver the motor from the well site to the motor shop, perform pump motor maintenance in the shop and delivery the pump motor back to the County all in accordance with the Contract Documents.
- C. Examples of work shall include but not be limited to, motor diagnostics and disassembly; if motor is acceptable for use then work shall include but not be limited to re-potting connections in motor or re-splicing cables.

1.48 ITEM 45 - PUMP REHABILITATION/MAINTENANCE PROCEDURES, FURNISH
AND INSTALL SS WELL MOTOR SAFETY CABLES AND APPURTENANCES
60' TO 80' DEEP

- A. Measurement for furnishing and Installing stainless steel well motor safety cables and appurtenances up to 80' deep will be based on the number of installations of stainless steel well motor safety cables performed.
- B. Payment for pump furnished and installed stainless steel well motor safety cables will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials, welding and fastening, and other incidentals necessary to furnish and Install stainless steel well motor safety cables all in accordance with the Contract Documents.

1.49 ITEM 46 - SITE RESTORATION, SITE GRADING (BULLDOZER AND CREW)

- A. Measurement for the performance of site grading with a bulldozer and crew will be based on the number of hours spent performing site grading.
- B. Payment for the performance of site grading with a bulldozer and crew will be made at the per HOUR unit price named in the Bid Schedule which unit price

shall constitute full compensation for all equipment, materials and crew necessary to perform site grading all in accordance with the Contract Documents.

1.50 ITEM 47 - SITE RESTORATION, SOD REPLACEMENT WITH CREW

- A. Measurement for sod replacement with a crew will be based on the number of square yards of sod placed.
- B. Payment for sod replacement with crew will be made at the per SQUARE YARD unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment, materials and crew necessary to re-sod areas disturbed by the Contractor or as required by the County all in accordance with the Contract Documents.

1.51 ITEM 48 - SITE RESTORATION, SITE FILL MATERIAL

- A. Measurement for site fill material will be based on the number of cubic yards of fill material delivered to the site.
- B. Payment for site fill material will be made at the per CUBIC YARD unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment, materials to unload clean fill material approved by the County all in accordance with the Contract Documents.

1.52 ITEM 49 – MISCELLANEOUS, ON SITE EMERGENCY SITE EVALUATION MEETING

- A. Measurement for an on-site emergency site evaluation meeting will be based on the number of on-site emergency evaluation meetings requested by the County that occur outside of normal progress meetings as defined in Section 01010 – Summary of Work.
- B. Payment for on-site emergency evaluation meetings will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all travel, photographs, analysis and recommendations provided to the County all in accordance with the Contract Documents.

1.53 ITEM 50 - MISCELLANEOUS, MOBILIZE DRILLING RIG AND CREW TO PERFORM EXTRA WORK

- A. Due to the nature of this work, the County may require the Contractor to mobilize a drilling rig, crew, and equipment to perform work not contained within these Specifications. In such an event, the County will notify the Contractor in writing of the work to be performed.
- B. Payment for furnishing drilling rig, crew, and equipment to perform extra work will be made based on County written approval at the unit price per EACH, named in the Bid Schedule, which unit price shall constitute full payment for the WORK.

1.54 ITEM 51 - MISCELLANEOUS, GEOPHYSICAL LOGGING SUITE (XY CALIPER, SP, 16/64 INCH NORMAL RESISTIVITY, GAMMA RAY)

- A. Measurement for payment for Geophysical Logging Suite in the pilot hole to approximately 150 feet bls shall be based on the number of times this event occurs in accordance with Section 02633 – Geophysical Logging of the Contract Documents.
- B. Payment for geophysical logging suite in the pilot hole to approximately 150 feet bls will be made at the unit price per EACH named in the Bid Schedule, which shall constitute full compensation for the completed logging all in accordance with Section 02633 – Geophysical Logging of the Contract Documents.

1.55 ITEM 52 - MISCELLANEOUS, DYNAMIC GEOPHYSICAL LOGGING SUITE (DYNAMIC FLOW AND VIDEO LOG)

- A. Measurement for payment for dynamic geophysical logging suite in the pilot hole to approximately 150 feet bls shall be based on the number of times this event occurs in accordance with Section 02633 – Geophysical Logging of the Contract Documents.
- B. Payment for dynamic geophysical logging suite in the pilot hole to approximately 150 feet bls will be made at the unit price per EACH named in the Bid Schedule, which shall constitute full compensation for the completed logging all in accordance with Section 02633 – Geophysical Logging of the Contract Documents.

1.56 ITEM 53 - MISCELLANEOUS, FURNISH AND INSTALL 14-INCH DIAMETER CERTA-LOK OR EQUAL

- A. Measurement for furnishing and installing 14-inch diameter Certa-Lok or equal well casing will be based on the number of linear feet of well casing installed in the well.
- B. Payment for furnishing and installing 14-inch diameter Certa-Lok or equal well casing will be made at the LINEAR FOOT unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials necessary to install casing to the depth specified by the County all in accordance with the Contract Documents.

1.57 ITEM 54 - MISCELLANEOUS, FURNISH AND INSTALL 17.4-INCH DIAMETER CERTA-LOK OR EQUAL

- A. Measurement for furnishing and installing 17.4-inch diameter Certa-Lok or equal well casing will be based on the number of linear feet of well casing installed in the well.
- B. Payment for furnishing and installing 17.4-inch diameter Certa-Lok or equal well casing will be made at the LINEAR FOOT unit price named in the Bid Schedule

which unit price shall constitute full compensation for all equipment and materials necessary to install casing to the depth specified by the County all in accordance with the Contract Documents.

1.58 ITEM 55 - MISCELLANEOUS, FURNISH AND INSTALL 24-INCH DIAMETER CERTA-LOK OR EQUAL

- A. Measurement for furnishing and installing 24-inch diameter Certa-Lok or equal well casing will be based on the number of linear feet of well casing installed in the well.
- B. Payment for furnishing and installing 24-inch diameter Certa-Lok or equal well casing will be made at the LINEAR FOOT unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials necessary to install casing to the depth specified by the County all in accordance with the Contract Documents.

1.59 ITEM 56 - MISCELLANEOUS, JOHNSON SCREENS SERVICES - SCREEN SLOT AND GRAVEL PACK EVALUATION

- A. Measurement for use of Johnson Screens services or equal to recommend screen slot size and gravel pack material will be based on the number of times screen slot size and gravel pack material recommendations are requested.
- B. Payment for use of Johnson Screens services or equal to recommend screen slot size and gravel pack material will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all cutting sample packaging and shipping, coordination, and results submittal and explanation to the County all in accordance with the Contract Documents.

1.60 ITEM 57 - MISCELLANEOUS, FURNISH AND INSTALL WIRE-WOUND 316 STAINLESS STEEL 14-INCH DIAMETER SCREEN

- A. Measurement for furnishing and installing wire-wound 316 SS 14-in diameter screen will be based on the number of linear feet of well casing installed in the well.
- B. Payment for furnishing and installing wire-wound 316 SS 14-in diameter screen will be made at the LINEAR FOOT unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials necessary to attach well screen to Certa-Lok PVC riser, and install screen to the depth specified by the County all in accordance with the Contract Documents.

1.61 ITEM 58 - MISCELLANEOUS, FURNISH AND INSTALL WIRE-WOUND 316 STAINLESS STEEL 17.4-INCH DIAMETER SCREEN

- A. Measurement for furnishing and installing wire-wound 316 SS 17.4-in diameter screen will be based on the number of linear feet of well casing installed in the

well.

- B. Payment for furnishing and installing wire-wound 316 SS 17.4-in diameter screen will be made at the LINEAR FOOT unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials necessary to attach well screen to Certa-Lok PVC riser, and install screen to the depth specified by the County all in accordance with the Contract Documents.

1.62 ITEM 59 - MISCELLANEOUS, FURNISH AND INSTALL WIRE-WOUND 316 STAINLESS STEEL 24-INCH DIAMETER SCREEN

- A. Measurement for furnishing and installing wire-wound 316 SS 24-in diameter screen will be based on the number of linear feet of well casing installed in the well.
- B. Payment for furnishing and installing wire-wound 316 SS 24-in diameter screen will be made at the LINEAR FOOT unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials necessary to attach well screen to Certa-Lok PVC riser, and install screen to the depth specified by the County all in accordance with the Contract Documents.

1.63 ITEM 60 - MISCELLANEOUS, FURNISH AND INSTALL POTABLE WATER DIP FITTINGS

- A. Measurement for payment to furnish and install Ductile Iron Pipe - DIP fittings shall be based on the number of tons of fittings furnished and installed, all in accordance with the Bid Documents.
- B. Payment for furnishing and installing fittings will be made at the unit price per TON named in the Bid schedule, which shall constitute full compensation for the complete operation including but limited to, transportation, storing, all labor, materials, transportation, equipment, sheeting, shoring, bracing, dewatering, backfill, compaction, grading, accessory sets, restraining devices, protection of potable water system, disinfection, restoration and all other items required for a complete, acceptable and operable installation. Potable water main and fittings shall be cement lined and seal coated which shall meet or exceed AWWA/ANSI C104/A21.4, latest revision.

1.64 ITEM 61 - MISCELLANEOUS, GRAVEL FILL (CLEAN LIMESTONE)

- A. Measurement for limestone gravel fill material will be based on the number of cubic feet of fill material furnished and installed in the borehole.
- B. Payment for limestone gravel fill material will be made at the per CUBIC FOOT unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment, materials to furnish and install fill material as approved by the County in the borehole all in accordance with the Contract Documents.

1.65 ITEM 62 - MISCELLANEOUS, GRAVEL FILL (6/20 SAND)

- A. Measurement for 6/20 sand fill material will be based on the number of cubic feet of fill material furnished and installed in the borehole.
- B. Payment for 6/20 sand fill material will be made at the per CUBIC FOOT unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment, materials to furnish and install fill material as approved by the County in the borehole all in accordance with the Contract Documents.

1.66 ITEM 63 - MISCELLANEOUS, PRIMARY & SECONDARY WATER QUALITY LABORATORY ANALYSIS (CHP 62-550, FAC)

- A. Measurement for payment of collection and analysis of a water quality sample for FDEP Chapter 62-550, FAC Drinking Water Standards and Unregulated Compound parameters shall be based on the number of FDEP Chapter 62-550, FAC Primary and Secondary Drinking Water Standards and Unregulated Compound sets collected and analyzed by a FDEP Certified Laboratory.
- B. Payment for the collection and analyses of FDEP Chapter 62-550, FAC Drinking Water Standards and Unregulated Compound sets will be made at the per EACH unit price named in the Bid Schedule, which shall constitute full compensation for collection and analyses of water quality laboratory samples, as directed by the County all in accordance with the Contract Documents

1.67 ITEM 64 - MISCELLANEOUS, FURNISH AND INSTALL 2-INCH DIAMETER SCHEDULE 40 PVC CASING

- A. Measurement for furnishing and installing 2-inch diameter schedule 40 PVC or equal riser pipe will be based on the number of linear feet of riser pipe installed in the borehole.
- B. Payment for furnishing and installing 2-inch diameter schedule 40 PVC riser pipe will be made at the LINEAR FOOT unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials necessary to install the riser pipe to the depth specified by the County all in accordance with the Contract Documents.

1.68 ITEM 65 - MISCELLANEOUS, FURNISH AND INSTALL 2-INCH DIAMETER SCHEDULE 40 PVC 10- SLOT SCREEN

- A. Measurement for furnishing and installing 2-inch diameter schedule 40 PVC or equal 10-slot screen will be based on the number of linear feet of riser pipe installed in the borehole.
- B. Payment for furnishing and installing 2-inch diameter schedule 40 PVC 10-slot screen will be made at the LINEAR FOOT unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials

necessary to furnish and install a length of screen specified by the County on the end of the riser pipe all in accordance with the Contract Documents.

1.69 ITEM 66 - MISCELLANEOUS, FURNISH AND INSTALL 6-INCH DIAMETER PROTECTIVE MONITOR WELL WELLHEAD, PAD, AND LOCKING CAP

- A. Measurement for furnishing and installing a 6-inch diameter schedule 80 PVC or equal protective monitor well wellhead, pad and locking cap will be based on the number of installations performed by the CONTRACTOR at the direction of the County.
- B. Payment for furnishing and installing a 6-inch diameter schedule 80 PVC or equal protective monitor well wellhead, pad and locking cap will be made at the per EACH unit price named in the Bid Schedule which unit price shall constitute full compensation for all equipment and materials necessary to furnish and install a 6-inch diameter schedule 80 PVC or equal protective monitor well wellhead, pad and locking cap as specified by the County all in accordance with the Contract Documents.

1.70 ITEM 67 - MISCELLANEOUS, ABANDON EXISTING WELLHEAD PEDESTALS AND WELL PADS

- A. Measurement for the abandonment, demolish and removal, of existing wellhead pedestals shall be based on the cubic yards of wellhead pedestals abandon approximately 18 inches below grade and removal of all concrete well pads in accordance with the Contract Documents and deemed satisfactory by the County.
- B. Payment for the removal of existing wellheads will be made at the per CUBIC YARD unit price named in the Bid Schedule, which shall constitute full compensation for the removal of all concrete pedestal type wellheads and concrete well pads to 18 inches below ground all in accordance with the Contract Documents.

1.71 ITEM 68 - MISCELLANEOUS, ABANDON EXISTING WELL VAULTS

- A. Measurement for payment for the abandonment of existing well vaults shall be based on the number of well vaults abandon by reduction of vault walls to approximately 18 inches below grade and filling of vault with clean fill in accordance with the Contract Documents and deemed satisfactory by the County.
- B. Payment for the abandonment of existing well vaults shall be based on the number of well vaults abandon will be made at the per EACH unit price named in the Bid Schedule, which shall constitute full compensation for reduction of vault walls to approximately 18 inches below grade and filling of vault with clean fill as directed by the County all in accordance with the Contract Documents.

1.72 ITEM 69 - MISCELLANEOUS, REMOVE AND REPLACE FENCING TO

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BROWARD COUNTY

MEASUREMENT AND PAYMENT

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ORIGINAL CONDITION

- A. Measurement for the removal and replace of fencing around a well shall be based on the quantity of linear foot of fence performed by the Contractor in accordance with the Contract Documents and deemed satisfactory by the County. The replacement shall include the furnishing and installation of fencing materials.
- B. Payment for the removal and replacement of fencing around a well will be made at the LINEAR FOOT unit price named in the Bid Schedule upon completion of the work, which shall constitute full compensation for removal and replace of fencing around a well as directed by the County all in accordance with the Contract Documents.
- C. For purposes of partial payment, removal of the fence shall constitute 40 percent of the unit price and reinstallation shall be considered 60 percent of the unit price.

1.73 ITEM 70 - MISCELLANEOUS, PROJECT MANAGER

- A. Measurement for payment for project manager will be based upon actual quantity; hours of labor, of such services. The price shall be full compensation for furnishing transportation, labor, materials, equipment, tests, estimates, proposal, services, permits, tools, supplies, fuel, power, water, essential communications and incidentals necessary to complete the item, all in accordance with the requirements of the Contract Documents.
- B. Payment for labor services will be made at the unit price per HOUR named in the Bid Schedule, which shall constitute full compensation for the complete service, including but not limited to field time, drawings, design, permitting, submittals, estimating and all services related to engineering services. All labor hourly rates shall be pro-rated into quarter hours. Only time on job site shall be invoiced. Partial hours worked are to be billed to the closest quarter hour increments. For example 1 to 15 minutes is equal to ¼ hour; 16-30 minutes is equal to ½ hour, etc.

1.74 ITEM 71 - MISCELLANEOUS, FOREMAN

- A. Measurement for the services of foreman to perform work as approved by the County shall be based on number of hours spent doing work in accordance with the Contract Documents.
- B. Payment for the services for a foreman to perform work will be made at the per HOUR unit price named in the Bid Schedule, which shall constitute full compensation for the services to perform work as approved by the County all in accordance with the Contract Documents. All labor hourly rates shall be pro-rated into quarter hours. Only time on job site shall be invoiced. Partial hours worked are to be billed to the closest quarter hour increments. For example 1 to

15 minutes is equal to ¼ hour; 16-30 minutes is equal to ½ hour, etc.

1.75 ITEM 72 - MISCELLANEOUS, LABORER

- A. Measurement for the services of laborer to perform work as approved by the County shall be based on number of hours spent doing work in accordance with the Contract Documents.
- B. Payment for the services of a laborer to perform work will be made at the per HOUR unit price named in the Bid Schedule, which shall constitute full compensation for the services of a two-man crew to perform work as approved by the County all in accordance with the Contract Documents. All labor hourly rates shall be pro-rated into quarter hours. Only time on job site shall be invoiced. Partial hours worked are to be billed to the closest quarter hour increments. For example 1 to 15 minutes is equal to ¼ hour; 16-30 minutes is equal to ½ hour, etc.

1.76 ITEM 73 - MISCELLANEOUS, CONTRACTOR-OWNED CRANE TRUCK AND CREW

- A. Measurement for the services of a Contractor-owned crane truck and crew to perform work as approved by the County shall be based on number of hours spent doing work in accordance with the Contract Documents.
- B. Payment for the services of a Contractor-owned crane truck and crew to perform work will be made at the per HOUR unit price named in the Bid Schedule, which shall constitute full compensation for the services of a Contractor-owned crane truck and crew to perform work as approved by the County all in accordance with the Contract Documents.

1.77 ITEM 74 - MISCELLANEOUS, RENTAL CRANE TRUCK COMPANY AND CREW

- A. Measurement for the services of a crane truck company and crew to perform work as approved by the County shall be based on number of hours spent doing work in accordance with the Contract Documents.
- B. Payment for the services of a crane truck company and crew to perform work will be made at the per HOUR unit price named in the Bid Schedule, which shall constitute full compensation for the services of a crane truck company and crew to perform work as approved by the County all in accordance with the Contract Documents.

1.78 ITEM 75 - MISCELLANEOUS, OWNER-DIRECTED STAND-BY TIME

- A. Measurement for payment for Owner-directed standby time will be based upon the number of hours the Contractor waits for work to continue at the direction of the County in accordance with the Contract Documents.

- B. Payment for standby time will be made at the unit price per HOUR, named in the Bid Schedule, which unit price shall constitute full payment for the number of hours spent on standby as directed by the County all in accordance with the Contract Documents. For all items, this includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc., necessary to remain on standby in accordance with the Contract Documents.

1.79 ITEM 76 - MISCELLANEOUS, OWNER-DIRECTED STAND-BY TIME FOR EQUIPMENT ONLY

- A. Measurement for payment for an Owner-directed standby time of equipment only will be based upon the number of hours with only equipment waiting for work to continue onsite at the direction of the County in accordance with the Contract Documents.
- B. Payment for standby time will be made at the unit price per HOUR, named in the Bid Schedule, which unit price shall constitute full payment for County-directed equipment standby time all in accordance with the Contract Documents. For all items, this includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc., necessary for equipment to remain on standby in accordance with the Contract Documents.

- END OF SECTION -

SECTION 01070 - ABBREVIATIONS

PART 1 -- GENERAL

1.1 GENERAL

- A. Wherever in these Specifications references are made to the standards, specifications, or other published data of the various international, national, regional, or local organizations, such organizations may be referred to by their acronym or abbreviation only. As a guide to the user of the Specifications, the following acronyms or abbreviations which may appear shall have the meanings indicated herein.

1.2 ABBREVIATIONS

| | |
|--------|--|
| AA | Aluminum Association |
| AAMA | American Architectural Manufacturers Association |
| AASHTO | American Association of State Highway and Transportation Officials |
| AAR | Association of American Railroads |
| AATCC | American Association of Textile Chemists and Colorists |
| ABMA | American Bearing Manufacturer's Association – ABMA |
| ACGIH | American Conference of Governmental Industrial Hygienists |
| ACI | American Concrete Institute |
| AF&PA | American Forest and Paper Association |
| AGA | American Gas Association |
| AGMA | American Gear Manufacturers Association |
| AHA | American Hardboard Association |
| AHAM | Association of Home Appliance Manufacturers |
| AI | The Asphalt Institute |
| AIA | American Institute of Architects |
| AIHA | American Industrial Hygiene Association |
| AIIM | Association for Information and Image Management |
| AISC | American Institute of Steel Construction |
| AISI | American Iron and Steel Institute |
| AITC | American Institute of Timber Construction |
| ALS | Above Land Surface |
| AMCA | Air Movement and Control Association International, Inc |
| ANS | American Nuclear Society |
| ANSI | American National Standards Institute, Inc. |
| APA | The Engineered Wood Association |
| API | American Petroleum Institute |
| APT | Aquifer Performance Test |
| APWA | American Public Works Association |
| ARI | Air-Conditioning and Refrigeration Institute |
| ASA | Acoustical Society of America |
| ASAE | American Society of Agricultural Engineers |
| ASCE | American Society of Civil Engineers |
| ASHRAE | American Society of Heating, Refrigerating, and Air Conditioning Engineers |

| | |
|--------|--|
| ASME | American Society of Mechanical Engineers |
| ASNT | American Society of Nondestructive Testing |
| ASQ | American Society for Quality |
| ASSE | American Society of Sanitary Engineers ASTM American Society for Testing and Materials AWCI American Wire Cloth Institute |
| AWI | Architectural Woodwork Institute |
| AWPA | American Wood Preservers Association |
| AWPI | American Wood Preservers Institute |
| AWS | American Welding Society |
| AWWA | American Water Works Association |
| BBC | Basic Building Code, Building Officials and Code Administrators International |
| BHMA | Builders Hardware Manufacturer's Association |
| CABO | Council of American Building Officials |
| CDA | Copper Development Association |
| CEMA | Conveyors Equipment Manufacturer's Association |
| CGA | Compressed Gas Association |
| CLFMI | Chain Link Fence Manufacturer's Institute |
| CLPCA | California Lathing and Plastering Contractors Association |
| CMAA | A division/section of the Material Handling Industry of America |
| CRSI | Concrete Reinforcing Steel Institute |
| DASMA | Door and Access Systems Manufacturers Association International |
| DCDMA | Diamond Core Drilling Manufacturer's Association |
| DHI | Door and Hardware Institute |
| DIPRA | Ductile Iron Pipe Research Association |
| EI | Energy Institute |
| EIA | Electronic Industries Alliance |
| EPA | Environmental Protection Agency |
| ETL | Electrical Test Laboratories |
| FCC | Federal Communications Commission |
| FCI | Fluid Controls Institute |
| FDEP | Florida Department of Environmental Protection |
| FEMA | Federal Emergency Management Association |
| FHWA | Federal Highway Administration |
| FM | Factory Mutual System |
| FPL | Forest Products Laboratory |
| FRP | Fiberglass Reinforced Plastic |
| HI | Hydronics Institute, Hydraulic Institute |
| HSWA | Federal Hazardous and Solid Waste Amendments |
| IADC | International Association of Drilling Contractors |
| IAPMO | International Association of Plumbing and Mechanical Officials |
| ICBO | International Conference of Building Officials |
| IBC | International Building Code |
| ICC | International Code Council |
| ICEA | Insulated Cable Engineers Association |
| ICCEC | Electrical Code |
| ICC-ES | International Code Council Evaluation Service |
| IEEE | Institute of Electrical and Electronics Engineers |
| IESNA | Illuminating Engineering Society of North America |
| IFC | International Fire Code |

| | |
|--------|---|
| IFGC | International Fuel Gas Code |
| IMC | International Mechanical Code |
| IME | Institute of Makers of Explosives |
| IPC | International Plumbing Code, Association Connecting Electronic Industries |
| IRC | International Residential Code |
| ISA | Instrument Society of America |
| ISDI | Insulated Steel Door Institute |
| ISEA | Industrial Safety Equipment Association |
| ISO | International Organization for Standardization |
| ITE | Institute of Traffic Engineers |
| ITU-T | Telecommunications Standardization Sector of the International Telecommunications Union |
| LPI | Lightning Protection Institute |
| LRQA | Lloyd's Register Quality Assurance |
| MBMA | Metal Building Manufacturer's Association |
| MIL | Military Standards (DoD) |
| MPTA | Mechanical Power Transmission Association |
| MSS | Manufacturers Standardization Society |
| NAAMM | National Association of Architectural Metal Manufacturer's |
| NACE | National Association of Corrosion Engineers |
| NAPF | National Association of Pipe Fabricators |
| NBBPVI | National Board of Boiler and Pressure Vessel Inspectors |
| NCCLS | National Committee for Clinical Laboratory Standards |
| NCMA | National Concrete Masonry Association |
| NEC | National Electrical Code |
| NEMA | National Electrical Manufacturer's Association |
| NETA | International Electrical Testing Association |
| NFPA | National Fire Protection Association or National Fluid Power Association |
| NISO | National Information Standards Organization |
| NIST | National Institute of Standards and Technology |
| NLGI | National Lubricating Grease Institute |
| NRCA | National Roofing Contractors Association |
| NSF | National Sanitation Foundation |
| NWWDA | National Wood Window and Door Association |
| OSHA | Occupational Safety and Health Administration |
| PCA | Portland Cement Association |
| PCI | Precast/Prestressed Concrete Institute |
| PPI | Plastic Pipe Institute |
| QPL | Qualified Products List |
| RCRA | Resource Conservation and Recovery Act |
| RIS | Redwood Inspection Service, a division of the California Redwood Association, CRA |
| RMA | Rubber Manufacturers Association |
| ROW | Right-of-Way |
| RVIA | Recreational Vehicle Industry Association RWMA |
| SAE | Resistance Welder Manufacturer's Association |
| SDI | Society of Automotive Engineers |
| | Steel Door Institute, Steel Deck Institute |

| | |
|--------|---|
| SMA | Screen Manufacturers Association |
| SMACNA | Sheet Metal and Air Conditioning Contractors National Association |
| SPFA | Steel Plate Fabricator's Association |
| SFWMD | South Florida Water Management District |
| SPIB | Southern Pine Inspection Bureau |
| SSBC | Southern Standard Building Code, Southern Building Code Congress |
| SSPC | Society for Protective Coating |
| SSPWC | Standard Specifications for Public Works Construction |
| STLE | Society of Tribologists and Lubricating Engineers |
| TAPPI | Technical Association of the Worldwide Pulp, Paper, and Converting Industry |
| TCP | Traffic Control Plan |
| TCLP | Toxicity Characteristic Leaching Procedure |
| TFI | The Fertilizer Institute |
| TIA | Telecommunications Industries Association |
| TPI | Truss Plate Institute |
| UBC | Uniform Building Code |
| UL | Underwriters Laboratories, Inc. |
| WCLIB | West Coast Lumber Inspection Bureau |
| WDMA | National Window and Door Manufacturers Association |
| WEF | Water Environment Federation |
| WI | Woodwork Institute |
| WRI | Wire Reinforcement Institute, Inc. |
| WWPA | Western Wood Products Association |

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

- END OF SECTION -

SECTION 01090 - REFERENCE STANDARDS

PART 1 -- GENERAL

1.1 GENERAL

- A. **Titles of Sections and Paragraphs:** Titles and subtitles accompanying specification sections and paragraphs are for convenience and reference only, and do not form a part of the Specifications.
- B. **Applicable Publications:** Whenever in these Specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the contract is advertised for bids shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth in the Specifications or shown on Drawings will be waived because of any provision of, or omission from, said standards or requirements.
- C. **Specialists, Assignments:** In certain instances, specification text requires (or implies) that specific work is to be assigned to specialists or expert entities, who must be engaged for the performance of that work. Such assignments shall be recognized as special requirements over which the Contractor has no choice or option. These requirements shall not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the WORK; also they are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of work is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of contract requirements remains with the Contractor.

1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. The Contractor shall construct the WORK in accordance with the Contract Documents and the referenced portions of those referenced codes, standards, and specifications.
- B. References herein to "Building Code" or "Standard Building Code" shall mean the Florida Building Code (FBC), 2010. Similarly, references to "Mechanical Code" or "Uniform Mechanical Code," "Plumbing Code" or "Uniform Plumbing Code," "Fire Code" or "Uniform Fire Code," shall mean FBC. "Florida Hurricane Code" shall mean the FBC. "Electric Code" or "National Electric Code (NEC)" shall mean the NEC of the National Fire Protection Association (NFPA). "Roadway and Traffic Design Standards" and "Standard Specifications for Road and Bridge Construction, latest edition" (Green Book)" shall mean the Design Standards and

Specifications of the Florida Department of Transportation. "Land Use and Development Regulations" shall mean the land use and development regulations of the Broward County Planning and Redevelopment Division. The latest edition of the codes as approved by the Municipal Code and used by the local agency as of the date that the WORK is advertised for Bids shall apply to the WORK herein, including all addenda, modifications, amendments, or other lawful changes thereto.

- C. In case of conflict between codes, reference standards, drawings, and the other contract documents, the most stringent requirements shall govern. All conflicts shall be brought to the attention of the County for clarification and directions prior to ordering or providing any materials or furnishing labor. The Contractor shall bid for the most stringent requirements.
- D. References herein to "OSHA Regulations for Construction" shall mean **Title 29, Part 1926, Construction Safety and Health Regulations**, Code of Federal Regulations(OSHA), including all changes and amendments thereto.
- E. References herein to "OSHA Standards" shall mean **Title 29, Part 1910, Occupational Safety and Health Standards**, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- F. Applicable Standard Specifications: References in the Contract Documents to "Standard Specifications" or SSPWC shall mean the Standard Specifications for Public Works Construction, 2012 Edition.

1.3 REGULATIONS RELATED TO HAZARDOUS MATERIALS

- A. The Contractor shall be responsible that all work included in the Contract Documents, regardless if shown or not, shall comply with all EPA, OSHA, RCRA, NFPA, and any other federal, state, and local regulations governing the storage and conveyance of hazardous materials, including petroleum products.
- B. Where no specific regulations exist, chemical, hazardous, and petroleum product piping and storage in underground locations shall be installed with double containment piping and tanks, or in separate concrete trenches and vaults, or with an approved lining which cannot be penetrated by the chemicals, unless waived in writing by the COUNTY.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

- END OF SECTION -

SECTION 01300 - SUBMITTALS

PART 1 -- GENERAL

1.1 GENERAL

- A. Wherever submittals are required in the Contract Documents, unless otherwise specified the Contractor shall submit two hard copies and one reproducible electronic copy to the County.
 - 1. A list of permits and licenses the Contractor shall obtain, indicating the granting agency, the fee (if applicable), the expected date of application submittal, and required date for receipt of the permit should be provided to the County and within seven days of contract award.
 - 2. Prior to site Pre-Construction Meetings for each site the Contractor is required to provide the following information to the County:
 - a. A contact list that shall include the Contractor's key personnel and County, their titles and telephone numbers for office and mobile, and home or local residences.
 - b. A written inventory of the type of vehicles, construction equipment, other machinery and materials which will be located at each work site.
 - c. A site plan for each site showing the intended placement of vehicles, construction equipment, other machinery and materials.
 - 3. A project overview bar chart will be submitted to the County at least five days prior to site Preconstruction Meetings in accordance with Section 01311 – Bar chart Construction Schedule.

1.2 PRECONSTRUCTION MEETING SUBMITTALS

- A. Site Preconstruction Meetings will take place after all permits for work at the site have been received and following issuance by the Owner of a Contractor Purchase Order or work order.
- B. At site preconstruction meetings, the Contractor shall submit the following items to the County for review:
 - 1. A preliminary schedule of Shop Drawings, Samples, and proposed Substitute ("Or- Equal") submittals listed in the Bid.
 - 2. A list of proposed subcontractors to be used to perform work tasks.
 - 3. A list of proposed equipment, vendors and material specifications to be used.
 - 4. A preliminary schedule of values.

5. A 60-day plan of operation in accordance with Section 01311 - Barchart Construction Schedule.
6. A mobilization plan including individual site layout plans with a clearly delineated construction area, proposed access routes, traffic control plan, and areas identified as access only (no construction related activities shall be conducted).

1.3 SHOP DRAWINGS

- A. Wherever called for in the Contract Documents or where required by the County, the Contractor shall furnish to the County for review two hard copies plus one electronic copy of each Shop Drawing submittal.
- B. The term "Shop Drawings" as used herein shall be understood to include detail design calculations, permits, shop-prepared drawings, fabrication and installation drawings, erection drawings, lists, graphs, catalog sheets, data sheets, well completion reports, and similar.
- C. Whenever the Contractor is required to submit design calculations as part of a submittal, such calculations shall bear the signature and seal of an engineer registered in the State of Florida.
- D. Transmittal Form
 1. Shop Drawing submittals shall be accompanied by the County's standard submittal transmittal form, a reproducible copy of which is available from the County.
 2. Any submittal not accompanied by such a form, or where the form is incomplete, will be returned for re-submittal.
- E. Organization
 1. Use a single submittal transmittal form for each technical specification Section or item or class of material or equipment for which a submittal is required.
 2. A single submittal covering multiple sections will not be acceptable, unless the primary specification references other sections for components. Example: if a pump section references other sections for the motor, shop-applied protective coating, anchor bolts, local control panel, and variable frequency drive, a single submittal would be acceptable. A single submittal covering vertical turbine pumps and horizontal split case pumps would not be acceptable.
 3. On the transmittal form, index the components of the submittal and insert tabs in the submittal to match the components.
 4. Relate the submittal components to specification paragraph and subparagraph, Drawing number, detail number, schedule title, room number, or building name, as applicable.

5. Unless indicated otherwise, terminology and equipment names and numbers used in submittals shall match those used in the Contract Documents.

F. Format

1. Minimum sheet size shall be 8.5 inches by 11 inches. Maximum sheet size shall be 24 inches by 36 inches. Every page in a submittal shall be numbered in sequence. Each copy of a submittal shall be collated and stapled or bound, as appropriate. The County will not collate copies.
2. Where product data from a manufacturer is submitted, clearly mark which model is proposed, with all pertinent data capacities, dimensions, clearances, diagrams, controls, connections, anchorage, and supports. Sufficient level of detail shall be presented for assessment of compliance with the Contract Documents.
3. Each submittal shall be assigned a unique number. Submittals shall be numbered sequentially. The submittal numbers shall be clearly noted on the transmittal. Original submittals shall be assigned a numeric submittal number. Re-submittals shall bear an alpha-numeric system which consists of the number assigned to the original submittal for that item, followed by a letter of the alphabet to represent that it is a subsequent re-submittal of the original. For example, if submittal 25 requires a re-submittal, the first re-submittal will bear the designation "25-A" and the second re-submittal will bear the designation "25-B" and so on.

- G. Disorganized submittals, which do not meet the requirements above, will be returned without review.
- H. Except as may otherwise be indicated herein, the County will return prints of each submittal to the Contractor with comments noted thereon, within fifteen (15) calendar days following receipt by the County as stated in 007200 General Conditions, Subsection 45.6. It is considered reasonable that the Contractor shall make a complete and acceptable submittal to the County by the first re-submittal on an item. The Owner reserves the right to withhold monies due to the Contractor to cover additional costs of the County's review beyond the first re-submittal. The County's maximum review period for each submittal or re-submittal will be fifteen (15) days.
- I. If a submittal is returned to the Contractor marked "NO EXCEPTIONS TAKEN," formal revision and resubmission will not be required.
- J. If a submittal is returned marked "MAKE CORRECTIONS NOTED," CONTRACTOR shall make the corrections on the submittal, but formal revision and resubmission will not be required.
- K. If a submittal is returned marked "AMEND-RESUBMIT," the Contractor shall revise it and shall resubmit the required number of copies to the County for review. Re-submittal of portions of multi-page or multi-drawing submittals will not be allowed. For example, if a Shop Drawing submittal consisting of ten drawings

and contains one drawing noted as "AMEND - RESUBMIT," the submittal as a whole is deemed "AMEND - RESUBMIT," and all ten drawings are required to be resubmitted.

- L. If a submittal is returned marked "REJECTED-RESUBMIT," the Contractor shall prepare a new submittal and shall submit the required number of copies to the County for review.
- M. Fabrication of an item shall be commenced only after the County has reviewed the pertinent submittals and returned copies to the Contractor marked either "NO EXCEPTIONS TAKEN" or MAKE CORRECTIONS NOTED." Corrections indicated on submittals shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as changes to the contract requirements.
- N. All submittals shall be carefully reviewed by an authorized representative of the Contractor, prior to submission to the County. Each submittal shall be dated, signed, and certified by the Contractor as being correct and in strict conformance with the Contract Documents. In the case of Shop Drawings, each sheet shall be so dated, signed, and certified. The County will only review submittals that have been so certified by the CONTRACTOR. All non-certified submittals will be returned to the CONTRACTOR without action taken by the County, and any delays caused thereby shall be the total responsibility of the Contractor.
- O. The County's review of submittals shall not relieve the Contractor of the entire responsibility for the correctness of details and dimensions. The Contractor shall assume all responsibility and risk for any misfits due to any errors in submittals. The Contractor shall be responsible for the dimensions and the design of adequate connections and details.

1.4 SAMPLES

- A. Whenever in the Specifications samples are required, the Contractor shall submit three (3) samples of each item or material to the County for acceptance, unless otherwise stipulated in the specification section.
- B. Unless otherwise indicated, samples shall be submitted a minimum of (21) days prior to ordering such material.
- C. Samples shall be individually and indelibly labeled or tagged, indicating thereon all specified physical characteristics and Manufacturer's name. Upon receiving the acceptance of the County, one set of the samples will be stamped and dated by the County and returned to the Contractor, and one set of samples will be retained by the County, and one set of samples shall remain at the Site until completion of the WORK.
- D. Unless indicated otherwise, all colors and textures of items presented in sample submittals shall be from the manufacturer's standard colors and standard materials, products, or equipment lines. If the samples represent non-standard colors, materials, products, or equipment lines and their selection will require an

increase in contract times or price, the Contractor shall clearly indicate same on the transmittal page of the submittal.

- E. The Contractor shall schedule sample submittals such that:
1. Sample submittals for color and texture selection are complete so the County has 45 days to assemble color panels and select color and texture dependent products and materials without delay to the construction schedule, and
 2. After the County selects colors and textures, the Contractor has sufficient time to provide the products or materials without delay to the construction schedule. The contract times will not be extended for the Contractor's failure to allow enough review and approval or selection time, failure to submit all samples requiring color or texture selection, or failure to submit complete or approvable samples.

1.5 RECORD DRAWINGS

- A. The Contractor shall maintain one record set of Drawings at the Site. On these, it shall mark all project conditions, locations, configurations, and any other changes or deviations which may vary from the information represented on the original contract Drawings, including buried or concealed construction and utility features which are revealed during the course of construction. Special attention shall be given to recording the horizontal and vertical location of all buried utilities that differ from the locations indicated, or which were not indicated on the contract Drawings. Said record drawings shall be supplemented by any detailed sketches as necessary or directed to fully indicate the WORK as actually constructed. These master record drawings of the Contractor's representation of as-built conditions, including all revisions made necessary by addenda and change orders shall be maintained up-to-date during the progress of the WORK. Red ink shall be used for alterations and notes. Notes shall identify relevant Change Orders by number and date.
- B. Copies of the record drawings shall be submitted on the 20th working day of every third month after the month in which the Notice to Proceed is given as well as on completion of WORK.
- C. Drawings must be submitted with each pay request indicating the completed items.
- D. In the case of those drawings which depict the detail requirement for equipment to be assembled and wired in the factory, such as motor control centers and the like, the record drawings shall be updated by indicating those portions which are superseded by change order drawings or final Shop Drawings, and by including appropriate reference information describing the change orders by number and the Shop Drawings by manufacturer, drawing, and revision numbers.
- E. Record drawings shall be accessible to the County at all times during the construction period.
- F. Final payment will not be acted upon until the record drawings have been prepared and delivered to the County. Said up-to-date record drawings shall be in

the form of a set of prints with carefully plotted information overlaid.

- G. Upon Substantial Completion of the WORK and prior to final acceptance, the Contractor shall finalize and deliver a complete set of record drawings to the County for transmittal to the Owner, conforming to the construction records of the Contractor. This set of drawings shall consist of corrected Drawings showing the reported location of the WORK. The information submitted by the Contractor and incorporated by the County into the record drawings will be assumed to be correct, and the Contractor shall be responsible for the accuracy of such information, and for any errors or omissions, which may appear on the record drawings as a result.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

- END OF SECTION -

SECTION 01311 - BARCHART CONSTRUCTION SCHEDULE

PART 1 -- GENERAL

1.1 GENERAL

- A. The Contractor shall schedule the WORK in accordance with the Contract Documents.
- B. Where submittals are indicated, submit two hard copies and one electronic of copy of each item.

1.2 INITIAL SCHEDULE SUBMITTALS

- A. The Contractor shall submit two schedule documents five days prior to Preconstruction Meetings that shall serve as the Contractor's Plan of Operation for the initial 60-day period of the WORK and shall identify the manner in which the Contractor intends to complete WORK. The Contractor shall submit a 60-Day Plan of Operation Bar Chart Schedule and a Project Overview Bar Chart Schedule for WORK as indicated below.

- 1. 60-Day Bar Chart Plan of Operation Schedule: The bar chart shall show the Contractor's early activities (mobilization, permits, submittals necessary for early material and equipment procurement, submittals necessary for long lead equipment procurement, scheduling submittals, initial site work, and other submittals) required in the first 60 days.
- 2. Project Overview Bar Chart Schedule: The Bar Chart shall indicate the major components of the WORK and the sequence relations between the major components.
 - a. The bar chart schedule shall indicate the relationships and time frames in which the various components of the WORK will be made substantially complete and placed into service.
 - b. Sufficient detail shall be included for the identification of subdivisions of major components according to such activities as mobilization, preliminary testing, rehabilitation, post-rehabilitation testing, pump examination and repair, excavation, demolition, yard piping installation, placement of structural backfill, final site grading, and other important WORK for each major item within the overall project scope.
 - c. Planned durations and start dates shall be indicated for each work item subdivision. Each major component and subdivision component shall be accurately plotted on time scale sheets not to exceed 11-inches by 17-inches in size. Not more than four (4) sheets shall be employed to represent this overview information.

- B. The County and the Contractor shall meet to review and discuss the 60- Day Plan of Operations and Project Overview Schedules at the Preconstruction Meeting. The County's review and comment on the schedules will be limited to conformance to the Contract Documents. The Contractor shall make corrections to the schedules necessary to comply with requirements and shall adjust the schedules to incorporate any missing information requested by the County.

1.3 CHANGE ORDERS

- A. Upon approval of a change order or upon receipt of an authorization to proceed with additional WORK, the change shall be depicted in the next submittal of the Project Overview Bar Chart Schedule.

1.4 STATUS REPORTING

- A. The Contractor shall furnish to the County Project Overview Bar Chart Schedules every two weeks.
- B. The Project Overview Bar Chart Schedule shall be a summary of the current construction schedule for major project components (baseline original and as updated and adjusted throughout the entire construction period). It shall be limited to not more than four sheets, each of which shall not exceed 11-inches by 17-inches. The major project components shall be represented as time bars which shall be subdivided into various types of WORK as defined in Section 01010 – Summary of Work.
- C. Each major component and subdivision shall be plotted accurately on a time scale consistent with the early start and finish activity information contained in the latest update of the schedule. In addition, a percent completion shall be listed for each major component and subdivision. The Contractor shall amend the Project Overview Bar Chart Schedule as necessary to include any additional detail required by the County. The Contractor shall include any additional information requested by the County at any time during construction.
- D. The Contractor shall prepare biweekly written narrative reports of the status of the project for submission to the County. Status reports shall include:
 - 1. The status of major project components (percent complete and amount of time ahead or behind schedule) and an explanation of how the project will be brought back on schedule if delays have occurred.
 - 2. The progress made on critical activities indicated on the construction schedule.
 - 3. Explanations for any lack of WORK on critical activities planned to be performed during the last month.
 - 4. Explanations for any schedule changes, including changes to the logic or to activity durations.

5. A list of the critical activities scheduled for the next two weeks.
6. The status of major material and equipment procurements.
7. The value of materials and equipment properly stored at the site but not yet incorporated into the WORK.
8. Any delays encountered during the reporting period.
9. An assessment of inclement weather delays and impacts to the progress of the WORK.
10. The Contractor may include any other information pertinent to the status of the project.
11. The Contractor shall include additional status information requested by the County.

1.5 INCLEMENT WEATHER PROVISIONS OF THE SCHEDULE

- A. The construction schedule shall include lost days on the construction schedule due to inclement weather.

PART 2 -- PRODUCTS (Not Used)

PART 3 -- EXECUTION (Not Used)

- END OF SECTION -

SECTION 01400 - QUALITY CONTROL

PART 1 -- GENERAL

1.1 DEFINITION

- A. Specific quality control requirements for the WORK are indicated throughout the Contract Documents. The requirements of this Section are primarily related to performance of the WORK beyond furnishing of manufactured products. The term "Quality Control" includes inspection, sampling, and testing, and associated requirements.

1.2 INSPECTION AT PLACE OF MANUFACTURE

- A. Unless otherwise indicated, all products, materials, and equipment shall be subject to inspection by the County at the place of manufacture.
- B. The presence of the County at the place of manufacturer, however, shall not relieve the Contractor of the responsibility for providing products, materials, and equipment, which comply with all requirements of the Contract Documents. Compliance is a duty of the Contractor, and said duty shall not be avoided by any act or omission on the part of the County.

1.3 SAMPLING AND TESTING

- A. Unless otherwise indicated, all sampling and testing will be in accordance with the methods prescribed in the current standards of the ASTM, as applicable to the class and nature of the article or materials considered; however, the County reserves the right to use any generally-accepted system of sampling and testing which, in the opinion of the County will assure the Owner that the quality of the work is in full accord with the Contract Documents.
- B. Any waiver by the County of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the testing or other quality assurance requirements originally indicated, and whether or not such guarantee is accompanied by a performance bond to assure execution of any necessary corrective or remedial WORK, shall not be construed as a waiver of any requirements of the Contract Documents.
- C. Notwithstanding the existence of such waiver, the County reserves the right to make independent investigations and tests, and failure of any portion of the WORK to meet any of the requirements of the Contract Documents, shall be reasonable cause for the County to require the removal and reconstruction or correction of any such WORK in accordance with the Contract Documents.

1.4 INSPECTION AND TESTING SERVICE

- A. Inspection and testing laboratory service shall comply with the following:

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1. Unless indicated otherwise by the Contract Documents, the County will appoint, employ, and pay for the services of an independent firm to perform inspection and testing or will perform inspection and testing itself.
2. Reports of testing, regardless of whether the testing was the Owner's or the Contractor's responsibility, will be submitted to the County in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
3. The Contractor shall cooperate with the County or independent firm and furnish samples of materials, design mix, equipment, tools, storage, and assistance, as requested.
4. The Contractor shall notify County twenty-four (24) hours prior to the expected time for operations requiring inspection and laboratory testing services.
5. Retesting required because of non-conformance to requirements shall be performed by the same independent firm as directed by the County. The Contractor shall bear all costs from such retesting.
6. For samples and tests required for Contractor's use, the Contractor shall make arrangements with an independent firm for payment and scheduling of testing. The cost of sampling and testing for the Contractor's use shall be the Contractor's responsibility.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION

3.1 INSTALLATION

- A. **Inspection:** The Contractor shall inspect materials or equipment upon the arrival on the work site and immediately prior to installation, and reject damaged and defective items.
- B. **Measurements:** The Contractor shall verify measurements and dimensions of delivered materials or work product, as an integral step of starting each installation.
- C. **Manufacturer's Instructions:** Where installations include manufactured products, the Contractor shall comply with manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in Contract Documents.

- END OF SECTION -

SECTION 01505 - MOBILIZATION, DEMOBILIZATION, AND SITE RESTORATION

PART 1 -- GENERAL

1.1 GENERAL

- A. Mobilization shall include all costs associated with obtaining all permits; site and access existing condition video; moving equipment; furnishing and erecting drilling equipment, temporary buildings, coordinating service with utility providers, and other construction facilities; and implementing security requirements; all as required for the proper performance and completion of the WORK. Mobilization shall include the following principal items:
1. Coordination with land County's or their representatives.
 2. Video or Photo Log documentation of existing site conditions.
 3. Securing all required permits.
 4. Removal of plantings only as necessary for site access and work.
 5. Movement onto the site of all Contractor's plant and equipment required for the work.
 6. Clearance of site and establishment of vertical and horizontal controls with reference to NAVD1988 and NAD83 (1990 Adjustment), respectively.
 7. Preparation of access and construction area.
 8. Construction of any temporary drilling pads or other facilities.
 9. Installation of temporary security fencing.
 10. Establishment of temporary construction power, wiring, and lighting facilities.
 11. Establishment of fire protection systems.
 12. Development or procurement of construction water supply.
 13. Establishment of on-site sanitary facilities and potable water facilities, as needed
 14. Arrangement and erection of Contractor's work and storage yard, as needed.
 15. Posting of all OSHA required notices and establishment of construction safety programs.
 16. Contractor to obtain a flow meter with backflow preventer from WWS.

1.2 PAYMENT FOR MOBILIZATION

- A. Payment for mobilization will be as stated in **Section 01225 – Measurement and Payment.**

1.3 THE REQUIREMENT

- A. The WORK of this Section includes measures to protect existing walkways, fences, buildings, houses and associated improvements, streets, and utilities down-slope of construction areas from damage due to boulders, trees or other objects dislodged during the construction process; clearing, grubbing and stripping; and re-grading of certain areas to receive embankment fill required during the Contractor's initial move onto the Site.

1.4 SITE INSPECTION

- A. Prior to moving onto the Site, the Contractor shall inspect the Site conditions and review maps of the existing site and facilities delineating the Owner's property, easements, and right-of-way lines.
- B. Prior to moving onto the Site, the Contractor shall document the existing Site conditions of the construction area and surrounding areas both outside and inside adjacent buildings within 500 feet of the Site in a color video survey or color still frame photo survey.

PART 2 -- PRODUCTS

2.1 GENERAL:

- A. Provide all materials and equipment to accomplish the work in accordance with the Specifications.
- B. **Water Source:** The Contractor shall install a pressure reducing backflow prevention device to any potable water source. The Contractor shall also provide all temporary pipe and fittings required by the utility County or provided by the utility County between the work site, well, mixing tanks, circulation systems, and water source.
- C. **Power Supply:** The Contractor shall determine the type and amount available and arrange for separate electric power service, and shall pay all costs for the electric power used during the contract period. Temporary electric installation shall meet the utility County requirements and construction safety requirements of OSHA, state, and other governing agencies.

- D. **Sanitary Facilities:** The Contractor shall provide and maintain sanitary facilities for employees and subcontractors' employees that shall comply with the regulations of the local and state departments of health and as directed by the County. Sanitation facilities shall be on site prior to equipment mobilization and removed or moved to the next site shortly after demobilization.

PART 3 -- EXECUTION

3.1 PRIMARY PLANT SITE ACCESS

- A. The Contractor shall obtain all badge and other security requirements of the Owner prior to mobilization.
- B. The Contractor shall develop any necessary access to the Site, including access barriers to prohibit entry of unauthorized persons.
- C. **Utility Interference:** Where existing utilities interfere with the WORK, notify the utility County and the County before proceeding.

3.2 HORIZONTAL AND VERTICAL CONTROL

- A. The Contractor shall retain the services of a land surveyor licensed in the State of Florida to provide horizontal and vertical control on a point adjacent to or on the well that will remain fixed throughout the performance of the work to facilitate vertical measurements. Vertical control shall be reported relative to the North American Vertical Datum of 1988 (NAVD88). Horizontal control shall be reported relative to the North America Datum of 1983 (NAD83) with 1990 Adjustment. Five copies of the final report, including field survey notes, shall be provided to the County.

3.3 CLEARING, GRUBBING, AND STRIPPING

- A. Construction and work areas shall be cleared of grass and weeds and other objectionable material of any kind which would interfere with the performance or completion of the WORK, create a hazard to safety, or impair the subsequent usefulness of the WORK, or obstruct its operation. Trees and other natural vegetation outside the actual lines of construction or work site shall be protected from damage during performance of the WORK, as approved by the County.
- B. All objectionable material from the clearing and grubbing process shall be removed from the Site and disposed of in safe locations as approved by the County and per the Contractor's disposal plan.
- C. Any suitable stripped material shall be stockpiled and incorporated into the final site grading.
- D. Unless otherwise indicated, native trees larger than three inches in diameter at

the base shall not be removed without a valid Broward County tree removal permit. The removal of any trees, shrubs, fences, or other improvements outside of rights-of-way, if necessary for the CONTRACTOR's choice of means and methods, shall be arranged with the County of the property, and shall be removed and replaced, at no additional cost to the COUNTY.

- E. All tree re-locations, removals and replacements shall be in accordance with Broward County and local municipal ordinances and permits governing such activities.

3.4 OVEREXCAVATION, REGRADING, AND BACKFILL UNDER FILL AREAS

- A. After the fill areas have been cleared, grubbed, and excavated, the areas to receive fill will require over-excavation, re-grading, and backfill, consisting of the removal and/or stockpiling of undesirable soils. The ground surface shall be re-contoured for keying the fill and removing severe or abrupt changes in the topography of the Site. The over- excavated shall be backfilled.

3.5 TEMPORARY WORK PAD

- A. The Contractor shall construct and maintain a compacted lime-rock work pad as needed to support the Contractor's equipment, mixing tanks, and load capacities. The Contractor shall provide to the County a suitable design for the temporary work pad prior to mobilization that consists of at a minimum the following:
 - 1. The ground surface beneath the compacted lime-rock work pad shall be lined with a buried impermeable high-density polyethylene (HDPE) liner (e.g., 30-mil geomembrane, or equivalent).
 - 2. The impermeable liner shall be installed in accordance to manufacturer specifications and extend up and over the earthen walls surrounding the temporary work pad.
 - 3. The Contractor shall maintain and repair any damage to liner to the satisfaction of the County.
- B. The work pad shall be able to retain all necessary quantities of fluids and cuttings generated during rehabilitation, construction and testing, without leakage or spillage, and serve as a work floor for all rehabilitation and drilling activities. The Contractor shall review the design of the foundation for the work pad and verify the suitability for placement of their equipment. It will be necessary to store all fuel or chemical tanks used during well rehabilitation or construction on this pad. The Contractor may modify the temporary drilling pad to accommodate its specific equipment and the work with the approval of the County.
- C. Construct an earthen wall of sufficient height (minimum of 2.5 feet) around the perimeter of the drilling rig, crane truck, and settling tanks, constructed to contain all rehabilitation or drilling fluids and/or formation waters.

- D. Any sumps or drains in the work pad shall be sealed below, not to allow leakage beneath the pad (including “rat” or “mouse” holes used during drilling). Any sumps shall have 6-inch water stop material in all joints.

3.6 CONTAMINATION PRECAUTIONS

- A. The Contractor shall at all times during the work keep the premises clean and orderly, and upon completion of the work, repair all damage caused by equipment, dispose of all developed or mixed materials, and leave the project site free of rubbish or excess materials of any kind.
- B. The Contractor shall install and secure a 2-foot wide silt screen along the entire length of the temporary work pad that parallels any adjacent surface water body. This silt screen shall be installed and secured in accordance with manufacturer’s specifications.
- C. The Contractor shall be required to take all necessary steps to ensure that formation water produced during drilling is confined to the lined work pad and conveyed to the onsite circulation systems or storage tanks. The Contractor shall insure that produced formation water meets all applicable discharge requirements before being conveyed to an identified discharge point approved by the County. If the Contractor has approval to discharge into a municipal sanitary sewer system, the Contractor will be responsible for compliance with utility County requirements. The adequacy of the discharge to meet all permit or utility County requirements must be demonstrated to and accepted by the County.
- D. The Contractor shall make his own arrangements for connections to an existing sanitary sewer system. The Contractor shall install a pressure reducing backflow prevention device to any sanitary sewer system. The Contractor shall also provide all temporary pipe and fittings required between the well, the circulation system, and the sanitary sewer system. Upon completion of work at the site, the Contractor shall promptly remove all temporary pipe and fittings between the well, the circulation system and the sanitary sewer system and return any modifications to sanitary sewer system to preconstruction conditions or better.
- E. Materials shall be stored to ensure the preservation of their quality and fitness for the work. When considered necessary, they shall be placed on wooden platforms underlain by 30-mil thick, HDPE plastic or other hard, clean surfaces, and not on the ground. Stored materials shall be located to facilitate prompt inspection. Private property shall not be used for storage purposes without the written permission of the County or lessee. Such written permission must be provided to the County prior to the Contractor’s use of private property.
- F. The Contractor shall comply with the State Wellhead Protection Program Chapter 62-521, FAC and Chapter 27, Article XIII of the Broward County Code while working within Wellhead Protection Zone 1.

- G. Storage of hazardous material onsite must be approved by the County. If approved, all regulated materials/chemicals shall be stored in a secondary containment area in compliance with applicable local and County, ordinances and State and Federal regulations. The integrity of the secondary containment area must be demonstrated to and accepted by the County.
- H. The Contractor shall be responsible for all petroleum and chemical spills that may occur as a result of the Contractor's and/or subcontractors' negligence or vandalism. All remedial action(s) and disposal of contaminated materials shall be in accordance to all applicable local, state, and federal regulations at the Contractor's own expense.
- I. Upon completion of the project, all contaminated material and hazardous waste product shall be removed by the Contractor and be properly disposed of in accordance with all applicable local, state and federal regulations at the Contractor's own expense.

3.7 SITE CLEANUP, PRESERVATION, AND RESTORATION

- A. The Contractor shall perform clean-up work on a regular basis and as frequently as requested by the County. Basic site restoration in an area shall be accomplished immediately following installation or substantial completion of the required facilities in that area. In addition, such work shall be performed when requested by the County. If the Contractor fails to perform periodic clean-up and basic restoration of the site to the County's satisfaction, they may, receive written notice of non-performance. The Contractor shall address and remedy those concerns within five days of receipt of the written notice and employ such labor and equipment as necessary to remedy the concerns at the Contractor's own expense.
- B. Upon completion of work at the site, the Contractor shall promptly remove all their equipment and unused materials. They shall dismantle any temporary structures erected for the purpose of the work that are not part of the final product. They shall promptly remove the temporary work pad and retaining wall, fill "rat", "mouse" holes, and leave the site in a manner acceptable to the County and in as good or better condition than indicated by the pre-mobilization video/photo log, within two weeks after the completion of drilling, rehabilitation, abandonment, and testing operations.
- C. The Contractor shall repair and restore all damaged asphalt areas to preconstruction or better condition.
- D. Remove all excavated materials from grassed and planted areas, and restore these surfaces to a condition equivalent or better than their original condition.
- E. The Contractor may store drill cuttings and recovered debris on site during rehabilitation, testing and drilling operations, but prior to demobilization, the cuttings and recovered debris must be removed and disposed of in accordance with federal, state, and local regulations at an approved disposal site. The

CONTRACTOR shall furnish the County, prior to beginning construction, the name, and location of the intended disposal site along with documentation that the site has been approved by the appropriate regulatory agencies.

- F. Upon completion of the project, all areas used by the Contractor shall be properly graded to drain and blend in with the abutting property.
- G. Following restoration and grading, disturbed areas shall be planted with new sod and plantings consistent with pre-work conditions. All ground preparation and sodding shall be done in accordance with the best-accepted practices for lawn planting. Sod shall be consistent with pre-work existing conditions, St. Augustine, Bahia grass or equivalent to match area pre-construction conditions. The Contractor shall be responsible for obtaining a satisfactory grass turf/seed acceptable to the County.
- H. Upon completion of sodding, the entire planted area shall be soaked to saturation by a fine spray. Contractor shall be responsible for watering the sod for thirty days.
- I. Replaced sod or plantings in wellfield areas should not be fertilized.

- END OF SECTION -

SECTION 01510 - TEMPORARY UTILITIES

PART 1 -- GENERAL

1.1 GENERAL REQUIREMENTS

- A. **Types:** The types of utility services required for general temporary use at the work site include the following:

1. Water service (potable for drilling)
2. Wastewater facilities (for disposal of non-turbid development water)
3. Power source
4. Sanitary facilities
5. Fire Protection

1.2 JOB CONDITIONS

- A. **Scheduled Uses:** The Contractor shall, in conjunction with establishment of the job progress schedule, establish a schedule for implementation and termination of service for each temporary utility at the earliest feasible time, and when acceptable to County.

PART 2 -- PRODUCTS

2.1 MATERIALS

- A. The Contractor shall provide either new or used materials and equipment, which are in substantially undamaged condition and without significant deterioration and which are recognized in the construction industry, by compliance with appropriate standards, as being suitable for intended use in each case. Where a portion of the temporary utility is provided by a utility company, the Contractor shall provide the remaining portion with matching and compatible materials and equipment and shall comply with recommendations of the utility company.

PART 3 -- EXECUTION

3.1 INSTALLATION OF TEMPORARY UTILITY SERVICES

- A. Wherever feasible, the Contractor shall engage the utility company to install temporary service to the project, or as a minimum, to make connection to existing utility service; locate services where they will not interfere with the total project construction work, including installation of permanent utility services; and maintain temporary services as installed for required period of use; and relocate, modify or extend as necessary from time to time during that period as required to accommodate the work.

3.2 WATER SUPPLY

- A. The Contractor shall obtain the water supply necessary for rehabilitation, construction and testing activities. The Contractor shall provide all facilities necessary to convey the water from the source to the points of use in accordance with the requirements of the Contract Documents. The Contractor shall be responsible for all costs and charges associated with the water supply.
- B. **Water Connections:** The Contractor shall coordinate with the Broward County Water and Wastewater Services for obtaining water and/or wastewater service connections. The Contractor shall pay the fee for meters and all other charges for facility use.
- C. The Contractor shall obtain appropriate authorizations or permits required for water supply or wastewater disposal, as applicable. The Contractor will be responsible for all costs associated with such authorization and permits and shall be reimbursed by the County for permit fees with appropriate backup documentation.

3.3 INSTALLATION OF SANITARY FACILITIES

- A. **Toilet Facilities:** Fixed or portable chemical toilets shall be provided wherever needed for the use of CONTRACTOR's employees. Toilets at construction job sites shall conform to the requirements of Subpart D, Section 1926.51 of the OSHA Standards for Construction.
- B. **Sanitary and Other Organic Wastes:** The Contractor shall establish a regular daily collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the Contractor or organic material wastes from any other source related to the Contractor's operations shall be disposed of away from the work site in a manner satisfactory to the County and in accordance with all laws and regulations pertaining thereto.

3.4 POWER SUPPLY

- A. The Contractor shall coordinate with FPL for obtaining a power service connection at the site. The Contractor shall pay the fee for meters and all other charges for site power usage.

3.5 INSTALLATION OF FIRE PROTECTION

- A. **Fire Protection:** The Contractor shall develop a fire protection program. Hose connections and hose, water casks, chemical equipment, or other sufficient means shall be provided for fighting fires in the temporary structures and other portions of the WORK, and responsible persons shall be designated and instructed in the operation of such fire apparatus so as to prevent or minimize the hazard of fire. The Contractor's fire protection program shall conform to state and local requirements and Subpart F of the OSHA Standards for Construction.

3.6 OPERATIONS AND TERMINATIONS

- A. **Inspections:** Prior to placing temporary utility services into use, the Contractor shall inspect and test each service and arrange for governing authorities' required inspection and tests, and obtain required certifications and permits for use thereof.
- B. **Protection:** The Contractor shall maintain distinct markers for underground lines and protect underground lines from damage during excavating operations.
- C. **Termination and Removal:** When need for a temporary utility service, or a substantial portion thereof has ended, or when its service has been replaced by use of permanent services, or not later than time of substantial completion, the Contractor shall promptly remove the utility installation unless requested by County to retain it for a longer period. The Contractor shall complete and restore WORK which may have been delayed or affected by installation and use of temporary utility, including repairs to construction and grades and restoration and cleaning of exposed surfaces.
- D. **Removal of Water Connections:** Before final acceptance of the WORK, all temporary connections and piping installed by the Contractor shall be entirely removed, and all affected improvements shall be restored to original condition or better, to the satisfaction of the County and to the agency owning the affected utility.

- END OF SECTION -

SECTION 01530 - PROTECTION OF EXISTING FACILITIES

PART 1 -- GENERAL

1.1 GENERAL

- A. The Contractor shall protect the site and control access to the site.
- B. The Contractor shall protect all existing utilities and improvements not designated for removal and shall restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than prior to such damage or temporary relocation, all in accordance with the Contract Documents.

1.2 RIGHTS-OF-WAY

- A. The Contractor shall not do any work that would affect any oil, gas, sewer, or water pipeline; any telephone, telegraph, or electric transmission line; any fence; or any other structure, nor shall the Contractor enter upon rights-of-way until access has secured from the proper party.
- B. After authority has been obtained, the Contractor shall give said party due notice of its intention to begin work, if required by said party, and shall remove, shore, support, or otherwise protect such pipeline, transmission line, ditch, fence, or structure, or replace the same.

1.3 PROTECTION OF STREET OR ROADWAY MARKERS

- A. The Contractor shall not destroy, remove, or otherwise disturb any existing survey markers or other existing street or roadway markers without proper authorization. No pavement breaking or excavation shall be started until all survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced. Survey markers or points disturbed by the Contractor shall be accurately restored after street or roadway resurfacing has been completed at Contractor's expense.

1.4 RESTORATION OF PAVEMENT

- A. All paved areas including asphaltic concrete berms and walkways cut or damaged during construction shall be replaced with similar materials of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit.
- B. **Pavement Restoration:** The pavement restoration requirement to match existing sections shall apply to all components of existing sections, including sub-base, base, and pavement. Temporary and permanent pavement shall conform to the requirements of the affected pavement County. Pavements which are subject to partial removal shall be neatly saw cut in straight lines.

- C. **Temporary Resurfacing:** Wherever required by the public authorities having jurisdiction, the Contractor shall place temporary surfacing promptly after backfilling and shall maintain such surfacing for the period of the work before proceeding with the final restoration of improvements.
- D. **Permanent Resurfacing:** In order to obtain a satisfactory junction with adjacent surfaces, the Contractor shall saw cut back and trim the edge so as to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.
- E. **Restoration of Sidewalks or Private Driveways:** Wherever sidewalks or private roads have been removed for purposes of construction, the Contractor shall place suitable temporary sidewalks or roadways promptly after backfilling and shall maintain them in satisfactory condition for the period of time fixed by the authorities having jurisdiction over the affected portions. If no such period of time is so fixed, the Contractor shall maintain said temporary sidewalks or roadways until the final restoration thereof has been made.

1.5 EXISTING UTILITIES AND IMPROVEMENTS

- A. The Contractor shall protect underground utilities and other improvements which may be impaired during construction operations, regardless of whether or not the utilities were located prior to mobilization or are indicated on drawings. The Contractor shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary.
- B. The Contractor shall be responsible for exploratory excavations as it deems necessary to determine the exact locations and depths of utilities which may interfere with its work. All such exploratory excavations shall be performed as soon as practicable after Notice to Proceed and, in any event, a sufficient time in advance of construction to avoid possible delays to the Contractor's progress. When such exploratory excavations show the utility location to be in error, the Contractor shall so notify the County. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility. All costs for exploratory excavations shall be included in the Contractor's bid.
- C. **Utilities to be Moved:** In case it shall be necessary to move the property of any public utility or franchise holder, the Contractor shall request of such utility company or franchise holder, with approval of the County, to move such property within a specified reasonable time.
- D. **Utilities to be Removed:** Where the proper completion of work requires the temporary or permanent removal and/or relocation of an existing Utility or other improvement which is indicated, the Contractor shall remove and, without

unnecessary delay, temporarily replace or relocate such utility or improvement in a manner satisfactory to the County and the County of the facility. In all cases of such temporary removal or relocation, restoration to the former location shall be accomplished by the Contractor in a manner that will restore or replace the utility or improvement as nearly as possible to its former locations and to as good or better condition than found prior to removal. When utility lines that are to be removed are encountered within the area of operations, the Contractor shall notify the County a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.

- E. **COUNTY's Right of Access:** The right is reserved by the Owner and the owner's of public utilities and franchises to enter at any time upon any public street, alley, right-of- way, or easement for the purpose of making changes in their property made necessary by the Contract Documents.
- F. **Underground Utilities Indicated:** Existing utility lines that are indicated or the locations of which are made known to the Contractor prior to excavation and that are to be retained, and all utility lines that are constructed during excavation operations shall be protected from damage during excavation and backfilling and, if damaged, shall be immediately repaired or replaced by the Contractor, unless otherwise repaired by the owner of the damaged utility. If the County of the damaged utility performs its own repairs, the Contractor shall reimburse said County for the costs of repair.
- G. **Underground Utilities Not Indicated:** In the event that the Contractor damages existing Utility lines that are not indicated or the locations of which are not made known to the Contractor prior to excavation, a verbal report of such damage shall be made immediately to the County and a written report thereof shall be made promptly thereafter. The County will immediately notify the owner of the damaged utility. If the County is not immediately available, the Contractor shall notify the utility County of the damage. If directed by the County, repairs shall be made by the Contractor under the provisions for changes and extra work contained in **Section 007200 – General Conditions** of the Contract Documents.
- H. **Approval of Repairs:** All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement Owner before being concealed by backfill or other work.
- I. **Maintaining in Service:** Unless indicated otherwise, oil and gasoline pipelines, power, and telephone or the communication cable ducts, gas and water mains, irrigation lines, sewer lines, storm drain lines, poles, and overhead power and communication wires and cables encountered during the WORK shall remain continuously in service during all the operations under the Contract Documents, unless other arrangements satisfactory to the County are made with the County of said pipelines, duct, main, irrigation line, sewer, storm drain, pole, or wire or cable. The Contractor shall be responsible for and shall repair all damage due to its operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until

after completion of the backfilling.

1.6 PROTECTION OF STRUCTURES AND ABOVE GROUND UTILITIES

- A. The Contractor shall exercise all necessary precautions so as not to damage or destroy any existing above ground utility or structure.
- B. At the direction of the County the Contractor shall provide the services of a Florida Licensed Engineer to provide a written report detailing any anticipated impacts to a utility or structure as a result of the Contractor's work activities.
- C. In the event that the Contractor damages an existing utility or structure a verbal report of such damage shall be made immediately to the County and a written report thereof shall be made promptly thereafter. The County will immediately notify the County of the damaged Utility. If the County is not immediately available, the Contractor shall notify the Utility County of the damage. If directed by the Project Manager, repairs shall be made by the Contractor.

1.7 TREES OR SHRUBS WITHIN STREET RIGHTS-OF-WAY AND PROJECT LIMITS

- A. Except where trees or shrubs are indicated to be removed, the Contractor shall exercise all necessary precautions so as not to damage or destroy any trees or shrubs, including those lying within street rights-of-way and project limits, and shall not trim or remove any trees unless such trees have been approved for trimming or removal by the jurisdictional agency or the Owner. Existing trees and shrubs which are damaged during construction shall be trimmed or replaced by the Contractor or a certified tree company under permit from the jurisdictional agency and/or the Owner. Tree trimming and replacement shall be accomplished in accordance with the following paragraphs.
- B. **Trimming:** Symmetry of the tree shall be preserved; no stubs or splits or torn branches left; clean cuts shall be made close to the trunk or large branch. Spikes shall not be used for climbing live trees. Cuts over 1 and 1/2 inches in diameter shall be coated with a tree paint product that is waterproof, adhesive, and elastic, and free from kerosene, coal tar, creosote, or other material injurious to the life of the tree.
- C. **Replacement:** The Contractor shall immediately notify the jurisdictional agency and/or the County if any tree or shrub is damaged by the Contractor's operations. If, in the opinion of said agency or the County, the damage is such that replacement is necessary, the Contractor shall replace the tree or shrub at its own expense. The tree or shrub shall be of a like size and variety as the one damaged, or, if of a smaller size, the Contractor shall pay to the County of said tree a compensatory payment acceptable to the tree or shrub County, subject to the approval of the jurisdictional agency or County. The size of the tree or shrub shall be not less than 1 in inch diameter or less than 6 feet in height. Planting of replacement trees and shrubs shall be in accordance with the recommendations of the nursery. Unless otherwise indicated, the Contractor shall water

and maintain the replacement trees and shrubs for 1 month after planting.

1.8 LAWN AREAS

- A. Lawn or landscaped areas damaged during construction shall be repaired to match the pre-construction condition as indicated by the pre-mobilization video/photo log.

1.9 NOTIFICATION BY THE CONTRACTOR

- A. Prior to any excavation in the vicinity of any existing underground facilities, including all water, sewer, storm drain, gas, petroleum products, or other pipelines; all buried electric power, communications, or television cables; all traffic signal and street lighting facilities; and all roadway and state highway rights-of-way, the Contractor shall notify the respective authorities representing the County's or agencies responsible for such facilities not less than three days nor more than seven days prior to excavation so that a representative of said Owners or agencies can be present during such work if they so desire.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

- END OF SECTION -

SECTION 01535 – SECURITY

PART 1 -- GENERAL

1.1 SECURITY PROGRAM

- A. The Contractor shall Protect WORK and existing premises from theft, vandalism, and unauthorized entry and shall initiate a security program at mobilization and maintain a security program throughout the construction period until Owner's occupancy of the work.
- B. The Contractor shall install an 8-foot high temporary security fence with sight and sound barriers around the site boundaries.
- C. The Contractor shall install a temporary lock to restrict access to the work site and maintain a locked site at all times when construction is not in progress.

1.2 ENTRY CONTROL

- A. The Contractor shall restrict entry of persons and vehicles into site and only allow entry to authorized persons with proper identification.
- B. The Contractor shall maintain a daily log of workers and visitors and make the log available to the County on request.

1.3 PERSONNEL IDENTIFICATION

- A. The Owner shall issue identification (ID) badges for Contractor's authorized personnel, as required. ID badges shall be worn when on site. Other approved forms of identification may be acceptable.
- B. The Owner shall issue one pass card for facility access to the Contractor's identified supervisor. The Contractor will be responsible for appropriate use and maintenance of the pass card and will return the pass card to the Owner when the project is complete.
- C. Personnel additions or deletions shall be reported in writing to the Owner's designated representative in the Utilities Department within 24 hours of the change.
- D. The Contractor's supervisor will be required by the Owner to sign in at the work site every day of work.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

- END OF SECTION -

SECTION 01560 - TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 -- GENERAL

1.1 EXPLOSIVES AND BLASTING

- A. The use of explosives will not be permitted.

1.2 DUST ABATEMENT

- A. The Contractor shall prevent its operation from producing dust in amounts damaging to property, cultivated vegetation, or domestic animals, or causing a nuisance to persons living in or occupying buildings in the vicinity of the Site. The Contractor shall be responsible for any damage resulting from dust originating from its operations. Dust abatement measures shall be continued until the Contractor is relieved of further responsibility by the County.
- B. **Storage Piles:** Enclose, cover, water (as needed), or apply non-toxic soil binders according to manufacturer's specifications on material piles (i.e. gravel, sand, dirt) with a silt content of 5 percent or greater.
- C. **Active Areas of Site:** Water active construction areas and unpaved roads as needed and as requested by County.
- D. **Inactive Areas of Site:** Apply non-toxic soil stabilizers according to manufacturer's specifications to inactive construction areas, or water as needed to maintain adequate dust control.
- E. **Vehicle Loads:** Cover or maintain at least 2-feet of freeboard vertical distance between the top of the load and the top of the trailer sides on trucks hauling dirt, sand, soil, or other loose materials off of the Site.
- F. **Roads:** When there is visible track-out onto a paved public road, install wheel washers where the vehicles exit and enter onto the paved roads and wash the undercarriage of trucks and any equipment leaving the Site on each trip. Sweep the paved street at the end of each shift with a **Mobil Athey** or similar water spray pick-up broom-type street sweeper as necessary or as directed.
- G. **Vehicle Speeds:** If watering of unpaved roads is not sufficient to control dust, reduce vehicle speeds to 15 mph or less on such roads.

1.3 SEDIMENTATION ABATEMENT

- A. The Contractor shall be responsible for collecting, storing, hauling, and disposing of spoil, silt, and waste materials in compliance with applicable federal, state, and local rules and regulations and the Contract Documents.

- B. Install and maintain erosion and sediment control measures, such as swales, grade stabilization structures, berms, dikes, waterways, filter fabric fences, and sediment basins.
- C. Filter fabric barrier systems, if used, shall be installed in such a manner that surface runoff will percolate through the system in sheet flow fashion and allow sediment to be retained and accumulated.
- D. Remove and dispose of sediment deposits at the designated spoil area. If a spoil area is not indicated, dispose of sediment off-Site at a location not in or adjacent to a stream or floodplain. Sediment to be placed at the spoil area should be spread evenly, compacted, and stabilized. Sediment shall not be allowed to flush into a stream or drainage way.
- E. Maintain erosion and sediment control measures until final acceptance or until requested by the County to remove it.

1.4 RUBBISH CONTROL

- A. During the progress of the WORK, the Contractor shall keep the work site and adjacent areas in a neat and clean condition, and free from any accumulation of rubbish. The Contractor shall dispose of all rubbish and waste materials of any nature occurring at the work site, and shall establish regular intervals of collection and disposal of such materials and waste. The Contractor shall also keep its haul roads free from dirt, rubbish, and unnecessary obstructions resulting from work operations. Disposal of all rubbish and surplus materials shall be off the work site in accordance with local codes and ordinances governing locations and methods of disposal, and in conformance with all applicable safety laws, and to the particular requirements of **Part 1926 of the OSHA Safety and Health Standards for Construction**.

1.5 NOISE

- A. The Contractor shall provide mufflers on equipment and take whatever other steps are necessary during rehabilitation, drilling, pumping, testing and all other work incidental thereto, to ensure that noise levels and associated acoustic vibrations conform to the local noise ordinance as required by the Owner and do not create adverse conditions in the surrounding area that are directly related to construction activities. Equipment storage and staging areas will be planned to be in areas away from homes, and traffic will be restricted to essential services during quiet hours, to preserve the rights of local homeowners.

1.6 CHEMICALS

- A. All chemicals used during project treatments, construction, and testing or furnished for project operation, whether defoliant, soil sterilant, herbicide, pesticide, disinfectant, polymer, reactant or of other classification, shall show approval of either the U.S. Environmental Protection Agency or the U.S. Department of Agriculture. Use of all such chemicals and disposal of residues

shall be in strict accordance with the printed instructions of the manufacturer.

1.7 CULTURAL RESOURCES

- A. The Contractor's attention is directed to the National Historic Preservation Act of 1966 (16 U.S.C. 470) and 36 CFR 800 which provides for the preservation of potential historical architectural, archaeological, or cultural resources (hereinafter called "cultural resources").
- B. In the event potential cultural resources are discovered during subsurface excavations at the Site, the following procedures shall be instituted:
 - 1. The Owner will issue a temporary Notice to Suspend Work directing the Contractor to cease construction operations at the location of such potential cultural resources find.
 - 2. The suspension Notice will contain the following:
 - a. A clear description of the WORK to be suspended
 - b. Instructions regarding issuance of further orders by the Contractor for material services.
 - c. Guidance as to the action to be taken on subcontracts.
 - d. Suggestions to the Contractor to minimize incurred costs
 - e. Estimated duration of the temporary suspension.
 - 3. Such suspension shall be effective until such time as a qualified archeologist can assess the value of the potential cultural resources and make recommendations to the Florida Division of Historical Resources.
 - 4. The Owner will implement appropriate actions as directed by the Florida Division of Historical Resources or Project Manager. The Contractor shall cease WORK in the area of a discovery until appropriate actions have been determined in accordance with this paragraph.
 - 5. If human remains are discovered, WORK in the immediate vicinity of the find shall stop. The Broward County Coroner shall be notified.
- C. If the archeologist determines that the potential find is a bonafide cultural resource, at the direction of the Florida Division of Historical Resources, the COUNTY will extend the duration of the suspension.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

- END OF SECTION -

SECTION 01571 – TRAFFIC CONTROL

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. The Contractor shall be responsible for the maintenance of traffic within the limits of the project for the duration of the construction and temporary suspensions of work in accordance with the requirements of the Contract Documents. The term "Maintenance Of Traffic" includes all of such facilities, devices, and operations required for the safety and convenience of the public as well as for minimizing public nuisances.

1.2 CONTRACTOR SUBMITTALS

- A. The Contractor shall develop a Traffic Control Plan (TCP) that complies with FDOT standard indices for maintenance of traffic and shall submit the TCP to the County prior to commencement of WORK. All TCP plans submitted must be designated, signed and sealed by a Professional Florida Licensed Traffic Control Engineer.

1.3 CONTRACTOR'S WORK AND STORAGE AREA

- A. The Owner will designate a construction area for the Contractor's use during the term of the contract. At completion of WORK, the Contractor shall return this area to its original condition, as indicated in the pre-mobilization video/photo log.
- B. The Contractor shall construct and use a separate storage area for hazardous materials that meets applicable codes governing the WORK.
- C. For the purpose of this paragraph, hazardous materials to be stored in the separate area are all products labeled with any of the following terms: Warning, Caution, Poisonous, Toxic, Flammable, Corrosive, Reactive, or Explosive. In addition, whether or not so labeled, the following materials shall be stored in the separate area: diesel fuel, gasoline, new and used motor oil, hydraulic fluid, cement, paints and paint thinners, two- part epoxy coatings, sealants, asphaltic products, glues, solvents, wood preservatives, sand blast materials, and spill absorbent.
 - 1. Hazardous materials shall be stored in groupings according to the Material Safety Data Sheets.
 - 2. The Contractor shall develop and submit to the County a plan for storing and disposing of the materials above.
 - 3. The Contractor shall obtain and submit to the County a single EPA number for wastes generated at the work site.
 - 4. The separate storage area shall meet all the requirements of all authorities

having jurisdiction over the storage of hazardous materials.

5. All hazardous materials which are delivered in containers shall be stored in the original containers until use. Hazardous materials which are delivered in bulk shall be stored in containers which meet the requirements of authorities having jurisdiction.

PART 2 -- PRODUCTS

- 2.1 Barricades, flashers, lights, and "Danger", "Caution", "Street Closed", etc. signs shall meet the requirements of the FDOT and the Manual of Uniform Traffic Control Devices (MUTCD).

PART 3 -- EXECUTION

3.1 GENERAL

- A. The CONTRACTOR shall implement the TCP.
- B. At the end of this project, the Contractor shall remove temporary equipment and facilities when no longer required, and restore grounds to original or improved conditions.
- C. All work specified in this section will conform to the current edition of the MUTCD, the Florida Department of Transportation Roadway and Traffic Design Standards (600 Series), and the Florida Department of Transportation Standard Specifications for Road and Bridge.
- D. The Contractor is responsible to communicate with the barricade company on any matters concerning deficiencies with the TCP at any time day or night. The Contractor shall be in possession of the barricade company's 24-hour number. The barricade company's representative shall be certified by the American Traffic Safety Services Association or the International Municipal Signal Association.
- E. All existing drainage flow must be maintained to prevent flooding of roadways and adjoining property.
- F. Access to private residences and commercial businesses shall be maintained at all times during construction. The Contractor shall coordinate with the Owner on any temporary access closings prior to beginning work in the area.
- G. The Contractor shall supply signage to identify driveways for affected businesses.

3.2 TRAFFIC CONTROL PLAN

- A. The TCP shall be site specific and shall include maintenance of traffic plans for all construction within the right-of-way including travel lanes, turn lanes, medians, side streets, sidewalks, and all intersection work impacted by the project.
- B. The TCP must show all signs, devices, tapers, and buffer zones listing the proper distances and lengths per the Manual of Uniform Traffic Control Devices and

Florida Department of Transportation (Roadway and Traffic Design Standards Index Series 600).

- C. The TCP must include a brief description of the WORK being done, along with the starting and completion dates, WORK hours, night activity, etc. It also must include a 24-hour emergency telephone number of the supervisor on the job responsible for the maintenance of the TCP.
- D. The TCP shall cover the major construction operations for this project. The Contractor shall be responsible for the proper execution of the traffic control during related minor construction operations.
- E. Locations for advance warning and other construction signs as depicted on the TCPs shall be approximate considering the existing field conditions.
- F. For the protection of traffic in public or private streets and ways, the Contractor shall provide, place, and maintain all necessary barricades, traffic cones, warning signs, lights, flag men and other safety devices in accordance with the requirements of the "Manual of Uniform Traffic Control Devices, Part VI - Traffic Controls for Street and Highway Construction and Maintenance Operations," published by U.S. Department of Transportation, Federal Highway Administration (ANSI D6.1) and the appropriate indexes (600-660) of the FDOT Roadway and Traffic Design Standards.
 - 1. The Contractor shall take all necessary precautions for the protection of the WORK and the safety of the public. Barricades and obstructions shall be illuminated at night, and all lights shall be kept burning from sunset until sunrise. The Contractor shall station guards or flaggers and shall conform to such special safety regulations relating to traffic control as may be required by the public authorities within their respective jurisdictions. Signs, signals, and barricades shall conform to the requirements of **Subpart G, Part 1926, of the OSHA Safety and Health Standards for Construction.**
 - 2. The Contractor shall submit three copies of a TCP to the Owner, FDOT and the local municipality for review a minimum of two weeks prior to construction.
 - 3. The Contractor shall remove traffic control devices when no longer needed, repair all damage caused by installation of the devices, and shall remove post settings and backfill the resulting holes to match grade.

3.3 MAINTENANCE OF TRAFFIC

- A. The Contractor shall take all necessary precautions to prevent injury to public.
- B. All maintenance access structures (MAS), valve boxes, or other similar structures shall each be adequately barricaded and lighted if they pose a danger to the public.
- C. Excavated material and construction materials shall not be stockpiled in such manner as to unnecessarily hinder or confuse traffic adjacent to work. Materials shall be stored at least 6 feet beyond the edge of pavement.

- D. Toe boards will be provided to retain excavated material if required by FDOT.
- E. Maintain all lanes that are being used for the maintenance of traffic, including those on detours and temporary facilities, under all weather conditions. Keep the lanes reasonably free of dust, and, when necessary to accomplish this, sprinkle them with water, or apply some other dust palliative.
- F. The alteration of existing traffic patterns to create a WORK zone shall not commence until all labor and material are available for the construction in that area.
- G. The Contractor shall repair all potholes immediately which develop within the project limits and shall maintain a supply of asphalt cold mix on the project site to expedite those repairs.
- H. If during construction any MAS or valve box cover protrudes higher than one inch above the pavement, the Contractor shall place an asphalt wedge around the cover per FDOT standards.
- I. Throughout the project limits where sidewalks currently exist, pedestrian and wheelchair traffic shall be maintained on the project at all times. The travel-way shall be a minimum of 4 feet in width, smooth, but not slick with waterproof surface, and shall be ramped as necessary for continuity.
- J. Where necessary the Contractor shall blend appropriately the elevations of temporary and existing pedestrian walkways so as not to pose a danger to the public.
- K. The Contractor shall maintain safe vehicular access to all adjacent property at all times.
- L. Traffic disruptions which are not shown by the TCP, but which are necessary to construct the project, shall be submitted in writing to County for approval prior to commencement of WORK. Submitted material shall include sketches, calculations and other data.
- M. During and after completion of construction, the Contractor shall provide all necessary temporary pavement markings (i.e. lane lines, arrows, crosswalks, stop bars, etc.) until permanent markings are installed.
- N. Conflicting existing pavement markings shall be removed. Removal of existing pavement marking shall be accomplished by hydro blasting or by any other method approved by FDOT. Use of black paint to cover existing pavement markings shall be prohibited. Any conflicting existing pavement markings that have been removed shall be replaced upon completion of the project.
- O. Arrows on the TCPs denote direction of traffic only and do not reflect pavement markings unless otherwise shown. Directional pavement arrows will be required for all turning lanes.

- P. The Contractor shall remove or cover any existing or proposed signs which conflict with the TCPs. When the conflict no longer exists, the Contractor shall restore the signs to their original condition. Unnecessary construction signs and markers that are no longer applicable are to be covered or removed at the end of each workday.
- Q. The Contractor shall repair and maintain roads and shoulders in the work area, throughout the duration of the contract. Repairs shall be made to any low shoulders or rutted out shoulders and restored to the condition at which it was at the acceptance of the construction contract. Maintenance of roads shall be within 2" from the top of pavement, throughout the duration of the contract and will provide adequate drivability.

3.4 DETOURS

- A. The Contractor shall provide at least two weeks notification to the Owner of the necessity to close any portion of a roadway carrying vehicles or pedestrians so that the final approval of such closings can be obtained at least 48 hours in advance. To the greatest extent possible, no more than one lane of roadway shall be closed to vehicles and pedestrians. With any such closings adequate provision shall be made for the safe expeditious movement of vehicles and pedestrians.
- B. Traffic may only be detoured upon approval of Owner. The Contractor shall construct and maintain detour facilities wherever it becomes necessary to divert traffic from an existing roadway. While traffic is detoured the Contractor shall expedite construction operations and periods when traffic being detoured will be strictly controlled by the Owner.
- C. The Contractor shall be responsible for notifying Police, Fire and Ambulance Departments and FDOT whenever roads are impacted or impassable as a result of the Contractor's work.
- D. Temporary travel lanes shall be no less than 10 feet in width, except as noted or directed by FDOT.

3.5 ACCESS REQUIREMENTS

- A. The Contractor shall provide necessary facilities for access to residences, businesses, etc., along the project. Access to residential driveways will be provided to the property line by the end of the work day.

3.6 MAINTENANCE, REMOVAL, AND REINSTALLATION OF EXISTING TRAFFIC SIGNS

- A. The maintenance and/or removal and reinstallation of any existing traffic control sign, or street name sign, (hereinafter-termed Traffic Control Devices) within the area of the project will be the responsibility of the Contractor.

- B. The Contractor shall conduct all operations such that they will in no way obstruct or interfere with the operation of any existing traffic control device.
- C. The Contractor will be held responsible for any existing traffic control devices which are damaged or removed without approval by the Owner, and will be charged for their replacement. This includes, but is not limited to, traffic signal loop, detector loops embedded in the street, signal conduits, cable, and pullboxes at signalized intersections.
- D. The Contractor will be held liable for any damage from any accident resulting from the removal, relocation or failure of any existing traffic control devices by construction operations.
- E. The Contractor shall coordinate with the appropriate jurisdiction.
- F. The Contractor shall be responsible to construct, relocate, and maintain all traffic control signs, pavement markings, barriers, barricades and other devices to cover and or remove signs as needed, and to do all work necessary to maintain a safe work zone. The Contractor shall respond within two (2) hours of notification by Owner.
- G. Barricades and obstructions will be illuminated at night and all lights will be kept burning from sunset until sunrise. Signs, signals and barricades will conform to the requirements of **Subpart G. Part 1926 of the OSHA Safety and Health Standards for Construction**, FDOT and MUTCD.
- H. Existing permanent pavement markings will be maintained by the Contractor. Any temporary pavement markings required to reroute traffic during construction operations will be the responsibility of the Contractor.
- I. Any permanent existing pavement markings that must be removed or obliterated in order to reroute traffic either initially or during continuing construction operations will be the responsibility of the Contractor.

- END OF SECTION -

SECTION 01630 – PRODUCTS, MATERIALS, EQUIPMENT AND SUBSTITUTIONS

PART 1 – GENERAL

1.1 DEFINITIONS

- A. The word "Products," as used in the Contract Documents, is defined to include purchased items for incorporation into the WORK, regardless of whether specifically purchased for the project or taken from Contractor's stock of previously purchased products. The word "Materials," is defined as products which must be substantially cut, shaped, worked, mixed, finished, refined, or otherwise fabricated, processed, installed, or applied to form WORK. The word "Equipment" is defined as products with operational parts, regardless of whether motorized or manually operated, and particularly including products with service connections (wiring, piping, and other like items). Definitions in this paragraph are not intended to negate the meaning of other terms used in the Contract Documents, including "specialties," "systems," "structure," "finishes," "accessories," "furnishings," special construction," and similar terms, which are self-explanatory and have recognized meanings in the construction industry.
- B. Neither "Products" nor "Materials" nor "Equipment" includes machinery and equipment used for preparation, fabrication, conveying, and erection of the WORK.

1.2 QUALITY ASSURANCE

- A. **Source Limitations:** To the greatest extent possible for each unit of WORK, the Contractor shall provide products, materials, and equipment of a singular generic kind from a single source.
- B. **Compatibility of Options:** Where more than one choice is available as options for Contractor's selection of a product, material, or equipment, the Contractor shall select an option which is compatible with other products, materials, or equipment. Compatibility is a basic general requirement of product, material and equipment selections.

1.3 PRODUCT DELIVERY AND STORAGE

- A. The Contractor shall deliver and store the WORK in accordance with manufacturer's written recommendations and by methods and means which will prevent damage, deterioration, and loss including theft. Delivery schedules shall be controlled to minimize long-term storage of products at the Site and overcrowding of construction spaces. In particular, the Contractor shall ensure coordination to ensure minimum holding or storage times for flammable, hazardous, easily damaged, or sensitive materials to deterioration, theft, and other sources of loss.

1.4 TRANSPORTATION AND HANDLING

- A. Products shall be transported by methods to avoid damage and shall be delivered in undamaged condition in manufacturer's unopened containers and packaging.
- B. The Contractor shall provide equipment and personnel to handle products, materials, and equipment including those furnished by County, by methods to prevent soiling and damage.
- C. The Contractor shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces.

1.5 STORAGE AND PROTECTION

- A. Products shall be stored in accordance with manufacturer's written instructions and with seals and labels intact and legible. Sensitive products shall be stored in weather-tight climate controlled enclosures and temperature and humidity ranges shall be maintained within tolerances required by manufacturer's recommendations.
- B. For exterior storage of fabricated products, products shall be placed on sloped supports above ground. Products subject to deterioration shall be covered with impervious sheet covering and ventilation shall be provided to avoid condensation.
- C. Loose granular materials shall be stored on solid flat surfaces in a well-drained area and shall be prevented from mixing with foreign matter.
- D. Storage shall be arranged to provide access for inspection. The Contractor shall periodically inspect to assure products are undamaged and are maintained under required conditions.
- E. Storage shall be arranged in a manner to provide access for maintenance of stored items and for inspection.

1.6 MAINTENANCE OF PRODUCTS IN STORAGE

- A. Stored products shall be periodically inspected on a scheduled basis. The Contractor shall maintain a log of inspections and shall make the log available on request.
- B. The Contractor shall comply with manufacturer's product storage requirements and recommendations.
- C. The Contractor shall maintain manufacturer-required environmental conditions continuously.
- D. The Contractor shall ensure that surfaces of products exposed to the elements are not adversely affected and that weathering of finishes does not occur.

- E. For mechanical and electrical equipment, the Contractor shall provide a copy of the manufacturer's service instructions with each item and the exterior of the package shall contain notice that instructions are included.
- F. Products shall be serviced on a regularly scheduled basis, and a log of services shall be maintained and submitted as a record document prior to final acceptance by the County in accordance with the Contract Documents.

1.7 PROPOSED SUBSTITUTIONS OR "OR-EQUAL" ITEM

- A. Whenever materials or equipment are indicated in the Contract Documents by using the name of a proprietary item or the name of a particular manufacturer, the naming of the item is intended to establish the type, function, and quality required. If the name is followed by the words "or equal" indicating that a substitution is permitted, materials or equipment of other manufacturers may be accepted if sufficient information is submitted by the Contractor to allow the County to determine that the material or equipment proposed is equivalent or equal to that named, subject to the following requirements:
 - 1. The burden of proof as to the type, function, and quality of any such substitution product, material or equipment shall be upon the Contractor.
 - 2. The County will be the sole judge as to the type, function, and quality of any such substitution and the County's decision shall be final.
 - 3. The County may require the Contractor to furnish additional data about the proposed substitution.
 - 4. The County may require the Contractor to furnish a special performance guarantee or other surety with respect to any substitution.
 - 5. Acceptance by the County of a substitution item proposed by the Contractor shall not relieve the Contractor of the responsibility for full compliance with the Contract Documents and for adequacy of the substitution.
 - 6. The Contractor shall pay all costs of implementing accepted substitutions, including redesign and changes to work necessary to accommodate the substitution.
- B. The procedure for review by the County will include the following:
 - 1. If the Contractor wishes to provide a substitution item, the Contractor shall make written application to the County on the "Substitution Request Form."
 - 2. Unless otherwise provided by law or authorized in writing by the County, the "Substitution Request Form(s)" shall be submitted within the 35-day period after award of the contract.
 - 3. Wherever a proposed substitution item has not been submitted within said 35-

day period, or wherever the submission of a proposed substitution material or equipment has been judged to be unacceptable by the County, the Contractor shall provide the material or equipment indicated in the Contract Documents.

4. The Contractor shall certify by signing the form that the list of paragraphs on the form is correct for the proposed substitution.
5. The County will evaluate each proposed substitution within a reasonable period of time.
6. As applicable, no shop drawing submittals shall be made for a substitution item nor shall any substitution item be ordered, installed, or utilized without the COUNTY's prior written acceptance of the Contractor's "Substitution Request Form."
7. The County will record the time required by the County in evaluating substitutions proposed by the Contractor and in making changes by the Contractor in the Contract Documents occasioned thereby.
8. The Contractor's application shall address the following factors which will be considered by the County in evaluating the proposed substitution:
 - a. Whether the evaluation and acceptance of the proposed substitution will prejudice the Contractor's achievement of Substantial Completion on time.
 - b. Whether acceptance of the substitution for use in the WORK will require a change in any of the Contract Documents to adapt the design to the proposed substitution.
 - c. Whether incorporation or use of the substitution in connection with the WORK is subject to payment of any license fee or royalty.
 - d. Whether all variations of the proposed substitution from the items originally specified are identified.
 - e. Whether available maintenance, repair, and replacement service are indicated. The manufacturer shall have a local service agency (within 50 miles of the site) which maintains properly trained personnel and adequate spare parts and is able to respond and complete repairs within 24 hours.
 - f. Whether an itemized estimate is included of all costs that will result directly or indirectly from acceptance of such substitution, including cost of redesign and claims of other Contractors affected by the resulting change.
 - g. Whether the proposed substitute item meets or exceeds the experience and/or equivalency requirements listed in the appropriate technical specifications.

- C. Without any increase in cost to the Owner, the Contractor shall be responsible for and pay all costs in connection with proposed substitutions and of inspections and testing of equipment or materials submitted for review prior to the Contractor's purchase thereof for incorporation in the WORK, whether or not the County accepts the proposed substitution or proposed equipment or material

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

- END OF SECTION -

SECTION 01700 - PROJECT CLOSEOUT

PART 1 -- GENERAL

1.1 FINAL CLEANUP

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

1.2 CLOSEOUT TIMETABLE

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

1.3 FINAL SUBMITTALS

- A. The Contractor, prior to requesting final payment, shall obtain and submit the following items to the County for transmittal:
 - 1. Written guarantees, where required.
 - 2. Technical Manuals and instructions.
 - 3. Maintenance stock items; spare parts; special tools.
 - 4. Completed record drawings.
 - 5. Certificates of inspection and acceptance by local governing agencies having jurisdiction.
 - 6. Releases from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of law.
 - 7. Final survey with certification of a registered Land Surveyor in the state of Florida.
 - 8. Final color video or photo log survey of the completed work within a 500-foot radius of the finished facilities.

1.4 MAINTENANCE AND GUARANTEE

- A. Replacement of earth fill or backfill, where it has settled below the required finish elevations, shall be considered as a part of such required repair work, and any repair or resurfacing constructed by the Contractor which becomes necessary by reason of such settlement shall likewise be considered as a part of such required repair work unless the Contractor shall have obtained a statement in writing from the affected private Owner or public agency releasing the Owner from further responsibility in connection with such repair or resurfacing.
- B. The Contractor shall make all repairs and replacements promptly upon receipt of written order from the Owner. If the Contractor fails to make such repairs or replacements promptly, the Owner reserves the right to do the work and the Contractor and its surety shall be liable to the Owner for the cost thereof.

1.5 BOND

- A. The Contractor shall provide a bond to guarantee performance of the provisions contained in Paragraph "Maintenance and Guarantee".

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

- END OF SECTION -

SECTION 02222 - EXCAVATION AND BACKFILL FOR UTILITIES

PART 1 -- GENERAL

1.01 THE REQUIREMENT

- A. Excavate, grade and backfill as required for the site underground piping and electrical systems, as shown on the Drawings and specified herein.
- B. Dewatering: The Contractor shall submit to the Project Manager its proposed methods of handling trench water and the locations at which the water will be disposed of. Methods shall be acceptable to the Project Manager before starting the excavation.

1.02 RELATED WORK SPECIFIED ELSE WHERE

- A. Piping.
- B. Electrical.

1.03 SUBMITTALS

- A. General: Submit information and samples to the Project Manager for review as specified herein in accordance with the Section entitled "Submittals".

1.04 JOB CONDITIONS

- A. The County will not assume responsibility for subsoil quality, conditions or variations. The Contractor shall examine the site or undertake its own subsurface investigation prior to submitting its bid, taking into consideration all conditions that may affect its work.

1.05 QUALITY CONTROL

- A. An independent testing laboratory will be retained by the Owner to do appropriate testing as described in Section entitled "Quality Control". The Contractor shall schedule its Work so as to permit a reasonable time for testing before placing succeeding lifts and shall keep the laboratory informed of its progress.

1.06 GROUNDWATER

- A. The Contractor shall be responsible for anticipating groundwater conditions and shall provide positive control measures as required. Such measures shall ensure stability of excavations, groundwater pressure control, prevention of tanks, pipes, and other structures from being lifted by hydrostatic pressures, and avoiding the disturbance of subgrade bearing materials.

1.07 TRENCH SAFETY ACT COMPLIANCE

- A. The Contractor by signing and executing the contract is, in writing, assuring that it will perform any trench excavation in accordance with the Florida Trench Safety Act, Section 553.60 et. seq. The Contractor further identified the separate item(s) of cost of compliance with the applicable trench safety standards as well as the method of compliance as noted in the TRENCH SAFETY ACT REQUIREMENT FORM.
- B. The Contractor acknowledges that this cost is included in the applicable items of the Proposal and contract and in the Grand Total Bid and contract Price.
- C. The Contractor is, and the County is not, responsible to review or assess the Contractor's 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 et. seq. cited as the "Trench Safety Act". The Contractor is, and the County is not, responsible to determine if any safety or safety related standards apply to the project, including but not limited to, the "Trench Safety Act".

1.08 PROTECTION OF PROPERTY AND STRUCTURES

- A. The Contractor shall, at its own expense, sustain in place and protect from direct or indirect injury, all pipes, poles, conduits, walls, buildings, and all other structures, utilities, and property in the vicinity of its Work. Such sustaining shall be done by the Contractor. The Contractor shall take all risks attending the presence or proximity of pipes, poles, conduits, walls, buildings, and all other structures, utilities, and its Work. It shall be responsible for all damage, and assume all expenses, for direct or indirect injury and damage, caused by its Work, to any such pipe, structures, etc., or to any person or property, by reason of injury to them, whether or not such structures, etc., are shown on the Drawings.
- B. Barriers shall be placed at each end of all excavations and at such places as may be necessary along excavations to warn all pedestrian and vehicular traffic of such excavations. Barricades with flashing lights shall also be placed along excavation from sunset each day to sunrise of the next day until such excavation is entirely refilled, compacted, and paved. All excavations shall be barricaded where required to meet OSHA, local and Federal Code requirements, in such a manner to prevent persons from falling or walking into any excavation within the site fenced property limits.

PART 2 -- PRODUCTS

2.01 BEDDING

- A. Bedding material shall be clean well graded sand.

PART 3 -- EXECUTION

3.01 EXCAVATION

- A. The Contractor shall perform all excavation of every description and of whatever substance encountered, to the dimensions, grades and depths shown on the Drawings, or as required.
- B. Excavated unsuitable material shall be removed from the site and disposed of by the Contractor. Materials removed from the trenches shall be stored in such a manner that will not interfere unduly with any on-site operations, traffic on public roadways and sidewalks and shall not be placed on private property.

3.02 REMOVAL OF WATER

- A. General: It is a basic requirement of these Specifications that excavations shall be free from water before pipe or structures are installed.
- B. The Contractor shall provide pumps, and other appurtenant equipment necessary to remove and maintain water at such a level as to permit construction in a dry condition. The Contractor shall continue dewatering operations until backfilling has progressed to a sufficient depth over the pipe to prevent flotation or movement of the pipe in the trench or so that it is above the water table. If at any point during the dewatering operation it is determined that fine material is being removed from the excavation sidewalls, the dewatering operation shall be stopped if acceptable to the Project Manager. If any of the subgrade or underlying material is disturbed by movement of groundwater, surface water, or any other reason, it shall be replaced at the CONTRACTOR's expense with crushed stone or gravel.
- C. Disposal: Water from the trenches and excavation shall be disposed of in such a manner as will not cause injury to public health, to public or private property, to the Work completed or in progress, to the surface of the streets, cause any interference with the use of the same by the public, or cause pollution of any waterway or stream. The Contractor shall submit its proposed methods of handling trench water and locations at which the water will be disposed of to the Project Manager for review and shall receive acceptance before starting the excavation. Disposal to any surface water body will require silt screens to prevent any degradation in the water body. The Contractor shall have responsibility for acquiring all necessary permits for disposal.

3.03 PIPE BEDDING

- A. Trenches shall be backfilled with acceptable pipe bedding material, up to the level of the centerline of the proposed pipe barrel. This backfill shall be tamped and compacted to provide a proper bedding for the pipe and shall then be shaped to receive the pipe.

3.04 BACKFILL

- A. Trenches shall be backfilled and compacted to a level minimum 12 inches above the top of the pipe with sand. Only hand operated mechanical compacting equipment shall be used within six inches of the installed pipe.
- B. After the initial portion of backfill has been placed as specified above, and after all excess water has completely drained from the trench, backfilling of the remainder of the trench may proceed. The remainder of the backfill shall be selected material obtained from the excavation and shall be placed in horizontal layers, the depth of which shall not exceed the ability of the compaction equipment employed. Each layer shall be moistened, tamped, puddled, rolled or compacted to the densities specified.

3.05 COMPACTION AND DENSITIES

- A. Compaction of backfill shall be 98 percent of the maximum density where the trench is located under structures or paved areas, and 95 percent of the maximum density elsewhere. More thorough compaction may be required when Work is performed in other regulatory agencies jurisdictions, such as the FDOT. Methods of control and testing of backfill construction are:
 - 1. Maximum density of the material in trenches shall be determined by ASTM D1557.
 - 2. Field density of the backfill material in place shall be determined by ASTM D1556 or D 2922.
- B. Testing: Laboratory and field density tests, which in the opinion of the Project Manager are necessary to establish compliance with the compaction requirements of these Specifications, shall be ordered by the Project Manager. The Contractor shall coordinate and cooperate with the testing laboratory. The testing program will be implemented by the Project Manager establishing depths and locations of tests. Modifications to the program will be made as job conditions change.
- C. Trench backfill which does not comply with the specified densities, as indicated by such tests, shall be reworked and recompacted until the required compaction is secured, at no additional cost to the Owner. The costs for retesting such Work shall be paid for by the Contractor.

3.06 FINE GRADING

- A. After trenches backfilled, the disturbed areas of the site shall be fine graded. Any undesirable materials and rocks larger than the 3-inch size shall be removed from the surface. The completed surface shall be to the preconstruction elevation unless otherwise indicated by the Project Manager. Minor adjustments to line and grade may be required as the work progresses in order to satisfy field conditions.

- END OF SECTION -

SECTION 02500 - SURFACE RESTORATION

PART 1 -- GENERAL

1.01 THE REQUIREMENT

- A. Items specified in this Section include repairs to landscaped and grassed areas that may be damaged or disturbed by Contractor activities.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Asphaltic concrete pavement.

1.03 SUBMITTALS

- A. The Contractor shall submit submittals for review in accordance with the Section entitled "Submittals".

1.04 DEFINITIONS

- A. The phrase "DOT Specifications" shall refer to the Florida Department of Transportation Standard Specifications for Road and Bridge Construction. The DOT Specifications are referred to herein and are hereby made a part of this contract to the extent of such references, and shall be as binding upon the contract as though reproduced herein in their entirety.

1.05 PROTECTION OF EXISTING IMPROVEMENTS

- A. The Contractor shall be responsible for the protection of all pavements and other improvements within the work area. All damage to such improvements, as a result of the Contractor's operations, beyond the limits of the work of pavement replacement shall be repaired by the Contractor at his expense.

1.06 GUARANTEE

- A. The Contractor shall guarantee all trees, ground cover or shrubs planted or replanted under this contract for a period of one year beyond acceptance of the project. In the event that any new tree, plant or shrub dies within the guarantee period, the Contractor shall be responsible for replacement in kind. In the event that a transplanted (reused) tree dies within the guarantee period, the Contractor shall be responsible for replacement in kind, except that the maximum height of any new tree shall be eight feet as measured from the ground surface, once planted, to the top of the tree.

PART 2 -- PRODUCTS

2.01 REPLACEMENT TREES, GROUND COVER AND SHRUBS

- A. Replacement trees, ground cover and shrubs shall be of the same type and size

and sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall have healthy, well developed root systems and shall be free of disease and insect pests, eggs or larvae.

2.02 MULCH

- A. Mulch shall be windproof shredded eucalyptus, mulch shall be clean, fresh, free of branches and other foreign matter. Mulch shall be used around all shrubs, ground covers and tree trunks, and placed to a minimum depth of two inches extending from the tree trunk outward two feet.

PART 3 -- EXECUTION

3.01 GRADING AND SODDING

- A. The Contractor shall regrade the work areas disturbed by his construction activities to the existing grade prior to commencement of construction.
- B. Sod shall be placed on all grassed areas disturbed by construction activities, unless otherwise indicated on the Drawings. Sodding shall be in accordance with Sections 575 and 981 of the DOT Specifications.
- C. Maintenance: Sufficient watering shall be done by the Contractor to maintain adequate moisture for optimum development of the sodded areas. Sodded areas shall receive no less than 1.5 inches of water per week.
- D. Repairs to Lawn Areas Disturbed by Contractor's Operations: Lawn areas damaged by CONTRACTOR's operations shall be repaired at once by proper sod bed preparation, fertilization and resodding, in accordance with these specifications. Regardless of the condition of the lawn area (weed content etc.) prior to the CONTRACTOR working in the area, all repairs shall be made with sod.

3.02 TREES, GROUND COVER AND SHRUBS

- A. Excavation and Plant Holes: Plant hole excavations shall be roughly cylindrical in shape, with the side approximately vertical. Plants shall be centered in the hole. Bottoms of the holes shall be loosened at least six inches deeper than the required depth of excavation.
- B. Holes for balled and burlaped plants shall be large enough to allow at least eight inches of backfill around the earth ball. For root balls over 18 inches in diameter, this dimension shall be increased to 12 inches. Where excess material has been excavated from the plant hole, the excavated material shall be disposed of as and where directed by the Project Manager.
- C. Setting of Plants: When lowered into the hole, the plant shall rest on a prepared hole bottom such that the roots are level with, or slightly above, the level of their

previous growth and so oriented such as to present the best appearance. The Contractor, when setting plants in holes, shall make allowances for any anticipated settling of plants.

- D. Palms of the sabal species may be set deeper than the depth of their original growth, provided that the specified clear trunk height is attained.
- E. The backfill shall be made with planting mixture and shall be firmly rodded and watered- in, so that no air pockets remain. The quantity of water applied immediately upon planting shall be sufficient to thoroughly moisten all of the backfilled earth. Plants shall be kept in a moistened condition for the duration of the contract.
- F. Staking and Guying: Plants shall be staked in accordance with the following provisions:
 - 1. Small Trees: For trees and shrubs of less than one-inch caliper, the size of stakes and the method of tying shall be such as to rigidly support the staked plant against damage caused by wind action or other effects. Trees larger than one inch and smaller than one and one-half inch caliper shall be staked with a two-inch stake, set at least 24 inches in the ground and extending to the crown of the plant. The plant shall be firmly fastened to the stake with two strands of 14 gauge soft wire, enclosed in rubber hose, or other approved covering. The wire shall then be nailed or stapled to the stake to prevent slippage.
 - 2. Medium Trees: All trees, other than palm trees, larger than one and one-half inch caliper and smaller than two and one-half inch caliper shall be staked with two or more, two-inch by two-inch stakes, eight feet long, set two feet in the ground. The tree shall be midway between the stakes and held firmly in place by two strands of 12-gauge wire, applied as specified above for single stakes. The wires shall be tightened and kept tight by twisting.
 - 3. Large Trees: All trees, other than palm trees, larger than two and one-half inch caliper, shall be braced with three or more two-inch by four-inch wood braces, toenailed to cleats which are securely banded at two points to the palm, at a point at least six feet above the ground. The trunk shall be padded with five layers of burlap under the cleats. Braces shall be approximately equidistantly spaced and secured underground with two-inch by four-inch by 24-inch stake pads. In firm rock soils, Number 4 steel reinforcing rods or one-half inch pipe is acceptable.
 - 4. Palm Trees: Palm trees shall be braced with three or more two-inch by four-inch wood braces, toenailed to cleats which are securely banded at two points to the palm, at a point at least six feet above the ground. The trunk shall be padded with five layers of burlap under the cleats. Braces shall be approximately equidistantly spaced and secured underground with two-inch

by four-inch by 24-inch stake pads. In firm rock soils, Number 4 steel reinforcing rods or one-half inch pipe is acceptable.

- G. Pruning: All broken or damaged roots shall be cut off smoothly, and the tops of all trees shall be pruned in a manner complying with standard horticultural practice. At the time pruning is completed, all remaining wood shall be alive. All cut surfaces of one inch or more in diameter, above the ground, shall be treated with an approved commercial tree paint.
- H. Maintenance: Maintenance shall begin immediately after each plant is planted and shall continue until all work under this contract has been completed and accepted by the Owner. Plants shall be watered, mulched, weeded, pruned, sprayed, fertilized, cultivated and otherwise maintained and protected. Settled plants shall be reset to proper grade position, planting saucer restored and dead material removed. Guys shall be tightened and repaired.
- I. Defective work shall be corrected as soon as possible after it becomes apparent. Upon completion of planting, the Contractor shall remove excess soil and debris, and repair any damage to structures, etc., resulting from planting operations.

- END OF SECTION -

SECTION 02630 – WELL DRILLING

PART 1 – GENERAL

1.1 THE REQUIREMENT

- A. The Contractor shall furnish sound proofing barriers, provide mufflers on equipment, and take whatever other steps necessary during drilling, pumping, testing, and all other work incidental thereto to ensure that noise levels and acoustic vibrations conform to any applicable noise ordinances and do not create adverse conditions in the surrounding area.
- B. The Contractor shall take necessary measures to limit access to drilling sites to minimize hazards to the public.
- C. All drilling work shall be performed by a certified water well driller, licensed by the State of Florida.
- D. All federal, state and local permits to access the site and perform the work must be obtained by the Contractor prior to mobilization to the site.

1.2 PERMITTING AND COMPLIANCE WITH GOVERNMENTAL REGULATIONS

- A. The Contractor shall be familiar with and have a full understanding of all applicable local ordinances, state and federal laws and regulations, and interpretations of these laws, ordinances and regulations by a governmental body or agency, including but not limited to, the Florida Department of Environmental Protection (FDEP), the U.S Environmental Protection Agency (USEPA), the SFWMD, Broward County Health Unit, Broward County Environmental Protection and Growth Management and the local municipality where the work will be performed which in any manner affect the work specified herein.
- B. The Contractor shall at all times comply with said ordinances, laws and regulations, and protect and indemnify the County and their officers and agents against any claim or liability arising from or based on the violation of such laws, ordinances, or regulations. All permits, licenses, and inspection fees necessary for protection and completion of the work shall be secured and paid for by the Contractor unless otherwise specified.
- C. The Contractor shall acquire and or comply with all federal, state and local permits and permissions necessary to enter onto the site and perform the work. The Contractor shall obtain any other local, state, or federal drilling permits or occupational licenses and provide notifications to local municipalities prior to the start of well construction activities.

- D. The Contractor shall also conform to any local ordinances pertaining to noise levels and working hours, etc. to avoid any unnecessary delays. It is not anticipated, but should a delay in the project occur due to permit acquisition, the Contractor will not receive additional compensation.

1.3 WORK INCLUDED:

- A. This section covers the work, material, and equipment necessary for drilling the well bore, complete.
- B. The Contractor shall verify all local conditions affecting the work by personal investigation and neither the information on local geology, nor that derived from maps or plans nor from the County or County's agents or employees shall act to relieve the Contractor of any responsibility hereunder or from fulfilling any and all of the terms and requirements of the Contract Documents.
- C. At the completion of drilling, the Contractor shall remove fluid handling system and appurtenances which are not part of each completed well and return each site to existing or better condition as acceptable to the Project Manager.

1.4 REMEDIAL WORK

- A. If remedial work is necessary to make a well acceptable and come within the governing regulations and/or Contract Document requirements because of accident, loss of tools, defective material, or for any other cause under the responsibility of the Contractor, the Contractor shall propose a method of correcting the problem, in writing. Suggested methods shall be reviewed and accepted by the County before work proceeds. Such work shall be performed at no additional cost to the Owner and it shall not extend the length of the Contract. The Contractor is notified that all requirements of the Contract Documents shall be met.

1.5 GUARANTEE

- A. The Contractor guarantees that the work and service to be performed under the contract and all workmanship, materials, and equipment performed, furnished, used, or installed in the work shall be free from defects and flaws, and shall be performed and furnished in strict accordance with the Contract Documents; that the strength of all parts of all manufactured equipment shall be adequate and as specified; and that performance test requirements of the Contract Documents shall be fulfilled. The Contractor shall repair, correct, or replace all damage to the work resulting from failures covered by the guarantee. The guarantee shall remain in effect for one (1) year from the date of final acceptance by the County.

1.6 CONTRACTOR SUBMITTALS

- A. **Calibration Data:** Calibration records for each measuring instrument used in the construction of the well shall be submitted to the County for review prior to the installation or use of the instruments. Calibration of instruments shall have been performed within 60 days prior to use in testing. The calibration records shall contain the following information:
1. Make, Model and Manufacturer
 2. Equipment Serial Number
 3. Date of Calibration
 4. Range of Calibration
 5. Entity performing or certifying calibration
- B. **Cuttings and Drilling Mud Disposal:** Drill cuttings and drilling mud resulting from any of the operations shall be disposed of by the Contractor by hauling to a FDEP approved disposal site. It shall be the Contractor's responsibility to obtain FDEP approval for the proposed disposal site, and to submit to the Project Manager notice of FDEP approval prior to commencing work.
- C. **Daily Logs:** The Contractor will maintain a record of daily construction activities and will provide a copy of the Daily Log to the County at a minimum of once per week. The log shall be on IADC (International Association of Drilling Contractors) Forms or equal as approved by the County.
- D. **Drill Pipe Tally:** The Contractor shall submit to the County an accounting of the lengths and diameters of all drill pipe, tubing, tremie pipe, drill bits, subs or other downhole equipment to be used during drilling activities.
- E. **Equipment and Materials List:** The testing and rehabilitation of wells requires a variety of procedures, each using different materials and equipment.
1. The Contractor shall submit a list of the equipment proposed for use at the site, which shall include manufacturer's load capacities, horsepower, and year of manufacture and year of purchase by the present County for review by the County at least one (1) week prior to use in the performance of the work.
 2. The Contractor shall submit a list of all drilling materials and additives proposed for use at the site which shall include product name, supplier, manufacturer, material safety data sheets (MSDS), expiration dates, and strengths for review by the County at least one (1) week prior to use in the performance of the work.
- F. **Drilling Fluid Discharge:** The Contractor shall submit to the County for review and approval a plan for discharge of formation water. The plan shall include tank dimensions, capacities and inflow/outflow locations and volumes for storage and discharge of drilling, development and test waters. Description of

equipment and additives that may be used to increase dissolved oxygen, decrease turbidity, and otherwise adjust water quality to meet regulatory requirement shall also be included in the Contractor's plan.

- G. The Contractor shall complete and submit to SFWMD and the County a final Well Completion Report.

PART 2 – PRODUCTS

2.1 DRILLING FLUIDS

- A. The Contractor shall furnish high-yield, fine-grained sodium bentonite (manufactured by Aroid Industrial Drilling Products or equivalent) during mud rotary drilling operations. The Contractor shall provide all drilling fluid additives and lost circulation material, as required.
- B. The Contractor shall provide an adequate and safe water supply for mixing operations and shall supply to the County in writing documentation identifying the proposed source of water prior to the start of construction, which shall conform to local Health Unit and other governing agency requirements.
- C. The Contractor shall use only drilling fluids and additives specifically recommended by the manufacturer for use in water well drilling operations. The use of loss circulation material having thixotropic properties may only be used after being reviewed and approved by the County.

PART 3- EXECUTION

3.1 GENERAL

- A. The Contractor shall furnish the materials, equipment, drilling pads, containment and labor to drill a well into the Surficial Aquifer System (SAS) using both standard closed-circulation mud-rotary, and/or reverse-air open-circulation drilling methods, as necessary. Actual borehole and casing total depths shall be based on drilling condition, lithologic sampling, geophysical logging, and hydraulic testing results as determined by the County.
- B. Specific tasks not completely described in this Section that are necessary or normally required as part of the work described, or that are necessary or required to make the installation satisfactorily or legally operable, shall be performed by the Contractor as incidental work without extra cost.

3.2 DRILLING EQUIPMENT

- A. The Contractor shall provide and operate a rotary type drilling rig with required hook-load capacity and equipment capable of performing closed circulation mud and open-circulation reverse-air drilling.
- B The Contractor shall provide and operate equipment with adequate load/weight capacity and with a hook-load weight capacity of 1.5 times the heaviest load anticipated to complete the Work.

- C. All equipment shall be in good working condition before drilling operations commence and shall be operated and maintained in conformance with the manufacturer's specification.
- D. The Contractor shall be responsible for measuring (using industry standards) drilling parameters and drilling fluid properties during the progression of work. These parameters shall include; weight on bit (WOB), drill string weight, rate of penetration (ROP), mud density (mud in – mud out), mud flow rates (flow in – flow out), mud resistivity, and mud pump pressure. Equipment shall be calibrated and certified by the manufacturer or appropriate testing facility before the start of drilling, and shall be operational throughout drilling. Improper operation or lack of measured and recorded data is sufficient cause to suspend drilling, at County's discretion.
- E. The Contractor shall furnish, install and operate a steel rotating control header (manufactured by Washington Rotating Control Heads Inc, or equivalent) or blow out preventer (BOP) of suitable size to control drilling and/or formation fluids during drilling and testing, as required.

3.3 DRILLING FLUID AND FLUID DISPOSAL

- A. Aboveground, leak proof drilling fluid storage tanks shall be used during closed circulation mud rotary drilling operations.
- B. During closed circulation mud rotary drilling, no discharge of drilling fluid shall be allowed at the drill site. Spent drilling fluids used during mud rotary drilling operations shall be disposed of by hauling the solid and liquid phases to a predetermined FDEP- approved disposal site provided by the Contractor.
- C. During open circulation, reverse air drilling, produced drilling fluids and formation water will be diverted through a solids removal system and on site storage tanks. The storage tanks will allow settling of fine-grained suspended solids (clay particles), prevent turbid discharges and allow for the control of a slower rate of discharge.
- D. The Contractor shall set up, operate baffled tanks, and install temporary 12-inch diameter piping system with a temporary silt screen. The Contractor shall be responsible for meeting and complying with all state or federal issued permit requirements regarding well discharges.

3.4 TESTING EQUIPMENT AND SAMPLING CONTAINERS

- A. The Contractor shall provide equipment to manually measure drilling fluid properties including a Marsh Funnel and a fluid density balance.
- B. The Contractor shall provide and employ a self-checking mechanical drift indicator to measure borehole deflection. The mechanical indicator shall be an M/D Totco Controlled Vertical Drift Indicator (CVD) available from National Oil Well Varco, or equal. A 3-degree unit shall be used with the indicator and the survey record

capable of being read to the nearest 0.1 degree.

- C. The Contractor shall provide labeled 3x5-inch cloth sample bags as manufactured by Forestry Supplies or equivalent.
- D. The Contractor shall provide labeled water sampling containers as acceptable to the County.

3.5 DRILLING

- A. The County shall be given at least 72-hour notice and a schedule of activities prior to mobilization. All drilling activities shall be performed during normal working hours (7:00 a.m. to 7:00 p.m.), Monday through Friday or as approved in writing by the County. Work outside normal working hours shall be coordinated with the County 24-hours before initiation of the work. No additional compensation shall be afforded the CONTRACTOR for work performed outside normal working hours. The CONTRACTOR shall provide adequate lighting before the start of any night time work activities. Lighting levels shall comply with applicable federal, state, and local regulations.
- B. The driller shall be a Water Well Contractor licensed in the State of Florida by a Water Management District (e.g., SFWMD). The Contractor, in addition to furnishing the services of a skilled and experienced drilling superintendent, shall also furnish a minimum of two competent driller's assistants. The drilling superintendent shall maintain clear and concise reports of all drilling, well construction, and testing operations.
- C. During all pilot-hole drilling employing the mud-rotary method, laminar flow properties around the drill pipe and drill collars are required to minimize erosion resulting in borehole enlargement.
- D. The Contractor shall ensure that each pilot stage is centered within the previous casing by centering the bit with a nominal casing diameter hole opener as approved by the County.
- E. The Contractor shall monitor and maintain a solids control program during mud-rotary drilling. A mud cleaner (e.g., "shale shaker"), and de-silting/de-sanding cones shall be employed by the Contractor to mechanically remove solids from the drilling mud and reduce the build-up of a thick mud (over-balanced) or formation damage due to high mud invasion.
- F. Mud weights shall be maintained (anticipated weight between 8.75 to 9.5 lbs/gal) during mud rotary drilling with mud viscosity determined using a Marsh funnel. Mud weight, pH, and viscosity shall be determined manually a minimum of 3 times daily and shall be recorded as part of the driller's daily log.
- G. The Contractor shall record on the drillers daily log all lost circulation zones encountered and estimate volume of fluid loss during re-establishment of circulation.

H. The Contractor shall prepare the well bore for geophysical logging as outlined in **Section 02633 –Geophysical Logging**. Borehole preparation shall include but not be limited to:

1. Control of raveling of the borehole wall.
2. Continuous circulation of fluid from the base of the borehole, until all drill cuttings are removed.
3. While moving the drill bit through the drilled section, circulate drilling fluid in the borehole until the borehole is uniform. Continue this process until the drill pipe is completely removed from the borehole.
4. The borehole shall be circulated over its entire length a minimum of 2 hours before conducting geophysical logging operations during mud rotary drilling. The Contractor is solely responsible for maintaining the integrity of the borehole during logging.
5. The drill bit assembly shall be run-in and tripped-out of the borehole in a manner as to reduce swab and surge effects.

I. Reaming of the pilot hole shall be done using a stepped-bit reamer with lead bit the same diameter as the pilot-hole and progressively larger diameter bits up to the size required. A full nominal gauge near-bit stabilizer shall be used during reaming operations.

J. The rotating control header shall be used during drilling operations to ensure the Contractor's ability to control potential flowing conditions. The flow of formation water shall be kept under control at all times. Salt and naturally occurring brines shall not be used as a drilling fluid additive or weighting material. When no work is being conducted on the well, the control header or BOP shall be fully engaged.

K. During drilling, reaming, or other down hole operations within the final casing, the Contractor shall use rubber protective bumpers or other means to ensure no damage to the final casing, as needed.

3.6 ALIGNMENT REQUIREMENTS – PLUMBNESS AND ALIGNMENT TESTING

- A. Pilot and reamed boreholes shall be drilled round, straight, and plumb throughout.
- B. A mechanical drift indicator shall be run in the pilot hole and reamed boreholes at intervals no greater than 90 feet. The tool shall be centralized in the drill pipe during the survey.
- C. The drift from vertical shall not be more than 0.5 of one degree between any two consecutive surveys, and not more than one degree over the entire well length. Drift indicator data (e.g., sure shot discs) and plots shall be maintained by the Contractor for the duration of this project and shall be supplied to County as part of the driller's daily logs. The Project Manager may inspect the tool, and require

that it be disassembled, recalibrated, or tested at any time during the project, with or without cause. The Contractor at his own expense shall correct borehole deviations in plumbness.

3.7 FORMATION SAMPLES AND TESTING

- A. At 10-foot intervals during pilot hole drilling and at changes of formations, the Contractor shall collect representative cuttings samples in order to provide an indication and classification of geological formations penetrated. The Contractor shall take two large representative samples of the cuttings from the interval or new formation based on drill pipe travel times, and shall label and preserve each sample in sturdy sample bags as provided by the Contractor. All samples shall be permanently labeled to indicate well number, date, time, and the exact depth from which the sample was taken. Samples shall be stored in a manner to prevent damage or loss. Two (2) sets of geologic samples should be collected by the Contractor and stored in cloth sample bags as directed by the County.
- B. The Contractor shall provide the County safe and unobstructed access to collect formation samples in addition to those collected by the Contractor. The Contractor shall accommodate the County in retrieving representative samples, including but not limited to, moderating drill rates and circulation times as necessary. The County reserves the right to evaluate the safety of the sample collection site and shall have the authority to stop drilling operations until the safety concerns are addressed and met.

3.8 DRILLING AND WELL LOGS

- A. The Contractor shall maintain a detailed daily log of the operations during well construction. The daily log shall provide a brief and accurate description of the following: geologic materials and depths encountered, depths of lost circulation zone(s) and methods of regaining circulation, drilling rate, time, depth, description of any unusual occurrences or problems during drilling, diameters and lengths of casing installed, complete record of drilling fluids added, mud weights and viscosities, cementing operations, geophysical logs runs, repair time and any other work performed at the site. The Contractor shall keep the log up to date with the progress of drilling.
- B. The Contractor shall prepare a final well log which includes; borehole diameters, depth of the borehole and casing seats, casing diameter and wall thickness, cemented zones and cement pumping summary, amount of sand removed during development and any/all information pertinent to well construction and testing activities.
- C. The Contractor shall submit the final well log, original geograph strip charts, and mechanical drift indicator discs to the County at the end of drilling activities. Final payment is contingent upon receipt of all required supporting data.

- END OF SECTION -

SECTION 02631 – WELL CASING

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. **Commercial Standards:** All work specified herein shall conform to or exceed the requirements of the applicable codes and standards relating to the referenced portions of the following documents only to the extent that the requirements therein are not in conflict with the provisions of this section. Where such documents have been adopted as a code or ordinance by the public agency having jurisdiction, such a code or ordinance shall take precedence.
- B. **State Standards:** SFWMD and FDEP Rules and Regulations for Water Wells in the Florida Administrative Code (FAC). C. Commercial Standards:

| | |
|----------------|---|
| ANSI/ASTM A139 | Specification for Electric-Fusion (Arc)-Welded Steel Pipe (sizes 4-in and over). |
| ANSI/AWS D1.1 | Structural Welding Code – Steel. |
| ASTM A 53 | Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless. |
| ASTMD1784 | Specification for Rigid PVC Compounds and Chlorinated PVC Compounds. |
| ASTM D2837 | Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials. |
| ASTM D2996 | Standard Specification for Filament-Wound "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe |
| ASTM F480 | Specification for Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), SCH 40, and SCH 80. |
| AWWA A100 | Standard for Water Wells. |
| AWWA C206 | Field Welding of Steel Water Pipe. |

1.2 CONTRACTOR SUBMITTALS

- A. All Contractor submittals shall conform to the applicable requirements of **Section 01300 - Contractor Submittals**, and the supplementary requirements specified. Each item listed in below shall be submitted to the County with a clear explanation or depiction of why or how the requirements, as listed, will be fulfilled by the products or services provided by the Contractor. This list is not considered all-inclusive and may be extended by the County, or Contractor.

- B. **Subcontractor's List:** The Contractor shall submit a complete list of all proposed subcontractors to be used in the work. The Contractor may be required to submit additional information for any of the subcontractors proposed.
1. **Welders:** Prior to the start of work, the Contractor shall submit a list of the welders it proposes to use during well construction and the type of welding for which each has been qualified, along with current certification documents for each welder listed.
- a. All welders and welding operators shall be certified at the Contractor's sole expense by a qualified testing laboratory before performing any welding under this section. Certification tests shall be in accordance with Section IX, Article III of the ASME Boiler and Pressure Vessel Code. Welders and operators shall be certified for making groove welds in carbon steel pipe in position 6G for each welding process to be used.
- b. Certification tests may be waived if evidence of prior certification is approved by the County. Contractor shall retest any welders at any time the County considers the quality of the welder's work substandard. When the County requests the retest of a previously qualified welder, the labor costs for the retest will be at the Owner's expense if the welder successfully passes the test. If the welder fails the retest, all costs shall be at the Contractor's expense.
2. The Contractor shall provide a list of the welders that have been certified for the Work that the Contractor intends to use 72 hours prior to the start of welding activities.
- C. **Mill Certificates:** Casing mill certificates shall be submitted to the County for all casings at least one week prior to the installation of the casing. Heat numbers on casing joints shall be readily visible and legible or the casing will not be accepted by the County.
- D. **Thermoplastic Pipe Manufacturer Certificates:** Thermoplastic pipe manufacturer certificates outlining the material composition, lengths and other properties for the pipe delivered for use in the work shall be provided to the County at least one week prior to the installation of the pipe in the borehole.
- E. **Fittings:** Provide all fittings; drive shoe and centering guides as specified or as necessary to the complete the well.
- F. **Installation Plans:** The Contractor shall submit for the County's approval installation plans for casing installation at least 72 hours prior to commencing work. The plans shall include tabulation of casing on site and the length of each section, weight of each joint, cumulative string weight, order of installation of casing sections, landing depths for each casing section referenced to land surface, and locations of centralizers and casing tabs.

G. Material used in the construction of the well shall be NSF approved for the use in
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the construction of potable water wells.

- H. **Gravel Pack and Well Screen Design:** The Contractor shall have a sieve analysis performed by a Certified Testing Laboratory on cuttings removed from the production interval of the borehole. The Certified Testing Laboratory shall perform the appropriate tests and shall submit a sieve analysis, gravel pack design, and screen slot size determination to the Contractor/County for review and acceptance at least seven days prior to the anticipated placement of a screen and gravel pack in the borehole.

PART 2 -- PRODUCTS

2.1 CASING

- A. Casing material and fittings provided by the Contractor for installation shall be new and unused and shall conform to the requirements for water well construction. No used, rusted, brittle, or damaged casing will be accepted for installation. All material shall be NSF approved for use in public water supply wells.
- B. **Storage:** The Contractor is responsible for properly storing and protecting casing materials prior to installation. The Owner shall bare no responsibility for materials that are stolen or damaged by acts of vandalism.
- C. **Steel Casing:** Steel casing shall meet the requirements of ASTM A53 Grade B or ASTM A139. Steel casing shall be factory assembled in not less than 20-foot lengths. The ends of each joint shall be machine beveled to ensure straightness of each assembled section. Casing joints shall be welded in accordance with ANSI/AWS D1.1. Casing joints shall be welded in accordance with ANSI/AWS D1.1.
- D. **Thermoplastic Pipe:** Any thermoplastic pipe used for well casing shall meet the standards of ASTM F-480 Standard Specification for Thermoplastic Well Casing Pipe and Couplings. Thermoplastic well casing shall meet the requirements of ASTM including the latest revision and shall meet or exceed the requirements for impact resistance classification set forth in Section 6.5 of ASTM F-480. Well casing may be joined by mechanical joints such as splined couplings, threaded or other types of joints approved in advanced by the County. All joints must be watertight. Solvent welded joints are not permitted.
- E. **Surface Casing:** The outer casing shall be 24- to 34-inch outer diameter (OD), 0.375 wall thickness, steel casing.
- F. **Final Casing:** The final casing shall be 12- to 20-inch SDR 26 PVC. The upper-

most section of the final casing shall be new, unused 316L stainless steel. The CONTRATOR shall supply CertainTeed Certa-Lok PVC well Casing or equivalent.

- G. **Wire Wound Continues Slot Screen:** Continues-slot well screen shall be all-welded construction. Triangular shaped wire shall be helically wound around an array of equally spaced longitudinal rods and welded at each point of intersection. The inlet slot openings between adjacent turns of the outer wire shall widen inwardly so as to be non-clogging. Screen end fittings shall be made of the same material as the screen body and shall be securely welded to each screen section.
1. The well screen and its fittings shall be fabricated from type 304 stainless steel and shall meet the requirements of ASTM A312. The bottom-most screen shall be manufactured with up to a 5-foot stainless steel tight-wound, zero-slot screen or blank casing and welded bottom plate.
 2. The Contractor shall submit the manufacturer's sieve analysis, screen design recommendations, proposed well screen Specifications, Drawings, and related data for approval by the County.
 3. Actual depths, spacing and dimensions shall be determined after the driller's log and geophysical survey logs have been evaluated by the County. The Contractor shall provide the County with a recommended screen slot size based on the results of drilling activities and laboratory results.
 4. The manufacturer's recommended method for connecting the screen to the casing shall be provided by the Contractor to the County for approval prior to installation.
- H. **Centralizers:** Casing centralizers shall be fitted on all casing using Halliburton Company or equal centralizers with straps at 0, 90, 180, and 270 degrees around the casing at each position and are described further in this section under 3.3 Casing.

PART 3 -- EXECUTION

3.1 GENERAL

- A. The work shall be performed by a competent crew with equipment that is adequate to complete all phases of well construction. The PVC final casing shall be installed by the Contractor's personnel experienced with the installation process.
- B. The depths and lengths for casings shall be recommended by the Contractor and approved by the County based on lithologic conditions and other testing information.
- C. The hook load of the drilling rig must exceed the maximum casing weight to be encountered during the construction of the well.

- D. **Failure to Land Casing:** If the casing cannot be landed in the correct position or at a depth acceptable to the County, the bore hole will be deemed abandoned and the Contractor shall construct another well immediately adjacent to the original location and complete this well in accordance with the Contract Documents at no additional cost to the Owner.
- E. **Plumbness and Alignment:** The Contractor shall perform plumbness and alignment tests in the final casing prior to acceptance of the well. Should the Contractor not be able to perform plumbness and alignment tests in the well that are acceptable to the County, the well will be deemed abandoned and the Contractor shall construct another well immediately adjacent to the original location and complete this well in accordance with the Contract Documents at no additional cost to the Owner.
- F. **Collapsed or Deformed Casing:** If the casing should collapsed or deform for any reason prior to well completion, it shall be withdrawn and replaced at the CONTRACTOR's expense.
- G. **Repeat Work:** All work required to be repeated, resulting from the Contractor's performance, or lack thereof, including all additional materials, labor and equipment required, shall be furnished at the expense of the Contractor and no claim for additional compensation shall be made or be allowed therefore, except as specifically provided herein.

3.2 PREPARATION OF CASING

- A. The Contractor shall transport, store and handle well casing in a responsible and professional manner.
- B. The Contractor shall physically measure and label each section of casing to ensure proper depth control. The Contractor shall measure both ends of each section of casing to ensure the casing is not out-of-round. At least two measurements, 90 degrees to each other across the ends of each section of casing will be used to verify casing roundness. Casing with deviations greater than 0.25 inches will be deemed defective. All pipe measurements shall be included as part of the driller's daily logs and must be submitted for partial payment related to footage of casing installed.
- C. On steel casing, the pipe ends shall be prepared preferably by machine shaping. Beveled ends for butt welding shall conform to ANSI B16.25.
- D. On Thermoplastic pipe, the pipe ends shall be inspected for defects that would prevent water-tight connections. Defective pipes as determined by the County shall be replaced with pipe acceptable to the County.
- E. All casing shall be clean and free of paint, oil, rust, scale, slag, sand, or other material detrimental to welds and cement bonds. Casing that will not yield an acceptable cement bond as determined by the County shall be

remedied at the Contractor's expense.

- F. Casing threads, couplings, and joints shall be inspected for damage. If damaged, the section of pipe will be disallowed for use.

3.3 CASING

- A. **Casing Installation:** When the reaming operation has been completed and the borehole geophysically logged, casing will be installed. The lengths and intervals of each casing type, except for the surface casing, will be determined by the County.
- B. **Tension:** The casing shall be suspended in tension from the surface. The bottom of the casing shall be at a sufficient distance above the bottom of the reamed hole as to ensure that none of the casing will be supported from the bottom of the hole. The casings shall be lowered into the borehole open-ended and the weight of the casing shall be supported by the drilling rig.
- C. **Centralizers:** Centralizers shall be attached to steel casing with steel straps made of the same material as the casing. All centralizer groups shall be vertically aligned one above the other in order to permit the passage of tremie pipes alongside the casing to the bottom of the borehole. Centralizer groups will be placed as follows:
 - 1. One group at the bottom end of the casing.
 - 2. One group across the first welded joint.
 - 3. One group within 30 feet of the surface.
 - 4. One group every 100 feet
- D. Centralizers shall be secured to the casing in manner to prevent vertical or rotational movement on the pipe during grouting.
- E. The Contractor shall align pipe ends to be joined within commercial tolerance limits on diameters, wall thickness, and out-of-roundness.
- F. The Contractor shall demonstrate that the installed casing is free hanging and can be easily rotated and reciprocated prior to grouting operations.

3.4 STEEL WELDING

- A. The standards of the American Welding Society, Structural Welding Code (AWS D1.1) shall apply for all welded joint casing and accessories. All welds shall conform to the latest revision of ANSI B31.1.
- B. All welded casing joints shall be made by welders certified in the State of Florida.
- C. The certified welder shall perform and be responsible for the integrity of all steel casing welds. The Contractor must provide the County proof of welders'

certifications 72 hours before any welding is performed.

- D. Any surface defects that shall affect the weld shall be chipped or ground out. A power driven wire brush shall be used to thoroughly clean each layer of weld prior to each additional weld metal, including the final pass.
- E. There shall be a minimum of three (3) weld passes on pipe sizes 6-inches and greater. Welded joints shall be allowed to cure until the temperature of the weld is below 250 degrees Fahrenheit before the weld is placed in contact with water. The Contractor shall provide a means to measure weld temperatures. Weld temperatures will be examined in the presence of the County.
- F. Weld reinforcement shall be as specified by the AWS code. Upon completion of welding, all weld splatter, flux, slag, and burrs left by attachments shall be removed. Welds shall be repaired to produce a workmanlike appearance, with uniform weld contours and dimensions.
- G. All field joints shall be welded during installation by qualified welders in accordance with the requirements of AWWA C206

3.5 PLUMBNESS AND ALIGNMENT: The testing shall be performed in accordance with AWWA A100.

- A. The Contractor shall test plumbness of the casing by centering a plummet in the top of the casing and lowering the plummet into the casing. The length of the plummet shall be 1.25 times the inside diameter of the final casing and have a minimum outside diameter 1/2-inch smaller than the inside diameter of the casing. The plummet shall be lowered in 10-foot increments and the direction and amount of movement of the cable shall be measured at each stage using a template resting on top of the casing. The maximum allowable deviation from vertical shall be not more than 0.5 of one degree within the casing at any depth.
- B. Alignment of the well shall be tested by lowering a 40-foot long section of pipe or a dummy to a depth of 100 feet below the ground surface. The outside diameter of the pipe or dummy shall be 0.5 inches less than the inside diameter of the casing being tested. If a dummy is used it shall consist of a rigid spindle with a minimum of three cylindrical rings, each ring shall be a minimum of 0.5 inches less than the casing inside diameter. The rings shall be located one at each end and one in the center of the dummy. The pipe or dummy shall move freely throughout the tested length of casing.

- END OF SECTION -

SECTION 02632 – WELL CEMENTING

1.1 THE REQUIREMENT

- A. **Commercial Standards:** All work specified herein shall conform to or exceed the requirements of the applicable codes and standards relating to the referenced portions of the following documents only to the extent that the requirements therein are not in conflict with the provisions of this section. Where such documents have been adopted as a code or ordinance by the public agency having jurisdiction, such a code or ordinance shall take precedence.
- B. **State Standards:** SFWMD and FDEP Rules and Regulations for Water Wells in the Florida Administrative Code (FAC). C. **Commercial Standards:**
- | | |
|-----------|-----------------------------------|
| ASTM C150 | Specification for Portland Cement |
| AWWA A100 | Standard for Water Wells |
- C. Provide a calibrated in-line magnetic fluid densometer (or equal) and digital flowmeter. This equipment shall be able to continuously monitor and record the bulk density and the volume of cement grout pumped.
- D. Provide a mud scale for manual measurements.

1.2 CONTRACTOR SUBMITTALS

- A. All Contractor submittals shall conform to the applicable requirements of **Section 01300 - Contractor Submittals**, and the supplementary requirements specified. Each item listed below shall be submitted to the County with a clear explanation or depiction of why or how the requirements, as listed, will be fulfilled by the products or services provided by the Contractor. This list is not considered all-inclusive and may be extended by the County or Contractor.
- B. **Subcontractor's List:** The Contractor shall submit a complete list of all proposed subcontractors to be used in the work. The Contractor may be required to submit additional information or a resume of qualifications for any of the subcontractors proposed.
- C. **Specialty Cementing Contractor:** In all cementing operations, the Contractor must be assisted by a specialty subcontractor familiar with cementing the type of formations typically utilized for the work or utilize the services of a company such as Halliburton Services, or equivalent, unless the Contractor can demonstrate previous experience and expertise in performing such operations on at least three equal or larger casing cementing projects in the past 5 years.
- D. **Cement Plan:** The CONTRACTOR shall submit for the Project Manager's approval plans for cementing operations at least 72 hours prior to commencing work on those operations. The plans shall include the top and bottom of each

interval to be cemented, pre-flush and spacer fluid and volume, composition of cement to be used in each interval and volume to be pumped, method of emplacement of cement, expected fill-up, expected pressures, heats of hydration expected and any additives to be used.

- E. **Material Safety Data Sheet (MSDS):** The Contractor shall provide to the County MSDS for any proposed cement additives before the start of construction. Cement additives should be considered as part of the cement unit cost.
- F. **Mixing Water Supply:** The Contractor shall identify, in writing to Project Manager, the proposed source of water prior to the start of construction.
- G. **Cement Samples:** Samples of cement shall be collected during the cementation of all casings. Samples shall be labeled with the date, time of collection, well name, cement mix, and cement stage and shall be submitted after fully set to the County.
 - 1. The Contractor shall collect dry and mixed samples of the cement being used. Mixed cement samples shall include at least three (3) 2-inch cubes suitable for tests of compressive strength. Only 2-inch cubes, suitable for tests of compressive strength, will be acceptable as representative cement samples.
 - 2. Mixed cement samples shall be collected a minimum of three (3) times during each cement stage: Prior to pumping, at the middle, and at the end of the stage. The specified slurry density shall match the specified slurry density indicated on the delivery certificate.
- H. **Cement Operation Summary:** A Cement Operation Summary shall be submitted to the County by the Contractor. The summary shall contain the date, well name, cement stage, times for sequential pump volume, densometer, and casing pressure readings, pre-flush and chase volumes and other information pertinent to cementing. The cementing operation summary must be submitted to the County by the Contractor immediately following cement pumping. If cement operation summary sheets are not submitted before the Contractor leaves the site, the Contractor shall not be paid for the individual cementing job.
- I. **Calibration Certificates:** The Contractor will submit a certified calibration report performed in the last 60 days.
 - 1. In-Line Magnetic Fluid Densometer (or equal): Serial Number, Model Number, Manufacturer, calibration service company name, date and time of calibration.
 - 2. Digital Flowmeter: Serial Number, Model Number, Manufacturer, calibration service company name, date and time of calibration.

PART 2 -- PRODUCTS

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2.1 PORTLAND CEMENT

- A. Material used for sealing the casing shall consist of a neat cement grout using Type II Portland cement conforming to ASTM C 150. Neat cement grout shall contain no more than 5.2 gallons of water per 94 pound sack of cement.

2.2 BENTONITE AND OTHER ADDITIVES

- A. Additives may be mixed with the sealing material to speed setting time or to expand the material. They shall not exceed the following:
- Not more than 2 percent, by weight, calcium chloride.
 - Not more than 6 percent, by weight, bentonite.
 - Other additives as approved by the Project Manager.
- B. Provide all high-yield, fine-grained sodium bentonite (manufactured by Baroid Industrial Drilling Products or equivalent) as required for cementing in proportions specified and as approved by the County. The cement grout shall not exceed 6 percent, by weight, bentonite and should be considered as part of the cement unit cost.
- C. Provide other cementing additives specifically formulated for use in water well cementing as required by the Project Manager.

2.3 MIXING WATER

- A. Provide an adequate and safe water supply for cementing operations.

2.4 THIXOTROPIC CEMENT

- A. Thixotropic cement may be required by the County to bridge lost circulation horizons as a result of secondary permeability and porosity development, as required. This potential cost shall be considered part of unit cost for ASTM Type II cement.
- B. Thixotropic cement formulations (e.g., Material Data Safety Sheet) shall be provided to the County for approval and shall have a minimum yield of 2.59 cubic feet per sack prior to use.

2.5 SAND – LIMESTONE GRAVEL

- A. Provide and install silica sand in the borehole using the tremie method. The amount and placement of sand shall be determined by the County. Material shall be 6/20 silica sand or other size as required by the work and approved by the County. The gravel will be well graded, and free of deleterious material.
- B. Provide and install limestone gravel in the borehole using the tremie method. The amount and placement of the limestone gravel shall be determined by the County. Material shall be 1/4 to 3/8-inch in diameter, well sorted, and free of

deleterious material.

PART 3 -- EXECUTION

3.1 GENERAL

- A. All work required to be repeated, resulting from the Contractor's performance, or lack thereof, including all additional materials, labor, and equipment required, shall be furnished and performed at the expense of the Contractor and no claim for additional compensation shall be made or be allowed, except as specifically provided herein.

3.2 CEMENTING OF CASING

- A. It is solely the Contractor's responsibility to conduct the cementing operations in such a manner that the burst and collapse strengths of the casing (with safety factor of 1.5) are not exceeded, and the casing is not caused to melt, deform or fail during grout placement.
- B. During and 8 hours following the placement of cement, a pressure of 100 psi shall be maintained in the casing. The heating and cooling of the cement may require water to be added or released from the casing to maintain the required internal casing pressure.
- C. Cement will be pumped or placed so that the pressure of the slurry and the pressure applied inside the casing pipe do not affect the cement bond.
- D. Any collapsed casing shall be removed and replaced at the Contractor's own expense. Cement shall be pumped or placed so that excessive pressures and heat build-ups shall not result. Should the Contractor fail to correct any defects, the County may refuse to accept the well.
- E. Cement grouting operations shall be done in the presence of the County. Full access to all cementing equipment and gauges shall be provided to the County representative by the Contractor before, during, and after pumping operations.
- F. Pressure grouting is the required initial method for each new casing, followed by tremie grouting in stages, if the initial cement stage does not cause cement returns at land surface.
- G. The first stage of cement pumped into the annulus around the base of the well casing shall consist of neat cement slurry.
- H. Grout shall be placed into the annular space using the pressure grouting technique. The grout shall be pumped under pressure from the bottom of the casing. In the event the borehole collapses prior to placement of the grout seal, the Contractor shall take whatever steps are necessary to re-open the hole and place the seal as specified.
- I. A high-pressure (150 to 300 psi) steel header and 2.875-inch-diameter steel hydril

tubing shall be installed and used during pressure grouting operations. No method shall be permitted that fails to force grout from the bottom of the casing to the next specified interval or land surface. The grouting shall be done continuously and in such a manner to ensure, the annular space of the casing is completely filled.

- J. Grout slurry placed by the tremie method shall use collarless 1.25 inch diameter or greater steel hydril tubing having an inside diameter of 1.0 inch or greater. Cement shall be pumped through two pipes spaced 180 degrees apart in the annulus or as approved by the County. Grout pipe shall be withdrawn as the annulus is filled, and before the cement begins to set. Grout pipes shall be set not more than 5 feet above the top of the previous cement stage.
- K. During the pumping of each cement stage, the Contractor shall be responsible for determining the density of and collecting three grout samples. Grout samples shall be taken before pumping, at the midpoint, and near the end of each stage. The County reserves the right to disallow any cement grout where samples meeting the required density requirements were not taken.
- L. During the pumping of each cement stage, the Contractor shall utilize the monitoring equipment required in this section. Measurements of cement weight shall be provided to the County at frequent intervals prior to and during cementing operations using either a densometer or mud scale.
- M. During the pumping of each cement stage, the Contractor shall supply a secondary means of measuring or inferring cement volumes installed. This may include one or more of the following:
 - Functional and accurate (calibrated) barrel counter readings with onsite verification.
 - Before and after physical weight measurements of the bulk cement hopper at a certified weight station or copy of shipping manifest.
 - Accurate volume measurement of displaced fluids from the annulus.
- N. A cement bond log may be required to identify if good bonding between the casing, cement, and formation is obtained. If the bond is unacceptable, remedial work shall be performed to the satisfaction of the County. In addition, the County may request additional temperature, gamma, or cement bond logs to evaluate the effectiveness of any remedial grout work performed. These operations shall be conducted at the Contractor's own expense.
- O. During all stages of cementing, the Contractor shall use a pre-flush or spacer. The Contractor shall submit the technical specifications of the pre-flush to the County as part of the cementing plan submittal.

3.3 SETTING TIME

- A. A minimum of eight hours-setting time shall be required between successive

cement stages.

- B. All cement stages shall be physically tagged by a collarless tremie pipe prior to pumping the next stage of cement.
- C. The County may require a cement temperature/gamma log to be conducted before installing additional stages of cement based on the comparison of theoretical cement volumes and anticipated tag depths and actual pumped cement volumes and tag depths.
- D. After the completion of cement grouting activities, the casing shall remain undisturbed for a minimum of 24 hours.

3.4 BOREHOLE (PILOT OR REAMED) BACKPLUGGING

- A. If field conditions warrant, the Contractor shall be responsible for back-plugging the borehole to a depth specified by County.
- B. A cement plan specifying material and placement methods shall be reviewed and approved by County before ordering the necessary materials.
- C. Back-plugging material may consist of gravel, sand, and/or cement slurry or any combination of the three as determined by County. Gravel may be used within selected high permeability zones at the discretion of the County. If sand or gravel is used, a 20-foot cap of neat cement shall be placed on top of sand or gravel. Back-plugging material may also consist entirely of Type II neat cement.
- D. If the back plugging material consists of cement slurry a minimum of six (6) hours-setting time shall be required between successive cement stages or other down hole activities.

3.5 REMEDIAL WORK

- A. The Contractor shall be responsible for all remedial work and related expenses in order to meet regulatory requirements and the Contract Document requirements at the Contractor's own expense. This shall include defective materials, accident, loss of equipment or equipment malfunction, or for any other cause directly attributable to the Contractor. The County shall be notified immediately in the event of a problem, and the following shall apply:
 - 1. The Contractor shall propose a method of correcting the problem, in writing to the County. The County shall review the method of corrective action, and accept the plan in writing before work proceeds.
 - 2. All remedial work shall be conducted in accordance with all applicable local, state, and federal regulations and these specifications which ever are more stringent.
 - 3. Corrective work shall be done at the Contractor's own expense and shall not extend the Contract time.

3.6 REHABILITATION CEMENTING

- A. Rehabilitation cementing operations will be performed in accordance with federal, state, and local requirements and these specifications which ever are more stringent.
- B. The Contractor shall submit a Cement Plan to the County prior to initiation of cementing operations. Several specific cementing operations are detailed below but are not inclusive of all operations possible.
 - 1. Cement “squeeze” operations will install a cement seal at the base of the casing while holding pressure on the casing to force cement up the annular space. The Contractor shall remove the cement plug that forms at the base of the casing as a result of this method without damage to the casing and before well development
 - 2. Cement placed behind an existing casing by the tremie method will require the Contractor to fill open hole section with silica sand using a tremie pipe to prevent plugging of the open hole with cement (see 3.4 – BOREHOLE (PILOT OR REAMED) BACKPLUGGING above). The first cement stage will be a lift of no more than 20 feet of neat cement grout to seal the base of the casing before the annular space can be cemented to surface. Following cementing, the silica sand shall be air developed from the open hole.
 - 3. Cement placement around a new riser pipe and screen will consist of installation of a riser pipe with cement baskets attached at the base of the riser pipe and cement placement by tremie method inclusive of a hard tag confirmation of the cement basket set depth. The first cement stage will be a lift of no more than 20 feet of neat cement grout to seal the cement basket before the annular space can be cemented to surface.

3.7 WELL ABANDONMENT

- A. **Existing Well Abandonment:** Existing well or borehole abandonment as part of the WORK will be accomplished by the Contractor in accordance with all governing regulations or the Contract Documents whichever is more stringent.
 - 1. The Contractor shall propose a method of well abandonment or hole abandonment in the Abandonment Plan submitted to the County for approval.
 - 2. Following County approval of the Abandonment plan, the Contractor will place gravel and cement via the tremie method as approved.
 - 3. The cement will be pumped until there are cement returns at the surface. The cement will be left undisturbed for a minimum of eight (8) hours before the top of the cement filled casing can be cut off to a minimum depth of 18 inches below ground surface.
 - 4. The site of the abandoned well will be backfilled, tamped, and graded to match surrounding land surface elevations.

- B. **Voluntary Contractor Abandonment:** If, the Contractor voluntarily stops work, and/or fails to complete the well or borehole in accordance with governing regulations or the Contract Documents, the hole will be declared by the County as abandoned in writing. The Contractor shall not be paid for all or part of a hole declared as abandoned.
1. The Contractor shall propose a method of well abandonment or hole abandonment in the Abandonment Plan submitted to the County for approval. The County must approval the plan before work can proceed. All work on the well must be in accordance with all applicable local, state, and federal regulations.
 2. The cost of properly plugging and sealing the well or borehole, in accordance with applicable local, state, or federal regulations, shall be at the Contractor's own expense.
 3. If a well or part of the well, does not have mechanical integrity as defined by the appropriate regulatory authorities, it must be acceptably accounted for in the abandonment plan and approved by the appropriate regulatory authorities and the County prior to abandonment
 4. The cost of any required post-abandonment monitoring shall be at the Contractor's own expense.

- END OF SECTION -

SECTION 02633 – GEOPHYSICAL LOGGING

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. This section covers the work, material, and equipment necessary to conduct geophysical logging of the well during construction, rehabilitation, or as part of a testing program.
- B. The Contractor shall maintain control of the borehole and borehole fluids during geophysical logging activities.
- C. The Contractor shall prevent damage to existing casings and screens during geophysical logging activities inside existing well facilities.
- D. When geophysical logging is to be conducted under static and dynamic conditions, all static logging shall be completed prior to performing the dynamic logs.
- E. When geophysical logging includes a static temperature or fluid resistivity log, the static temperature and resistivity logs should be conducted after the well has been shut-in and undisturbed for a minimum of 12 hours.
- F. The Geophysical Logging subcontractor approved by the County shall provide a logging tool operator that is knowledgeable in the interpretation of logs, to the degree that the operator can make decisions regarding the accuracy and validity of the logs and the sensitivity of the instruments, while using a geophysical logging system capable of producing logs in digital format.
 - 1. The resolution and precision of each instrument will be adequate for the interpretation of the formation properties being studied, calibration standards independent of the logging equipment will be used, and calibration and quality control information shall be presented on the logs.
 - 2. Each log shall be recorded using a depth measurement that is accurate to within 0.1 feet using a resolution of approximately 1/50th of the greatest deviation of the quantity measured over the entire log.
 - 3. Each log shall include a repeat section at a depth approved by the County.
 - 4. The Contractor will provide the County a minimum of a 48-hour notice of the time when geophysical logging surveys (including video survey) will be conducted.
 - 5. Each logging tool shall be calibrated in the presence of the County.

1.2 CONTRACTOR SUBMITTALS

- A. All CONTRACTOR submittals shall conform to the applicable requirements of Section 01300 - Contractor Submittals, and the supplementary requirements specified. Each item listed below shall be submitted to the County with a clear explanation or depiction of why or how the requirements, as listed, will be fulfilled by the products or services provided by the Contractor. This list is not considered all-inclusive and may be extended by the County or Contractor.
- B. **Geophysical Logging Firm:** All geophysical logs shall be performed by a company experienced in the performance of such logs. The geophysical logging firm must be pre-approved by the County.
- C. **Geophysical Logging:** The Contractor shall submit all geophysical logs in Log ASCII Standard (LAS) and "printable" Portable Document File (*.pdf) format immediately subsequent to each logging activity.
1. The Contractor shall submit three field hard copies of all geophysical logs to the County within 24 hours following logging activities.
 2. Three sets of Final logs shall also be provided in LAS and "printable *.pdf format on reproducible Compact Discs (CDs) within ten days of completion of logging.
 3. For each geophysical logging suite performed, the County may request the Contractor to obtain a brief descriptive report from the service company interpreting the results of the log or logs. These completed reports must be submitted to the County within 72 hours of the County's request.
- D. **Video Survey:** A video survey of the entire length of the completed well shall be logged in color at standard play (SP) on high quality DVD recording discs. The Contractor shall furnish the County with the original video log plus up to twenty (20) high quality replicates on DVD as specified by County.

1.3 SCOPE OF WORK

- A. **Pre- and Post-Rehabilitation Video Survey:** Video the entire depth of each well using a downhole video system, which shall include a rotating color camera with side-view and radial-view lenses, remote focus adjustment, and onscreen automatic depth indicator.
1. Each survey shall consist of one pass recorded from the top of well casing to the total depth of the well. The pass shall be made with the well under static conditions, in which potable water shall be pumped into the well during the survey to maintain clarity within the well casing and open hole interval.
 2. At the direction of the County, the Contractor may be requested to pause, repeat, or revisit areas of interest within the well.
- B. **Pilot Borehole Geophysical Logging:** Geophysical surveying of a pilot borehole will include spontaneous potential, fluid resistivity, XY caliper, and

gamma ray logs.

- C. **Reamed Borehole Geophysical Logging:** An XY caliper log shall be completed on all reamed boreholes and should include on the log a calculation of hole volume.
- D. **Static and Dynamic Conditions Geophysical Logging and Video Survey:** Following commencement of pump development, the Project Manager reserves the right to request the following logs:
1. Video Survey: The video survey shall record the depths of zones contributing sand while pumping the well at a rate of up to 1,000 gpm.
 2. Flow Log with temperature: The flow log shall record the depths of zones contributing formation water while pumping the well at a minimum constant rate of 1,000 gpm. The geophysical log operator will quantify the volumes of water contributed with depth.
 3. Static logging will be performed following a minimum 12 hour "no pumping" period.
 4. Measurements from the totalizing flow meter and drawdown water level meter shall be recorded by the Contractor during logging and summarized on the development logs.
 5. The geophysical logs shall contain calibration runs and tool speed as part of the log.

PART 2 -- PRODUCTS

2.1 GEOPHYSICAL LOGS

A. The following geophysical logs shall be run:

- **4-Arm Caliper Survey (XY Caliper Log):** The response shall be recorded in inches in diameter. The XY Caliper log report must indicate borehole volume and/or data must be provided in an ASCII file. XY Caliper logs shall be run under static conditions.
- **Natural Gamma Ray:** The response shall be recorded in American Petroleum Institute (API) units. Gamma logs shall be run under static conditions.
- **Dual Induction, Laterolog, and Spontaneous Potential (SP):** These electric logs shall be recorded in standard electrical units used in the evaluation of return times and shall be run under static conditions.
- **Fluid Resistivity (static and dynamic):** Fluid resistivity logs shall be run under both static and dynamic (pumped) conditions.
- **Fluid Velocity/Flowmeter Survey (static and dynamic):** Fluid velocity logs shall be run under both static and dynamic (pumped) conditions.
- **Fluid Temperature (static and dynamic):** Temperature logs shall be run

under static conditions before borehole disturbance by other logging activities and under dynamic (pumped) conditions.

- **Video Log:** The video shall be run under dynamic (pumped) conditions to ensure video clarity.

PART 3 -- EXECUTION

3.1 GEOPHYSICAL LOGGING

- A. **General:** No standby or additional rig time shall be paid to the Contractor during geophysical logging operations.
- B. The County shall be given a 48-hour notice prior to geophysical logging in a mudded pilot hole. Geophysical logging shall include spontaneous potential, 16/64-inch normal resistivity, caliper, and gamma ray logs.
- C. **Dynamic Testing:** Following commencement of pump development, the Project Manager reserves the right to request the following items:
 1. **Video Survey:** This survey shall record the depths of zones contributing sand while pumping the well being surveyed. The survey shall display downhole video images to an accuracy of 0.1 foot while pumping the well at a rate of up to 1000 gpm.
 2. **Flow Log:** This survey shall record the depths of zones contributing formation water while pumping the well being logged. It will be used to quantify volumes of water contributed per detected flow zone. The well shall be pumped at a minimum of 1,000 gpm and maintained at a constant rate during flow logging. A totalizing flow meter shall be installed on the discharge line. All measurements of drawdown during logging shall be recorded by the Contractor and summary information included on the logs. The logs shall contain calibration runs as part of the log. Tool speed shall be recorded as part of the flow meter log.
- D. Each log shall be recorded using a depth measurement that is accurate to within 0.1 feet using a resolution of approximately 1/50th of the greatest deviation of the quantity measured over the entire log.
- E. Each logging tool shall be calibrated in the presence of the County.
- F. The fluid velocity logs shall include a calibration section on the log showing the tool response at four different velocities with the tool moving up and at four different velocities with the tool moving down.
- G. The Contractor is responsible for conditioning the borehole prior to logging to remove any drill cuttings and to prevent formation collapse. The Contractor shall, at his own expense, clean the hole and rerun logs if they fail to survey within 5 feet of the bottom of the hole.

- H. The County shall be given 24 hours notice of the time when the survey will be run to witness the performance of the survey. Geophysical logging shall be performed following borehole preparation. The logging intervals shall be the total length of the borehole unless otherwise directed by County. Each log must be run in a continuous fashion to be acceptable.
- I. The Contractor is responsible for providing adequate access for geophysical logging during pumping tests. No additional compensation will be granted for removal and reinstallation of pumps to facilitate logging.
- J. The Contractor shall furnish and operate the pumping equipment and appurtenances necessary to perform the dynamic logs. The production geophysical logging shall be conducted under static and dynamic (pumping at a minimum 1000 gpm) conditions.
- K. Geophysical logging, consisting of a XY caliper and gamma ray log, shall be completed on a reamed borehole after the hole has been reamed to a final casing setting depth. If a caliper survey shows the hole to be less than the specified diameter at any point, the hole shall be re-reamed and the caliper log shall be repeated. If corrective measures are required, the Contractor shall provide all corrective measures and additional surveys at the Contractor's own expense.
- L. If the open borehole collapses prior to or during geophysical logging or is obstructed in any manner, the Contractor shall be responsible for adequately clearing out the borehole for successful logging operations to the total depth of the drilled interval. All specified geophysical logging tools must reach within 5 feet of the total depth of the interval, as measured by the length of drill pipe, log in a continuous manner, record the appropriate data, and be successfully retrieved. If these conditions are not met, the Contractor shall re-run the logs at the Contractor's own expense. Any down time related to the Contractor's geophysical logging (e.g., stuck probe down-hole, tool problems or bridging) shall be the Contractor's responsibility and will not be eligible for reimbursement.
- M. The Contractor shall be responsible for all costs associated with retrieval "fishing" operations due to the Contractor's stuck or lost geophysical probe(s) down hole and will not be compensated for extra work or standby time during this period. The Contractor shall be responsible for partial and/or full replacement costs of any of the Contractor's geophysical logging equipment that is damaged or lost downhole during logging operations.
- N. A color video record of the entire well shall be made from land surface to the total depth of the well in the downhole and up-hole directions. The quality of the picture must be acceptable to the County for the entire depth and the Contractor will ensure the clarity of the water in the well prior to and during the recording of the video.

- END OF SECTION -

SECTION 02635 – WELL DEVELOPMENT AND SAMPLING

PART 1 -- GENERAL

1.1 REQUIREMENT

- A. After the well has been constructed and/or rehabilitated in accordance with the requirements of the Contract Documents, the Contractor shall notify the County and shall make the necessary arrangements for conducting well development and testing.
1. Airlift development shall continue until field water quality has stabilized and sand content as measure using an Imhoff Cone is negligible.
 2. Pump development shall continue until the SDI result does not exceed a value of 3 and the sand content as measured by the Rossum centrifugal sand tester result is less than 1 ppm at any time after the 20-minute period after the pump startup at a pump rate greater than 1,000 gpm without surging.
 3. Well development is complete when the pump rate is within 5 percent of the well design rate, a reasonable specific capacity (pump rate over drawdown) is maintained, SDI results are less than 3, and sand content after 20 minutes of continuous pumping is less than 1 ppm.
- B. **Commercial Standards:** All work specified herein shall conform to or exceed the requirements of the applicable codes and standards relating to the referenced portions of the following documents only to the extent that the requirements therein are not in conflict with the provisions of this section. Where such documents have been adopted as a code or ordinance by the public agency having jurisdiction, such a code or ordinance shall take precedence.
- C. **State Standards:** SFWMD and FDEP Rules and Regulations for Water Wells in the Florida Administrative Code (FAC) and **DEP-SOP procedures under FS-2200Groundwater Sampling.**
- D. **Water Quality Analyses:** All water quality analyses will be performed by a laboratory certified by the State of Florida for analysis of drinking water with a current Comprehensive Quality Assurance Plan (ComQAP) on file with FDEP in accordance with methods and reporting format approved by FDEP.
- E. **Commercial Standards:**
AWWA A100 Standard for Water Wells

1.2 EQUIPMENT

- A. The Contractor shall furnish all equipment, compressors, piping, pumps, and appurtenances to develop the well by reverse-air circulation, straight air, and overpumping, and install a submersible or turbine pump capable of continuously pumping from 500 to 3,000 gallons per minute against a total head of 40 feet with the pumping bowl set at a maximum of 60 feet below land surface.
- B. The Contractor shall provide all necessary electrical pump wiring, control box, noise suppressed electrical generation facilities, and an onsite qualified operator for the pumping facilities for the duration of each pumping test.
- C. The Contractor shall configure the pumping system so pumping rates may be adjusted as directed by the County.
- D. The Contractor shall furnish, install and monitor an inline flowmeter with a flow rate indicator and totalizer calibrated within the last 60 days and capable of measuring discharge rates of up to 3,000 gallons per minute.
- E. The Contractor shall furnish, install and monitor a manometer tube assembly attached at the well head to monitor artesian water pressure during testing.
- F. The Contractor shall furnish and install a valve on the discharge side of the pump, downstream of the flowmeter to obtain the optimal discharge rate, shut off flow, and stop gravity drainage.
- G. The Contractor shall furnish, install and monitor water level recording devices prior to pump testing. If recording devices do not record during pump testing, the Contractor will rerun the test again at the Contractor's own expense.
- H. The Contractor shall provide and install a 1-inch minimum diameter access port to allow passage of a pressure transducer or a water level probe for measurement of head in the well during pumping as furnished by the Contractor.
- I. The Contractor shall provide access port on discharge line for water quality sampling, and all necessary water quality monitoring equipment for the Contractor's collection and analysis of field water quality samples to include, but not limited to, a Rossum Sand Tester, Imhoff Cone, SDI test kit, and water quality analysis meter.

1.3 CONTRACTOR SUBMITTALS

- A. All Contractor submittals shall conform to the applicable requirements of **Section 01300 - Contractor Submittals**, and the supplementary requirements specified. Each item listed below shall be submitted to the County with a clear explanation or depiction of why or how the requirements, as listed, will be fulfilled by the products or services provided by the Contractor. This list is not considered all-inclusive and may be extended by the County or Contractor.

B. Development and Test Records: Development and test records shall be
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maintained on an hourly basis. Records shall contain the date, activity times, project name, well site, depth interval, flow rate, development method, testing stage, drawdown, production of silt and sand, date, time and other applicable information. The Contractor shall provide this data at the end of a testing period or daily to the County, as appropriate. **See Section 02637 – Well Rehabilitation** for additional details.

- C. **Disposal/Discharge Plan:** The Contractor shall prepare and submit to the County for review a disposal/discharge plan for all fluids and materials developed from the well in accordance with **Section 02637 – Well Rehabilitation**.
- D. **Instrumentation Calibrations:** Calibration Data: Calibration records for each measuring instrument used in the construction of the well shall be submitted to the County for review prior to the installation or use of the instruments. Calibration of instruments shall have been performed within 60 days prior to use in testing. All calibration records shall be submitted to the County prior to use. The calibration records shall contain the following information:
1. **Flow Meters:** Serial Number, Model Number, Gears, Test Apparatus Size, Meter Reading, and Flow Rate for at Least Three Steps, Percent Error for Each Step, Tester's Name and Title.
 2. **Pressure Gauges:** Serial Number, Model Number, Scale range, Meter reading and inches of mercury for at least three steps covering the entire range of the gauge, Percent error for each step, Tester's name and title.
 3. **Pressure Transducers:** Serial Number, Model Number Scale range, and resolution of ± 0.01 psi to record pressures during testing and temperatures to ± 0.01 degrees Celsius. Calibration shall be conducted by the manufacturer and verified at the well on the day that the transducer is installed.
- E. **Laboratory Reports:** The Contractor shall provide laboratory reports for the appropriate sample events. Laboratory reports should contain the project name, well site, depth interval, location and date of the collected sample. The Contractor shall verify that the field data collected by the Laboratory is comparable to the data collected by the Contractor as part of the Contractor's monitoring. See **Section 02637– Well Rehabilitation** for additional details.
- F. **Water Quality Reports:** The Contractor shall make field results available upon County's request and shall submit laboratory water quality results to the County in a timely fashion and in accordance with **Section 02637 – Well Rehabilitation**.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION

3.1 WELL DEVELOPMENT

- A. **Development by Direct-Air Method (Airlifting):** After receiving the County's

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authorization to proceed, the Contractor shall commence to develop the well by pumping with direct-air and shall continue until sand production is negligible in an Imhoff Cone water sample.

1. Airlifting shall commence at the uppermost portion of the open hole and proceed downward using an eductor pipe. Air lifting development shall oscillate between periods of active development and rest periods.
2. The Contractor will be responsible for ensuring that the compressor is of a sufficient size for airlifting the well from the bottom at rates up to 3,000 gpm.
3. The Contractor shall furnish, install, operate, and remove a pump of sufficient size and horsepower to continuously pump stored discharge water as required from the tanks or basin to the discharge point as outlined in the Discharge Plan approved by the County. The Contractor shall furnish and install discharge piping of sufficient size and length.
4. The Contractor shall prevent any site flooding or erosion, which might be caused by the discharge.
5. The Contractor will assemble and maintain needed crossings over the discharge piping at no additional cost to the Owner's.
6. The Contractor shall maintain the total length of the drilled hole during development, and will be required to clean the borehole from time to time, as directed by the County.

B. Development by Pumping: After completion of airlifting development as directed by the County, the Contractor shall install a temporary pump and discharge pipe complete with required flow and water level measuring devices and commence well development by surging using the test pump.

1. The initial pumping rate shall be restricted and gradually increased until the maximum rate is reached as directed by the County. The maximum rate will be determined by the County after consideration of the well's drawdown and discharge characteristics. At frequent intervals, the pump shall be stopped and the water in the pump column shall be allowed to surge back through the pump bowls.
2. The cycle of pumping and surging shall be repeated until the discharge water is clear of sand, silt, and mud and until there is no increase in specific capacity (gallons per minute per foot of drawdown) in the well. The well shall be thoroughly developed so that it will produce a reasonable maximum capacity based on the depth and nature of the water-bearing formations, and so that it will meet sand and silt quality production requirements.
3. A preliminary capacity test of approximately 2 hours in duration will be conducted at the end of pump development to select the full range of pumping rates for step rate testing.

3.2 WATER QUALITY SAMPLING

- A. The Contractor will be required to subcontract a State of Florida certified laboratory to collect water samples for Constant Rate and NPDES compliance analysis of water samples taken as determined by the County. All costs for water sample collection and analyses shall be paid by the Contractor. Any water samples taken during the course of this project shall follow the latest version of the DEP-SOP procedures (FS 2200 Groundwater Sampling). The laboratory shall be certified by FDEP and have a current approved ComQAP on file with FDEP with methods approved by FDEP.
1. **Airlift Drilling:** Water quality sand and silt samples shall be collected at every change in drill pipe during airlift drilling.
 2. **Pumping Tests and Development Activities:** Sand and silt should be measured as often as possible during pumping.
 3. **County Water Samples:** The County may request sample collection at any time during construction/rehabilitation work primarily during pump testing and development. No cost may be incurred for water samples collected at the Project Manager's request that are not analyzed by a certified laboratory.
 4. **Step-Rate Testing Water Samples:** The Contractor will collect and analyze in the field for pH, Temperature, Specific Conductance, and Dissolved Oxygen, at a minimum of 15 minute intervals.
 5. **Constant Rate Water Samples (Pre- and Post-Rehabilitation):** The Contractor shall coordinate the Constant Rate Test water quality sample collection and analyses with a qualified laboratory for dissolved oxygen, dissolved iron, turbidity, calcium hardness, total hardness, hydrogen sulfide, sulfate, alkalinity, calcium, magnesium, potassium, ammonia, strontium, phosphate, silica, boron, bromide, carbonate, bicarbonate, chloride, pH, color and total coliform bacteria. One sample will be collected by the laboratory personnel at the end of each Constant Rate Test pumping period prior to pump shut down.
 6. The County may request samples be collected by a FDEP certified laboratory for analysis of 62-550 Primary & Secondary and unregulated compounds at the end of constant rate testing.
- B. **Collection:** All samples shall be properly collected, preserved, and analyzed within the required holding time limits. The method detection limit shall be less than the drinking water maximum contaminant level for all analyses.
- C. **Receptacles.** Samples for which laboratory analyses are required shall be collected in designated and approved sample containers provided by a State of Florida certified laboratory approved by the County for the specific parameters required by these specification documents.

- D. **Labeling:** The sample containers shall be clearly labeled with the well identification, the depth interval below land surface from which the sample was collected, time and date of sample collection, type of test, type of sample.
- E. **Delivery:** Samples shall be collected and stored in the appropriate manner as instructed by the laboratory, and delivered to the laboratory in accordance with the laboratory's instructions.
- F. **Chain of Custody:** Chain of Custody forms shall be completed for all water samples. Copies of the Chain of Custody forms shall be submitted to the County within five days of final delivery of the samples to the laboratory. All persons handling the samples shall be required to sign the Chain of Custody form.
- G. **Holding Times:** The Contractor shall be aware of applicable water sampling holding times for the samples for which he is responsible and ensure that the samples are transmitted to the laboratory within these time periods. For samples collected by the laboratory, the Contractor shall be responsible for the performance of the sub- Contractor's service analyzing the samples within established holding times.

- END OF SECTION -

SECTION 02636 – WELL PUMP TESTING

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. The Contractor shall be responsible for providing all necessary pumps, prime movers, pipelines, meters, and gauges necessary for pump testing, and shall provide access for water-level measurements using an M-scope tape or electronic probe. The Contractor shall furnish an electrical depth gauge, capable of indicating depths to water to the nearest one-hundredth foot, with a sounding tube placed to the maximum depth to water anticipated as well as a clear, flexible plastic manometer tube capable of measuring all anticipated water levels above land surface.
- B. The Contractor is solely responsible for proper operation of all testing equipment during pumping and non-pumping periods. Should any component fail during a testing period, the Contractor shall re-run the tests as needed, without additional charge, until such time that accurate data are collected as determined by the County.
- C. The Contractor shall be responsible for providing monitoring equipment for all pumping and non-pumping portions of each test.
- D. **Step-Rate Testing:** Step Rate Testing will be performed following development of the rehabilitated well. The total estimated length of the step-rate pumping test is 32 hours inclusive of static periods before and after testing. The step pump rates will be determined at the end of well development by the County.
- E. **Constant Rate Testing:** The total estimated length of constant rate test varies as defined below:
 - 1. **Pre-Rehabilitation Constant Rate Test:** The total length of the Pre-Rehabilitation Constant Rate Test will be six hours inclusive of static and recovery periods.
 - 2. **Post-Rehabilitation Constant Rate Test:** The total length of the Post-Rehabilitation Constant Rate Test will be thirty two hours inclusive of static and recovery periods.
- F. **Sand and Silt Test Results:** During the Post-Rehabilitation pump testing when the well is pumped at the design rate, sand content should not exceed 1 ppm and SDI Test results shall not exceed 3 within the first 30 minute period after the pump has been started.
- G. **Flow Meter:** The flowmeter for use in pumping tests shall have a range from 500 gpm to up to 3,000 gpm with major gradations of 100 gpm and minor gradations of 10 gpm. Accuracy shall be $\frac{1}{4}$ of 1 percent of full scale.

- H. **Electrical Depth Gauge (M-Scope or equivalent) and Pressure Transducers:**
The Contractor shall furnish an electrical depth gauge and pressure transducers capable of indicating depths to water to the nearest one-hundredth of a foot.
- I. **Water Quality Meters:** Water Quality meters shall be calibrated by the Contractor weekly during use or as needed based on a comparison of laboratory and field results.
- J. **Data:** The Contractor shall provide all development and test data to the County within 24 hours of the data collection.

1.2 EQUIPMENT

- A. The Contractor shall furnish all equipment, compressors, piping, pumps, and appurtenances to develop the well by reverse-air circulation, straight air, and overpumping, and install a submersible or turbine pump capable of continuously pumping from 500 to 3,000 gallons per minute against a total head of 40 feet with the pumping bowl set at a maximum of 60 feet below land surface.
- B. The Contractor shall furnish and install discharge piping for the pumping unit of sufficient size and length to conduct water to the nearest discharge point, drainage course or drain.
- C. The Contractor shall provide all necessary electrical pump wiring, control box, noise suppressed electrical generation facilities, and an onsite qualified operator for the pumping facilities for the duration of each pumping test.
- D. The Contractor shall configure the pumping system so pumping rates may be adjusted as directed by the County.
- E. The Contractor shall furnish, install and monitor a together with a calibrated in-line flow meter with 6-digit, straight-reading totalizer, registering in units of 100 gallons, together with a rate of flow indicator dial, which shall read in units of gallons per minute and can measure a flow up to 3,000 gpm.
- F. The Contractor shall furnish, install and monitor: A calibrated manometer assembly shall be used with the in-line flow meter The orifice plate shall be affixed to the end of a length of not less than 6 feet of 8-inch or 10-inch diameter discharge pipe as approved by the County. The pipe to which the orifice is mounted shall be held horizontal above the ground sufficient to allow free flow of water from the pipe.
 - 1. At the wellhead, afix a clear flexible hose to serve as a manometer tube. This hose shall be mounted on a rigid vertical measuring rod, marked in 1/4- inch increments above the centerline of the discharge pipe to an elevation of at least 60 inches.
- G. The Contractor shall furnish and install a valve on the discharge side of the pump, downstream of the flowmeter to obtain the optimal discharge rate, shut off flow, and stop gravity drainage.

- H. The Contractor shall furnish, install and monitor water level recording devices prior to pump testing. If recording devices do not record during pump testing, the Contractor will rerun the test again at the Contractor's own expense.
- I. The Contractor shall provide and install a 1-inch minimum diameter access port to allow passage of a pressure transducer or a water level probe for measurement of head in the well during pumping as furnished by the Contractor.
- J. The Contractor shall provide all necessary water quality monitoring equipment for the Contractor's collection and analysis of field water quality samples to include, but not limited to, a Rossum Sand Tester, Imhoff Cone, SDI test kit, and water quality analysis meter.

1.3 CONTRACTOR SUBMITTALS

- A. All Contractor submittals shall conform to the applicable requirements of Section 013300 - Contractor Submittals, and the supplementary requirements specified. Each item listed below shall be submitted to the County with a clear explanation or depiction of why or how the requirements, as listed, will be fulfilled by the products or services provided by the Contractor. This list is not considered all-inclusive and may be extended by the County or Contractor.
- B. **Disposal/Discharge Plan:** The Contractor shall prepare and submit to the County for review a disposal/discharge plan for all fluids and materials developed from the well in accordance with Section 02637 - Well Rehabilitation.
- C. **Water Level Logger Files:** The Contractor is responsible for downloading and providing water level logger electronic files to the County at the completion of each test (Step-Rate and Constant Rate tests). If an electronic file cannot be provided or if the data is invalid, the Contractor will rerun the test again at the Contractor's own expense.
- D. **Calibration Data:** Calibration records for each measuring instrument used in the construction of the well shall be submitted to the County for review prior to the installation or use of the instruments. Calibration of instruments shall have been performed within 60 days prior to use in testing. All calibration records shall be submitted to the County prior to use. The calibration records shall contain the following information:
 - 1. **Flow Meters:** Serial Number, Model Number, Gears, Test Apparatus Size, Meter Reading, and Flow Rate for at Least Three Steps, Percent Error for Each Step, Tester's Name and Title.
 - 2. **Pressure Gauges:** Serial Number, Model Number, Scale range, Meter reading and inches of mercury for at least three steps covering the entire range of the gauge, Percent error for each step, Tester's name and title.
 - 3. **Pressure Transducers:** The pressure transducers shall be calibrated to the resolution of ± 0.01 psi to record pressures during testing and temperatures to ± 0.01 degrees Celsius. Calibration shall be conducted by the manufacturer and verified at the well on the day that the transducer is installed.
- E. **Test Records:** Development and test records shall be maintained on an hourly basis. Records shall contain the date, activity times, project name, well site, depth

interval, flow rate, development method, testing stage, drawdown, production of silt and sand, date, time and other applicable information. The Contractor shall provide this data at the end of a testing period or daily to the County, as appropriate. See Section 02637 – Well Rehabilitation for additional details.

1. Step Rate Pumping test records shall show drawdown versus production at one minute intervals and all other collected information for the duration of pumping.
2. Constant Rate Pumping test records shall show drawdown versus production at five minute intervals and all other collected information for the duration of pumping including the time of laboratory sample collection.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION

3.1 GENERAL

- A. Field Measurements:** The Contractor will collect and record all water level, pressure head, flow, totalizer, manometer measurements and will collect and analyze all water quality, sand and silt measurements during static, pumping and recovery periods as previously described in this and **Sections 02635 and 02637** of the Contract Documents.
- B. Rainfall Amounts:** The Contractor will record rainfall amounts that occur during static, pumping and recovery periods.
- C. Aborted Test:** If the test is aborted or interrupted for any reason, the test shall be stopped, the water level allowed to recover until it reaches static water level (up to a maximum of 4 hours), as approved by the County, and the test restarted. No payment will be made to the Contractor for interrupted pumping tests.
- D. Test Supervision by the Contractor:** The supervision of the pumping tests shall be on a continuous basis by qualified personnel during the test, and for at least one hour prior to and one hour following pumping.

3.2 STEP PUMPING TESTS

- A.** Static water level shall be allowed to recover from development for a minimum of twelve hours.
- B.** The pump will be turned on and pumping will continue at a Step 1 constant rate that is 50 percent of the design rate for the well or other pump rate as directed by the County. Pumping at this rate will continue for a minimum of two hours.
- C.** Following determination of the drawdown at the end of Step 1, the discharge valve shall be adjusted to obtain the constant discharge rate for the next step. This process shall be repeated for the third and fourth steps, with termination of pumping occurring at the end of the fourth step

- D. The Step 2 pump rate will be adjusted to 75 percent of the design rate of the well or other pump rate as directed by the County. Pumping at this rate will continue for a minimum of two hours.
- E. The Step 3 pump rate will be adjusted to 100 percent of the design rate of the well or other pump rate as directed by the County. Pumping at this rate will continue for a minimum of two hours.
- F. The Step 4 (final step) pump rate will be adjusted to 125 percent of the design rate of the well or other pump rate as directed by the County. Pumping at this rate will continue for a minimum of two hours.
- G. The pump then will be shut down and left undisturbed for a minimum of twelve hours or until water levels recover to 99 percent of pre-pumping conditions to complete the test.

3.3 CONSTANT RATE TEST

- A. **Two-Hour (Pre-Rehabilitation) Constant Rate Test:** The Pre-Rehabilitation Constant Rate Test will be performed with the Owner's pump prior to pump and column pipe removal by the Contractor. The pumping rate will be the normal operating pump rate for the Owner's pump.
 - 1. A two hours static "no pumping" period will be observed prior to testing.
 - 2. The pump will be turned on and pumping will continue at a constant rate for a minimum of two hours. A laboratory water quality sample will be collected before the end of the pumping period.
 - 3. The pump will be shut down and left undisturbed for a minimum of two hours to complete the test.
- B. **Eight-Hour (Post-Rehabilitation) Constant Rate Test:** The Contractor's pumping equipment shall be the same as used for development pumping and the flow rate will be based on the results of the step rate test as approved by the County.
 - 1. Static water level shall be allowed to recover for approximately twelve hours or until the water level recovers to 95 percent of the step rate test pre-pumping conditions.
 - 2. The pump will be turned on and pumping will continue at a constant rate for a minimum of eight hours. A laboratory water quality sample will be collected before the end of the pumping period.
 - 3. The pump will be shut down and left undisturbed for a minimum of twelve hours to complete the test.

- END OF SECTION -

SECTION 02637 - WELL REHABILITATION

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. **General:** The Contractor shall test, recommend, rehabilitate, perform final testing, and disinfect existing production wells selected by the County and perform all appurtenant work, complete and operable, all in accordance with the requirements of the Contract Documents.
- B. **Qualifications:** The Contractor shall have the following qualifications:
1. At least three years of experience in the construction and rehabilitation of production wells in southeast Florida.
 2. Shall have rehabilitated, acidized, chlorinated, cleaned, and performed a cement squeeze operation in not less than ten 10 wells of equivalent type and capacity
 3. For those rehabilitation or testing operations where the Contractor cannot demonstrate sufficient performance of the operation, the Contractor shall:
 - a. Provide to the County the qualifications as outlined above for a subcontractor who is experienced in the rehabilitation or testing operation to be performed.
 - b. Subcontract with a qualified rehabilitation subcontractor acceptable to the County for the rehabilitation or testing operation to be performed.
 4. The Contractor shall furnish at least three references demonstrating local experience in projects of similar size, skill, and complexity. For each project cited, include:
 - a. The name and address of the well County's organization and project manager,
 - b. Well location(s) and name(s),
 - c. Well casing diameter(s) and depth(s),
 - d. Well pump capacity(s), and
 - e. Rehabilitation operation(s) performed on each well.
 5. The Work of this section shall be performed by a water well Contractor licensed in the State of Florida.

- a. The Contractor's State license number shall be affixed to all correspondence and reports.
 - b. All key employees (drillers in responsible charge of machinery) shall be registered by the South Florida Water Management District (SFWMD).
- C. **Equipment Requirements:** The work shall be performed by a competent crew with equipment that is of adequate size, strength, horsepower, and capacity to complete all phases of well rehabilitation and construction and shall be of a type successfully utilized for the construction and rehabilitation of similar or larger wells within the last two years.
1. If the Contractor's equipment or crew is not capable of satisfactorily performing the work provided for in these specifications, as determined by the County, the Contractor shall furnish acceptable equipment and/or crew at the Contractor's own expense.
 2. All materials shall be delivered in an undamaged condition and stored to provide protection against damage. All defective or damaged materials shall be replaced with new materials at the Contractor's expense.
 3. The Contractor will store the Owner's equipment in a manner to prevent contamination and damage.
 4. In the event that any of the Owner's equipment handled by the Contractor is damaged during the Contractor's performance of the work, the Contractor shall be required to provide the Owner in-kind replacement equipment.
- D. **Operation:** The Contractor shall have all necessary materials and equipment on-site before starting each site procedure.
1. The Contractor shall be responsible for providing power generation equipment required for completion of the WORK. The Contractor shall not be allowed to use existing electric facilities and service from the existing wells to perform testing.
 2. Appropriate care should be taken by the Contractor when executing the work.
 3. All Contractor equipment and work activities shall be conducted in a manner to prevent damage to the well or surrounding property and facilities.
 4. Any damage to the well or surrounding property and facilities of any nature due to the Contractor's operations shall be repaired or replaced in a manner and to the satisfaction of the County.
- E. **Permits:** The Contractor shall obtain and maintain all necessary federal, state, and local permits for all aspects of the Work to be performed.

1. All work shall comply with and be completed in full conformance with SFWMD Water Use Management Rules Chapter 40E-3 F.A.C. for water wells, other applicable rules and requirements and these specifications, whichever is more stringent.
2. All work shall comply with and be completed in full conformance with all federal, state, and local rule and regulations or this specification whichever is more restrictive including, but not limited to, the following agencies and their applicable divisions and departments:
 - a. Broward County Public Health Unit (PHU)
 - b. Broward County Environmental Protection and Growth Management Division (EPGM)
 - c. Florida Department of Environmental Protection (FDEP)
 - d. SFWMD

F. **Water Supply:** The Contractor shall locate and provide potable water for proper completion of the WORK.

1. The Contractor shall be responsible for transporting the water from supply source (WTP or adjacent hydrant) to the well site.
2. The Contractor will be responsible for securing a flowmeter and backflow preventer from Broward County Water and Wastewater Services or other appropriate water utility. It shall be the Contractor's responsibility to purchase and convey the necessary water to any location at which it is required on the project. Water can be purchased from Broward County Water and Wastewater Services. The Contractor shall obtain approval/permits to use a County's hydrant meter for this Program. The Contractor is responsible for meeting all of Water and Wastewater Services requirements, obtaining all permits and paying for all water used and meter rental. The Contractor shall follow all Water and Wastewater Services procedures for connecting to hydrants and shall be responsible for any damage caused by improper operation of hydrants. After Contractor applies to Broward County Water and Wastewater Services to obtain temporary water service, through an application for temporary water hydrant service (Attachment "A-5") the Contractor shall obtain a letter from Water and Wastewater Services stating that the Contractor is authorized to connect to hydrants for water usage during this program. It is the Contractor's responsibility to contact Broward County or other water utilities to obtain current water, security deposit and rental rates prior to bid.

G. **Noise:** The Contractor shall install soundproofing barriers, provide mufflers on equipment, and take whatever other steps are necessary during operations to ensure that noise levels conform to the local noise ordinance as required by the

County.

H. **Safety:** The Contractor is responsible for site health and safety.

1. All equipment shall be provided with safety devices as required by governmental authorities having jurisdiction.
2. The Contractor shall take all necessary measures to limit access to drilling sites to minimize public hazard.
3. The Contractor shall also implement safety measures at the well sites to minimize hazards to the County's staff and minimize impact on daily routine utility operations.

I. **Security:** The Contractor is responsible for site security to prevent theft or damage to the Contractor's and County's equipment and facilities. The Contractor is responsible for any loss of equipment or damage to facilities as a result of inadequate or poorly maintained security measures and the Contractor shall restore or replace equipment and facilities at the Contractor's expense.

J. **Completed Well Integrity:** The Contractor shall be responsible for the working condition of each well that is taken off-line, tested, rehabilitated, and subsequently released for service.

1. The Contractor shall be required to return each well to the Owner in proper operating condition.
2. Under no conditions, shall the Contractor provide the Owner for acceptance a well that has been compromised with respect to physical orientation, surface contamination, water quality, production capability, or any other factor that has been degraded as compared to the pre-rehabilitation performance and condition of the well.
3. In the event that a well is compromised as a result of Contractor recommended and County approved rehabilitation efforts, the Contractor will submit a plan to repair or abandon/replace the compromised well for approval by the County.
4. In the event that a well is compromised as a result of the Contractor's negligence, then the Contractor will submit a plan to repair or abandon/replace the compromised well at the Contractor's expense for approval by the County.

1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. **Codes:** All codes, as referenced herein, are as specified in Section 01090, "Reference Standards." Without limiting the generality of other requirements of these Specifications, all work specified herein shall conform to or exceed the requirements of the applicable referenced portion of the following

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documents to the extent that requirements therein are not in conflict with the provisions of this Section; provided, that where such documents have been adopted as a code or ordinance by the public agency having jurisdiction, such code or ordinance shall take precedence.

- B. **State Standards:** South Florida Water Management District (SFWMD) and Florida Department of Environmental Protection (FDEP) rules and regulations contained in the Florida Administrative Code (FAC).

C. **Commercial Standards:**

Commercial Standards listed below are associated with well rehabilitation techniques and methodologies. Other Commercial Standards may be found in separate sections of these Contract Documents.

ANSI/AWWA C654 Disinfection of Wells.

AWWA A 100 Standard for Water Wells.

1.3 CONTRACTOR SUBMITTALS

- A. All Contractor submittals shall conform to, the applicable requirements of **Section 01300 - Contractor Submittals** and the supplementary requirements specified herein. Each item listed below shall be submitted to the County with a clear explanation or depiction of why or how the requirements, as listed, will be fulfilled by the products or services provided by the Contractor. This list is not considered all-inclusive and may be extended by the County or Contractor.
- B. **Alignment Tests:** Four copies of each alignment test result shall be provided to the County within 72 hours of test completion (**Section 02630 – Well Drilling**).
- C. **Cement Plan:** Two copies of the cementing plan proposed by the Contractor for use during the WORK shall be submitted to the County for approval at least 72 hours prior to all cementing operations. **Section 02632 – Well Cementing and Back Plugging** provide additional requirements.
- D. **Cement Operation Summary:** Two copies of the cement operation summary will be submitted to the County by the Contractor within one hour of the completion of each stage of cement placement. **Section 02632 – Well Cementing and Back Plugging** provide additional requirements.
- E. **Chemical Treatment Plan:** The Contractor will submit two copies to the County of the plan for the application of a chemical treatment (i.e. Descaler, Acidization and Chlorination) to the well, well screen, and formation open hole.

- F. **Cuttings and Fluids Disposal:** Drill cuttings and/or drilling mud, debris, or other fluid and material resulting from any of the Contractor operations shall be disposed of by the Contractor by hauling to a FDEP approved disposal site. It shall be the Contractor's responsibility to obtain FDEP approval for the proposed disposal site, and to submit to the Project Manager notice of FDEP approval prior to commencing work (**Section 02630 – Well Drilling**).
- G. **Daily Log:** A daily log of all site activities shall be maintained by the Contractor on an on-going basis. The daily log shall be kept updated and be available for inspection at the site at all times. The Daily Log shall include records of all volumes and amounts of materials used in rehabilitation and testing operations, such as cement, gravel, chlorine, acid, CO₂, potable water and other materials used. The Contractor shall provide the County with two copies of the daily log of activities at the end of each work week.
- H. **Development and Test Records:** Two copies of the development and test records shall be provided to the County upon completion of each well. Additional requirements are listed in Sections **02635 – Well Development and Sampling** and **Section 02636 – Well Pump Testing**.
- I. **Drilling Log:** Should new borehole be drilled as part of the WORK, a log of any formations drilled from surface to total depth indicating any change in formation shall be prepared by the Contractor. The drilling log shall be up to date and available for inspection at the site at all times. Two copies of the drilling log shall be provided to the County at the completion of each rehabilitation effort that includes drilling activities (**Section 02630 – Well Drilling**).
- J. **Equipment and Materials List:** The testing and rehabilitation of wells requires a variety of procedures, each using different materials and equipment.
1. The Contractor shall submit a list of the equipment proposed for use at the site, which shall include manufacturer's load capacities, horsepower, and year of manufacture and year of purchase by the present County for review by the County at least one week prior to use in the performance of the work.
 2. The Contractor shall submit a list of materials proposed for use at the site which shall include product name, supplier, manufacturer, material safety data sheets (MSDS), expiration dates, and strengths for review by the County at least one week prior to use in the performance of the work.
- K. **Final As-Built Description:** Should new casing or screen, additional cement or other well modification be installed as part of the WORK, the Contractor shall prepare a final well As-Built (description and drawing) that indicates the following: diameter, wall thickness, depths, and lengths of casings and screens; type, aperture size, and pattern of screen perforations; borehole diameters; gradation of gravel envelope; quantity of gravel initially installed and quantity of

gravel added during development operations; quantity of material removed during development operations; and all other pertinent details. The Contractor shall provide the County with two copies of the final well As-Built description.

- L. **Fluids Disposal/Discharge Plan:** Prior to commencement of WORK, the Contractor shall submit to the County a plan for disposal and discharge of rehabilitation waste products, including neutralization of acidization wastes, and disposal of wastes from acidization, chlorination, casing cleaning, well screen removal, drilling, and development (**Sections 02630 – Well Drilling, 02635 - Well Development and Sampling, and 02636 – Well Pump Testing**).
- M. **Acid Supplier Certification:** The Contractor shall provide certification from the acid supplier to verify materials and acid quantities at least three working days prior to acid delivery to the site.
- N. **Geological Samples:** Should new borehole be installed as part of the WORK, the Contractor shall collect, label and store, in sturdy containers acceptable to the County, in a protected place near the drilling site, two sets of samples of all geological formations encountered during rehabilitation operations. Each sample shall be clearly labeled to indicate well number, date, time, and the exact depths from which the sample was taken (**Section 02630 – Well Drilling**).
- O. **Geophysical Logs:** See **Section 02633 – Geophysical Logging** for detailed descriptions of log submittals.
- P. **Health and Safety Plan:** The Contractor shall submit to the County a site Health and Safety Plan that consists of the Contractor's emergency phone list, description of potential site hazards, material safety data sheets for used and stored chemicals, routes and contact information for local medical facilities and a hurricane plan detailing site activities necessary to prepare for bad weather.
- Q. **Instrument Calibrations:** The Contractor shall submit to the County, at least 24 hours before the start of testing (**Sections 02630 – Well Drilling, 02635 - Well Development and Sampling, and 02636 – Well Pump Testing**):
- R. **Permits:** The Contractor shall submit to the County two sets of all permit applications with associated support information, proof of permit fee payment, permit correspondence, and two sets of all final permits issued.
- S. **Records Required by Law:** The Contractor shall maintain all records required by governmental agencies having jurisdiction, and shall submit such records to them as may be required. Two copies of all such material shall be furnished to the County.

- T. **Rehabilitation Procedure Plan:** The Contractor shall submit to the County two copies of the draft and final Contractor's recommendations for well rehabilitation process.
- U. **Rehabilitation Recommendation Report:** The Contractor will summarize all information collected during the Pre-Rehabilitation Constant Rate Pumping Test and Video Survey and shall include water quality laboratory reports, BART results, sand and silt content measurements, field water quality, static and pumping water levels, and all other information about the physical condition and performance of the well and pump. The Contractor will include in the report a recommendation and plan for rehabilitation and return of the well and pumping facilities to design capacity.
- V. **Rehabilitation Report:** The Contractor will prepare a summary of the rehabilitation activities and information collected during the air and pump development, Post-Rehabilitation step Rate and Constant Rate tests including water quality laboratory reports, sand and silt content measurements, field water quality, static and pumping water levels, Post-Rehabilitation Video Survey, alignment testing results, well completion certificate, disinfection, pump, pipeline, pump column and motor repair or replacement and all other information concerning the rehabilitation of the well and pump facilities.
- W. **Sand Sieve Analysis for Screen Design:** Should new borehole be drilled as part of the WORK, the Contractor shall have sieve analyses performed on representative samples obtained from the potential screened interval as directed by the County. The Contractor shall provide the County with two copies of the sieve analysis report for each well. The Contractor shall submit sieve analyses results to the County for review and acceptance at least seven days prior to anticipated placement of the screen in the well.
- X. **SFWMD Well Completion Report, if required:** The Contractor shall use the SFWMD Florida's Water Permitting Portal, SFWMD ePermitting website to submit a Water Well Completion Report within 30 days of completion of work involving construction or modification of a potable water supply well. Two copies of the submittal shall be provided to the County.
- Y. **Site Condition Photo Log – Pre-Mobilization:** The Contractor will provide one electronic copy of each existing site condition photo log to the County before mobilizing to each site.
- Z. **Site Layout Plan:** The Contractor shall submit to the County a site layout for the Contractor's and subcontractor's equipment showing site security, access, storage, laydown, and work areas and traffic control, as needed.
- AA. **Subcontractor's List:** The Contractor shall provide to the County a list of potential subcontractors. The list should detail the company name, service

type, qualifications, and contact information. The subcontractor's list, at a minimum shall contain a state certified laboratory and geotechnical testing firm.

BB. Water Level (Pressure Transducer) Logger Files: See **Sections 02630 – Well Drilling, 02635 - Well Development and Water Quality Sampling, and 02636 – Well Pump Testing** for additional logger file details.

CC. Water Quality Sample Results: The Contractor will provide two copies of step rate, constant rate and development field and laboratory water quality sample results to the County. Field sample results will be made available to the County as the results are recorded. Laboratory testing sample results will be made available to the County within 14 days of sample collection (**Section 02635 - Well Development and Sampling**).

DD. Well Abandonment Plan: If requested by the County, the Contractor will submit to the County a plan for well abandonment that is in accordance with all applicable local, state and federal regulations and the Contract Documents whichever is more stringent.

EE. Well Screen: Should well screens be required as part of the WORK, the Contractor shall submit four copies of the proposed well screen specification shop drawings including gravel pack design, slot size and length, and related data to the County for approval prior to ordering from the manufacturer.

FF. Well Screen/Riser Pipe Connection: The Contractor will provide four copies of the manufacturer's recommended method for connecting Schedule 40 PVC riser pipe to the stainless steel well screen to the County for approval at least seven days prior to installation.

GG. Video Surveys: See **Section 02633 – Geophysical Logging** for video survey details.

1.4 QUALITY ASSURANCE

A. Sand Production: Sand production during development is to be less than one ppm at during the post-rehabilitation constant rate pump test, shall be measured using an Imhoff cone and a Rossum sand tester as recommended in AWWA Standard A-100.

B. Silt Production: The SDI shall be less than three during the post-rehabilitation constant rate pump test. Silt content shall be measured by the Contractor following the procedures outlined in ASTM D4189-95 Standard Test Method for Silt Density Index (SDI) of Water. The Contractor shall provide all materials, equipment, and power necessary to perform the tests.

C. Pressure Gauge: A well head pressure gauge shall be used for measuring discharge head. The gauge shall measure 0 to 150 psi with maximum 0.5 psi

increments, and shall be accurate to within 1/4 of 1percent of full-scale deflection.

- D. **Alignment Tests:** An alignment tests to determine the alignment of the inner well casing shall be performed by the Contractor after the well has been completed and before its acceptance by the Owner.

1.5 CLOSEOUT

- A. **Site Remediation:** The Contractor shall thoroughly clean the site after completion of its operations. All excess drilling fluids, gravel, debris, and other materials utilized during the rehabilitation shall be removed and disposed of by the Contractor in accordance with approved disposal plan. Mud sumps and other work excavations shall be filled, compacted and graded, and the site returned to a condition that is better or equal to the condition indicated by the pre-construction photo log.
- B. **Debris Removal and Site Restoration:** The Contractor shall promptly remove its equipment, temporary facilities, and materials, and leave the site in a condition acceptable to the County. The Contractor shall repair any damage to property or facilities caused by its operations prior to final acceptance of the work.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION

3.1 GENERAL

- A. **Repeat Work:** All work required to be repeated, resulting from the Contractor's lack of performance in accordance with the specifications, including all additional materials, labor and equipment required, shall be furnished at the expense of the Contractor and no claim for additional compensation or time shall be made or be allowed therefore, except as specifically provided herein.
- B. **Termination of the Work:** If information indicates that the completion of rehabilitation operations at the production well site is not warranted, the County reserves the right to terminate all further work at the site. In such an event, the Contractor will be compensated for work performed and will not be entitled to any additional compensation.

3.2 PRE-REHABILITATION PROCEDURES

- A. **Pre-Rehabilitation Constant Rate Test:** One pre-rehabilitation constant rate test at each well prior to removal of the Owner's pump. **Section 02636 – Well Pump Testing provides** additional requirements.

1. **Accumulated Fill Removal:** Accumulated fill in the well casing or open hole interval shall be removed using the reverse rotary process, reverse air process, bailing or airlift development.
 2. **Disposal:** Discharge from the removal of accumulated fill shall be directed to a settling tank or other settling area where turbidity will be settled out before clear, non-turbid groundwater can be discharged in a manner acceptable to the County all in compliance with local, state and federal requirements.
- B. **Casing Cleaning:** Well casing interiors shall be cleaned to remove encrustation. The cleaning shall utilize a casing brush, or alternative method approved by the County. The casing brush shall be constructed so that casing cleaning and circulation of the scale and rust from the well can take place simultaneously and the brush can be rotated to ensure effective cleaning of all parts of the casing. It is the Contractor's responsibility to pump the well during the brushing at a rate sufficient to lift the solids produced by the brushing operation out of the well. The brush shall be of sufficient diameter that it contacts and effectively cleans all sides of the casing simultaneously.

3.3 REHABILITATION PROCEDURES

- A. **General:** The following operations may be proposed by the Contractor/County following casing cleaning and video surveying or during the course of WORK.
- B. **Chemical Treatment:** Tubing, hoses, mixing tanks, and chemical pumps used during the chlorination or acidization of a well shall be chemically inert and shall be capable of withstanding 300 pounds per square inch of pressure. The chlorination and acidization equipment shall have the ability to inject chemical constituents at various depths throughout the length of the well.
 1. The Contractor is responsible for ensuring that all personnel involved in the acidization and chlorination processes observe adequate safety procedures at all times including appropriate use of safety equipment and protective clothing.
 2. The Contractor is responsible for securing the area to prevent public access and potential property damage prior to performing chemical treatments.
- C. **Acidization:** If the well does not produce a sufficient quantity of water or produces greater than 5 ppm predominantly calcium carbonate sand, as determined by the Contractor and accepted by County, acidization of the well may be required.
 1. The Contractor shall be responsible for maintaining groundwater levels and be capable of shutting in the well at any time throughout the acidization procedure.

2. The acid, in the form of a liquid, shall be introduced into the well directly from the Contractor's pumping equipment, through a tremie pipe set in the open hole portion of the well, at a predetermined depth proposed by the Contractor and approved by the County.
3. The acidization wellhead assembly shall have a dedicated acid injection line and a dedicated water injection line.
4. The wellhead shall be capable of withstanding acidization pressures.
5. The wellhead and associated pipe acid line shall be sealed to prevent leaks or spillage during the acidization process.
6. The tremie pipe shall be set at the top of the production zone or screen to introduce acid directly to the production zone. Water shall be pumped into the well head through another opening to force the acid into the formation.
7. The Contractor shall pump potable water down the well at a rate of approximately 200gpm for a minimum of 15 minutes prior to acid injection.
8. The Contractor shall continue to pump water down the well during acid injection and for approximately 30 minutes, or until the wellhead pressure is zero, after acid injection is complete. At no time should the wellhead pressure exceed 50psi.
9. The Contractor shall maintain the wellhead pressure at zero until the acid in the formation is spent.
10. A pressure gauge for the purpose of monitoring increases in pressure from the addition of the acid must be used. If the significant pressure increases are observed after addition of the acid, the pressure may be relieved using the pressure release valve.
11. The Contractor shall provide 28 percent hydrochloric acid. The acid used shall be approved for use in potable water wells. Up to three times the open-hole volume of acid and a maximum pH of 3 shall be required in the well at the end of acidization. The mix strength shall be approved by the County prior to acidization.
 - a. Additives such as chelating agents may be added to the acid prior to pumping, if approved by the County.
 - b. Acid will be placed in the open hole at a rate of approximately 50 gpm.
 - c. After the acid is placed in the open hole and approximately 30 minutes of potable water flow has been accomplished, the well shall be closed and

sealed for approximately twelve (12) hours.

- d. The Contractor will provide a containment vessel to hold waste and other fluids from the acid line. The CONTAINMENT vessel shall be approved by the County.
 - e. After the 12-hour waiting period, the Contractor shall purge the well into a containment vessel and determine the pH of the water.
 - f. If the pH of the water purged from the well following the 12-hour period is below a pH of 6, then the Contractor will shut the well in for an additional 2 hours.
 - g. The sequence of purging and checking pH to determine if the acid-formation reaction is complete will continue until the pH of the purged water is 6 or above.
- D. **Chlorination:** As proposed by the Contractor or County and accepted by County, the Contractor shall mobilize equipment for chlorination of the well.
- 1. Pump 800 gallons of 2,000 mg/L sodium hypochlorite solution into the well through a tremie pipe.
 - 2. Agitate the well to assure thorough mixing of the chlorine solution in the well.
 - 3. Sample the fluid in the well and demonstrate to the County that the chlorine residual exceeds 500 mg/L. Add more sodium hypochlorite solution, if necessary, to assure a sufficient concentration of chlorine residual. Agitate the well and sample again.
 - 4. Agitate the well periodically while displacing one casing volume of chlorine solution with potable water to force the chlorine solution into the productive interval of the well.
 - 5. Allow 18 hours of contact time, including time spent agitating the well.
 - 6. The removal of the chlorine residuals shall be judged complete when the water pumped from the well after chlorination has a chlorine residual below 5 ppm. Chlorine residuals removed prior to reaching less than 5 ppm shall be contained and disposed of in a manner consistent with local, state, and federal regulations.
- E. **Liquid Acid Descaler:** Mix Cotey Chemical Corporation Liquid Acid Descaler or equivalent product per the manufacturer's directions.
- 1. Place liquid acid descaler into the well per the manufacturer's

recommendation.

2. Agitate the liquid acid descaler in the well using a surge block or other isolation tool.
3. Monitor the pH during the treatment and add descaler if pH rises above 3.0 standard pH units.
4. The descaler should be allowed to sit in the well with periodic agitation for a minimum of 24 hours.

F. **Drilling:** When extension of the production interval or a replacement well is proposed by the Contractor and approved by the County, drilling equipment shall be mobilized to a well and activities will follow **Section 02630 – Well Drilling** and this specification section.

1. The Contractor will be responsible for maintaining the integrity of the drilled hole. The Contractor shall take all measures necessary to protect the top portions of the pilot hole from caving or raveling.
2. Only potable water from a designated source shall be used in drilling fluids whether employed alone or in combination with drilling additives. Any other drilling additives to be used shall be submitted to the County for approval.
3. The pilot hole shall have a minimum diameter of 6 inches and shall be drilled to a depth approved by the County.
4. The Contractor shall collect representative cutting samples every 5 feet and at changes in the formation. Cuttings collected from the production interval for screen design shall be sent for sieve analysis.
5. The pilot borehole shall be reamed to a nominal diameter that is compatible to the existing well casing or matches the replacement well design and to a depth as approved by the County.
6. The Contractor shall be responsible for maintaining the quality of the drilling fluid to assure protection of the water bearing formations exposed in the borehole, to adequately maintain the walls of the hole to prevent caving of the walls as drilling progresses, and to permit recovery of representative samples of cuttings.

G. **Standard Penetration Test (SPT) Borings:** All boring and sampling operations will be conducted in general accordance with ASTM Specification D1586-84. Borings will be advanced by a rotary drilling or push process (mud rotary, auger, dual-tube or direct push technology) to collect continuous split spoon and discrete water quality formation samples and or direct core samples from discrete depths for analysis by a geotechnical laboratory for porosity and permeability.

1. **Split Spoon Sampling:** The drilling tools will be removed and soil samples obtained from 100 feet to 175 feet bls at 5-foot centers with a standard 1.4 inch I.D., 2-inch O.D. split spoon sampler. The sampler will be seated 6 inches to penetrate any loose cuttings and then driven an additional foot with blows of a 140-pound hammer falling 30 inches. Representative portions of the soil samples, thus obtained, will be placed in moisture proof containers and transported to the laboratory for examination and classification by a geotechnical engineer as directed by the County.
- H. **Wire-Wound Screen and Riser Pipe Installation:** Based on the results of the preliminary video survey, testing information and the Contractor's recommendation and as approved by the County, the Contractor shall remove the existing screen and gravel pack (if present) and install a new screen and gravel pack.
1. The riser pipe shall be constructed of Schedule 40 PVC pipe. The riser pipe diameter shall match the selected screen diameter. The length of the riser pipe shall be approved by the County.
 2. The length and depth of well screens and gravel pack shall be approved by the County after a study of the driller's log and sieve analyses of the formation from the borehole samples.
 3. Four stainless steel casing guides shall be attached to the PVC riser pipe at 90 degrees from each other at intervals of approximately 20 feet along the length of the riser pipe.
 4. A 5-foot length of stainless steel sump shall be attached to the bottom of the screen.
 5. The well screen shall be affixed to the casing in a manner approved by the screen manufacturer, or by other method submitted by the Contractor and approved by the County.
- I. **Geophysical Logging:** See **Section 02633 - Geophysical Logging**
- J. **Cementing Options:** Following County approval of a Cement Plan, cement may be installed in the annular space between the existing casing and the formation, between the existing casing and the new riser pipe, or "squeezed around the base of the existing casing to ensure an annular cement seal. See **Section 02632 – Well Cementing and Back Plugging** for additional requirements.
- K. **Well Abandonment:** Following construction of a replacement well or declaration from the County that a well is abandoned, and County approval of a

Well Abandonment Plan, the Contractor may be required to abandon an existing well. Additional details are provided in **Section 02632 - Well Cementing and Back Plugging**.

3.4 POST-REHABILITATION PROCEDURES

- A. **Well Development:** After rehabilitation or replacement well construction is complete, the Contractor shall notify the County and shall make the necessary arrangements for conducting the well development. Development at any well can be suspended, at the discretion of the County, to allow for consideration of other rehabilitation options or to minimize impacts during data collection activities at other wells. Additional requirements for Well Development are detailed in **Section 02635 – Well Development and Sampling**.
- B. **Step Rate and Constant Rate Well Production Testing:** Step Rate and Constant Rate Testing for Pre- and Post-Rehabilitation are described in **Section 02636 – Well Pump Testing**.
- C. **Sediment Removal:** After the test pump has been removed, the CONTRACTOR shall remove any accumulated sediment from the well.
- D. **Disinfection:** The Contractor shall provide for disinfection of the well immediately after test pumping of the well has been completed. The Contractor shall carry out adequate cleaning procedures immediately preceding disinfection where evidence indicates that normal well construction and development work have not adequately cleaned the well. All oil, soil, and other materials, which could harbor and protect bacteria from disinfectants, shall be removed from the well.
 - 1. Disinfection of the well shall be performed in accordance with the requirements of ANSI/AWWA C654, except as modified herein.
 - 2. Chlorine or other compounds approved by the State or local regulatory agencies shall be used as disinfectants.
 - 3. Treat the water in the well casing to provide a chlorine residual of approximately 50 mg/L. The quantity of chlorine compounds required to produce a chlorine residual of 50 mg/L may be calculated by multiplying the appropriate quantity shown in ANSI/AWWA C654, Appendix A, Table A.1 by the appropriate factor.
 - 4. Circulate the chlorinated water within the well casing and pump column.
 - 5. Pump the well to waste to remove chlorinated water. A reducing agent such as sodium bisulfite shall be applied to the chlorinated discharge water to neutralize the chlorine residual remaining in the water, prior to disposal.

6. The Contractor shall make provisions for disposal of chlorinated water in accordance with applicable local, state and federal regulations.
- E. **Bacteriological Clearance:** The Contractor shall be required to perform all post-disinfection sampling and analyses necessary to obtain a release for each well from the Broward County Health Unit.
1. The Contractor shall be responsible for compliance with all applicable regulatory requirements including 20 consecutive days of bacteriological testing.
 2. In the event a well does not satisfy the conditions for the bacteriological testing, the Contractor shall be required to repeat the 20-day test until the well is cleared for service from the Broward County Health Unit.
 3. All labor, sampling, testing, and re-testing services shall be the Contractor's responsibility without additional cost to the County.
- F. **Site Restoration:** The Contractor shall restore the site to its original or better condition.
1. **Restore Fencing:** The Contractor shall restore all fencing to its original condition or better. Fence posts shall be vertical and grouted in place. The fencing mesh shall be attached to the posts using new connectors.
 2. **Landscaping:** Damaged sod shall be replaced by sod of the same variety and landscaped vegetation replaced with the same variety and size based on the site pre-rehabilitation photo log.

3.5 DISPOSAL OF REHABILITATION AND TESTING DISCHARGES

- A. **Disposal of Wastes:** The Contractor shall provide all facilities, equipment and materials required for the removal of wastes discharged from the well and excess development materials from the well site.
- B. **Disposal of Development and Test Water:** The Contractor shall conform to all federal, state and local agency waste discharge requirements to discharge waters into any canal, flood control storm drain or sanitary sewer. The Contractor shall perform all actions necessary to conform to discharge requirements. The Contractor shall reach agreements with the owners of the properties that will be crossed by the discharge pipeline and shall design the system to satisfy those property owners .

- END OF SECTION -

SECTION 02638 – WELLHEAD AND WELL PAD

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. All work specified herein shall conform to or exceed the requirements of the applicable codes and standards relating to the referenced portions of the following documents only to the extent that the requirements therein are not in conflict with the provisions of this section. Where such documents have been adopted as a code or ordinance by the public agency having jurisdiction, such a code or ordinance shall take precedence.
- B. **State Standards:** SFWMD and FDEP Rules and Regulations for Water Wells in the Florida Administrative Code (FAC). C. **Commercial Standards:** ANSI/AWWA C654 Disinfection of Wells

PART 2 -- PRODUCTS

2.1 GENERAL

- A. The Contractor shall provide all materials, equipment, and appurtenances necessary to construct and install a 316 stainless steel, leak proof, well head.
- B. The Contractor shall provide all material and equipment to construct a 6-foot by 6-foot by 6-inch thick reinforced concrete apron at the base of the well head.

2.2 PORTLAND CEMENT

- A. The Contractor shall provide ready-mixed Portland cement conforming to ASTM C94, Alternate 3. Concrete shall be a dry, bagged premix variety and mixed with water in accordance with the manufacturer's specifications or commercially delivered ready-mix.

2.3 REINFORCING STEEL

- A. Provide ASTM A615, Grade 60, No. 4 reinforce bar for concrete reinforcement.

2.4 FORMS

- A. Wood forms shall be of a rigidity and height as to produce straight, uniform edges to finished product. Pad shall have a broom finish.

2.5 EXPANSION JOINT FILLER

- A. ASTM D994, Bitumen type - 1/2-inch thick shall be installed between the well

casing and the concrete pad.

PART 3 -- EXECUTION

3.1 WELLHEAD COMPLETION

- A. Valves and gauges shall be installed per the manufacturer's recommendations.

3.2 WELL DISINFECTION

- A. **General:** The Contractor shall provide for disinfection of the well immediately after test pumping of the well has been completed. The Contractor shall carry out adequate cleaning procedures immediately preceding disinfection where evidence indicates that normal well construction and development work have not adequately cleaned the well. All oil, soil, and other materials, which could harbor and protect bacteria from disinfectants, shall be removed from the well.
- B. **Method:** Disinfection of the well and appurtenances as appropriate shall be performed in accordance with the requirements of ANSI/AWWA C654, except as modified herein. Chlorine or other compounds approved by the state or local regulatory agencies shall be used as disinfectants. The method of chlorination to be used shall consist of (1) treating the water in the well casing to provide a chlorine residual of approximately 500 mg/L; (2) circulating the chlorinated water within the well casing and pump column; and (3) pumping the well to waste to remove chlorinated water. The quantity of chlorine compounds required to produce a chlorine residual of 500 mg/L may be calculated by multiplying the appropriate quantity shown in ANSI/AWWA C654, Appendix A, Table A.1 by the appropriate factor. A reducing agent such as sodium bisulfate shall be applied to the chlorinated discharge water to thoroughly neutralize the chlorine residual remaining in the water, prior to disposal. The Contractor shall make provisions for disposal of chlorinated water in accordance with applicable environmental regulations.

3.3 BACTERIAL EVALUATION

- A. The disinfected well shall be tested for the presence of coliform in accordance with ANSI/AWWA C654.

- END OF SECTION -

SECTION 03305 - CONCRETE AND GROUT

PART 1 -- GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall furnish all materials for concrete 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 concrete, all in accordance with the requirements of the Contract Documents.
- B. The following types of concrete shall be covered in this Section:
 - 1. Structural Concrete: To be used in all cases.
- C. The following types of grout are covered in this Section:
 - 1. Non-Shrink Grout: This type of grout shall be used wherever grout or cementitious grout is called for in the Contract Documents, unless another type is specifically referenced.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Codes: Without limiting the generality of other requirements of these specifications, all Work specified herein shall conform to or exceed the requirements of the Florida Building Code and the applicable requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of this Section.

| | |
|------------|--|
| ACI 315 | Manual of Standard Practice for Detailing Reinforced Concrete Structures. |
| ACI 318 | Building Code Requirements of Reinforced Concrete |
| ACI 347 | Recommended Practice for Concrete Formwork. |
| ASTM A 185 | Specifications for Steel Welded Wire, Fabric, Plain, for Concrete Reinforcement. |
| ASTM A 615 | Test Methods for Making and Curing Concrete Test Specimens in the Field. |
| ASTM C 31 | Specification for Ready-Mixed Concrete. |
| ASTM C 33 | Test Method for Slump of Portland Cement |

Concrete. ASTM C 39 Specification for Portland Cement.

ASTM C 94 Specification for Air-Entraining Admixtures for Concrete.

ASTM C 143 Specification for Liquid Membrane-Forming Compounds for Concrete.

ASTM C 150 Specification for Chemical Admixtures for Concrete.

ASTM C 260 Test Methods for Compressive Strength of Chemical-Resistant

ASTM C 309 Test Method for Early Volume Change of Cementitious Mixtures.

ASTM C 494 Specification for Preformed Expansion Joint Fillers for Paving and Structural Construction (Non-Extruding and Resilient Bituminous Types).

ASTM C 579 Manual of Standard Practice.

1.03 SUBMITTALS

- A. Mix Designs: Prior to beginning the Work, the Contractor shall submit to the Project Manager, for review, proposed concrete mix designs which shall show the proportions and gradations of all materials proposed for each class and type of concrete specified herein in accordance with Section entitled "Submittals". The mix designs may be tested by an independent testing laboratory selected by the Owner. All costs related to testing mix designs shall be borne by the Contractor.
- B. Certified Delivery Tickets: Where ready-mix concrete is used, the Contractor shall provide certified weighmaster delivery tickets at the time of delivery of each load of concrete. Each certificate shall show the public weighmaster's signature, and the total quantities, by weight of cement, sand, each class of aggregate, admixtures, and the amounts of water in the aggregate and added at the batching plant as well as the amount of water allowed to be added at the site for the specific design mix. Each certificate shall, in addition, state the mix number, total yield in cubic yards, and the time of day, to the nearest minute, corresponding to when the batch was dispatched, when it left the plant, when it arrived at the job, the time that unloading began, and the time that unloading was finished.
- C. Reinforcing Steel: The Contractor shall furnish shop bending diagrams, placing lists, and Drawings of all reinforcing steel prior to fabrication in accordance with the requirements of Section entitled "Submittals."

- D. Grout: The Contractor shall submit shop drawings for all types of grout to be used.

1.04 QUALITY ASSURANCE

- A. Tests on component materials and for compressive strength and shrinkage of concrete will be performed as specified herein. Test for determining slump will be in accordance with the requirements of ASTM C 143.
- B. The cost of all laboratory tests on cement, aggregates, and concrete, will be borne by the Contractor.
- C. Concrete for testing shall be supplied by the Contractor at no cost to the Owner. The Contractor shall dispose of and clean up all excess material.
- D. Field Compression Tests: Compression test specimens shall be taken during construction from the first placement of each class of concrete specified herein and at intervals thereafter as selected by the Project Manager to insure continued compliance with these specifications. At least one set of test specimens shall be made for each 50 yards of concrete placed. Each set of test specimens shall be a minimum of 4 cylinders.
- E. Compression test specimens for concrete shall be made in accordance with ASTM C31. Specimens shall be 6-inch diameter by 12-inch high cylinders.
- F. Compression tests shall be performed in accordance with ASTM C 39. One test cylinder will be tested at 7 days and 2 at 28 days. The remaining cylinder will be held to verify test results, if needed.

PART 2 -- PRODUCTS

2.01 CONCRETE MATERIALS

- A. Materials shall be delivered, stored, and handled so as to prevent damage by water or breakage. Only one brand of cement shall be used. Cement reclaimed from cleaning bags or leaking containers shall not be used. All cement shall be used in the sequence of receipt of shipments.
- B. All materials furnished for the Work shall comply with the requirements of ACI 301, as applicable.
- C. Storage of materials shall conform to the requirements of ACI 301. D. Materials for concrete shall conform to the following requirements:
 - 1. Cement shall be standard brand portland cement conforming to ASTM C

150 Type II.

2. Water shall be potable, clean, and free from objectionable quantities of silty organic matter, alkali, salts and other impurities.
3. Aggregates shall be obtained from pits acceptable to the Project Manager, shall be non- reactive, and shall conform to the FBC and ASTM C 33. Maximum size of coarse aggregate shall be as specified in Paragraph 2.05B.
4. Ready-mix concrete shall conform to the requirements of ASTM C 94.5. Air-entraining agent meeting the requirements of ASTM C 260, shall be used. Sufficient air-entraining agent shall be used to provide a total air content of 3 to 5 percent. The Owner reserves the right, at any time, to sample and test the air-entraining agent received on the job by the Contractor. The air-entraining agent shall be added to the batch in a portion of the mixing water. The solution shall be batched by means of a mechanical batcher capable of accurate measurement.
5. Admixtures: Water reducing and retarding admixture shall be added and measured as recommended by the manufacturer. The addition of the admixture shall be separate from the air-entraining admixture. The addition of the admixture shall be completed within one minute after addition of water to the cement has been completed, or prior to the beginning of the last three-quarters of the required mixing, whichever occurs first. Water reducing and set retarding admixtures shall be in conformance with ASTM C 494, Type D.

2.02 CURING MATERIALS

- A. Materials for curing concrete as specified herein shall be MB 429 as manufactured by Masterbuilders, Cleveland, Ohio; or equal. The curing compound shall contain a fugitive dye so that areas of application will be readily distinguishable.
- B. Polyethylene sheet for use as a concrete curing blanket shall be white and have a nominal thickness of six mils.

2.03 NONWATERSTOP JOINT MATERIALS

- A. Materials for nonwaterstop joints in concrete shall conform to the following:
 1. Preformed joint filler shall be a non-extruding, resilient, bituminous type conforming to the requirements of ASTM D 1751.
 2. Elastomeric joint sealer shall be a single component, pourable grade polyurethane sealant for horizontal joints. For vertical joints, sealant shall be a two-component, polytremdyne sealant. Color of sealants will be selected

by Project Manager.

3. Mastic joint sealer shall be a material that does not contain evaporating solvents; that will tenaciously adhere to concrete surfaces; that will remain permanently resilient and pliable; that will not be affected by continuous presence of water and will not in any way contaminate potable water; and that will effectively seal the joints against moisture infiltration even when the joints are subject to movement due to expansion and contraction. The sealer shall be composed of special asphalts or similar materials blended with lubricating and plasticizing agents to form a tough, durable mastic substance containing no volatile oils or lubricants and shall be capable of meeting the test requirements set forth hereinafter, if testing is required by the Project Manager.

2.04 REINFORCING STEEL

- A. All reinforcing steel for all reinforced concrete construction shall conform to the following requirements:
 1. Bar reinforcement shall conform to the requirements of ASTM A 615 for Grade 60 Billet Steel Reinforcement with supplementary requirement S-1, and shall be manufactured in the United States.
 2. Welded wire fabric reinforcement shall conform to the requirements of ASTM A 185. All welded wire fabric reinforcement shall be galvanized.
- B. Accessories: Accessories shall include all necessary chairs, slab bolsters, concrete blocks, tie wires, dips, supports, spacers, and other devices to position reinforcement during concrete placement.
- C. Concrete blocks (dobies) used to support and position reinforcement steel, shall have the same or higher compressive strength as specified for the concrete in which it is located. Wire ties shall be embedded in concrete block bar supports.

2.05 CONCRETE DESIGN REQUIREMENTS

- A. General: Concrete shall be composed of cement, admixtures, aggregates and water. These materials shall be of the quantities specified. The exact proportions in which these materials are to be used for different parts of the Work will be determined during the trial batch. In general, the mix shall be designed to produce a concrete capable of being deposited so as to obtain maximum density and minimum shrinkage and, where deposited in forms, to have good consolidation properties and maximum smoothness of surface. The aggregate gradations shall be formulated to provide fresh concrete that will not promote rock pockets around reinforcing steel or embedded items. The proportions shall be changed whenever necessary or desirable to meet the required results at no additional cost to the Owner. All changes shall be subject to review by the Project Manager.

- B. Water-Cement Ratio and Compressive Strength: The minimum compressive strength and cement content of concrete shall be not less than specified in the following tabulation.

| Type of Work | Minimum 28-Day Compressive Strength (psi) | Maximum Size Aggregate (in.) | Minimum Cement per cu yd (sacks) | Maximum W/C Ratio (by wt.) |
|---------------------|---|---------------------------------------|---|----------------------------------|
| <hr/> | | | | |
| Structural Concrete | | | | |
| All Concrete | 4,000 (Class A) | 1 | 6 | 0.45 |

Note: One sack of cement equals 94 lbs.

- C. Adjustments to Mix Design: The mixes used shall be changed whenever such change is necessary or desirable to secure the required strength, density, workability, and surface finish and the Contractor shall be entitled to no additional compensation because of such changes.

2.06 READY-MIXED CONCRETE

- A. Ready-mixed concrete shall conform to meeting the requirements as to materials, batching, mixing, transporting, and placing as specified herein and in accordance with ASTM C 94.
- B. Ready-mixed concrete shall be delivered to the site of the Work, and discharge shall be completed within one and one half hour after the addition of the cement to the aggregates or before the drum has been revolved 250 revolutions, whichever is first. In hot weather, or under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is 85 degrees F or above, the time between the introduction of the cement to the aggregates and discharge shall not exceed 60 minutes.

2.07 NONSHRINK GROUT

- A. Nonshrink grout shall be a prepackaged, inorganic, nongas 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 nonshrink grout specified herein shall be that recommended by the manufacturer for the particular application. Nonshrink grout shall be Thorite as manufactured by Thoro, or equal.

- B. Nonshrink grouts shall have a minimum 28 day compressive strength of 5000 psi

and shall meet the requirements of CRD C 621.

- C. A bonding admixture shall be added to the nonshrink grout to improve adhesion and curing. The bonding admixture shall be Acryl 60 as manufactured by Thoro, or equal.

2.08 EPOXY BONDING COMPOUND

- A. The epoxy bonding compound shall be a high-modulus, high-strength, moisture- insensitive, epoxy adhesive. The epoxy bonding system shall be a two-component, 100 percent solids, epoxy-resin. The epoxy bonding compound shall be used to bond new concrete to sound hardened concrete. The epoxy bonding compound shall be E-bond 580 or equal.

PART 3 -- EXECUTION

3.01 PROPORTIONING AND MIXING

- A. Proportioning: Proportioning of the concrete mix shall conform to the requirements of Chapter 3 "Proportioning" of ACI 301.
- B. Mixing: Mixing of concrete shall conform to the requirements of Chapter 7 of said ACI 301 Specifications.
- C. Slump: Maximum slumps shall be 3 inches, plus or minus 1 inch.
- D. Retempering: Retempering of concrete or mortar which has partially hardened will not be permitted.

3.02 PREPARATION OF SURFACES FOR CONCRETING

- A. General: Earth surfaces shall be thoroughly wetted by sprinkling, prior to the placing of any concrete, and these surfaces shall be kept moist by frequent sprinkling up to the time of placing concrete thereon. The surface shall be free from standing water, mud, and debris at the time of placing cement.
- B. No concrete shall be placed until the reinforcement steel and formwork have been erected in a manner acceptable to the Project Manager. The Contractor shall notify the Project Manager not less than 2 working days prior to concrete placement, allowing for review and any corrective measures which are required.
- C. Existing concrete surfaces upon or against which concrete is to be placed shall be given a roughened surface for good bond. Joint surfaces shall be cleaned of all laitance, loose or defective concrete, and foreign material. Such cleaning shall be accomplished by sandblasting followed by thorough washing. All pools of water shall be removed from the surface of construction joints before the new

concrete is placed.

- D. All anchor bolts called for on the drawings shall be cast-in-place in the concrete. Drilled, impact, adhesive or other types of anchors shall not be substituted for anchor bolts. All anchor bolts shall be type 316 stainless steel conforming to ASTM F 593. Anchor bolts for pumps shall be secured with epoxy adhesive.
- E. Corrosion Protection: Pipe, conduit, dowels, and other ferrous items required to be embedded in concrete construction shall be so positioned and supported prior to placement of concrete that there will be a minimum of two inches clearance between said items and any part of the concrete reinforcement will not be permitted. Securing such items in position by wiring or welding them to the reinforcement will not be permitted.
- F. Anchor bolts shall be accurately set, and shall be maintained in position by templates while being embedded in concrete.
- G. Cleaning: The surfaces of all metalwork to be in contact with concrete shall be thoroughly cleaned of all dirt, grease, loose scale and rust, grout, mortar, and other foreign substances immediately before the concrete is placed.

3.03 HANDLING, TRANSPORTATION, AND PLACING

- A. General: Placing of concrete shall conform to the applicable requirements of Chapter 8 of ACI 301 and the requirements of this Section.
- B. Nonconforming Work or Materials: Concrete which upon or before placing is found not to conform to the requirements specified herein shall be rejected and immediately removed from the Work. Concrete which is not placed in accordance with these Specifications, or which is of inferior quality, shall be removed and replaced by and at the expense of the Contractor.
- C. Unauthorized Placement: No concrete shall be placed except in the presence of duly authorized representative of the Project Manager. The Contractor shall notify the PROJECT MANAGER in writing at least 24 hours in advance of placement of any concrete.
- D. Placement in Slabs: Concrete placed in sloping slabs shall proceed uniformly from the bottom of the slab to the top, for the full width of the pour. As the Work progresses, the concrete shall be vibrated and carefully worked around the slab reinforcement, and the surface of the slab shall be screeded in an up-slope direction.

3.04 FINISHING CONCRETE SURFACES

- A. General: Surfaces shall be free from fins, bulges, ridges, offsets, honeycombing, or roughness of any kind, and shall present a finished, smooth, continuous hard surface. Allowable deviations from plumb or level and from the

alignment, profiles, and dimensions shown on the Drawings are defined as tolerances and are specified herein. These tolerances are to be distinguished from irregularities in finish as described herein. Aluminum finishing tools shall not be used.

- B. Unformed Surfaces: After proper and adequate vibration and tamping, all unformed top surfaces of slabs, floors, walls, and curbs shall be brought to a uniform surface with suitable tools. The classes of finish specified for unformed concrete surfaces are designated and defined as follows:

1. Slabs: The surface shall be given a light hairbroom finish with brooming perpendicular to drainage unless otherwise shown. The resulting surface shall be rough enough to provide a nonskid finish.

3.05 CURING AND DAMP PROOFING

- A. All concrete shall be cured for not less than 14 days after placing, in accordance with the methods specified herein for the different parts of the Work, and described in detail in the following paragraphs.
- B. The surface shall be sprayed with a liquid curing compound. It shall be applied in accordance with the manufacturer's printed instructions at a maximum coverage rate of 200 square feet per gallon and in such a manner as to cover the surface with a uniform film which will seal thoroughly.
- C. Care shall be exercised to avoid damage to the seal during the curing period. Should the seal be damaged or broken before the expiration of the curing period, the break shall be repaired immediately by the application of additional curing compound over the damaged portion.
- D. Wherever curing compound may have been applied by mistake to faces against which concrete subsequently is to be placed and to which it is to adhere, said compound shall be entirely removed by wet sandblasting just prior to the placing of new concrete.
- E. Curing compound shall be applied as soon as the concrete has hardened enough to prevent marring on uniformed surfaces, and within 2 hours after removal of forms from contact with formed surfaces. Repairs required to be made to formed surfaces shall be made within the said 2-hour period; provided, however, that any such repairs which cannot be made within the said 2-hour period shall be delayed until after the curing compound has been applied. When repairs are to be made to an area on which curing compound has been applied, the area involved shall first be wet-sandblasted to remove the curing compound, following which repairs shall be made as provided herein.

3.06 PROTECTION

- A. The Contractor shall protect all concrete against injury until final acceptance by the Owner. Fresh concrete shall be protected from damage due to rain. The Contractor shall provide such protection while the concrete is still plastic and whenever such precipitation is imminent or occurring.

3.07 TREATMENT OF SURFACE DEFECTS

- A. As soon as forms are removed, all exposed surfaces shall be carefully examined and any irregularities shall be immediately rubbed or ground in a satisfactory manner in order to secure a smooth, uniform, and continuous surface. Plastering or coating of surfaces to be smoothed will not be permitted. No repairs shall be made until after inspection by the Project Manager. In no case will extensive patching of honeycombed concrete be permitted. Concrete containing minor voids, holes, honeycombing, or similar depression defects shall have them repaired as specified herein. Concrete containing extensive voids, holes, honeycombing, or similar depression defects, shall be completely removed and replaced. All repairs and replacements herein specified shall be promptly executed by the Contractor at its own expense.

3.08 CARE AND REPAIR OF CONCRETE

- A. The Contractor shall protect all concrete against injury or damage from excessive heat, lack of moisture, overstress, or any other cause until final acceptance by the Owner. Particular care shall be taken to prevent the drying of concrete and to avoid roughening or otherwise damaging the surface. Any concrete found to be damaged, or which may have been originally defective, or which becomes defective at any time prior to the final acceptance of the completed Work, or which departs from the established line or grade, or which, for any other reason, does not conform to the requirements of the Contract Documents, shall be satisfactorily repaired or removed and replaced with the acceptable concrete at the Contractor's expense.

3.09 FABRICATION OF REINFORCING STEEL

- A. Reinforcing steel shall be accurately formed to the dimensions and shapes shown on the Drawings, and the fabricating details shall be prepared in accordance with ACI 315 and ACI 318, except as modified by the Drawings.

3.10 PLACING REINFORCING STEEL

- A. Reinforcing steel shall be accurately positioned as shown on the Drawings, and shall be supported and wired together to prevent displacement, using annealed iron wire ties or suitable clips at intersections. All reinforcing steel shall be supported by concrete, plastic or metal supports, spacers or metal hangers which are strong and rigid enough to prevent any displacement of the reinforcing steel. Where concrete is to be placed on the ground, supporting concrete blocks (or dobies) shall be used, in sufficient numbers to support the bars without

settlement, but in no case shall such support be continuous. All concrete blocks used to support reinforcing steel shall be tied to the steel with wire ties which are embedded in the blocks. For concrete over formwork, the CONTRACTOR shall furnish concrete, metal, plastic, or other acceptable bar chairs and spacers.

3.11 CLEANING AND PROTECTION OR REINFORCING STEEL

- A. Reinforcing steel shall at all times be protected from conditions conducive to corrosion until concrete is placed around it.
- B. The surfaces of all reinforcing steel and other metalwork to be in contact with concrete shall be thoroughly cleaned of all dirt, grease, loose scale and rust, grout, mortar, and other foreign substances immediately before the concrete is placed. Where there is a delay in depositing concrete, reinforcing shall be reinspected and, if necessary recleaned.

3.12 GROUT INSTALLATION

- A. All surface preparation, curing, and protection of cement grout shall be as specified herein. The finish of the grout surface shall match that of the adjacent concrete.
- B. The Contractor through the manufacturer of nonshrink grout and epoxy grout shall provide on-site technical assistance to the Project Manager upon request, at no additional cost to the Owner.
- C. 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.
- D. 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 09900 - PAINTING

PART 1 -- GENERAL

1.01 SCOPE

- A. The Contractor shall furnish all labor, tools, materials, supervision and equipment necessary to do all the work specified herein and as required for a complete installation, including surface preparation priming and painting of Contractor furnished equipment, materials and structures.

1.02 GENERAL INFORMATION AND DESCRIPTION

- A. All paint for concrete and metal surfaces shall be especially adapted for use around water treatment plants and shall be applied in conformance with the manufacturer's published specifications.
- B. All paint for final coats shall be fume resistant, compounded with pigments suitable for exposure to gases, especially to hydrogen sulfide and to carbon dioxide. Pigments shall be materials which do not tend to darken, discolor, or fade due to the action of sewage gases. If a paint manufacturer proposes use of paint which is not designated "fume resistant" in its literature, it shall furnish full information concerning the pigments used in this paint.
- C. Coatings used in conjunction with potable water supply systems shall have U.S. Environmental Protection Agency (EPA), National Science Foundation (NSF), and Food and Drug Administration (FDA) approval for use with potable water and shall not impart a taste or odor to the water.
- D. The term "paint", as used herein, includes emulsions, enamels, paints, stains, varnishes, sealers, cement filler, cement-latex filler and other coatings, whether used as prime, intermediate, or finish coats.
- E. All buildings, facilities, structures, and appurtenances, as indicated on the Drawings and as specified herein, shall be painted with not less than one shop coat and field coat(s), or one prime coat and finish coat(s) of the appropriate paint. Items to be painted include, but are not limited to exterior and interior concrete, structural steel, miscellaneous metals, operators, pipe-fittings, valves, mechanical equipment, motors, conduit, and all other work which is obviously required to be painted unless otherwise specified.
- F. Baked-on enamel finishes and items with standard shop finishes such as graphic panels, electrical equipment, instrumentation, etc., shall not be field painted unless the finish is damaged during shipment or installation. Aluminum, stainless steel, fiberglass and bronze work shall not be painted unless color coding and marking is required or otherwise specified. A list of surfaces not to

be coated is included in Article 1.09.

- G. The Contractor shall obtain all permits, licenses and inspections and shall comply with all laws, codes, ordinances, rules and regulations promulgated by authorities having jurisdiction which may bear on the work. This compliance will include Federal Public Law 91-596 more commonly known as the "Occupational Safety and Health Act of 1970".

1.03 MANUFACTURERS

- A. All painting materials shall be as manufactured by Ameron, Carboline, Tnemec, Sherwin Williams, or equal.

1.04 SUBMITTALS AND SERVICES

- A. The Contractor shall submit paint manufacturer's data sheets and samples of each finish and color to the Project Manager for review, before any work is started in accordance with the section entitled "Submittals".
- B. Submitted samples of each finish and color shall be prepared so that areas of each sample indicate the appearance of the various coats. For example, where a three-coat system is specified, the sample shall be divided into three areas indicating one coat only, two coats and all three coats. The Project Manager will provide written authorization constituting a standard, as to color and finish only, for each coating system.
- C. The CONTRACTOR shall prepare a complete schedule of surfaces to be coated and shall identify the surface preparation and paint system he proposes to use. The paint schedule shall be in conformance with Article 3.07. The schedule shall contain the name of the paint manufacturer, and the name, address and telephone number of the manufacturer's representative that will inspect the work. The schedule shall be submitted to the Project Manager for review as soon as possible following the Notice to Proceed so that the schedule may be used to identify colors and to specify shop painting systems on order for fabricated equipment.

1.05 SERVICES OF MANUFACTURERS REPRESENTATIVE

- A. The Contractor shall purchase paint from an acceptable manufacturer. The manufacturer shall assign a representative to inspect the application of his product both in the shop and field. Prior to and after coating application, the manufacturer's representative shall submit reports to the Project Manager identifying the products used and verifying that said products were proper for the exposure and service intended and were properly applied, respectively.
- B. Services shall also include, but not be limited to, inspecting prior coatings of paint, determination of best means of surface preparation, inspection of

completed work, and final inspection of painted work to be performed six months after the job is completed.

1.06 MANUFACTURERS' INSTRUCTIONS

- A. The manufacturers' published instructions for use as a guide in specifying and applying the manufacturers' proposed paint shall be submitted to the Project Manager. Paint shall not be delivered to the job before acceptance of the manufacturers' instructions is given by the Project Manager.
- B. A manufacturer's paint will not be considered for use unless that manufacturer's published instructions meet the following requirements:
- C. The instructions must have been written and published by the manufacturer for the purpose and with the intent of giving complete instruction for the use and application of the proposed paint in the locality and for the conditions for which the paint is specified or shown to be applied under this contract.
- D. All limitations, precautions, and requirements that may adversely affect the paint; that may cause unsatisfactory results after the painting application; or that may cause the paint not to serve the purpose for which it was intended, that is, to protect the covered material from corrosion, shall be clearly and completely stated in the instructions. These limitations and requirements shall, if they exist, include, but not be limited to the following list:
 - 1. Methods of application
 - 2. Number of coats
 - 3. Thickness of each coat
 - 4. Total thickness
 - 5. Drying time of each coat, including primer
 - 6. Primer required to be used
 - 7. Primers not permitted
 - 8. Use of a primer
 - 9. Thinner and use of thinner
 - 10. Temperature and relative humidity limitations during application and after application
 - 11. Time allowed between coats

12. Protection from sun
13. Physical properties of paint including solids content and ingredient analysis
14. Surface preparation
15. Touch up requirements and limitations

1.07 QUALITY ASSURANCE

- A. The Contractor shall give the Project Manager a minimum of three days advance notice of the start of any field surface preparation work of coating application work.
- B. All such work shall be performed only in the presence of the Project Manager, unless the Project Manager has specifically allowed the performance of such work in his absence.
- C. Inspection by the Project Manager, or the waiver of inspection of any particular portion of the work, shall not relieve the Contractor of his responsibility to perform the work in accordance with these Specifications.
- D. Where protective coatings are to be performed by a subcontractor, said subcontractor must provide five references which show that the painting subcontractor has previous successful experience with the specified or comparable coating systems. Include the name, address, and the telephone number for the Owner of each installation for which the painting subcontractor provided the protective coating.

1.08 SAFETY AND HEALTH REQUIREMENTS

- A. In accordance with requirements of OSHA Safety and Health Standards for Construction (29CFR1926) and the applicable requirements of regulatory agencies having jurisdiction, as well as manufacturer's printed instructions, appropriate technical bulletins, manuals, and material safety data sheets, the Contractor shall provide and require use of personnel protective and safety equipment for persons working in or about the project site.
- B. Respirators shall be worn by persons engaged or assisting in spray painting. The Contractor shall provide ventilating equipment and all necessary safety equipment for the protection of the workmen and the work.
- C. All paint shall comply with all requirements of the Air Pollution Regulatory Acts concerning the application and formulation of paints and coatings for an area in which the paints are applied. Specifically, paints shall be reformulated as required to meet the local, State and Federal requirements.

1.09 SURFACES NOT TO BE COATED

- A. The following list of items shall not be coated unless otherwise noted.
1. Encased piping or conduit.
 2. Stainless steel work.
 3. Galvanized steel.
 4. Aluminum handrails, grating and checkered plate.
 5. Flexible couplings, lubricated bearing surfaces, and insulation.
 6. Packing glands and other adjustable parts of mechanical equipment.
 7. Finish hardware.
 8. Steel encased in concrete or masonry.
 9. Plastic switch plates and receptacle plates.
 10. Signs, nameplates, serial numbers, and operating instruction labels.
 11. Any code-requiring labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plates.
 12. Any moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts, unless otherwise indicated.

1.10 QUALITY WORKMANSHIP

- A. The Contractor shall be responsible for the cleanliness of his painting operations and shall use covers and masking tape to protect the work whenever such covering is necessary, or if so requested by the Owner. Any unwanted paint shall be carefully removed without damage to any finished paint or surface. If damage does occur, the entire surface, adjacent to and including the damaged area, shall be repainted without visible lapmarks and without additional cost to the Owner.
- B. Painting found defective shall be scraped or sandblasted off and repainted as the Owner may direct. Before final acceptance of the work, damaged surfaces of paint shall be cleaned and repainted as directed by the Owner.

- C. Any pipe scheduled to be painted and having received a coating of a tar or asphalt compound shall be painted with two coats of "Inertol Tar Stop", "Tnemec Tar Bar" or equal before successive coats are applied in accordance with the paint schedule.

PART 2 -- PRODUCTS

2.01 COATINGS

- A. Table 09900-1 depicts the coatings referenced in Article 3.07, "Paint Schedule".

**Table 09900-1
Product Listing**

| Reference Number | Description | Manufacturers Reference TNEMEC |
|-------------------------|--------------------------------|---|
| 66 | Polyamide Epoxy | Series 66-1211 Hi-Build Epoxoline Primer |
| 73 | Aliphatic Acrylic Polyurethane | Series 73 - Color Endura-Shield |

PART 3 -- EXECUTION

3.01 SHIPPING, HANDLING AND STORAGE

- A. All painting materials shall be brought to the job site in the original sealed labeled containers of the paint manufacturer and shall be subject to inspection by the Project Manager. Packages shall not be opened until they are inspected by the Project Manager and required for use. Where thinning is necessary, only the product of the manufacturer furnishing the paint shall be used. All such thinning shall be done strictly in accordance with the manufacturer's instructions, and with the full knowledge of the Project Manager.
- B. Materials and their storage shall be in full compliance with the requirements of pertinent codes and fire regulations. All painting materials shall be stored in a clean, dry, well-ventilated place protected from sparks, flame, direct rays of the sun or from excessive heat. Receptacles shall be placed outside buildings for paint cans and containers. Paint waste shall not be disposed of in plumbing

fixtures, process drains or other plant systems or process units.

3.02 INSPECTION OF SURFACES

- A. Before application of the prime coat and each succeeding coat, all surfaces to be painted shall be subject to inspection by the Project Manager. Any defects or deficiencies shall be corrected by the Contractor before application of any subsequent coating.
- B. Samples of surface preparation and of painting systems shall be furnished by the Contractor to be used as a standard throughout the job, unless omitted by the Project Manager.
- C. When any appreciable time has elapsed between coatings, previously coated areas shall be carefully inspected by the Project Manager, and where, in his opinion, surfaces are damaged or contaminated, they shall be cleaned and recoated at the Contractor's expense. Recoating times of manufacturer's printed instructions shall be adhered to.
- D. Coating thickness shall be determined by the use of a properly calibrated "Nordson- Mikrotest" (or equal) dry mil thickness gauge.

3.03 EQUIPMENT

- A. Effective oil and water separators shall be used in all compressed air lines serving spray painting and sandblasting operations to remove oil or moisture from the air before it is used. Separators shall be placed as far as practicable from the compressor.
- B. All equipment for application of the paint and the completion of the work shall be furnished by the Contractor in first-class condition and shall comply with recommendations of the paint manufacturer.

3.04 PREPARATION OF MATERIALS

- A. Mechanical mixers, capable of thoroughly mixing the pigment and vehicle together, shall mix the paint prior to use where required by manufacturer's instructions; thorough hand mixing will be allowed for small amounts up to five gallons.
- B. Pressure pots shall be equipped with mechanical mixers to keep the pigment in suspension, when required by manufacturer's instructions. Otherwise, intermittent hand mixing shall be done to assure that no separation occurs. All mixing shall be done in accordance with SSPC Vol. 1, Chapter 4, "Practical Aspects, Use and Application of Paints" and/or with manufacturer's recommendations.
- C. Catalysts or thinners shall be as recommended by the manufacturer and shall be

added or discarded strictly in accordance with the manufacturer's instruction.

3.05 SURFACE PREPARATION

- A. General: Paint surface preparation shall be as specified in the following or recommended by the paint manufacturer's published application instructions, whichever imposes the most stringent requirements.
- B. Surfaces to be painted shall be clean and dry, and free of dust, rust, scale and all foreign matter. Surface preparation techniques proposed by Contractor shall be acceptable to the Project Manager prior to commencement of surface preparation.
- C. Except as otherwise provided, all preparation of metal surfaces shall be in accordance with SSPC Specifications SP-1 through SP-13. Where SSPC are referred to in these Contract Documents, the corresponding Pictorial Surface Preparation Standard shall be used to define the minimum final surface conditions to be supplied. Grease and oil shall be removed and the surface prepared by hand tool cleaning, power tool cleaning or blast cleaning in accordance with the appropriate Specification SP-1 through SP-13.
- D. Weld flux, weld spatter and excessive rust scale shall be removed by power tool cleaning as per SSPC-SP-3.
- E. Threaded portions of valve and gate stems, machined surfaces which are intended for sliding contact, surfaces which are to be assembled against gaskets, surfaces or shafting on which sprockets are to fit, or which are intended to fit into bearings, machined surfaces of bronze trim on slide gates and similar surfaces shall be masked off to protect them from the sandblasting of adjacent surfaces. Cadmium-plated or galvanized items shall not be sandblasted unless hereinafter specified, except that cadmium-plated, zinc-plated, or sherardized fasteners used in assembly of equipment to be sandblasted shall be sandblasted in the same manner as the unprotected metal. All installed equipment, mechanical drives, and adjacent painted equipment shall be protected from sandblasting. Protection shall prevent any sand or dust from entering the mechanical drive units or equipment where damage could be caused.
- F. Hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place prior to cleaning and painting, and not intended to be painted, shall be protected or removed during painting operations and repositioned upon completion of painting operations.
- G. Any abraded areas of shop or field applied coatings shall be touched up with the same type of shop or field applied coating, even to the extent of applying an entire coating, if necessary. Touch-up coatings and surface preparations shall be in addition to and not considered as the first field coat.

- H. Sand from sandblasting shall be thoroughly removed, using a vacuum cleaner if necessary. No surface, which has been sandblasted, shall be painted until inspected by the Project Manager.
- I. Exposed Pipe, Valves and Pumps: Bituminous coated pipe shall not be used in fully exposed locations. Pipe, valves, and pumps which shall be fully exposed after project completion shall be primed in accordance with the requirements herein. Any bituminous coated ferrous pipe which is inadvertently installed in exposed locations shall be sandblasted to SSPC-SP-5 White Metal before priming and painting. After installation all exterior, exposed flanged joints shall have the gap between adjoining flanges sealed with a single component Thiokol caulking to prevent rust stains.
- J. Ferrous Metal Surfaces: All ferrous metal surfaces not required to be galvanized shall be cleaned of all oil, grease, dirt, rust and tight and loose mill scale by blasting in accordance with the following: SSPC-SP-10 Near White Metal Blast Cleaning with a 2 -3 mil profile. Priming/Painting shall follow sandblasting before any evidence of corrosion occurs.
- K. Field surface preparation of small, isolated areas such as field welds, repair of scratches, abrasions or other marks to the shop prime or finish shall be cleaned by power tools in accordance with SSPC-SP-3, or in difficult and otherwise inaccessible areas by hand cleaning in accordance with SSPC-SP-2 and spot primed.
- L. Primed or Coated Surfaces and Nonferrous Metal Surfaces: All coated surfaces shall be cleaned prior to application of successive coats. All nonferrous metals not to be coated shall be cleaned. This cleaning shall be done in accordance with SSPC-SP-1, Solvent Cleaning.
- M. Shop Finished Surfaces: All shop-coated surfaces shall be protected from damage and corrosion before and after installation by treating damaged areas immediately upon detection. Abraded or corroded spots on shop-coated surfaced shall be prepared in accordance with SSPC-SP-2, Hand Tool Cleaning and then touched up with the same materials as the shop coat. All shop coated surfaces which are faded, discolored, or which require more than minor touch-up, in the opinion of the Project Manager, shall be repainted. Cut edges of galvanized sheets, electrical conduit, and metal pipe sleeves, not to be finish painted, shall be cleaned in accordance with SSPC-SP-1, Solvent Cleaning and primed with zinc dust-zinc oxide metal primer.
- N. Galvanized, Zinc and Copper Alloy Surfaces: All copper or galvanized metal surfaces shall be given one coat of metal passivator or metal conditioner before applying the prime coat. The passivator or conditioner shall be compatible with

the complete paint system and shall be as identified on the paint schedule.

3.06 SHOP PAINTING

- A. All fabricated steel work and equipment shall receive at the factory at least one shop coat of prime paint compatible with the paint system required by these specifications. Surface preparation prior to shop painting shall be as specified. Finish coats may be applied in the shop if approved by the Project Manager. All shop painted items shall be properly packaged and stored until they are incorporated in the work. Any painted surfaces that are damaged during handling, transporting, storage, or installation shall be cleaned, scraped, and patched before field painting begins so that the work shall be equal to the original painting received at the shop. Equipment or steel work that is to be assembled on the site shall likewise receive a minimum of one shop coat of paint at the factory. Surfaces of exposed members that will be inaccessible after erection shall be prepared and painted before erection.
- B. The Contractor shall specify the shop paints to be applied when ordering equipment in order to assure compatibility of shop paints with field paints. The paints and surface preparation used for shop coating shall be identified on shop drawings submitted to the Project Manager for review. Shop paint shop drawings will not be reviewed until the final project paint system has been submitted by the Contractor and reviewed by the Project Manager.
- C. Shop finish coats may be the standard finish as ordinary applied by the manufacturer if it can be demonstrated to the Project Manager that the paint system is equal to and compatible with the paint system specified.

3.07 PAINT SCHEDULE

- A. General: The Contractor shall adhere to this paint schedule, providing those paints named or approved equal. DFT shall mean the total minimum dry film thickness per application measured in mils. Products are referenced by numbers listed in Article 2.01, "Materials," and listed in Table 09900-1.
- B. Metal Surfaces, Exterior (Atmospheric) Exposure: Metal surfaces exposed to the atmosphere that do not come into contact with corrosive atmospheres including the following types of surfaces shall be painted as described below:
 - a. Above ground piping, valves and pipe supports.
 - b. Miscellaneous steel shapes, angles, etc.

| <u>Application</u> | <u>No.</u> | <u>Description</u> | <u>DFT</u> |
|--------------------|------------|--------------------|------------|
| First coat | 66 | Polyamide Epoxy | 3.0 - 5.0 |
| Second coat | 66 | Polyamide Epoxy | 3.0 - 5.0 |

| | | | |
|-------------|----|--------------------------------|------------------|
| Finish coat | 73 | Aliphatic Acrylic Polyurethane | <u>2.0 - 4.0</u> |
| | | Min. Total | 11.0 Mils |

3.08 PAINTING

- A. Application: All paint shall be applied by experienced painters with top quality, properly styled brushes, rollers or other applicators reviewed by the Project Manager and the paint manufacturers.
- B. Paint shall be applied without runs, sags, thin spots, or unacceptable marks. Paints shall be applied at the rate specified by the manufacturer to achieve the minimum dry mil thickness required. Additional coats of paint shall be applied, if necessary, to obtain thickness specified. Work which shows carelessness, lack of skill, or is defective in the opinion of the Project Manager, shall be corrected at the expense of the Contractor.
- C. Paint shall be applied with spraying equipment only on those surfaces designated by the Project Manager. If the material has thickened or must be diluted for application by spray gun, each coat shall be built up to the same film thickness achieved with undiluted brushed-on material. Where thinning is necessary, only the products of the particular manufacturer furnishing the paint shall be used; and all such thinning shall be done in strict accordance with the manufacturer's instructions, as well as with the full knowledge of the Project Manager.
- D. Surfaces not accessible to brushes or rollers may be painted by spray by dauber or sheepskins and paint mitt. If any of these methods is to be used, it shall be done in strict accordance with the manufacturer's instruction, as well as with the full knowledge of the Project Manager.
- E. Drying Time: A minimum of twenty-four hours drying time shall elapse between application of any two coats of paint on a particular surface unless shorter time periods are a requirement of the manufacturer or specified herein. Longer drying times shall be required for abnormal conditions as defined by the manufacturer.
- F. Weather Restrictions: No painting whatsoever shall be accomplished in rainy or excessively damp weather when the relative humidity exceeds 85 percent, or when the general air temperature cannot be maintained at 50 degree Fahrenheit or above throughout the entire drying period. No paint shall be applied when it is expected that the relative humidity will exceed 85 percent or that the air temperature will drop below 50 degree Fahrenheit with 18 hours after the application of the paint. Dew or moisture condensation should be anticipated; and if such conditions are prevalent, painting shall be delayed until midmorning to be certain the surfaces are dry. The day's painting shall be completed well in advance of the probable time-of-day when condensation will occur.

G. Inspection Between Coats: Each and every field coat of priming and finishing paint shall be inspected by the Project Manager or his authorized representative before the succeeding coat is applied. The Contractor shall follow a system of tinting successive paint coats so that no two coats for a given surface are exactly the same color. Areas to receive black protective coatings shall in such cases be tick-marked with white or actually gauged as to thickness when finished. Magnetic dry film thickness gauges and wet fiber thickness gauges will be utilized for quality control.

1. Special Areas: All surfaces which are to be installed against concrete, masonry, etc., and will not be accessible for field priming and/or painting shall be back primed and painted as specified herein, before erection. Anchor bolts shall be painted before the erection of equipment and then the accessible surfaces repainted when the equipment is painted.
2. Special attention shall be given to ensure that edges, corners, crevices, welds and rivets receive a film thickness equivalent to that of the adjacent painted surfaces.

3.09 SCHEDULE OF COLORS

- A. All colors shall be designated by the Owner during shop drawing review. The Contractor shall submit color samples to the Project Manager as specified in Article 1.04. The Contractor shall submit suitable samples of all colors (including custom colors as may be required) and finishes for the surfaces to be painted, or on portable surfaces when required by the Project Manager. The Project Manager shall decide upon the choice of colors and other finishes when alternates exist. No variation shall be made in colors without the County's approval. Color names and/or numbers shall be identified according to the appropriate color chart issued by the manufacturer of the particular product in question.

3.10 LETTERING OF PIPING

- A. Pipe lettering are specified in Section 09905 "Piping Identification System".

3.11 CLEANING

- A. The Contractor shall protect at all times, in areas where painting is being done, floors, materials of other crafts, equipment, vehicles, fixtures, and finished surfaces adjacent to paint work. Cover all electrical wall plates, surface hardware, nameplates, gauge glasses, etc., before start of painting work.
- B. At completion of the work, remove all paint where spilled, splashed, splattered, sprayed or smeared on all surfaces, including glass, light fixtures, hardware, equipment, painted and unpainted surfaces.
- C. The buildings and all other work areas shall be at all times kept free from

accumulation of waste material and rubbish caused by the work. At the completion of the painting, all tools, equipment, scaffolding, surplus materials, and all rubbish around and inside the buildings shall be removed and the work left broom clean unless otherwise specified.

- END OF SECTION -

SECTION 09905 – PIPING IDENTIFICATION SYSTEM

PART 1 -- GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall furnish and install all components of the system for identification of piping and equipment as specified hereinafter. The system shall include the application of color coding to all new piping and exposed casing. The term “piping” as used in this Section shall mean piping and exposed well casing.

1.02 SUBMITTALS

- A. The Contractor shall submit shop drawings, including manufacturer’s product literature and samples of lettering and arrows in accordance with Section 01300.

PART 2 – PRODUCTS

2.01 PIPING IDENTIFICATION LETTERING AND ARROWS

- A. The Contractor shall apply identification lettering in the form of plain upper-case block lettering giving the name of the pipe contents and arrows indicating the direction of flow of liquids to all types and sections of piping.
- B. All lettering and arrows shall be of the vinyl, self-adhesive tape type or the plastic snap- on/strap-on type with self gripping fasteners. Pipe-marking devices (i.e., tape or snap- on/strap-on type) shall be suitable for a 5 to 8 year outdoor life without discoloration. Pipe marking devices shall be as manufactured by Lab Safety Supply, or equal.
- C. Identification lettering and arrows shall be placed as identified by the Project Manager, but shall generally be located every ten feet and shall be properly inclined to the pipe axis to facilitate easy reading.
- D. Lettering, background and arrow colors shall be the manufacturer’s standard colors unless otherwise indicated by the Project Manager.
- E. All lettering and arrows shall have an overall height in inches in accordance with Table 09905-1.

Table 09905-1
Height of Pipe Lettering

| Diameter of Pipe or Pipe Covering | Height of Lettering |
|-----------------------------------|---------------------|
| 3/4 to 1 1/4 inches | 1/2 inch |
| 1 1/2 to 2 inches | 3/4 inches |
| 2 1/2 to 4 inches | 1 1/4 inches |
| 6 inches and greater | 3 inches |

PART 3 -- EXECUTION

3.01 APPLICATION

- A. The manufacturer's instructions shall be followed in respect to storage, surface preparation and application.

3.02 PIPING AND EQUIPMENT IDENTIFICATION SCHEDULE

- A. Pipe lettering shall be as indicated in Table 09905-02. The Contractor shall provide the colors for COUNTY selection during shop drawing review.

Table 09905-2
Piping and Equipment Identification
Schedule

| Service | Type |
|--------------------------------|------------|
| Lettering | |
| 16-Inch Casing | UPPER ZONE |
| 6 5/8-inch Casing | LOWER ZONE |
| Upper Monitor Zone Pump Bypass | UMZ BYPASS |
| Lower Monitor Zone Pump Bypass | LMZ BYPASS |
| Upper Monitor Zone Sample | UMZ SAMPLE |
| Lower Monitor Zone Sample | LMZ SAMPLE |

- END OF SECTION -

SECTION 11100 - PUMPS, GENERAL

PART 1 -- GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall furnish and install all tools, supplies, materials, equipment and labor necessary for the installation, testing, and placing into operation of all pumps and pumping appurtenances, complete and operable, all in accordance with the requirements of the Contract Documents.
- B. The provisions of this section shall apply to all pumps and pumping equipment specified, except where otherwise specified in the Contract Documents.
- C. The Contractor, through a single Contractor, shall have unit responsibility for the furnishing and functional operation of a given type of complete pump systems including the pumps, drives, drive motors, speed control equipment (where variable speed drives are required) and accessories. The designated single Contractor, however, need not manufacture more than one part of the unit (pump, or motor and drive), but shall coordinate the design, assembly, testing, and erection of the unit(s) as specified herein.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01300 – Submittals
- B. Section 01600 – Equipment and Materials
- C. Section 09900 – Painting
- D. Division 16 – Electrical
- E. Division 17 – Instrumentation

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Codes:

The Building Code, as referenced herein, shall be the Florida Building Code (FBC), as specified in section entitled "Reference Standards".

ANSI/NFPA 70

National Electric Code

- B. Commercial Standards:

ANSI B16.1

Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125,250 and 800.

| | |
|------------------|---|
| ANSI B16.5 | Pipe Flanges and Flanged Fittings, Steel Nickel Alloy and Other Special Alloys. |
| ANSI/ASME B31.3 | Process Piping. |
| ANSI/ASME B73.1M | Specifications for Horizontal End Suction Centrifugal Pumps for Chemical Process. |
| ANSI/ASME B73.2M | Specifications for Vertical In-Line Centrifugal Pumps for Chemical Process. |
| ANSI/AWWA E101 | Deep Well Vertical Turbine Pumps - Line Shaft and Submersible Types. |
| ANSI/IEEE 112 | Test Procedure for Polyphase Induction Motors and Generators. |
| ANSI/IEEE 115 | Test Procedure for Synchronous Machines. ASTM A 48 Specification for Gray Iron Castings. |
| ASTM A 470 | Specification for Vacuum-Treated Carbon and Alloy Forgings for Turbine Rotors and Shafts. |
| ASTM A 536 | Specification for Ductile Iron Castings. |
| ASTM E 448 | Recommended Practice for Scleroscope Hardness Testing of Metallic Materials. |
| ASTM B 62 | Specification for Composition Bronze or Ounce Metal Castings. |
| ASTM B 584 | Specification for Copper Alloy Sand Coatings for General Applications |

Hydraulic Institute Standards for Centrifugal, Rotary, and Reciprocating Pumps.

1.04 CONTRACTOR SUBMITTALS

- A. Shop Drawings: Shop drawings of all pumps shall be submitted to the Project Manager in accordance with section entitled "Submittals". Shop drawings shall contain the following information:
1. Pump name, identification number and specification number.
 2. Performance curve and pump data.
 3. Pump hydraulic characteristic curves, efficiencies, required NPSH, and horsepower curves at pump rotative speeds corresponding to the conditions

specified. For variable speed driven pumps, curves shall be submitted at minimum, intermediate and maximum operating speed as well as for operation with the variable speed drive bypassed (across the line). The SUPPLIER shall require the manufacturer to indicate points on the H/Q curves, and the limits recommended for stable operation between which the pumps may be operated without surge, cavitation, overheating, recirculation and vibration. The stable operating range shall be as wide as possible based on actual hydraulic and mechanical tests. Motors and drives shall be furnished so that they are non-overloaded throughout the entire stable operating range of the pump to runout. The use of service factors in this determination will not be allowed.

4. General cutaway sections, list of materials, seal arrangement, dimension of shaft projections, shaft and keyway dimensions, shaft diameter, dimension between bearings, general dimensions of pump, suction head bolt orientation, design or baseplate, and anchor bolt locations and forces.
 5. Electrical data including control and wiring diagrams.
 6. Pump, drive, and motor data in accordance with section entitled "Electric Motors."
 7. Calculations for B-10 bearing life, shaft size, coupling size and anchor bolt size.
 8. Uncrated weight of the pump, weight of heaviest part of pump.
 9. Foundry certificates and results of Brinnell hardness testing showing compliance to ASTM A 532. Each individual casting shall be Brinnell tested in a minimum of two places, in an area of representative casting thickness to ASTM Method E-10. Results shall be certified by a registered professional Engineer. Test results shall verify the satisfaction of the required Brinnell hardness of the finished product as specified in respective subsections.
 10. Where pump and motor speeds are to be regulated by variable speed drives, the Contractor shall coordinate, furnish and exchange all necessary requirements with the respective equipment manufacturers to ensure compatibility and shall submit pump, motor and variable speed drive shop drawings together as a complete system.
- B. Certification: The Contractor shall obtain written certification from the pump manufacturer, stating that the equipment will efficiently and thoroughly perform the required functions in accordance with these Specifications and as indicated on the Drawings, CONTRACTOR shall have unit responsibility for coordination of all equipment, including motors, variable speed drives, controls, and services required for proper installation and operation of the completely assembled and installed pumps. The Contractor shall submit all such certificates to the Project Manager.

- C. Contractor shall submit certificate of proper installation from the pump vendor manufacturer.

O & M Manuals: Prior to start-up the Contractor shall furnish complete operations and maintenance manuals in accordance with section entitled "Submittals".

Spare Parts: The Contractor shall obtain from the pump manufacturer a set of the specified herein spare parts of all items of each pump, motor, and drive, subject to wear, such as seals, packing, gaskets, nuts, bolts, washers, wear rings, etc., as well as a set of spare bearings. It shall furnish all these parts suitably packaged and labeled with the part number, manufacturer's description, and the associated equipment number described above for tools. Required spare parts shall be as specified in individual section of the specification. If not listed there, then spare parts shall conform to the standards of the proposed pump supplier.

Maintenance: Printed instructions relating to proper maintenance, including lubrication, and parts lists indicating the various parts by name, number, and diagram where necessary, shall be furnished in duplicate with each unit or set of identical units in each pumping station. A recommended spare parts list shall be included.

Field Procedures: Instructions for field procedures for erection, adjustments, inspection, and testing shall be provided with the shop drawings.

1.05 QUALITY ASSURANCE

- A. Performance Curves: All centrifugal pumps shall have a continuously rising curve. In no case shall the required horsepower at any point on the performance curve exceed the rated horsepower of the motor or drive. Safety factors will not be considered in determining compliance with this requirement.

Equipment Testing: The Contractor shall be responsible for the coordination of the following tests of each pump, drive, and motor. Pump tests shall utilize the actual motors, drives, and pump-motor bases to be furnished with the pumping equipment. Use of the pump manufacturers standard test motors and test drives is not acceptable.

1. General: Tests shall be performed in accordance with the Standards of the Hydraulic Institute, Inc. Tests shall be performed on the actual assembled unit from shut-off head condition to 25 percent above the required design capacity. Prototype model tests will not be acceptable. Pump shop tests shall be made by the manufacturer and certified curves shall be submitted prior to witnessed tests. The shop tests shall consist of standard IEEE tests of motors, operation

of the pumps and motors installed on the actual pump and motor bases to be furnished for proper balance of equipment and all other requirements as specified under this section. Pumps motors and drives shall be factory witness-tested, as defined herein. All electronic transducers, meters, gauges, and test instruments shall be calibrated within 30 days prior to the scheduled test and certified calibration data shall be provided. Differential pressure type flow meters, such as venturis are preferred and shall have been calibrated, and their accuracy certified within the past 12 months. In case of failure of any unit to meet the test requirements, the manufacturer shall make such alterations as are necessary, and the tests shall be repeated without additional cost to the County until the equipment test is passed.

2. Field Tests: All pumping units shall be field tested after installation, in accordance with the Contract Documents, to demonstrate satisfactory operation, without causing excessive noise, vibration, cavitation, and overheating of the bearings. The field testing shall be performed in the presence of an experienced field representative of the manufacturer of each major item of equipment, who shall supervise the following tasks and shall certify in writing that the equipment and controls have been properly installed, aligned, lubricated, adjusted, and readied for operation:
 - a. Start-up, check, and operate the equipment over the entire speed range. The vibration shall be within the amplitude limits recommended in the Hydraulic Institute Standards and it shall be recorded at a minimum of four pumping conditions defined by the Project Manager.
 - b. Pump performance shall be documented by obtaining concurrent readings, showing motor voltage, amperage, pump suction head, and pump discharge head and flow, for at least four pumping conditions at each pump rpm. Each power lead to the motor shall be checked for proper current balance.
 - c. Bearing temperatures shall be determined by a contact-type thermometer. A running time of at least 20 minutes shall be maintained for this test, unless liquid volume available is insufficient for a complete test.
 - d. Electrical and instrumentation testing shall conform to applicable sections of these Specifications.
 - e. The field testing shall be witnessed by the County or its representative. The Contractor shall submit to the Project Manager a written notification of all pump field tests a minimum of one week prior to testing. In the event any of the pumping equipment fails to meet the above test requirements, it shall be modified and retested in accordance with the requirements of these Specifications. The Contractor shall then certify in writing that the equipment has been satisfactorily tested, and that all final adjustments thereto have been made. Certification shall include date of final acceptance test, as well as a listing of all persons present

during tests, and resulting test data. The costs of all Work performed in this Paragraph by factory-trained representatives shall be borne by the Contractor.

3. Acceptance: In the event of failure of any pump to meet any of the above requirements or efficiencies, the Contractor shall make all necessary modifications, repairs, or replacements to conform to the requirements of the Contract Documents and the pump shall be retested at no additional compensation, until found satisfactory.

1.06 MANUFACTURER'S SERVICE REPRESENTATIVE

- A. Unless otherwise referenced in the individual equipment specification section, the Contractor shall provide the services of the manufacturer's representative for a period as stated in the following schedule:

| Installation Trip (days) | Operation Trip Days* | Guaranteed Period Trip (days) |
|-----------------------------|-------------------------|----------------------------------|
| 1 | 1 | 1 |

*During operation trip the Contractor, through the manufacturer, shall instruct County's personnel on the operation of the pumps.

- B. Any additional time required to achieve successful installation and operation shall be at the expense of the Contractor.

1.07 CLEANUP

- A. After completion of the installation and testing, the Contractor shall remove all debris from the site, clean all the pumping equipment and controls, and hand over its work in perfect operating condition.

1.08 GUARANTEES, WARRANTIES

- A. After completion, the Contractor shall furnish to the County the manufacturer's written guarantees, that the pumping equipment will operate with the published efficiencies, heads, and flow ranges and meet these Specifications. The Contractor shall also furnish the manufacturer's warranties as published in its literature and as specified.

PART 2 -- PRODUCTS

2.01 GENERAL

- A. Wherever it is specified that a single Contractor shall be responsible for the compatible and successful operation of the various components of any pumping

equipment, it shall be understood to mean that the Contractor shall furnish and install only such pumping equipment as the designated single Contractor will certify is suitable for use with its equipment and with the further understanding that this in no way constitutes a waiver of any specified requirements.

- B. All manufactured items provided under this Section shall be new, of current manufacture, and shall be the products of reputable manufacturers specializing in the manufacture of such products: Such manufacturers shall have had previous experience in such manufacture and the Contractor shall, upon request of the PROJECT MANAGER, furnish the names of not less than 5 successful installations of the manufacturer's equipment of comparable nature to that offered under this contract.
- C. All combinations of manufactured equipment which are provided under these Specifications shall be entirely compatible, and the Contractor shall be responsible for the compatible and successful operation of the various components of the units conforming to specified requirements. Each unit of pumping equipment shall incorporate all basic mechanisms, coupling, electric motor or engine drive and unit mounting. All necessary mountings and appurtenances shall be included.
- D. Where two or more units of the same type and/or size of pumping equipment are required, such units shall all be produced by the same manufacturer.

2.02 MATERIALS

- A. All materials employed in the pumping equipment shall be suitable for the intended application; material not specifically called for shall be high-grade, standard commercial quality, free from all defects and imperfection that might affect the serviceability of the product for the purpose for which it is intended, and shall conform to the following requirements unless otherwise specified in individual pumping equipment Specifications:
 - 1. For all seal arrangements, a buffer fluid must be circulated a minimum 20 psi above suction pressure, or as required by manufacturer, in order to maintain reliable seal performance.
 - 2. Preferred seals for all services other than chemicals and corrosives should be equipped with nonclogging, single coil springs and nonsliding, internal, secondary elastomers. Metal parts are to be of 300 series, stainless steel.
- B. Drive Couplings and Shafting: Flexible couplings for direct driven pumps shall be as manufactured by Falk, Dodge, Woods Corp., or equal and shall be furnished with guards in accordance with OSHA Rules and Regulations. Spacer couplings shall be provided where necessary to allow removal of the pump rotating element without disturbing the driver.
 - 1. Where so indicated on the Drawings or specified, pumps shall be driven with drive shafting consisting of one or more shaft connected with universal joints, steady bearings as required, splined slip joints, and coupling flanges. The drive shafts shall be types WL, WV-A, WV-B, or WV-C as manufactured by

H.S. Watson Company, equivalent models by Parrish Power Products, or equal.

2. Drive shaft assemblies shall be sized for AFBMA B-10 bearing lifetimes of not less than 60,000 hours unless otherwise specified hereinafter in the individual pump Specifications. In addition, shafting length and stiffness shall be such that critical speed conform to the following requirements:
 - a. For constant speed pumps, operating speed shall not be more than 75 percent of critical speed, nor within the range of 44 percent to 56 percent of critical speed for horizontal shafts.
 - b. For variable speed pumps, full speed shall not be more than 44 percent of critical speed for horizontal shafts or 75 percent of critical speed for vertical shafts. This may require a heavier shaft than is required to achieve the above stated lifetime requirements.
3. All shafting shall be dynamically balanced in accordance with the recommendations of the shafting manufacturer.
4. Drive shaft dimensions and, where applicable, the location of steady bearing supports are shown approximately to scale on the drawings. Exact dimensions and support arrangements will depend on the motor and pump which the Contractor proposed to install. The Contractor shall submit complete shop drawings and Specifications to the Project Manager for review of the drive shaft arrangement proposed.
5. The drive shaft manufacturer shall furnish to the Contractor complete installation instructions for the equipment furnished. The Contractor shall install the drive shaft assemblies per the manufacturer's instructions. The shafts shall be installed with a minimum of one degree offset and a maximum of five degrees offset at each universal joint.
6. The Contractor shall furnish and install a heavy-duty shaft guard for all drive shafting which is less than seven feet above floor or platform level in accordance with the provisions of Paragraph 1910.210 of OSHA Rules and Regulations. Provision shall be made in the guard as necessary for lubrication and inspection access of the joints and bearings without the necessity of removing the entire guard assembly.
7. All drives and shafting shall comply with the requirements of Section entitled "Materials and Equipment" of the Specification.

C. The bearing life for all pump, motor and drive bearings shall be B-10 60,000 hour

PART 3 -- EXECUTION

3.01 INSTALLATION

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BROWARD COUNTY

PUMPS, GENERAL
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- A. General: Pumping equipment shall be installed in accordance with the manufacturer's recommendations, acceptable procedures submitted with the shop drawings and as indicated on the Drawings, unless otherwise accepted by the Project Manager. Contractor shall also adhere to the requirements of sections entitled "Equipment and Materials".
- B. Alignment: Equipment shall be field tested to verify proper alignment, operation as specified, and freedom from binding, scraping, vibration, shaft runout, or other defects. Pump drive shafts shall be measured just prior to assembly to ensure correct alignment without forcing. Equipment shall be secure in position and neat in appearance.
- C. Lubricants: The installation work shall include furnishing the necessary oil and grease for initial operation.
- D. Connections: All motors shall be connected to the conduit system by means of a short section (18-inch minimum) of weatherproof flexible conduit, unless otherwise indicated. For connections for No. 6 AWG and smaller wire size, the Contractor shall furnish flexible conduit with an acceptable grounding conductor inside the flexible section. For connections of No. 4 AWG or larger wire size, the Contractor shall install a grounding conduction in the conduit and terminate at the motor control center with an acceptable grounding clamp.

3.02 PROTECTIVE COATING

- A. All exposed materials, except corrosion-resistant metals which have not been shop painted, shall be field coated as specified in section entitled "Painting". Shop painted items which suffered damage to the shop coating shall be touched up as specified in section entitled "Painting".
- B. Gears, bearing surfaces, and other similar surfaces obviously not to be painted shall be given a heavy shop coat of grease or other suitable rust-resistant coating. This coating shall be maintained as necessary to prevent corrosion during periods of storage and erection and shall be satisfactory to the Project Manager up to the time of the final acceptance.
- C. All inaccessible surfaces of the equipment that normally require painting shall be finish painted by the manufacturer. The equipment shall be painted with a high quality epoxy polyamide semi-gloss coating specifically resistant to chemical, solvent, moisture and caustic environmental conditions.

3.03 EQUIPMENT IDENTIFICATION

- A. Contractor shall provide nameplates for all pumps in accordance with section entitled "Equipment and Materials".

3.04 CERTIFICATION

- A. Provide a written certification from the equipment manufacturer that the

equipment has been properly installed in compliance with the contract documents, the manufacturer's recommendations, the review of shop drawings, and that the equipment is operational as intended.

- END OF SECTION -

SECTION 15001 - PIPING

PART 1 -- GENERAL

1.01 SCOPE

- A. This section consists of furnishing, installing, testing and placing in operation all specified piping complete with fittings, wall pipes, exterior wall sleeves, couplings, adapters, hanger supports and other appurtenances as shown on the Drawings and as required for a complete installation.

1.02 GENERAL INFORMATION AND DESCRIPTION

- A. The pipe and fittings covered by these specifications shall be furnished by fully qualified manufacturers experienced in the fabrication, casting and manufacture of the pipe materials specified herein. The pipe and fittings shall be designed, fabricated and installed in accordance with the best practice of the trade and the standards specified herein.
- B. No material furnished under this specification shall be shipped to the job site until all submittals have been reviewed.

1.03 SUBMITTALS

- A. The Contractor shall submit Shop Drawings for temporary and permanent piping systems in accordance with the procedures and requirements set forth in Section 01300.
- B. Each submittal shall be complete in all aspects incorporating all information and data listed herein and all additional information required to evaluate the proposed piping material's compliance with the Contract Documents. Partial or incomplete submissions will be returned to the Contractor without review.
- C. Data to be submitted for temporary and permanent piping systems shall include, but not be limited to:
 - 1. Catalog Data consisting of specifications, illustrations and a parts schedule that identifies the materials to be used for the various piping components and accessories. The illustrations shall be in sufficient detail to serve as a guide for assembly and disassembly.
 - 2. Complete layout and installation drawings with clearly marked dimensions. Piece numbers which are coordinated with the tabulated pipe layout schedule shall be clearly marked. Scale and size of the drawings shall conform to the specifications in the General Conditions and Division 1.

Piping layout drawings shall indicate the following information; pipe supports, location, support type, hanger rod size, insert type and the load on the hanger in pounds.

3. Weight of all component parts.
 4. Design calculations where specified.
 5. Tabulated pipe layout schedule which shall include the following information for all pipe and fittings, service, pipe size, working pressure, wall thickness, and piece number.
- D. The Contractor shall obtain from the manufacturer and submit to the Project Manager copies of the certified shop tests in accordance with Section 01300.
- E. The Contractor shall obtain from the manufacturer and submit to the Project Manager copies of certified letters of compliance in accordance with Section 01300.

PART 2 -- PRODUCTS

2.01 GENERAL

- A. All pipe and fittings shall be marked with the manufacturer's name or trademark, size, class or pressure rating, and the date of manufacture in accordance with the standards specified herein.
- B. All bolts and nuts shall be hexagonal conforming to ANSI B18.2.
- C. No raised face flanges in conformance with ANSI B16.5 class 150 will be acceptable. All raised faces shall be milled flat.
- D. All gaskets shall be full faced type conforming to ANSI B16.21 except for lap joints and 300 lb flanges.

2.02 POLYVINYLCHLORIDE (PVC) PIPE

- A. PVC pipe shall conform to ASTM D 1785 and shall be made from a 12454B compound which is a Type 1, Grade 1 plastic as defined by ASTM D 1784. Rerun or reclaimed materials will not be acceptable. Pipe to be used for potable water applications shall comply with the National Sanitation Foundation Standard No. 14 and shall have markings on the pipe to indicate that it has been tested and is in compliance.
- B. Wall Thickness shall be Schedule 80, unless otherwise noted. Where required, socket type adapters and socket type flange adapters shall be provided.

- C. Socket type joints shall be made up in accordance with ASTM D 2855 with a PVC solvent cement complying with ASTM D 2564. The cement shall have a minimum viscosity of 2,000 cps. Socket type pipe fittings for schedule 80 pipe shall conform to ASTM D 2467.
- D. Where flanges are to be used, flanges shall be van stone type with full faced vinyl gaskets.
- E. Fittings shall have the same schedule designation, joint type and be made of the same PVC compound as the connecting pipe.

2.03 STAINLESS STEEL PIPE

- A. All stainless steel pipe shall be as indicated on the Drawings, either Type 316 or Type 317, conforming to ASTM A 312.

2.04 UNIONS

- A. For PVC and CPVC piping, unions shall be socket weld type with Viton O-ring.

PART 3 -- INSTALLATION

3.01 GENERAL

- A. The Contractor shall furnish all labor, tools, materials, and equipment necessary for installation and jointing of the pipe. All piping shall be installed in accordance with the Drawings in a neat workmanlike manner and shall be set for accurate line and elevation. All piping shall be thoroughly cleaned before installation, and care shall be taken to keep the piping clean throughout the installation.
- B. Before setting wall sleeves, pipes, castings and pipes to be cast in place, the Contractor shall check all Drawings, Figures and shop drawings which may have a direct bearing on the pipe locations. The Contractor shall be responsible for the proper location of the pipes and appurtenances during the construction of and renovation of the tanks and structures.
- C. Piping shall be attached to pumps, valves, equipment, etc., in accordance with the respective manufacturers' recommendations.
- D. For piping assembled with threaded, solvent cemented, welded or soldered joints, liberal use of unions shall be made. Unions shall be provided close to main pieces of equipment and in branch lines to permit ready dismantling of piping without disturbing main pipe lines or adjacent branch lines. A minimum of one union per straight run of pipe between fitting and/or valves with multiple lengths of pipe shall be used.

- E. All changes in directions or elevations shall be made with fittings.

3.02 SHIPPING, HANDLING AND STORAGE

- A. Special care in handling shall be exercised during delivery, distribution and storage of pipe to avoid damage and setting up stresses. Damaged pipe will be rejected and shall be replaced at the Contractor's expense. Pipe and specials stored prior to use shall be stored in such a manner as to keep the interior free from dirt and foreign matter.
- B. No pipe shall be dropped from cars or trucks to the ground. All pipe shall be carefully lowered to the ground by mechanical means. In shipping, pipe and fittings shall be blocked in such manner as to prevent damage to castings or lining. Any broken or chipped lining shall be carefully patched. Where it is impossible to repair broken or damaged lining in pipe because of its size, the pipe shall be rejected as unfit for use.
- C. All mechanical joint pipe shall be laid with 1/8-inch space between the spigot and shoulder of pocket.

3.03 INSTALLATION OF POLYVINYLCHLORIDE (PVC) PIPE

- A. PVC pipes shall be installed in accordance with ASTM D 2321.
- B. PVC water main pipe shall be installed in accordance with AWWA Manual M23.

3.04 JOINTS

A. Flanged Joints:

1. Shall be made up with full face gaskets with the flange faces bearing uniformly on the gaskets.
2. Shall have the flanges drawn together uniformly until the joint is tight.
3. No washers shall be permitted for the bolt and nut assemblies.
4. The length of the bolts shall be uniform and in accordance with the standards specified herein. The bolt's maximum projection beyond the end of the nut shall be 0.25-inch nor shall the bolt fall short of the end of the nut.

B. Threaded Joints:

1. All threads shall be clean, machine cut and all pipe shall be reamed before erection.

2. Taps and dies shall be cleaned, sharpened and in good condition.
3. All threaded joints shall be made tight with Teflon tape.
4. After having been set up a joint shall not be backed off unless the joint is broken, the threads cleaned and new tape is applied.

C. Solvent Cemented Joints:

1. Shall be made up in accordance with ASTM D 2855 and the manufacturers' recommendations.
2. The CONTRACTOR is advised to handle the solvent cements in accordance with ASTM F 402.

3.05 FLUSHING AND TESTING

- A. General: The Contractor shall flush and test temporary water lines and monitor well sample lines.
- B. The Contractor shall furnish all necessary labor and equipment required for field tests specified below including, but not limited to, air compressor, gauges, conduit caps, temporary pipe and connections. The Contractor shall furnish and install all means and apparatus necessary for getting the water into the pipeline and flushing and testing; including pumps, gages, and meters, any necessary plugs and caps, and any temporary blow off piping required to discharge water, etc., complete with any necessary reaction blocking to prevent pipe movement during the flushing and testing.
- C. All pipelines shall be flushed and tested in such lengths or sections as agreed upon among the County, and Contractor. The Contractor shall give the County reasonable notice of the time when he intends to test portions of the pipelines. The County reserves the right, within reason, to request flushing and testing of any section or portion of a pipeline.
- D. Flushing: At the conclusion of the installation Work, the Contractor shall thoroughly clean all temporary pipe by flushing with water or other means to remove all dirt, stones, pieces of wood, etc., which may have entered the pipe during the construction period. If after this cleaning any obstructions remain, they shall be corrected by the Contractor, at its own expense, to the satisfaction of the County. Pipelines shall be flushed at a rate of at least 2.5 feet per second for a duration suitable to the County, but in no event less than 60 minutes.
- E. Pressure Testing: After flushing, pipelines shall be hydrostatically tested. Temporary water piping shall be tested at 125 psi for two hours and the monitor well sample lines shall be tested at 50 psi for two hours.

- F. The line shall be filled slowly with water and left standing for a period of not less than 24 hours. All air shall be purged from the line before testing. The joints shall be visually inspected for leakage and then the piping shall be subjected to the specified test pressure. The amount of water which must be added shall be accurately measured. The measured leakage for buried or encased piping shall not exceed 1/2 gallon per inch of diameter per 1,000 feet of pipe. The procedure used for the hydrostatic test shall be in accordance with AWWA C600. There shall be no visual indication of leakage for interior or exposed piping while maintaining the specified test pressure.
- G. The Contractor shall furnish, install complete with reaction blocking, the necessary plugs, caps and extra valves required for this operation.
- H. Any leaks or defective pipe disclosed by the hydrostatic test shall be corrected by the Contractor, at its own expense, and the test repeated until all such piping shows tight.

3.06 DISINFECTION FOR POTABLE WATER PIPE

- A. Prior to placing the potable water systems in service, they shall be disinfected in accordance with AWWA Standard C601 and any additional requirements prescribed by the public health authorities having jurisdiction. The form of chlorine for disinfection and the method of chlorine application shall be proposed by the Contractor and approved by the County before the disinfection process is started.
- B. The disinfection procedure shall be repeated until satisfactory bacteriological sampling has been achieved. The Contractor shall be responsible for all costs associated with sampling and testing.

- END OF SECTION -

SECTION 15100 - VALVES AND APPURTENANCES

PART 1 -- GENERAL

1.01 SCOPE

- A. Furnish and install, all valves complete with accessories, and special equipment as shown on the Drawings and specified herein.

1.02 GENERAL INFORMATION AND DESCRIPTION

- A. The equipment covered by these specifications is intended to be standard equipment of proven performance as manufacturer by reputable concerns. Equipment shall be designed, constructed and installed in accordance with the best practice of the trade, and shall operate satisfactorily when installed as shown on the Drawings.

1.03 SUBMITTALS

- A. Each submittal shall be complete in all aspects incorporating all information and data listed herein and all additional information required to evaluate the proposed valve's compliance with the Documents. Partial or incomplete submissions shall be returned to the Contractor disapproved without review.
- B. Data to be submitted shall include but not be limited to:
 - 1. Catalog Data consisting of specifications, illustrations and a parts schedule that identifies the materials to be used for the various parts and accessories. The illustrations shall be in sufficient detail to serve as a guide for assembly and disassembly.
 - 2. Complete assembly, and installation drawings with clearly marked dimensions. This information shall be in sufficient detail to serve as a guide for assembly and disassembly and for ordering parts.
 - 3. Weight of all component parts and assembled weight.
 - 4. Design calculations.
 - 5. Listing of all lubricants required for the equipment with a minimum of two equivalent and compatible natural and/or synthetic lubricants produced by different manufacturers. The listing shall include the estimated quality of lubricant required for one year of operation.
 - 6. Sample data sheet of equipment nameplate(s) including information contained thereon.

7. Spare parts list.

8. Special tools list.

- C. The Contractor shall obtain from the manufacturer and submit to the Project Manager copies of the results of all certified shop tests.
- D. The Contractor shall obtain from the manufacturer and submit to the Project Manager copies of certified letters of compliance in accordance with the General Conditions and Division 1.

1.04 TOOLS, SUPPLIES AND SPARE PARTS

- A. The Contractor shall obtain from the equipment manufacturer and submit to the Project Manager the following spare parts lists in accordance with the procedures and requirements set forth in the General Conditions and Division 1.
 - 1. A complete list of parts and supplies with current unit prices and source of supply.
 - 2. A list of parts and supplies that are either normally furnished at no extra cost with the purchase of the valve as specified herein to be furnished as part of the contract. (This list shall be submitted as part of the shop drawing submission).
- B. Parts shall be completely identified with a numerical system to facilitate parts inventory control and stocking. Each part shall be properly identified by a separate number. Those parts which are identical for more than one size, shall have the same parts number.
- C. The Contractor shall also compile from the shop drawing submittals and furnish a comprehensive list of all special tools required for the equipment.

PART 2 -- PRODUCTS

2.01 GENERAL

- A. The valves and accessories shall be in the quantity, quality, types and sizes as indicated on the Drawings and specified herein.
- B. All valves shall have a minimum design pressure rating of 150 psi and capable of a test pressure of 300 psi.
- C. All valves of one type shall be the product of one manufacturer.
- D. All valves shall have applied to them the same coatings as the adjacent piping.

- E. All valves which are dead ends for active pipelines shall be provided with 316 S.S. threaded caps to prevent leakage.

2.02 STAINLESS STEEL BALL VALVES

- A. Ball valves shall be manufactured from 316 stainless steel double union and shall have reinforced PTFE seats and PTFE seals and packing to suit the intended chemical service requirements. Ball valves shall be full port type with threaded union ends as manufactured by Ohio Valve, or equal.

2.03 PVC BALL VALVES

- A. Ball valves shall be manufactured from PVC compounds and shall have Viton or Teflon seals and O-ring seals to suit the intended chemical service requirements. Valves shall be the full port type with double union ends.

2.04 GAUGE COCKS

- A. Gauge cocks shall be screwed, all bronze, tee handle, as manufactured by Crane Co. Model No. 712 or 744, or equal.

PART 3 -- EXECUTION

3.01 INSTALLATION

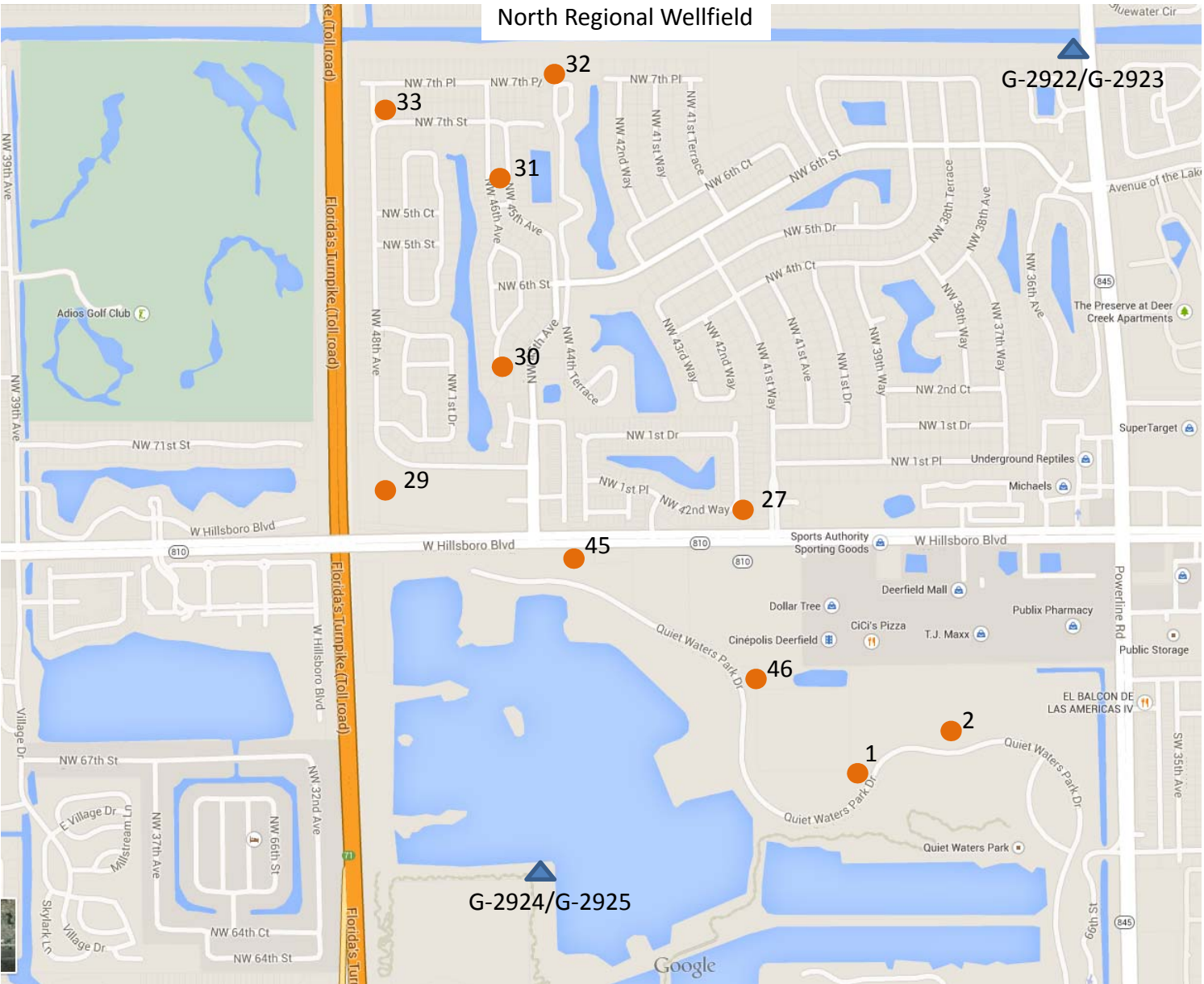
- A. The procedures regarding unloading, inspection, storage and where applicable installation, described in the Appendix of AWWA C500 entitled "Installation, Operation and Maintenance of Gate Valves" shall be used for all valves.
- B. All valves shall be manually opened and closed before installation to check their operation, and the interior of the valves shall be cleaned. Valves shall be placed in the positions shown on the Drawings. Joints shall be made as indicated under the piping specifications.

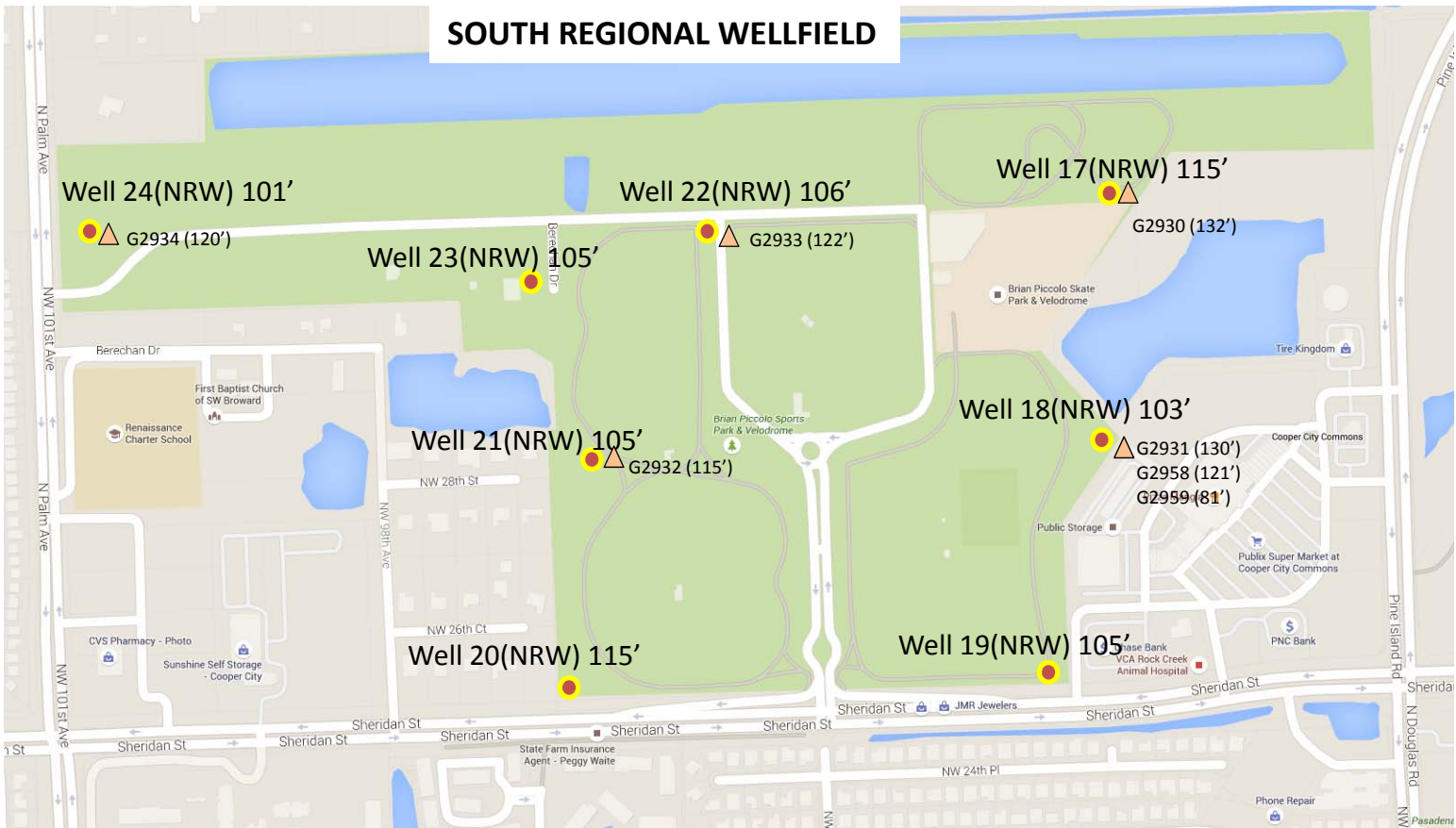
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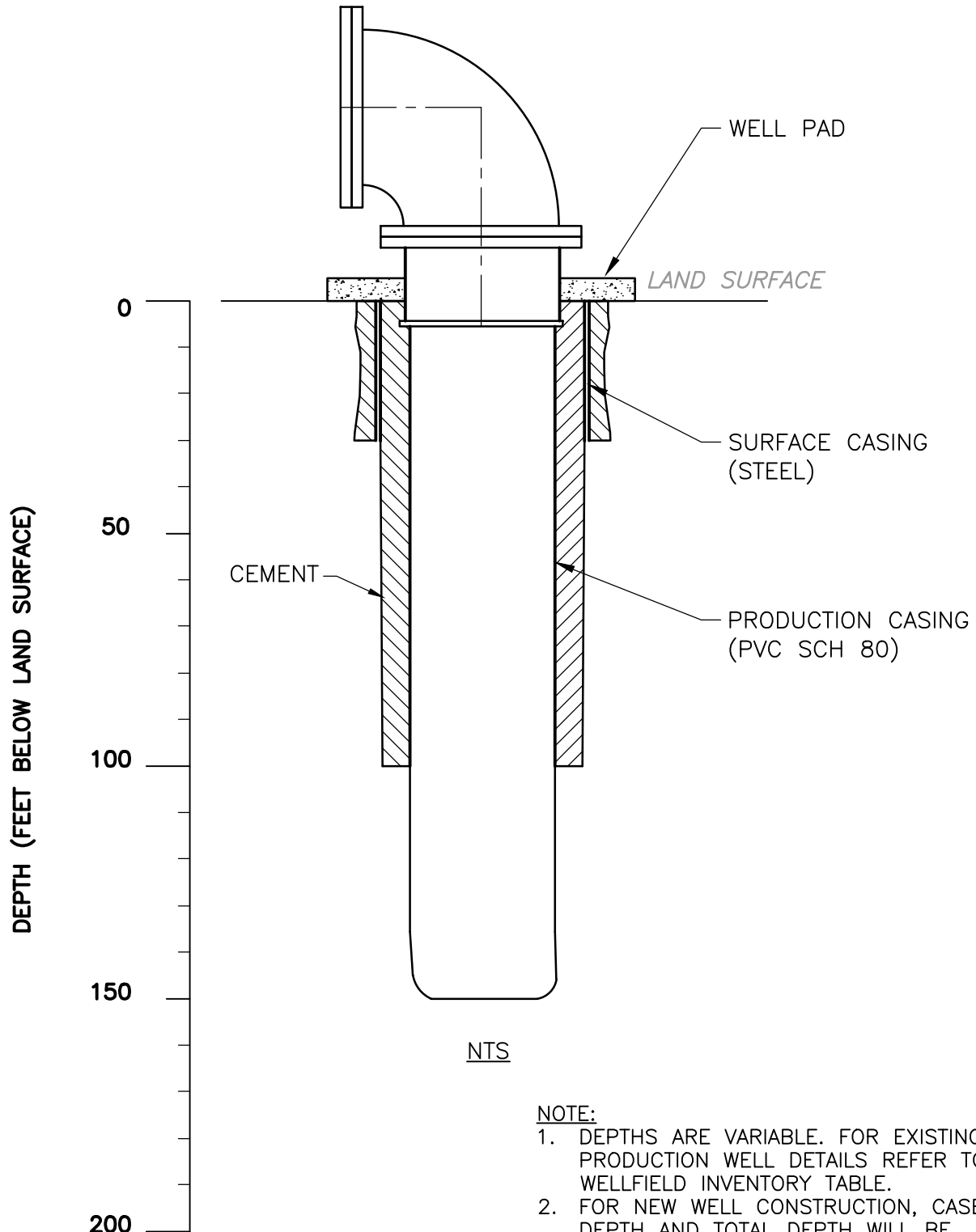
District 1 Wellfield











NOTE:

1. DEPTHS ARE VARIABLE. FOR EXISTING PRODUCTION WELL DETAILS REFER TO WELLFIELD INVENTORY TABLE.
2. FOR NEW WELL CONSTRUCTION, CASED DEPTH AND TOTAL DEPTH WILL BE DETERMINED BY THE "ENGINEER".
3. FOR NEW WELL CONSTRUCTION, SCREEN OR OPEN HOLE COMPLETION WILL BE DETERMINED BY THE "ENGINEER".



Broward County
WATER AND WASTEWATER OPERATIONS DIVISION
DAILY SERVICE REPORT

Original for WWOD

[illegible]

WHITE-WWOD, YELLOW-Vendor



ATTACHMENT "A-4"
Broward County Board of
County Commissioners
Public Works and Transportation Department
Water and Wastewater Services
WATER AND WASTEWATER OPERATIONS DIVISION
2555 West Copans Road, Pompano Beach, Florida 33069

Bid OPN2118442B1
PLACE
TIME AND DATE STAMP
HERE

REQUEST FOR SERVICE

Service information for water mains, gravity sewer mains, lift stations and force mains.

Contact Water and Wastewater Operations Division (WWOD)
2555 West Copans Rd., Pompano Beach, FL 33069. Phone: (954) 831-0810.

TO BE COMPLETED BY CONTRACTOR REQUESTING SERVICE

Project Number: _____ Project Title: _____

Contractor Name: _____

Contractor Mailing Address: _____ Zip Code: _____

Telephone No.: () _____ Fax No.: () _____

Requested By: _____ Date: _____

Requested Date: _____ Requested Time: _____ ☐ (AM) ☐ (PM)

Type of Service Requested: (Attach detailed drawings and location map.) _____

Exact Street Address: _____ City: _____ Zip: _____

Approximate Length of Time for Service: _____

If Shutdown, Approximate Number of Customers Affected: _____

Describe Activity in Detail: (Include copy of schedule indicating time and sequence of events, manpower, and materials used, etc.) _____

Inspection Authority: _____ Phone No.: () _____

Engineer of Record: _____ Phone No.: () _____

TO BE COMPLETED BY WWOD

Request for Service WWOD contact and phone number for contractor's specific request:

Name: _____ Number: _____

Request for Service Approved as Requested Above ☐

Request for Service is denied as Requested Above ☐

Reason Request for Service is denied: _____

• Alternative Date and Time Service can be provided: _____

• Signed: _____ Date: _____

• • • SEE REVERSE SIDE FOR PROCESSING AND ROUTING INSTRUCTIONS • • •

PROCESSING AND ROUTING INSTRUCTIONS

Contractor:

- Obtain form from Water and Wastewater Engineering Division (WWED), Inspection Section, or Operations Division.
- Complete every section of form, with special attention given to type of service requested, including a detailed description of activity.
- Submit completed form by 9:00 a.m., and no less than **72 hours** in advance of requested date and time, excluding weekends and holidays.
- Hand deliver completed Request for Service to:

**WATER AND WASTEWATER OPERATIONS DIVISION
2555 WEST COPANS ROAD, BLDG. 2
2nd Floor Lobby
POMPANO BEACH, FL 33069
PHONE: (954) 831-0810**

- Faxed or emailed requests cannot be accepted.
- Contractor will receive a time/date copy of the request when it is delivered to 2nd floor lobby.
- WWED's Chief Inspector will receive a copy of the request after the form is signed, approved, and completed by WWOD.

**Contractor is responsible for notifying WWED Inspection Section at 954-831-0901
prior to requested service taking place.**

**Requests will not be honored unless inspector or engineer
is present at time service is provided.**



BOARD OF COUNTY COMMISSIONERS
WATER & WASTEWATER SERVICES
 P.O. BOX 669300
 POMPANO BEACH FL 33066-9300
 (954)831-3243 • FAX (954) 831-0959

I hereby apply to Broward County Water and Wastewater Services to provide temporary water service, through a hydrant meter, at the premises listed for a period of _____ days. I understand that I am fully responsible for all charges at the subject property. I agree to pay for the service promptly at the rates established by Broward County WWS and agree to abide by present and future rules and regulations for water and sewer service established by the Board of County Commissioners.

APPLICATION FOR TEMPORARY WATER HYDRANT SERVICE

SERVICE ADDRESS: _____
STREET

| | | | |
|------------------------------|------|-------|-------|
| BLDG./APT/BAY # (CIRCLE ONE) | CITY | STATE | ZIP+4 |
|------------------------------|------|-------|-------|

CONTRACTOR: _____

PROPERTY OWNER: _____

MAILING ADDRESS: _____

STREET
CITY
STATE
ZIP + 4

DAYTIME PHONE # (____) _____ - _____ FAX # (____) _____ - _____

FEDERAL TAX # _____ - DRIVER'S LISCENSE # _____ STATE _____

DETAIL TYPE OF CONSTRUCTION (i.e. office bldg., fast food, retail store)_____

IF YOU HAVE/HAD ANOTHER ACCOUNT WITH WATER AND WASTEWATER SERVICES, STATE:

SERVICE ADDRESS: _____ ACCOUNT # _____

*****THE SECURITY DEPOSIT PLACED ON THIS ACCOUNT WILL BE REFUNDED ONLY
TO THE APPLICANT NAMED ABOVE.*****

APPLICANTS SIGNATURE: _____ ☐ AGENT DATE: _____

PRINT NAME: _____ JOB TITLE: _____

WWS USE:

| <u>CUSTOMER#</u> | <u>UAZ</u> | <u>PREMISE</u> | <u>DEPOSIT</u> | <u>CLERK</u> |
|------------------|------------|----------------|----------------|--------------|
|------------------|------------|----------------|----------------|--------------|

METER NUMBER:_____ **BEGINNING READ:**_____ **DATE:**_____

ISSUED BY:

General Decision Number: FL190107 03/15/2019 FL107

Superseded General Decision Number: FL20180150

State: Florida

Construction Type: Heavy

County: Broward County in Florida.

HEAVY CONSTRUCTION PROJECTS (Including Sewer and Water Lines)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.60 for calendar year 2019 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.60 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2019. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

| Modification Number | Publication Date |
|---------------------|------------------|
| 0 | 01/04/2019 |
| 1 | 03/15/2019 |

* ELEC0728-006 03/01/2019

| | Rates | Fringes |
|-------------------------|----------|---------|
| ELECTRICIAN..... | \$ 32.63 | 12.23 |
| ----- | | |
| ENGI0487-014 07/01/2013 | | |

| | Rates | Fringes |
|----------------------------|-------|---------|
| OPERATOR: Crane | | |
| All Tower Cranes Mobile, | | |
| Rail, Climbers, Static- | | |
| Mount; All Cranes with | | |
| Boom Length 150 Feet & | | |
| Over (With or without jib) | | |
| Friction, Hydraulic, | | |

| | |
|--|------|
| Electric or Otherwise; Cranes 150 Tons & Over; Cranes with 3 Drums (When 3rd drum is rigged for work); Gantry & Overhead Cranes; Hydraulic Cranes Over 25 Tons but not more than 50 Tons; Hydraulic/Friction Cranes; & All Types of Flying Cranes; Boom Truck.....\$ 29.05 | 8.80 |
| Cranes with Boom Length Less than 150 Feet (With or without jib); Hydraulic Cranes 25 Tons & Under, & Over 50 Tons (With Oiler); Boom Truck.....\$ 28.32 | 8.80 |
| OPERATOR: Drill.....\$ 25.80 | 8.80 |
| OPERATOR: Oiler.....\$ 22.99 | 8.80 |

IRON0272-005 10/01/2017

| | Rates | Fringes |
|-------------------------------------|-------|---------|
| IRONWORKER, STRUCTURAL.....\$ 24.89 | 10.10 | |

LABO1652-004 05/01/2018

| | Rates | Fringes |
|-------------------------------------|-------|---------|
| LABORER: Grade Checker.....\$ 22.05 | 7.27 | |

PAIN0365-007 08/01/2018

| | Rates | Fringes |
|--|-------|---------|
| PAINTER: Brush, Roller and Spray.....\$ 20.21 | 10.73 | |

SUFL2009-146 06/24/2009

| | Rates | Fringes |
|--|-------|---------|
| CARPENTER, Includes Form Work....\$ 17.00 | 2.51 | |
| CEMENT MASON/CONCRETE FINISHER...\$ 15.00 | 8.64 | |
| LABORER: Common or General.....\$ 9.87 | 3.24 | |
| LABORER: Landscape.....\$ 7.25 | 0.00 | |
| LABORER: Pipelayer.....\$ 14.00 | 2.42 | |
| LABORER: Power Tool Operator (Hand Held Drills/Saws, Jackhammer and Power Saws Only).....\$ 10.63 | 2.20 | |
| OPERATOR: Asphalt Paver.....\$ 11.59 | 0.00 | |

| | | |
|---|----------|------|
| OPERATOR: Backhoe Loader Combo..... | \$ 16.10 | 2.44 |
| OPERATOR: Backhoe/Excavator..... | \$ 18.77 | 1.87 |
| OPERATOR: Bulldozer..... | \$ 14.95 | 0.81 |
| OPERATOR: Grader/Blade..... | \$ 16.00 | 2.84 |
| OPERATOR: Loader..... | \$ 14.00 | 2.42 |
| OPERATOR: Mechanic..... | \$ 14.32 | 0.00 |
| OPERATOR: Roller..... | \$ 10.95 | 0.00 |
| OPERATOR: Scraper..... | \$ 11.00 | 1.74 |
| OPERATOR: Trackhoe..... | \$ 20.92 | 5.50 |
| OPERATOR: Tractor..... | \$ 10.54 | 0.00 |
| TRUCK DRIVER, Includes Dump Truck..... | \$ 9.60 | 0.00 |
| TRUCK DRIVER: Lowboy Truck..... | \$ 12.73 | 0.00 |
| TRUCK DRIVER: Off the Road Truck..... | \$ 12.21 | 1.97 |

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage

determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

SPECIAL INSTRUCTIONS TO VENDORS (IN ADDITION TO GENERAL CONDITIONS)

Well Rehabilitation

A. Scope:

Vendors are invited to respond for an open-end contract to provide Well Rehabilitation for Water & Wastewater Services and various other Broward County agencies that may have need of these services and products.

The initial contract period shall start on date of award, or upon expiration of the current contract (currently August 15, 2019), whichever is later and shall terminate one year from that date. The Director of Purchasing may renew this contract for two, one year periods subject to vendor acceptance, satisfactory performance and determination that renewal will be in the best interest of the County. Notification of Intent to Renew will be sent in advance of expiration date of this contract. The Vendor will complete delivery and the County will receive delivery on any orders mailed to the Vendor prior to the date of expiration.

All prices, terms and conditions shall remain fixed for the initial period of the contract. In addition, all prices, terms and conditions shall remain fixed for the renewal period of the contract. There will be no allowable price escalations for fuel costs throughout any contract period(s), unless otherwise specified in this document.

No guarantee is expressed or implied as to the total quantity of commodities/services to be purchased under any open end contract. Estimated quantities will be used for bid comparison purposes only. The Board of County Commissioners reserves the right to: issue purchase orders as and when required, or, issue a blanket purchase order for individual agencies and release partial quantities or, issue instructions for use of direct purchase orders by various County agencies, make random, open market purchases for any or all of the item(s) on any open end contract or, any combination of the preceding. No delivery shall become due or be acceptable without a written order by the County, unless otherwise provided for in the contract. Such order will contain the quantity, time of delivery and other pertinent data. However, on items urgently required, the seller may be given telephone notice, to be confirmed by an order in writing.

B. Specifications and Requirements:

Specifications and Requirements, are included hereto and made a part hereof. Whenever the Technical Specifications address a third party (i.e. manufacturer, applicator, subcontractor, etc.) it is to be construed as the Vendor through the third party.

C. Office of Economic and Small Business Requirements:

This solicitation has the following County Business Enterprise Goals: 25% CBE Goals. Vendors must follow the instructions included in the **Office of Economic and Small Business Development Requirements** and submit all required forms and information as instructed.

D. Federal Transit Administration Requirements:

Not applicable to this solicitation.

E. Vendor Responsibilities:

The Vendor will be responsible for the provision, installation (if applicable, per Specifications and Requirements) and performance of all equipment, materials, services, etc. offered in his or her submittal. The Vendor is in no way relieved of the responsibility for the performance of all equipment furnished, or of assuring the timely delivery of materials, equipment, etc. even though it is not of his or her own manufacture.

Vendor shall perform the Work with its own organization, amounting to not less than 75 percent of the Contract Price.

F. Licensing Requirements:

Proof of licensing should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

In order to be considered a responsible and responsive Vendor for the scope of work set forth in this solicitation, the Vendor shall possess one of the following licenses (including any specified State registration, if applicable) at the time of solicitation submittal. Any certificate of competency that meets or exceeds those specified or can legally perform the scope of work specified, as determined by the County, will be considered responsible and responsive to the solicitation.

State: CERTIFIED GENERAL CONTRACTOR

Any work performed not within the scope of the above contract must be performed by a licensed subcontractor.

G. Public Bid Disclosure Act:

In compliance with the Public Bid Disclosure Act, Section 218.80, Florida Statutes, each permit, license and/or fee which the Contractor will have to pay the County by virtue of this work/project (before or during construction) is set forth below and includes the dollar amount or the percentage method or unit method to be paid of all permits, licenses and/or fees which includes but is not limited to all licensing fees, permit fees, impact fees, inspection fees and certificates of occupancy (CO).

The using agency will be responsible for paying for any and all permits, licenses, and fees, imposed on the Work by agencies of the Broward County Commission. This does not alleviate the Vendor from obtaining the permits.

Licenses, permits and fees which may be required by The State of Florida, State Agencies or by other local governmental entities are not included in the above list.

H. Permits and Fees: (for Agencies other than Broward County Commissioners)

The Vendor shall procure and pay for all permits and licenses, charges and fees and give all notices necessary and incidental to the due and lawful prosecution of the work. The cost of all permits, fees, etc., shall be included in price bid except where noted in the specifications and requirements.

I. Prevailing Wage Rates:

Section 26-5 of the Broward County Code of Ordinances, provides that in all non-federally funded construction procurement activity of \$250,000 or more, the rate of wages and fringe benefit payments for all laborers, mechanics, and apprentices shall not be less than those payments for similar skills in classifications of work in like industries as determined by the Secretary of Labor and as published in the Federal Register (latest revision). The applicable Prevailing Wage Rate Tables are included in **Specifications and Requirements**.

J. Allowances (on a Pass Thru basis):

This solicitation includes an allowance for the below items:

Permits: \$7,000

Maintenance of Traffic (MOT): \$3,000

Miscellaneous Parts: \$150,000

Specialty Subcontractor Services: \$20,000

The following shall apply to payment of allowances:

- a. The allowance amount is an estimate only; payment is not guaranteed and is only paid based on actual costs incurred by the Vendor for the identified allowance or permit.
- b. The Contract Administrator or designee must authorize use of any allowances (per Technical Specifications) prior to Vendor incurring costs related to an allowance amount.
- c. No markup or additional fees are allowed on payment of allowance items. This includes, but is not limited to, overhead, profit, "runner's fees", etc.
- d. Allowances for Permit Fees: payment for permit fees does not include licenses, permit expediting services, re-inspection fees, and expired permit fees. Proof of permit fee(s) shall be submitted with Vendor's invoice for payment.
- e. Allowance for Parts on a Pass Thru: Vendor must charge the County the same invoice prices as it is charged by its suppliers. A copy of the Vendor's invoice(s) from supplier(s) for approved parts and materials shall be submitted with the Vendor's invoice for payment. In cases where the Vendor manufactures its own parts, Vendor will charge the County a price no higher than it charges its most favored customer.

K. **Bid Bond:** A Vendor must submit with its response a bid bond in the form of the County's approved Bid Bond Form, including all substantive terms set forth therein, which shall be executed by a surety company meeting the **Qualifications of Surety Requirements**. Failure to submit a bid bond by the solicitation due date and time, and in accordance with instructions will deem Vendor non-responsive. A copy of the County-approved [Bid Bond Form](http://www.broward.org/Purchasing/Pages/StandardTerms.aspx) may be found at: www.broward.org/Purchasing/Pages/StandardTerms.aspx, under the section "Standard Guaranty and Bond Forms".

- a. **Bid Guaranty:** In lieu of a bid bond, the following will be acceptable: cash, money order, certified check, cashier's check, an original [Bid Guaranty – Unconditional Letter of Credit](#), treasurer's check or bank draft of any national or state bank (United States). A personal check or a company check of a Vendor is not a valid bid guaranty.
 1. The bid guaranty shall be in an amount equal to five percent (5%) of the total price offered, payable to the Board of County Commissioners and conditioned upon the successful Vendor providing the Performance and Payment Guaranty, evidence of insurance, or any other requirements set forth within the solicitation, within 15 calendar days after notification of award of the contract.
 2. Guaranty of the successful Vendor shall be forfeited to the Board of County Commissioners not as a penalty, but as liquidated damages for the cost and expense incurred should said Vendor fail to provide the required Performance and Payment Guaranty or Certificate of Insurance or fail to comply with any other requirements set forth in the solicitation. Upon request, bid guaranties of unsuccessful vendors will be returned after award of contract or expiration of bid validity.
 3. Vendors must either submit an electronic bid bond through BidSync or submit an original bid guaranty to the Purchasing Division, by solicitation due date and time, or

Vendor may be deemed non-responsive.

- i. To submit an electronic bid bond, Vendor must submit through BidSync, using [Surety 2000](#). Vendors, bonding agents, and surety companies must register with Surety 2000 to use the service; contact [Surety 2000](#) to find out information regarding their service (www.surety2000.com or 800-660-3263).
 - 1) The Vendor must provide their bonding agent with Broward County's vendor identification number for Surety 2000 (P06145037) and its "Supplier identifier" number. The Vendor's individual Supplier identifier number is available on the Details tab in BidSync (Bid Bond: See bid bond information).
 - 2) The bonding agent can then provide a Bid Bond Number for the Vendor to import into BidSync.
 - 3) For detailed instructions on submitting an electronic bid bond, visit Vendor Registration page at www.broward.org/Purchasing/Pages/Registration.aspx and select "How to Submit an electronic bid bond?"
 - 4) Broward County reminds Vendors to allow enough time to secure a bid bond and submit electronically in case there are any errors or issues. If there are errors during the import process, check all identification numbers. Contact Surety 2000 for additional assistance.
 - 5) An original bid bond will not be required when the bid bond is submitted electronically through Surety 2000.
- ii. To submit an original bid guaranty, in lieu of submitting an electronic bid bond through BidSync, Vendor must submit an original bid guaranty in a sealed envelope, with the solicitation number, solicitation title, date and the time of bid opening, and address listed on the envelope. A copy of the bid guaranty should also be uploaded into Bid Sync; this does not replace the requirement to have an original bid guaranty. Vendors must submit the original bid guaranty, by the solicitation due date and time, to:

Broward County Purchasing Division
115 South Andrews Avenue, Room 212
Fort Lauderdale, FL 33301

GENERAL CONDITIONS

Quotation Requests and Invitations for Bids

These are standard instructions for Quotation Requests and Invitations for Bid as issued by the Broward County Board of County Commissioners (County). The County may delete, supersede, or modify any of these standard instructions for a particular contract by indicating such change in the Special Instructions to Vendors or in the line item. By acceptance of a purchase order or award notification issued by the County, Vendor agrees that the provisions included within this solicitation, which upon award serves as the executed contract, shall prevail over any conflicting provision within any standard form contract of the Vendor regardless of any language in Vendor's contract to the contrary. Digital versions of this solicitation are provided for the convenience of the Vendor. Any material modification of the solicitation and/or any alteration of the verbiage is expressly prohibited and is not enforceable. Any alteration may render the Vendor's submission void and bar the Vendor from consideration in connection with this solicitation.

1. Execution of Solicitation Response:

- (a) BY SUBMITTING THIS FORM WITH AN ELECTRONIC SIGNATURE, VENDOR ACKNOWLEDGES AND ACCEPTS ALL GENERAL CONDITIONS AND SPECIAL INSTRUCTIONS. The individual submitting is authorized to sign (electronically accept) this solicitation response on behalf of the Vendor as indicated in Certificate as to Corporate Principal, designation letter by Director/Corporate Officer, or other business authorization to bind on behalf of the Vendor. Solicitation response must contain a signature of an individual authorized to bind the Vendor. Electronic signatures or digital signatures shall have the same effect as an original signature.
- (b) I certify that the Vendor's response is made without prior understanding, agreement, or connection with any corporation, firm or person submitting a response for the same items/services, and is in all respects fair and without collusion or fraud. I also certify that the Vendor agrees to abide by all terms and conditions of this solicitation, acknowledge and accept all of the solicitation pages as well as any special instructions sheet(s).
- (c) No award will be made to a Vendor who is delinquent in payment of any taxes, fees, fines, contractual debts, judgments, or any other debts due and owed to the County, or is in default on any contractual or regulatory obligation to the County. By submitting this solicitation response, Vendor attests that it is not delinquent in payment of any such debts due and owed to the County, nor is it in default on any contractual or regulatory obligation to the County. In the event the Vendor's statement is discovered to be false, Vendor will be subject to debarment and the County may terminate any contract it has with Vendor.
- (d) Vendor certifies by submitting this solicitation response that no principals or corporate officers of the firm were principals or corporate officers in any other firm which was suspended or debarred from doing business with Broward County within the last three years, unless noted in the response.
- (e) By submitting this solicitation response, Vendor attests that any and all statements, oral, written or otherwise, made in support of this response, are accurate, true and correct. Vendor acknowledges that inaccurate, untruthful, or incorrect statements made in support of this response may be used by the County as a basis for rejection, rescission of the award, or termination of the contract and may also serve as the basis for debarment of Vendor pursuant to Section 21.119 of the Broward County Procurement Code.

2. Withdrawal:

No Vendor may withdraw its solicitation response before the expiration of 120 days from the date of opening. Any response altering the 120 day requirement shall be deemed non-responsive.

3. Submission of Bids and Quotations:

Vendor's solicitation response must be submitted electronically through BidSync, the County's designated electronic bidding system. It is the Vendor's sole responsibility to assure its response is submitted and received through BidSync by the date and time specified in the solicitation. The County will not consider solicitation responses received by other means. Any timeframe references are in Eastern Standard Time. The official time for electronic submittals is BidSync's servers, as synchronized with the atomic clock. All parties without reservation will accept the official time.

4. Bid Opening (Invitation for Bids only):

All bids received shall be publicly opened in the presence of one or more witnesses at the Purchasing Division office, located at 115 S. Andrews Avenue, Room 212, Fort Lauderdale, FL 33301, or other designated County location as posted in the Purchasing Division offices. The Purchasing Division will decrypt responses received in BidSync immediately following the designated bid end date and time.

5. Addenda:

Broward County reserves the right to amend this solicitation prior to the opening date indicated. Only written addenda are binding. If, upon review, material errors in specifications are found, contact the Purchasing Division immediately, prior to opening date, to allow for review and subsequent clarification on the part of Broward County. Vendors shall be responsible for obtaining, reviewing and acknowledging each addendum.

6. Prices, Terms, and Payments:

Firm prices shall be provided and include all handling, set up, shipping and inside delivery charges to the destination shown herein unless otherwise indicated.

- (a) **The Vendor:** In submitting this solicitation response certifies that the prices provided herein are not higher than the prices at which the same commodity(ies) or service(s) is sold in approximately similar quantities under similar terms and conditions to any purchaser whomsoever.
- (b) **F.O.B.:** Unless otherwise specified, prices shall be provided as F.O.B. Destination, freight included and inclusive of all costs. Current and/or anticipated applicable fuel costs should be considered and included in the prices provided.
- (c) **Ties:** The Purchasing Division will break tie responses in accordance with the Procurement Code.
- (d) **Taxes:** Broward County is exempt from Federal Excise and Florida Sales taxes on direct purchase of tangible property. Exemption numbers appear on purchase order. The Vendor shall pay all applicable sales, consumer, land use, or other similar taxes required by law. The Vendor is responsible for reviewing the pertinent State Statutes involving the sales tax and complying with all requirements.
- (e) **Discounts:** Vendors may offer a cash discount for prompt payment. However, such discounts will not be considered in determining the lowest net cost for evaluation purposes. Vendors should reflect any discounts to be considered in the evaluation in the unit prices submitted.
- (f) **Mistakes:** Vendors are cautioned to examine all specifications, drawings, delivery instructions, unit prices, extensions, and all other special conditions pertaining to this solicitation. Failure of the Vendor to examine all pertinent documents shall not entitle them to any relief from the conditions imposed in the contract. In case of mistakes in extension, the unit price shall govern. Multiplication or addition errors are deemed clerical errors and shall be corrected by the County.

- (g) **Ordering:** The County reserves the right to purchase commodities/services specified herein through contracts established by other governmental agencies or through separate procurement actions due to unique or special needs. If an urgent delivery is required, within a shorter period than the delivery time specified in the contract and if the seller is unable to comply therewith, the County reserves the right to obtain such delivery from others without penalty or prejudice to the County or to the seller.

7. Open-End Contract:

No guarantee is expressed or implied as to the total quantity of commodities/services to be purchased under any open-end contract. Estimated quantities will be used for comparison purposes only. The County reserves the right to issue purchase orders as and when required, or, issue a blanket purchase order for individual agencies and release partial quantities or, issue instructions for use of direct Purchase Orders by various County agencies, or, any combination of the preceding. No delivery shall become due or be acceptable without a written order or shipping instruction by the County, unless otherwise provided in the contract. Such order will contain the quantity, time of delivery and other pertinent data. However, on items urgently required, the seller may be given telephone notice, to be confirmed by an order in writing.

8. Contract Period (Open-End Contract):

The initial contract period shall start and terminate as indicated in the Special Instructions to Vendors. The Vendor will complete delivery and the County will receive delivery on any orders transmitted to the Vendor prior to the expiration date. The Director of Purchasing may renew this contract subject to Vendor acceptance, satisfactory performance, and determination that renewal is in the best interest of the County. The County will provide Notification of Intent to Renew in advance of the contract expiration date. All prices, terms and conditions shall remain firm for the initial period of the contract and for any renewal period unless subject to price adjustment specified as a "special condition" hereto. **In the event scheduled services will end because of contract expiration, the Vendor shall continue the service at the direction of the Director of Purchasing. The extension period shall not extend for more than ninety (90) days beyond the expiration date of the existing contract. The Vendor shall be compensated for the service at the rate in effect when this extension clause is invoked by the County.**

9. Fixed Contract Quantities:

Purchase order(s) for full quantities will be issued to successful Vendor(s) after notification of award and receipt of all required documents. Fixed contract quantities up to twenty (20) percent of the originally specified quantities may be ordered prior to the expiration of one (1) year after the date of award, provided the Vendor agrees to furnish such quantities at the same prices, terms and conditions.

10. Awards:

If a specific basis of award is not established in the Special Instructions to Vendors, the award shall be to the responsible Vendor with the lowest responsive solicitation response meeting the written specifications. As the best interest of the County may require, the right is reserved to make award(s) by individual commodities/ services, group of commodities/services, all or none or any combination thereof. When a group is specified, all items within the group must be priced.

A Vendor desiring to offer "No Charge" on an item in a group must indicate by placing a \$0.00 in the offer field, and enter "No Charge" in the "Notes for Buyer" section in BidSync; otherwise the group will be construed as incomplete and may be rejected. However, if Vendors do not offer all items within a group, the County reserves the right to award on an item by item basis. When a group is indicated for variable quantities and the group shows evidence of unbalanced prices, such solicitation response may be rejected. The Director of Purchasing, or the Board of County Commissioners, whichever is applicable, reserves the right to waive technicalities and irregularities and to reject any or all responses.

11. Payment:

Payment for all goods and services, requested by a purchase order, shall be made in a timely manner and in accordance with Local Government Prompt Payment Act, Section 218.70, Florida Statutes, and the Prompt Payment Policy, Section No. 1-51.6, Broward County Code of Ordinances. All applications for payment shall be submitted to the address indicated in the purchase order. The County will pay the Vendor after receipt, acceptance, and proper invoice is received. Invoices must bear the purchase order number.

12. Termination:

- (a) **Availability of Funds:** If the term of this contract extends beyond a single fiscal year of the County, the continuation of this contract beyond the end of any fiscal year shall be subject to the availability of funds from the County in accordance with Chapter 129, Florida Statutes (Florida Statutes). The Broward County Board of County Commissioners shall be the final authority as to availability of funds and how such available funds are to be allotted and expended. In the event funds for this project/purchase are not made available or otherwise allocated, the County may terminate this contract upon thirty (30) days prior written notice to the Vendor.
- (b) **Non Performance:** The Awarding Authority may terminate the contract for cause if the party in breach has not corrected the breach within ten (10) days after written notice from the aggrieved party identifying the breach. Cause for termination shall include, but not be limited to, failure to suitably perform the work, failure to suitably deliver goods in accordance with the specifications and instructions in this solicitation, failure to continuously perform the work in a manner calculated to meet or accomplish the objectives of the County as set forth in this solicitation, or multiple breach of the provisions of this solicitation notwithstanding whether any such breach was previously waived or cured.
- (c) **For Convenience:** The Awarding Authority may terminate the contract for convenience upon no less than thirty (30) days written notice. In the event the contract is terminated for convenience, Vendor shall be paid for any goods properly delivered and services properly performed to the date the contract is terminated; however, upon being notified of County's election to terminate, Vendor shall cease any deliveries, shipment or carriage of goods, and refrain from performing further services or incurring additional expenses under the terms of the contract. In no event will payment be made for lost or future profits. Vendor acknowledges and agrees that it has received good, valuable and sufficient consideration from County, the receipt and adequacy of which are hereby acknowledged for County's right to terminate this contract for convenience.

13. Conditions and Packaging:

Unless otherwise stated in the solicitation, or specifically ordered from an accepted price list, deliveries must consist only of new and unused goods and shall be the current standards production model available at the time of the solicitation response. The goods must be suitably packaged for shipment by common carrier. Each container or multiple units or items otherwise packaged shall bear a label, imprint, stencil or other legible markings stating name of manufacturer or supplier, purchase order number and any other markings required by specifications, or other acceptable means of identifying Vendor and purchase order number.

14. Safety Standards:

Unless otherwise stipulated in the solicitation, all manufactured items and fabricated assemblies shall comply with applicable requirements of the Occupational Safety and Health Act (OSHA) and any standards thereunder. All sources of energy associated with machinery/equipment purchased shall be capable of being locked-out in accordance with OSHA 29 CFR 1910.147, Hazardous Energy Control. In compliance with OSHA 29 CFR 1910.1200, Hazard Communication Standard, and Chapter 442, Florida Statutes, Occupational Safety and Health, any chemical substance delivered from a contract resulting from this solicitation must be compliant with the Global Harmonized System (GHS) for Hazard Communication accompanied

by a Safety Data Sheet (SDS) consisting of 16 sections. A Safety Data Sheet (SDS) shall also be submitted to the Broward County Risk Management Division, 115 South Andrews Avenue, Room 218, Fort Lauderdale, FL 33301-1803.

15. Non-Conformance to Contract Conditions:

The County may withhold acceptance of, or reject any items which are found, upon examination, not to meet the specification requirements. Upon written notification (mail, email, or fax) of rejection, items shall be removed within five (5) calendar days by the Vendor at its expense and redelivered at its expense. The County regards rejected goods left longer than thirty (30) days as abandoned and the County has the right to dispose of them as its own property. On foodstuffs and drugs, no written notice of rejection need be given. Upon verbal notice to do so, the Vendor shall immediately remove and replace such rejected merchandise at its expense. Rejection for non-conformance, failure to provide services conforming to specifications, or failure to meet delivery schedules may result in Vendor being found in default.

16. Inspection, Acceptance and Title:

Inspection and acceptance will be at delivery destination unless otherwise specified. Title and risk of loss or damage to all items shall be the responsibility of the Vendor until accepted by the County.

17. Governmental Restrictions:

In the event any governmental restrictions may be imposed which would necessitate alteration of the material quality, workmanship or performance of the items offered on this solicitation response prior to its delivery, it shall be the responsibility of the successful Vendor to notify the County at once, indicating in its letter the specific regulation which required an alteration. The County reserves the right to accept any such alteration, including any price adjustments occasioned thereby, or to cancel the contract at no further expense to the County.

18. Legal Requirements:

Applicable provisions of all Federal, State of Florida, County and local laws, and of all ordinances, rules and regulations including the Broward County Procurement Code shall govern development, submittal and evaluation of responses received in response hereto and shall govern any and all claims and disputes which may arise between person(s) submitting a response hereto and the County by and through its officers, employees and authorized representative, or any other person natural or otherwise in addition to any resultant agreement. Lack of knowledge by any Vendor shall not constitute a recognizable defense against the legal effect thereof.

19. Indemnification:

Vendor shall at all times hereafter indemnify, hold harmless and defend County and all of County's current and former officers, agents, servants, and employees (collectively, "Indemnified Party") from and against any and all causes of action, demands, claims, losses, liabilities and expenditures of any kind, including attorneys' fees, court costs, and expenses (collectively, a "Claim"), raised or asserted by any person or entity not a party to this Contract, which Claim is caused or alleged to be caused, in whole or in part, by any intentional, reckless or negligent act or omission of Vendor, its current or former officers, employees, agents, or servants, arising from, relating to, or in connection with this Contract. In the event any Claim is brought against an Indemnified Party, Vendor shall, upon written notice from County, defend each Indemnified Party against each such Claim by counsel satisfactory to County or, at County's option, pay for an attorney selected by the County Attorney to defend the Indemnified Party. The obligations of this section shall survive the expiration or earlier termination of this Contract. To the extent considered necessary by the Contract Administrator and the County Attorney, any sums due Vendor under this Contract may be retained by County until all of County's claims for indemnification pursuant to this Contract have been settled or otherwise resolved. Any amount withheld shall not be subject to payment of interest by County.

For construction contracts, Vendor shall indemnify and hold harmless County, 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 intentionally wrongful misconduct of Vendor and persons employed or utilized by Vendor in the performance of this Contract. To the extent considered necessary by Contract Administrator and County Attorney, any sums due Vendor under this Contract may be retained by County until all of County's claims for indemnification pursuant to this Contract have been settled or otherwise resolved, and any amount withheld shall not be subject to payment of interest by County. The indemnifications shall survive the expiration or earlier termination of this Contract.

20. Notice:

Written notice provided pursuant to this contract shall be sent by certified United States Mail, postage prepaid, return receipt requested, or by hand-delivery with a request for a written receipt of acknowledgment of delivery, addressed to the party for whom it is intended at the place last specified. The place for giving notice shall remain the same as set forth herein until changed in writing in the manner provided in this section. For the present, the County designates:

Director, Broward County Purchasing Division
115 S. Andrews Avenue, Room 212
Fort Lauderdale, FL 33301-1801

Vendor shall identify in the solicitation response a designated person and address to whom notice shall be sent when required by the contract.

21. Jurisdiction, Venue, Waiver of Jury Trial:

The contract shall be interpreted and construed in accordance with and governed by the laws of the state of Florida. Any controversies or legal problems arising out of the contract and any action involving the enforcement or interpretation of any rights hereunder shall be submitted to the jurisdiction of the State courts of the Seventeenth Judicial Circuit of Broward County, Florida, the venue situs, and shall be governed by the laws of the state of Florida. By entering into this contract, Vendor and County hereby expressly waive any rights either party may have to a trial by jury of any civil litigation related to this contract. If any party demands a jury trial in an lawsuit arising out of the contract and fails to withdraw the request after written notice by the other party, the party making the request for jury trial shall be liable for the reasonable attorneys' fees and costs of the party contesting the request for jury trial.

22. Patents and Royalties:

The Vendor, without exception, shall indemnify and save harmless and defend the County, its officers, agents and employees from liability of any nature or kind, including but not limited to attorney's fees, costs and expenses for or on account of any copyrighted, patented or unpatented invention, process, or article manufactured or used in the performance of the contract, including its use by the County. If the Vendor uses any design, device, or materials covered by letters, patent or copyright, it is mutually agreed and understood without exception that the prices shall include all royalties or cost arising from the use of such design, device, or materials in any way involved in the work. This provision shall survive the expiration or earlier termination of the contract.

23. Assignment, Subcontract:

Contractor shall not transfer, convey, pledge, subcontract or assign the performance required by this solicitation without the prior written consent of the Director of Purchasing. Any award issued pursuant to this solicitation and the monies which may become due hereunder are not assignable, transferrable, or otherwise disposable except with the prior written consent of the Director of Purchasing.

24. Qualifications of Vendor:

The County will only consider solicitation responses from firms normally engaged in providing the types of commodities, services, or construction specified herein. Vendor must have adequate organization, facilities, equipment, and personnel to ensure prompt and efficient service to County. The County reserves the right to inspect the facilities, equipment, personnel

and organization or to take any other action necessary to determine ability to perform in accordance with specifications, terms and conditions. The County will determine whether the evidence of ability to perform is satisfactory and reserves the right to reject responses where evidence or evaluation is determined to indicate inability to perform. The County reserves the right to consider a Vendor's history of any and all types of citations and/or violations, including those relating to suspensions, debarments, or environmental regulations in determining responsibility. Vendor should submit with its solicitation response a complete history of all citations and/or violations notices and dispositions thereof. Failure of a Vendor to submit such information may be grounds for termination of any contract awarded to successful Vendor. Vendor shall notify the County immediately of notice of any citations or violations which they may receive after the opening date and during the time of performance under any contract awarded to them.

25. Affiliated Companies Entities of the Principal(s):

To ensure the vendor has the capability in all respects to perform fully the contract requirements, and the integrity and reliability which will assure good faith performance of the vendor, all vendors are required to disclose the names and addresses of entities with whom the principal(s) of the proposing vendor have been affiliated for a period of with over the last five (5) years from the solicitation opening deadline for the County's review of contract performance evaluations and the history of County Business Enterprise compliance with the County's Small Business Program, including CBE, DBE and SBE goal attainment requirements for all entities affiliated with the principal(s). Affiliated entities of the principal(s) are those entities related to the vendor by the sharing of stock or other means of control, including but not limited to a subsidiary, parent or sibling entity.

26. Equal Employment Opportunity:

No Vendor shall discriminate against any employee or applicant for employment because of race, religion, age, color, sex or national origin, sexual orientation (including but not limited to Broward County Code, Chapter 16½), marital status, political affiliation, disability, or physical or mental handicap if qualified. Vendor shall take affirmative action to ensure that applicants are employed, and that employees are treated during their employment without regard to their race, religion, age, color, sex or national origin, sexual orientation, marital status, political affiliation, disability, or physical or mental handicap. Such actions shall include, but not be limited to the following: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation; and selection of training, including apprenticeship. The Vendor agrees to post in conspicuous places available to employees and applicants for employment, notices setting forth the provisions of this non-discrimination clause.

The Vendor selected to perform work on a County project must include the foregoing or similar language in its contracts with any subcontractors or sub consultants, except that any project assisted by U.S. Department of Transportation funds shall comply with the non-discrimination requirements in Title 49 C.F.R. Parts 23 and 26. The subcontractors, if any, will be made aware of and will comply with this nondiscrimination clause. Failure to comply with above requirements is a material breach of the contract, and may result in the termination of this contract or such other remedy as the County deems appropriate.

27. Modifications:

All changes to purchase orders shall be by issuance of a change order. Any modifications or changes to any contract entered into as a result of this solicitation must be by written amendment with the same formality and of equal dignity prior to the initiation of any such change.

28. Resolution of Protested Solicitations and Proposed Awards:

In accordance with Sections 21.118 and 21.120 of the Broward County Procurement Code, if a Vendor intends to protest a solicitation or proposed award of a contract the following apply:

(a) Any protest concerning the solicitation or other solicitation specifications, or requirements

must be made and received by the County within seven (7) business days from the posting of the solicitation or addendum on the Purchasing Division's website. Such protest must be made in writing to the Director of Purchasing. Failure to timely protest solicitation specifications or requirements is a waiver of the ability to protest the specifications or requirements.

- (b) Any protest concerning a solicitation or proposed award above the authority of the Director of Purchasing, after the opening, shall be submitted in writing and received by the County within five (5) business days from the posting of the recommendation for award on the Purchasing Division's website. Such protest must be made in writing to the Director of Purchasing.
- (c) Any actual or prospective Vendor or offeror who has a substantial interest in and is aggrieved in connection with proposed award of a contract that does not exceed the amount of the award authority of the Director of Purchasing, may protest to the Director of Purchasing. The protest shall be submitted in writing and received within three (3) business days from the posting of the recommendation of award on the Purchasing Division's website.
- (d) For purposes of this section, a business day is defined as Monday through Friday between 8:30 a.m. and 5:00 p.m. Failure to timely file a protest within the time prescribed for a solicitation or proposed contract award shall be a waiver of the Vendor's right to protest.
- (e) As a condition of initiating any protest, the protestor shall present the Director of Purchasing a nonrefundable filing fee. The filing fee shall be based upon the estimated contract amount. For purposes of the protest, the estimated contract amount shall be the contract amount submitted by the protestor. If no contract amount was submitted, the estimated contract amount shall be the County's estimated contract price for the project. The County may accept cash, money order, certified check, or cashier's check, payable to Broward County Board of Commissioners. The filing fees are as follows:

| Estimated Contract Amount | Filing Fee |
|---------------------------|------------|
| \$30,000 - \$250,000 | \$500 |
| \$250,001 - \$500,000 | \$1,000 |
| \$500,001 - \$5 million | \$3,000 |
| Over \$5 million | \$5,000 |

29. **Public Entity Crimes Act:**

Vendor represents that its response to this solicitation will not violate the Public Entity Crimes Act, Section 287.133, Florida Statutes, which essentially provides that the County, as a public entity, may not transact any business with a Vendor in excess of the threshold amount provided in Purchasing Categories, Section 287.017, Florida Statutes, for category two purchases for a period of 36 months from the date of being placed on the Convicted Vendor List. Vendor represents that its response to this solicitation is not a violation of Discrimination, Section 287.134, Florida Statutes, which essentially states that the County, as a public entity, cannot do business with an entity that is on the Discriminatory Vendor List i.e., has been found by a court to have discriminated as defined therein. Violation of this section shall result in cancellation of the County purchase and may result in debarment.

30. **Purchase by Other Governmental Agencies:**

Each governmental unit which avails itself of this contract will establish its own contract, place its own orders, issue its own purchase orders, be invoiced therefrom and make its own payments and issue its own exemption certificates as required by the Vendor. It is understood and agreed that Broward County is not a legally bound party to any contractual agreement made between any other governmental unit and the Vendor as a result of this solicitation.

31. Public Records:

The County is a public agency subject to Chapter 119, Florida Statutes. Any material submitted in response to this solicitation will become a public document pursuant to Section 119.071, Florida Statutes. This includes material which the responding Vendor might consider to be confidential or a trade secret. Any claim of confidentiality is waived upon submission, effective after opening pursuant to Section 119.071, Florida Statutes. As required by Chapter 119, Florida Statutes, the Contractor and all subcontractors for services shall comply with Florida's Public Records Law. Specifically, the Contractor and subcontractors shall:

- (a) Keep and maintain public records that ordinarily and necessarily would be required by the County in order to perform the service;
- (b) Provide the public with access to such public records on the same terms and conditions that the County would provide the records and at a cost that does not exceed that provided in Chapter 119, Florida Statutes, or as otherwise provided by law;
- (c) Ensure that public records that are exempt or that are confidential and exempt from public record requirements are not disclosed except as authorized by law; and
- (d) Meet all requirements for retaining public records and transfer to the County, at no cost, all public records in possession of the Vendor upon termination of the contract and destroy any duplicate public records that are exempt or confidential and exempt. All records stored electronically must be provided to the County in a format that is compatible with the information technology systems of the agency.
- (e) The failure of Contractor to comply with the provisions set forth in this Article shall constitute a Default and Breach of this Contract and the County shall enforce the Default in accordance with the provisions set forth in the General Conditions, Article 12.

32. Audit Right and Retention Records:

County shall have the right to audit the books, records, and accounts of awarded Vendor that are related to this contract. Vendor shall keep such books, records, and accounts as may be necessary in order to record complete and correct entries to the contract.

Vendor shall preserve and make available, at reasonable times for examination and audit by County, all financial records, supporting documents, statistical records, and any other documents pertinent to this agreement for the required retention period of the Florida Public Records Act (Chapter 119, Florida Statutes), if applicable, or if the Florida Public Records Act is not applicable, for a minimum period of three (3) years after termination of this contract. If any audit has been initiated and audit findings have not been resolved at the end of the retention period of three (3) years, whichever is longer, the books, records and accounts shall be retained until resolution of the audit findings. If the Florida Public Records Act is determined by County to be applicable to Vendor's records, Vendor shall comply with all requirements thereof; however, no confidentiality or nondisclosure requirement of either federal or state law shall be violated by Vendor. Any incomplete or incorrect entry in such books, records, and accounts shall be a basis for County's disallowance and recovery of any payment upon such entry.

33. Procurement Code:

The entire chapter of the Broward County Procurement Code can be obtained from the Purchasing Division's website at: www.broward.org/purchasing.

34. Ownership of Documents:

All finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs, specifications and reports prepared or provided by Vendor in connection with this contract shall become the property of County, whether the Project for which they are made is completed or not, and shall be delivered to Contract Administrator within fifteen (15) days of the receipt of the written notice of termination. If applicable, County may withhold any payments then due to Vendor until Vendor complies with the provisions of this section.

35. State of Florida Division of Corporations Requirements:

It is the Vendor's responsibility to comply with all state and local business requirements. All corporations and partnerships must have the authority to transact business in the State of Florida and be in good standing with the Florida Secretary of State. For further information, contact the Florida Department of State, Division of Corporations.

The County will review the Vendor's business status based on the information provided in response to this solicitation. If the Vendor is an out-of-state or foreign corporation or partnership, the Vendor should obtain the authority to conduct business in the State of Florida.

36. Cone of Silence Ordinance (Invitations for Bids):

In accordance with Cone of Silence Ordinance, Section 1-266, Broward County Code of Ordinances, provides that after the advertisement of the solicitation, potential Vendors and their representatives are substantially restricted from communicating regarding the solicitation with the County Administrator, Deputy County Administrator, Assistant County Administrator, Assistants to the County Administrator, their respective support staff, or any or any staff person that is to evaluate or recommend selection in this solicitation process.

- (a) For Invitations for Bids, the Cone of Silence shall be in effect for staff involved in the award decision process at the time of the solicitation advertisement. The Cone of Silence shall be in effect for the Board of County Commissioners and their staff upon bid opening for the solicitation.
- (b) The Cone of Silence terminates when the County Commission or other awarding authority takes action which ends the solicitation.
- (c) Any violations of this ordinance by any representative of the Vendor, including owner, employee, consultant, lobbyist, or actual or potential subcontractor or subconsultant may be reported to the County's Office of Professional Standards. If there is a determination of violation, a fine shall be imposed against the Vendor as provided in the County Code of Ordinances. Additionally, a determination of violation shall render any award to a Vendor who is found to have violated the Ordinance voidable, at the sole discretion of the Board of County Commissioners.

37. Contingency Fees:

By submission of this solicitation response, Vendor certifies that no contingency fees (sometimes known as a finder's fee) have been paid to any person or organization other than a bona-fide employee working solely for the Vendor to secure a contract made pursuant to this solicitation. Violation of this policy may result in termination of any resultant contract and/or possible debarment of the Vendor.

38. Local Business Tax Receipt Requirements:

All Vendors maintaining a business address within Broward County must have a current Broward County Local Business Tax Receipt issued by the Broward County Records, Taxes and Treasury Division prior to recommendation for award. Failure to do so may result in your solicitation response being deemed non-responsive. For further information on obtaining or renewing your firm's Local Business Tax Receipt, contact the Records, Taxes and Treasury Division at (954) 357-6200.

39. Battery Disposal:

The Vendor must deliver, furnish, recycle and dispose of all battery products in accordance with all applicable local, state and federal laws.

40. Dun & Bradstreet Report Requirement:

The County may review the Vendor's rating and payment performance to assist in determining a Vendor's responsibility when being evaluated for a contract award.

41. Code Requirements:

The Vendor and his or her subcontractors on this project must be familiar with all applicable Federal, State, County, City and Local Laws, Regulations or Codes and be governed accordingly as they will apply to this project and the actions or operations of those engaged in the work or concerning materials used. Contractor shall ask for and receive any required inspections.

42. Special Notice:

In accordance with OSHA Regulation 29 CFR 1926.1101(k) (2), Vendors are notified of the presence of asbestos containing material and/or presumed asbestos containing material at some Broward County locations.

43. Samples:

Samples or drawings, when required, shall be free of charge. If not mutilated or destroyed in the examination, Vendor will be notified to remove same at their expense. If samples are not removed within thirty (30) calendar days after written notice to the Vendor, they shall be considered as abandoned and the County shall have the right to dispose of them as its own property.

44. Vendor Responsibilities:

Unless otherwise specified, Vendor will be responsible for the provision, installation and performance of all equipment, materials, services, etc. offered in their response. Vendor is in no way relieved of the responsibility for the performance of all equipment furnished, or of assuring the timely delivery of materials, equipment, etc. even though it is not of their own manufacture.

45. Vendor Evaluation:

The Contract Administrator will document the Vendor's performance by completing a Performance Evaluation Form. A blank Performance Evaluation Form may be viewed at: broward.org/Purchasing/documents/vendorperformanceevaluationrequirements.pdf.

An interim performance evaluation of the successful Vendor may be submitted by the Contract Administrator during completion of the Project. A final performance evaluation shall be submitted when the Request for Final Payment to the Vendor is forwarded for approval. In either situation, the completed evaluation(s) shall be forwarded to the Director of Purchasing who shall provide a copy to the successful Vendor upon request. Said evaluation(s) may be used by the County as a factor in considering the responsibility of the Vendor for future solicitations.

46. Warranties and Guarantees:

The Vendor shall obtain all manufacturers' warranties and guarantees of all equipment and materials required by this solicitation and any resultant orders in the name of the Board and shall deliver same to point of delivery.

47. "Or Equal" Clause:

Whenever a material, article or piece of equipment is identified in the solicitation documents, including plans and specifications, by reference to manufacturers' or vendors' names, trade names, catalog numbers, or otherwise, any such reference is intended merely to establish a standard; and, unless it is followed by the words "no substitution is permitted" because of form, fit, function and quality, any material, article, or equipment of other manufacturers and vendors which will perform or serve the requirements of the general design will be considered equally acceptable provided the materials, article or equipment so proposed is, in the sole opinion of the County, equal in substance, quality, and function. The decision of the equivalent shall be determined in a reasonable manner and at the sole discretion of the County.

Bottom of Form

VENDOR QUESTIONNAIRE
Quotations and Invitations for Bids

The completed Vendor Questionnaire should be submitted with the solicitation response. If not submitted with solicitation response, it must be submitted within three business days of County's request. Failure to timely submit may affect may result in Vendor being deemed non-responsive.

If a response requires additional information, the Vendor should upload a written detailed response; each response should be numbered to match the question number. The completed questionnaire and attached responses will become part of the procurement record. It is imperative that the person completing the form be knowledgeable about the proposing Vendor's business and operations.

1. Legal business name:
 2. Doing Business As/Fictitious Name (if applicable):
 3. Federal Employer I.D. no. (FEIN):
 4. Dun and Bradstreet No.:
 5. Website address (if applicable):
 6. Principal place of business address:
 7. Office location responsible for this project:
 8. Telephone no.:
Fax no.:
 9. Type of business (check appropriate box):
 - ☐ Corporation (specify the state of incorporation):
 - ☐ Sole Proprietor
 - ☐ Limited Liability Company (LLC)
 - ☐ Limited Partnership
 - ☐ General Partnership (State and County filled in)
 - ☐ Other – Specify
 10. AUTHORIZED CONTACT(S) FOR YOUR FIRM:
 - Name:
 - Title:
 - E-mail:
 - Telephone No.:

 - Name:
 - Title:
 - E-mail:
 - Telephone No.:
 - Generic e-mail address for purchase orders:
- (Broward County auto distributes purchase orders from its financial system. To ensure a firm receives a purchase order, it is suggested a company accessible e-mail address is used.)

11. List name and title of each principal, owner, officer, and major shareholder:

- a)
- b)
- c)
- d)

12. Affiliated Entities of the Principal(s): List the names and addresses of "affiliated entities" of the Vendor principal(s) over the last five (5) years (from the solicitation opening deadline) that have acted as a prime Vendor with the County. Affiliated entities of the principal(s) are those entities related to the vendor by the sharing of stock or other means of control, including but not limited to a subsidiary, parent or sibling entity.

- a)
- b)
- c)
- d)

13. Has your firm, its principals, officers or predecessor organization(s) been debarred or suspended by any government entity within the last three years? If yes, specify details in an attached written response. ☐ Yes ☐ No

14. Has your firm, its principals, officers or predecessor organization(s) ever been debarred or suspended by any government entity? If yes, specify details in an attached written response, including the reinstatement date, if granted. ☐ Yes ☐ No

15. Specify the type of services or commodities your firm offers:

| | |
|---|--|
| 5 | |
| 6 | |

16. How many years has your firm been in business while providing the services and/or products offered within this solicitation?

17. Is your firm's business regularly engaged in and routinely selling the product(s) or services offered within this solicitation? ☐ Yes ☐ No

18. Does your firm affirm that it is currently authorized by the manufacturer as a dealer/seller of the product(s) offered herein, and warranty offered is the manufacturer's warranty with Broward County recorded as the original purchaser? The County reserves the right to verify prior to a recommendation of award. ☐ Yes ☐ No
N/A (if service) ☐

19. Has your firm ever failed to complete any services and/or delivery of products during the last three (3) years? If yes, specify details in an attached written response. ☐ Yes ☐ No

20. Is your firm or any of its principals or officers currently principals or officers of another organization? If yes, specify details in an attached written response. ☐ Yes ☐ No

21. Have any voluntary or involuntary bankruptcy petitions been filed by or against your firm, its parent or subsidiaries or predecessor organizations during the last three years? If yes, specify details in an attached written response. ☐ Yes ☐ No

22. Has your firm's surety ever intervened to assist in the completion of a contract or have Performance and/or Payment Bond claims been made to your firm or its predecessor's sureties during the last three years? If yes, specify details in an attached a written response, including contact information for owner and surety company. ☐ Yes ☐ No

23. If requested, will your firm extend the same price, terms and conditions to other governmental entities during the period covered by this contract? ☐ Yes ☐ No

24. Would your firm accept a Visa credit card as payment from Broward County, with no additional fees or change to bid price? Procurement Contract must be approved and designated for procurement card (p-card) by Director of Purchasing for use prior to ordering. ☐ Yes ☐ No

25. Living Wage solicitations only: In determining what, if any, fiscal impacts(s) are a result of the Ordinance for this solicitation, provide the following for informational purposes only. Response is not considered in determining the award of this contract.

Living Wage had an effect on the pricing ☐ Yes ☐ No

If yes, Living Wage increased the pricing by % or decreased the pricing by %.

26. Non-Collusion Certification: Vendor shall disclose, to their best knowledge, any Broward County officer or employee, or any relative of any such officer or employee as defined in Section 112.3135 (1) (c), Florida Statutes, who is an officer or director of, or has a material interest in, the Vendor's business, who is in a position to influence this procurement. Any Broward County officer or employee who has any input into the writing of specifications or requirements, solicitation of offers, decision to award, evaluation of offers, or any other activity pertinent to this procurement is presumed, for purposes hereof, to be in a position to influence this procurement. Failure of a Vendor to disclose any relationship described herein shall be reason for debarment in accordance with the provisions of the Broward County Procurement Code.

Select One:

- ☐ Vendor certifies that this offer is made independently and free from collusion; or
- ☐ Vendor is disclosing names of officers or employees who have a material interest in this procurement and is in a position to influence this procurement. Vendor must include a list of name(s), and relationship(s) with its submittal.

Questions 27 - 30 are only applicable to **service contracts** or a **construction contracts** (repair, maintain or furnish and install) solicitations:

27. What similar on-going contracts is your firm currently working on? If additional space is required, provide on

separate sheet.

5

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28. Has your firm completely inspected the project site(s) prior to submitting response? ☐ Yes ☐ No

29. Will your firm need to rent or purchase any equipment for this contract? If yes, please specify details in an attached a written response. ☐ Yes ☐ No

30. What equipment does your firm own that is available for this contract?

5

6

31. Provide at least three (3) individuals, corporations, agencies, or institutions for which your firm has completed work of a similar nature or in which your firm sold similar commodities in the past three (3) years. Contact persons shall have personal knowledge of the referenced project/contract. Only one (1) Broward County Board of County Commissioners agency reference may be submitted. If any of the following references are inaccessible or not relevant, additional references may be requested by the County.

Reference 1:

Scope of Work:

Contract/Project Title:

Agency:

Contact Name/Title:

Contact Telephone:

Email:

Contract/Project Dates (Month and Year):

Contract Amount:

Reference 2:

Scope of Work:

Contract/Project Title:

Agency:

Contact Name/Title:

Contact Telephone:

Email:

Contract/Project Dates (Month and Year):

Contract Amount:

Reference 3:

Scope of Work:

Contract/Project Title:

Agency:

Contact Name/Title:

Contact Telephone:

Email:

Contract/Project Dates (Month and Year):

Contract Amount:

1. Litigation History

- A. All Vendors are required to disclose to the County all “material” cases filed, pending, or resolved during the last three (3) years prior to the solicitation response due date, whether such cases were brought by or against the Vendor, any parent or subsidiary of the Vendor, or any predecessor organization. Additionally, all Vendors are required to disclose to the County all “material” cases filed, pending, or resolved against any principal of Vendor, regardless of whether the principal was associated with Vendor at the time of the “material” cases against the principal, during the last three (3) years prior to the solicitation response. A case is considered to be “material” if it relates, in whole or in part, to any of the following:
- i. A similar type of work that the vendor is seeking to perform for the County under the current solicitation;
 - ii. An allegation of fraud, negligence, error or omissions, or malpractice against the vendor or any of its principals or agents who would be performing work under the current solicitation;
 - iii. A vendor’s default, termination, suspension, failure to perform, or improper performance in connection with any contract;
 - iv. The financial condition of the vendor, including any bankruptcy petition (voluntary and involuntary) or receivership; or
 - v. A criminal proceeding or hearing concerning business-related offenses in which the vendor or its principals (including officers) were/are defendants.
- B. For each material case, the Vendor is required to provide all information identified in the **Litigation History Form**. Additionally, the Vendor shall provide a copy of any judgment or settlement of any material case during the last three (3) years prior to the solicitation response. Redactions of any confidential portions of the settlement agreement are only permitted upon a certification by Vendor that all redactions are required under the express terms of a pre-existing confidentiality agreement or provision.
- C. The County will consider a Vendor’s litigation history information in its review and determination of responsibility.
- D. If the Vendor is a joint venture, the information provided should encompass the joint venture and each of the entities forming the joint venture.
- E. A vendor is required to disclose to the County any and all cases(s) that exist between the County and any of the Vendor’s subcontractors/subconsultants proposed to work on this project during the last five (5) years prior to the solicitation response.
- F. Failure to disclose any material case, including all requested information in connection with each such case, as well as failure to disclose the Vendor’s subcontractors/subconsultants litigation history against the County, may result in the Vendor being deemed non-responsive.

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☐ There are no material cases for this Vendor; or

☐ Material Case(s) are disclosed below:

| | |
|--|---|
| Is this for a: (check type) <input type="checkbox"/> Parent, <input type="checkbox"/> Subsidiary, or <input type="checkbox"/> Predecessor Firm? | If Yes, Name of Parent/Subsidiary/Predecessor: <input type="text"/> |
| | or No <input type="checkbox"/> |
| Party | Vendor is Plaintiff <input type="checkbox"/> Vendor is Defendant <input type="checkbox"/> |
| Case Number, Name, and Date Filed | <input type="text"/> |
| Name of Court or other tribunal | <input type="text"/> |
| Type of Case | Bankruptcy <input type="checkbox"/> Civil <input type="checkbox"/> Criminal <input type="checkbox"/> Administrative/Regulatory <input type="checkbox"/> |
| Claim or Cause of Action and Brief description of each Count | <div><div></div><div>5</div><div>6</div></div> |
| Brief description of the Subject Matter and Project Involved | <div><div></div><div>5</div><div>6</div></div> |
| Disposition of Case | Pending <input type="checkbox"/> Settled <input type="checkbox"/> Dismissed <input type="checkbox"/> |

| | |
|--|--|
| (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.) | <p>Judgment Vendor's Favor <input type="checkbox"/> Judgment Against Vendor <input type="checkbox"/></p> <p>If Judgment Against, is Judgment Satisfied? Yes <input type="checkbox"/> No <input type="checkbox"/></p> |
| Opposing Counsel | <p>Name: <input type="text"/></p> <p>Email: <input type="text"/></p> <p>Telephone Number: <input type="text"/></p> |

Vendor Name:

LOCAL BUSINESS OR LOCALLY-HEADQUARTERED BUSINESS CERTIFICATION FORM

The completed and signed form and a copy of business's local business tax receipt (or if exempt, documentation establishing physical presence at location for one year prior to bid submission) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Failure to timely submit may render the business ineligible for application of the Local Preference.

This form is used to determine bidder's eligibility for Local Preference, in accordance with Section 1-74, et. seq., Broward County Code of Ordinances.

If the low, responsive and responsible bidder is not a local or a locally-headquartered business, any and all eligible local businesses submitting a price within ten percent (10%) of the non-local low responsive and responsible bidder, and any and all eligible locally-headquartered businesses submitting a price within fifteen percent (15%) of the non-local low responsive and responsible bidder, then all eligible bidders shall have an opportunity to submit a best and final bid, equal to or lower than the low bid.

If the low responsive and responsible bidder is a local business, but not a locally-headquartered business, then any and all locally-headquartered businesses submitting a bid price within five percent (5%) of the local low bidder shall have an opportunity to submit a best and final bid equal to or lower than the low bid.

Bidders must be determined responsive and responsible prior to submitting a best and final bid. Award, if any, shall be made to the responsive and responsible bidder offering the lowest best and final bid, regardless of location.

A Local Business is a business which:

- A. possesses a valid local business tax receipt (or if exempt, documentation establishing physical presence at location) issued at least one year prior to bid submission;
- B. has a physical business address located within Broward County which the business operates or performs business;
- C. is in an area zoned for the conduct of the business; and
- D. provides a substantial component of goods and/or services being offered from that location.

A Locally-Headquartered Business is a local business which has its principal place of business in Broward County. A principal place of business is defined as the nerve center of overall direction, control, and coordination of activities of the business. If a business only has one location, the location shall be considered the principle place of business.

Vendor shall check all that apply. Vendor hereby certifies it is a:

☐ Local Business ☐ Locally-Headquartered Business

Local or Locally-Headquartered Business

Address:

☐ Vendor is not a Local Business or Locally-Headquartered Business in Broward County

**AUTHORIZED
SIGNATURE/ NAME**

TITLE

COMPANY

DATE

Office of Economic and Small Business Requirements: CBE Goal Participation

- A. In accordance with the Broward County Business Opportunity Act of 2012, Section 1-81, Code of Ordinances, as amended (the "Business Opportunity Act"), the County Business Enterprise (CBE) Program is applicable to this contract. All Vendors responding to this solicitation are required to utilize CBE firms to perform the assigned participation goal for this contract.
- B. The CBE participation goal will be established based on the expected expenditure amount for the proposed scope of services for the project. The Office of Economic and Small Business Development (OESBD) will not include alternate items, optional services or allowances when establishing the CBE participation goal. If the County subsequently chooses to award any alternate items, optional services or allowances as determined by OESBD and the Contract Administrator to be related to the scope of services, OESBD may apply the established CBE participation goal. In such an instance, the County will issue a written notice to the successful Vendor that the CBE participation goal will also apply to the alternate items, optional services or allowances. Vendor shall submit all required forms pertaining to its compliance with the CBE participation goal, as applicable. Failure by Vendor to submit the required forms may result in the rejection of Vendor's solicitation submittal prior to the award or failure to comply with the contract requirements may have an impact on the vendor performance evaluation post award, as applicable.
- C. CBE Program Requirements: Compliance with CBE participation goal requirements is a matter of responsibility; Vendor should submit all required forms and information with its solicitation submittal. If the required forms and information are not provided with the Vendor's solicitation submittal, then Vendor must supply the required forms and information no later than three (3) business days after request by OESBD. Vendor may be deemed non-responsible for failure to fully comply with CBE Program Requirements within these stated timeframes.
1. Vendor should include in its solicitation submittal a **Letter Of Intent Between Bidder/Offeror and County Business Enterprise (CBE) Subcontractor/Supplier** for each CBE firm the Vendor intends to use to achieve the assigned CBE participation goal. The form is available at the following link:
<http://www.broward.org/EconDev/Documents/CBELetterOfIntent.pdf>
 2. If Vendor is unable to attain the CBE participation goal, Vendor should include in its solicitation submittal an **Application for Evaluation of Good Faith Efforts** and all of the required supporting information. The form is available at the following link:
<http://www.broward.org/EconDev/WhatWeDo/Documents/GoodFaithEffortEval.pdf>
- D. OESBD maintains an online directory of CBE firms. The online directory is available for use by Vendors at <https://webapps4.broward.org/smallbusiness/sbdirectory.aspx>.
- E. For detailed information regarding the CBE Program contact the OESBD at (954) 357-6400 or visit the website at: <http://www.broward.org/EconDev/SmallBusiness/>
- F. If awarded the contract, Vendor agrees to and shall comply with all applicable requirements of the Business Opportunity Act and the CBE Program in the award and administration of the contract.
1. No party to this contract may discriminate on the basis of race, color, sex, religion, national origin, disability, age, marital status, political affiliation, sexual orientation,

pregnancy, or gender identity and expression in the performance of this contract.

2. All entities that seek to conduct business with the County, including Vendor or any Prime Contractors, Subcontractors, and Bidders, shall conduct such business activities in a fair and reasonable manner, free from fraud, coercion, collusion, intimidation, or bad faith. Failure to do so may result in the cancellation of this solicitation, cessation of contract negotiations, revocation of CBE certification, and suspension or debarment from future contracts.
3. If Vendor fails to meet or make Good Faith Efforts (as defined in the Business Opportunity Act) to meet the CBE participation commitment (the "Commitment"), then Vendor shall pay the County liquidated damages in an amount equal to fifty percent (50%) of the actual dollar amount by which Vendor failed to achieve the Commitment, up to a maximum amount of ten percent (10%) of the total contract amount, excluding costs and reimbursable expenses. An example of this calculation is stated in Section 1-81.7, Broward County Code of Ordinances.
4. Vendor shall comply with all applicable requirements of the Business Opportunity Act in the award of this contract. Failure by Vendor to carry out any of these requirements shall constitute a material breach of the contract, which shall permit the County to terminate this contract or to exercise any other remedy provided under this contract, the Broward County Code of Ordinances, the Broward County Administrative Code, or other applicable laws, with all such remedies being cumulative.
5. Vendor shall pay its CBE subcontractors and suppliers, within fifteen (15) days following receipt of payment from the County, for all completed subcontracted work and supplies. If Vendor withholds an amount from CBE subcontractors or suppliers as retainage, such retainage shall be released and paid within fifteen (15) days following receipt of payment of retained amounts from the County.
6. Vendor understands that the County will monitor Vendor's compliance with the CBE Program requirements. Vendor must provide OESBD with a Monthly Utilization Report (MUR) to confirm its compliance with the Commitment agreed to in the contract; timely submission of the MUR every month throughout the term of the contract, including amendment and extension terms, is a condition precedent to the County's payment of Vendor under the contract.

Security Requirements

A. General Security Requirements and Criminal Background Screening:

1. All contractor and sub-contractor personnel requiring unescorted access to Broward County facilities must obtain a County issued contractor identification badge (contractor ID badge); except as specifically stated herein.
2. The background screening requirements for obtaining a contractor ID badge will depend on the facility to which unescorted access is being requested. Contract Administrators or designees and contractors may contact Broward County Security at (954) 357-6000 or FMsecurity@broward.org for the required background screening requirements associated with access to specific facilities. Contract Administrators will communicate all current and appropriate requirements to the contractor and sub-contractor throughout the contract period.

B. General Facilities:

1. Contractor and sub-contractor personnel servicing and requiring unescorted access to General Facilities must have a County issued contractor ID badge (contractor ID badge) which will be the responsibility of the contractor to obtain. Depending upon the request, the badge may carry electronic access privileges. The badge must be visible and worn at all times together with the contractor's company/business contractor ID badge. Similar to employee security/ID badges, requests for contractor ID badges are initially approved by the requesting agency director or designee and then submitted to Facilities Management Division (FMD) Security for final approval.
2. The issuance of a contractor ID badge for unescorted access to General Facilities requires a "Level 1" FDLE background check, which can be conducted by the Florida Department of Law Enforcement (FDLE). This "Level 1" FDLE background check is the contractor's responsibility and should be included in the bid price. FDLE background checks can be done by the contractor by phone at (850) 410-8109 or online at <https://web.fdle.state.fl.us/search/app/default>.
3. Upon completion of the background check, the contractor must attach a copy of the results to the contractor's application for a contractor ID badge. The Project Manager or designee utilizing the service of the contractor will be the "Sponsor" and will either provide the contractor with a Contractor ID Badge Request Form or assist the contractor in completing an on-line application for the County issued contractor ID badge.
4. Requests for a contractor ID badge requiring an FDLE background check may require lengthy processing and review by the Broward Sheriff's Office (BSO). Contractors and subcontractors must therefore submit the request to Broward County Security at least two (2) weeks prior to the start of service by the contractor. When identification badges are ready, Broward County Security will contact the contractor to arrange pick up. Upon pick up, the applicant must present a valid Florida identification and must be accompanied by his or her supervisor. Broward County Security will then supply contractor ID badge valid for the anticipated period within which the work will be performed. The validity period must be clearly stated on the Contractor ID Badge Request Form; however, the period of validity will not exceed one (1) year. Background checks will be required for renewal of contractor ID badge. At the termination of the contract and separation of employee services, the contractor is responsible for the collection and return of all contractor ID badge to the Project Manager and/or to Broward County Security.
5. Compliance with the County's security requirements is part of the overall contract performance evaluation. Final payment will, in part, be contingent on the return of all contractor ID badges issued to contractor personnel.
6. Broward County Security is located at Governmental Center East, 115 South Andrews Avenue Fort Lauderdale, FL 33301. Telephone (954) 357-6000.
7. All contractors must wear distinctive and neat appearing uniforms with vendor's company name. Sub-contractor personnel must also have Broward County issued contractor IDs

and meet the same security requirements and uniform standards as the primary contractor.

8. Contractors will not be allowed unescorted on the job site without proper County issued contractor ID badges.

C. Facilities Critical to Security and Public Safety:

Many Broward County government facilities will have areas designated as critical to security and public safety, pursuant to Broward County Ordinance 2003-08 Sections 26-121 and 26-122, as may be amended. The issuance of a contractor ID badge for unescorted access to facilities critical to security and public safety may entail a comprehensive statewide and national background check. Unescorted access to certain facilities occupied by the Broward Sheriff's Office (BSO) and the State Attorney's Office will require a national fingerprint-based records check per the Criminal Justice Information System (CJIS) policy.

A contractor employee found to have a criminal record consisting of felony conviction(s) shall be disqualified from access to the State Attorney's Offices and certain BSO facilities. A contractor employee with a record of misdemeanor offense(s) may be granted access if the System Security Officer (CSO), Terminal Access Coordinator (TAC), and FDLE determines that the nature of the offense(s) do not warrant disqualification. Applicants shall also be disqualified on the basis of confirmations that arrest warrants are outstanding for such applicants.

D. Contractor Work Crews:

Background investigations are generally not required for each member of a contractor work crew working on county premises and outside a building or structure. Examples are landscape crews and roofers. If it is necessary to enter the building or structure unescorted, these work crew members should obtain a contractor ID badge. If not, work crew members must be escorted at all times by the project manager, or designee, and must be under the direct supervision of a foreperson for the contractor. The foreperson must be aware of the crew members' whereabouts, has completed the appropriate background check for the location and type of work being undertaken, and has been issued and is displaying a contractor ID badge.

All members of a night cleaning crew must complete a background investigation appropriate to the requirements of the facility and so should all work crew members not escorted when working at a critical county facility.

Notwithstanding, the using agency is best positioned and suited to determine the safeguards and requirements that should be in place to manage the risks and consequences associated with the roles and activities of contractor, subcontractor, and work crews, when requesting a contractor ID badge. The agency is aware of the characteristics of the client population being served by the classes of persons, the need to safeguard high-value assets, and the requirement to comply with all statutory requirements governing background investigations.

E. Other Vendors:

Consultants, delivery personnel, and vending machine operators, without a County issued contractor badge, may obtain a Visitor pass and should be escorted by County personnel when accessing and working in designated non-public and employee work areas at both general facilities and facilities critical to security and public safety.

F. Port Everglades Locations:

1. The Port Everglades Department requires persons to present, at port entry, a valid driver's license, and valid reason for wishing to be granted port access in order to obtain a temporary/visitor ID badge. For persons who will visit the Port more than 15 times in a 90 day period, a permanent identification badge must be obtained and paid for by the contractor for all employees, subcontractors, agents and servants visiting or working on the port project. A restricted access badge application process will include fingerprints and a comprehensive background check. Badges must be renewed annually and the fees paid pursuant to Broward County Administrative Code, Section 42.6. For further

information, please call 954-765-4225.

2. All vehicles that are used regularly on the dock apron must have a Dockside Parking Permit. Only a limited number of permits will be issued per business entity. The fee is \$100.00 per permit/vehicle. Individuals requesting a permit must possess a valid Port-issued Restricted Access Area badge with a "Dock" destination. Requests for Dockside Parking Permits must be submitted in writing, on company letterhead, to the ID Badge Office. Applicants must demonstrate a need for access to the dock apron. Requests shall be investigated, and approved, if appropriate justification is provided. Supporting documentation must be supplied, if requested. Dock permits are not transferable and must be affixed to the lower left corner of the permitted vehicle's windshield. Should the permit holder wish to transfer the permit to another vehicle during the term of issuance, the permit will be removed and exchanged at no charge for a new permit. Only one business entity representative will be permitted on the dock at a time at the vessel location.
3. The Federal Government has instituted requirements for a Transportation Worker Identification Credential (TWIC) for all personnel requiring unescorted access to designated secure areas within Port Everglades. The contractor will be responsible for complying with the applicable TWIC requirements. For further information, please call 1-855-347-8371, or go on line to <https://www.tsa.gov/for-industry/twic>.

G. Airport Security Program and Aviation Regulations:

1. Consultant/contractor agrees to observe all security requirements and other requirements of the Federal Aviation Regulations applicable to Consultant/contractor, including without limitation, all regulations of the United States Department of Transportation, the Federal Aviation Administration and the Transportation Security Administration, and the Consultant/contractor agrees to comply with the County's Airport Security Program and the Air Operations area (AOA) Vehicle Access Program, and amendments thereto, and to comply with such other rules and regulations as may be reasonably prescribed by the County, and to take such steps as may be necessary or directed by the County to insure that sub lessees, employees, invitees and guests observe these requirements. If required by the Aviation Department, Consultant/contractor shall conduct background checks of its employees in accordance with applicable Federal regulations.
2. If as a result of the acts or omissions of Consultant/contractor, its sub lessees, employees, invitees or guests, the County incurs any fines and/or penalties imposed by any governmental agency, including without limitation, the United States Department of Transportation, the Federal Aviation Administration or the Transportation Security Administration, or any expense in enforcing any federal regulations, including without limitation, airport security regulations, or the rules or regulations of the County, and/or any expense in enforcing the County's Airport Security Program, then consultant/contractor agrees to pay and/or reimburse the County all such costs and expenses, including all costs of administrative proceedings, court costs, and attorneys' fees and all costs incurred by County in enforcing this provision. Consultant/contractor further agrees to rectify any security deficiency or other deficiency as may be determined as such by the County or the United States Department of Transportation, Federal Aviation Administration, the Transportation Security Administration, or any other federal agency. In the event consultant/contractor fails to remedy any such deficiency, the County may do so at the cost and expense of consultant/contractor. The County reserves the right to take whatever action is necessary to rectify any security deficiency or other deficiency.
3. Operation of Vehicles on the AOA: Before the consultant/contractor shall permit any employee of consultant/contractor or any sub consultant/subcontractor to operate a motor vehicle of any kind or type on the AOA (and unless escorted by an Aviation Department approved escort), the consultant/contractor shall ensure that all such vehicle operators possess current, valid, and appropriate Florida driver's licenses. In addition, any motor vehicles and equipment of consultant/contractor or of any sub consultant/subcontractor operating on the AOA must have an appropriate vehicle identification permit issued by the Aviation Department, which identification must be displayed as required by the Aviation Department.

4. **Consent to Search/Inspection:** The consultant/contractor agrees that its vehicles, cargo, goods, and other personal property are subject to being inspected and searched when attempting to enter or leave and while on the AOA. The consultant/contractor further agrees on behalf of itself and its sub consultant /subcontractors that it shall not authorize any employee or other person to enter the AOA unless and until such employee other person has executed a written consent-to-search/inspection form acceptable to the Aviation Department. Consultant/contractor acknowledges and understands that the forgoing requirements are for the protection of users of the Airport and are intended to reduce incidents of cargo tampering, aircraft sabotage, thefts and other unlawful activities at the Airport. For this reason, consultant/contractor agrees that persons not executing such consent-to-search/inspection form shall not be employed by the consultant/contractor or by any sub consultant/contractor at the Airport in any position requiring access to the AOA or allowed entry to the AOA by the consultant/contractor or by any sub consultant/contractors.
5. The provisions hereof shall survive the expiration or any other termination of this contract.

H. Water and Wastewater Services (WWS):

1. Contractors/Consultants may receive a WWS ID Badge and/or Access Card and/or Keys while working at WWS facility work sites. These items provide modified access to certain areas and systems otherwise restricted to non-WWS employees and can only be obtained from the WWS Security Manager. These items may be rescinded at the discretion of the WWS Security Officer. The WWS ID Badge, Access Card and/or Keys remain the property of Broward County and must be returned to your WWS contact person at the end of the contract/project.
2. All contractors will complete and sign the WWS Contractor/Consultant Security Memorandum and provide a copy of their Driver's License to be recorded on Schlage Card Access System Profile.
3. A lost or stolen ID Badge and/or Access Card and/or Keys must be reported to the Security Manager immediately.
4. WWS may terminate access to any contractor who acts inappropriately while on County property and has the right to contact BSO if necessary to have the contractor removed and/or file charges against them.

I. Additional Security Requirements for Parks and Recreation:

1. Contractor expressly understands and agrees that a duty is hereby created under this Contract that requires contractor to provide ongoing disclosure throughout the term of this Contract as provided for herein relative to the criminal background screening required by this Section.
2. Contractor shall perform criminal background screening as identified in Item 3 below on its officers, employees, agents, independent contractors and volunteers who will be working under this contract in any County park ("collectively referred to as "County Park Property"). Further, if contractor is permitted to utilize subcontractors under this contract, contractor shall perform or ensure that the background screening as required in Item 3 below is conducted on any permitted subcontractor, which term includes the subcontractor's officers, employees, agents, independent contractors and volunteers who will be working under this contract on County Park property.
3. Contractor shall not permit any person who is listed as a sexual predator or sexual offender on the Florida Department of Law Enforcement, Sexual Offenders and Predators Website or the United States Department of Justice, National Sex Offender Public Website, to provide any services for contractor on County Park Property. All persons subject to the criminal background screening under this contract shall be rescreened annually based on the date of initial screening.
4. Contractor shall maintain copies of the results of the criminal background screening required by this Section for the term of this contract and promptly forward copies of same to County, upon its request.
5. Contractor shall be required to furnish to County's Parks and Recreation Project Manager, on a monthly basis, an Affidavit affirming the persons listed in the Affidavit have been background screened as required in Item 3 above and have been deemed eligible by contractor to work on County Park property. Contractor's monthly Affidavit shall update

information from the previous Affidavit by reconfirming the status of persons who have previously been deemed eligible as provided for above and updating the list, when applicable, to specifically identify new persons providing services for contractor under this Contract who have been background screened as required in Item 3 above and deemed eligible to work on County Park Property. The Contract Administrator may, in his or her discretion, permit contractor to furnish the monthly Affidavit in an electronic format.

6. In the event contractor obtains, or is provided, supplemental criminal background information, including police reports and arrest information, which potentially disqualifies a person previously deemed eligible by contractor to provide services under this contract, contractor shall take immediate action to review the matter; however, during such review time and until a determination of eligibility is made by contractor based on the requirements of this Section, contractor shall immediately cease allowing the person to work on County Park Property. Additionally, contractor shall be required to inform any person background screened pursuant to this Section who is providing services under this contract, to notify contractor within forty-eight (48) hours of any arrest related to sexual misconduct which has occurred after the person was deemed eligible to work on County Park Property.
7. Contractor shall, by written contract, require its permitted subcontractors to agree to the requirements and obligations of this Section.
8. County may terminate this contract immediately for cause, with Notice provided to contractor, for a violation related to contractor's failure to perform the required background screening on its officers, employees, agents, independent contractors and volunteers who will be working under this Agreement on County Park Property. County may also terminate this contract immediately for cause, with Notice provided to contractor, if County determines contractor failed to ensure that its permitted subcontractors, as defined in Item 2 above, have been background screened as required in this section prior to performing any services under this Agreement on County Park Property. Contractor will not be subject to immediate termination in the event County determines a violation of this Section was outside the reasonable control of contractor and contractor has demonstrated to County compliance with the requirements of this Section.
9. County may terminate this contract for cause if contractor fails to provide the monthly Affidavit to County as provided for under Item 5 above, and contractor does not cure said breach within five (5) days of Notice provided to contractor.

Bid Bond, Bid Guaranty, Performance and Payment Guaranties, and Qualifications of Surety Requirements:

- A. **Bid Bond:** A Vendor must submit with its response a bid bond in the form of the County's approved Bid Bond Form, including all substantive terms set forth therein, which shall be executed by a surety company meeting the **Qualifications of Surety Requirements**. Failure to submit a bid bond by the solicitation due date and time, and in accordance with instructions will deem Vendor non-responsive. A copy of the County-approved **Bid Bond Form** may be found at: www.broward.org/Purchasing/Pages/StandardTerms.aspx, under the section "Standard Guaranty and Bond Forms".
- B. **Bid Guaranty:** In lieu of a bid bond, the following will be acceptable: cash, money order, certified check, cashier's check, an original **Bid Guaranty – Unconditional Letter of Credit**, treasurer's check or bank draft of any national or state bank (United States). A personal check or a company check of a Vendor is not a valid bid guaranty.
1. The bid guaranty shall be in an amount equal to five percent (5%) of the total price offered, payable to the Board of County Commissioners and conditioned upon the successful Vendor providing the Performance and Payment Guaranty, evidence of insurance, or any other requirements set forth within the solicitation, within 10 calendar days after notification of award of the contract.
 2. Guaranty of the successful Vendor shall be forfeited to the Board of County Commissioners not as a penalty, but as liquidated damages for the cost and expense incurred should said Vendor fail to provide the required Performance and Payment Guaranty or Certificate of Insurance or fail to comply with any other requirements set forth in the solicitation. Upon request, bid guaranties of unsuccessful vendors will be returned after award of contract or expiration of bid validity.
 3. Vendors must either submit an electronic bid bond through BidSync or submit an original bid guaranty to the Purchasing Division, by solicitation due date and time, or Vendor may be deemed non-responsive.
 - a. To submit an electronic bid bond, Vendor must submit through BidSync, using **Surety 2000**. Vendors, bonding agents, and surety companies must register with Surety 2000 to use the service; contact **Surety 2000** to find out information regarding their service (www.surety2000.com or 800-660-3263).
 - i. The Vendor must provide their bonding agent with Broward County's vendor identification number for Surety 2000 (P06145037) and its "Supplier identifier" number. The Vendor's individual Supplier identifier number is available on the Details tab in BidSync (Bid Bond: See bid bond information).
 - ii. The bonding agent can then provide a Bid Bond Number for the Vendor to import into BidSync.
 - iii. For detailed instructions on submitting an electronic bid bond, visit Vendor Registration page at www.broward.org/Purchasing/Pages/Registration.aspx and select "How to Submit an electronic bid bond?"
 - iv. Broward County reminds Vendors to allow enough time to secure a bid bond and submit electronically in case there are any errors or issues. If there are errors during the import process, check all identification numbers. Contact Surety 2000 for additional assistance.
 - v. An original bid bond will not be required when the bid bond is submitted electronically through Surety 2000.

- b. To submit an original bid guaranty, in lieu of submitting an electronic bid bond through BidSync, Vendor must submit an original bid guaranty in a sealed envelope, with the solicitation number, solicitation title, date and the time of bid opening, and address listed on the envelope. A copy of the bid guaranty should also be uploaded into Bid Sync; this does not replace the requirement to have an original bid guaranty. Vendors must submit the original bid guaranty, by the solicitation due date and time, to:

Broward County Purchasing Division
115 South Andrews Avenue, Room 212
Fort Lauderdale, FL 33301

C. **Performance and Payment Guaranties:** within 15 calendar days of being notified of the award of contract, Vendor shall furnish the referenced Performance Bond and a Payment Bond containing all the provisions of the [Performance Bond Form](#) and [Payment Bond Form](#).

1. The bonds shall be in the amount of one hundred percent (100%) of the contract amount guaranteeing to County the completion and performance of the work covered in such Contract as well as full payment of all suppliers, material men, laborers, or subcontractors employed pursuant to this project. Such bond(s) shall be with a surety company which is qualified pursuant to the section, Qualifications of Surety.
2. Each bond shall continue in effect for one year after completion and acceptance of the work with liability equal to one hundred percent (100%) of the Contract price, or an additional bond shall be conditioned that the Vendor will upon notification by the County, correct any defective or faulty work or materials which appear within one year after completion of the Contract.
3. Pursuant to the requirements of Section 255.05(1), Florida Statutes, Vendor shall ensure that the bonds referenced above shall be recorded in the public records of Broward County and provide County with evidence of such recording.
4. In lieu of the performance and payment bond, Vendor may furnish an alternate form of security which may be in the form of cash, money order, certified check, cashier's check or an original [Irrevocable Letter of Credit](#) as reflected on the County's form. Such alternate forms of security shall be for the same purpose and shall be subject to the same conditions as those applicable above and shall be held by the County for one year after completion and acceptance of the work.
5. The Vendor is required at all times to have valid Performance and Payment Guaranties (or other approved security) in force covering the work being performed.
6. The Vendor agrees to keep such Guaranties (or other security) in effect for the duration of the contract. If the contract is extended or renewed, it shall be subject to the same bonding (or other approved security) requirements.

D. **Qualifications of Surety Requirements:** A bid bond performance bond, and payment bond must be executed by a surety company of recognized standing, authorized to do business in the State of Florida, having a resident agent in the State of Florida, and having been in business with a record of successful continuous operation for at least five years.

1. In addition to the above-minimum qualifications, the surety company must meet at least one of the following additional qualifications:
 - a. The surety company shall hold a current Certificate of Authority as acceptable surety on federal bonds in accordance with the United States Department of Treasury Circular 570, current revision. If the amount of the Bond exceeds the underwriting limitation set forth in the circular, in order to qualify, the net retention of the surety company shall not exceed the underwriting limitation in the circular and the excess risks must be protected by coinsurance, reinsurance, or other methods in accordance with Treasury Circular 297, Revised (31 DFR Section 223.10 Section 223.11). Further, the surety company shall provide the County with evidence satisfactory to the County, that such excess risk has been protected in an acceptable manner.
 - b. The surety company shall hold a current Certificate of Authority with the Florida Office of Insurance Regulation.

- c. The surety company shall have at least the following minimum ratings:

| Amount of Bond | | | Surety Ratings | Financial Size Category |
|----------------|----|--------------|-------------------|----------------------------|
| \$500,001 | to | \$1,000,000 | A, A- | Class I |
| \$1,000,001 | to | \$2,000,000 | A, A- | Class II |
| \$2,000,001 | to | \$5,000,000 | A | Class III |
| \$5,000,001 | to | \$10,000,000 | A | Class IV |
| \$10,000,001 | to | \$25,000,000 | A | Class V |
| \$25,000,001 | to | \$50,000,000 | A | Class VI |
| \$50,000,001 | to | or more | A | Class VII |

2. For projects which do not exceed \$500,000, the County shall accept a Bid Bond and Performance and Payment Bond from a surety company which has twice the minimum surplus and capital required by the Florida Office of Insurance Regulation at the time the solicitation is issued, if the surety company is otherwise in compliance with the provisions of the Florida Insurance Code, and if the surety company holds a currently valid Certificate of Authority issued by the United States Department of the Treasury under Section 9304 to 9308 of Title 31 of the United States Code.
3. If the surety company fails to meet the minimum standards, a bond from a surety that meets the minimum standards must be provided to satisfy the bonding requirements.

DOMESTIC PARTNERSHIP REQUIREMENTS CERTIFICATION FORM

The completed and signed form should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

The Domestic Partnership Act, Section 16 ½ -157, Broward County Code of Ordinances, as amended, requires all Vendors contracting with the County, in an amount over \$100,000 provide benefits to Domestic Partners of its employees, on the same basis as it provides benefits to employees spouses, with certain exceptions as provided by the Ordinance.

For all submittals over \$100,000.00, the Vendor, by virtue of the signature below, certifies that it is aware of the requirements of Broward County's Domestic Partnership Act, Section 16-½ -157, Broward County Code of Ordinances, as amended; and certifies the following: **(check only one below)**.

- ☐ 1. The Vendor currently complies with the requirements of the County's Domestic Partnership Act and provides benefits to Domestic Partners of its employees on the same basis as it provides benefits to employees spouses.
- ☐ 2. The Vendor will comply with the requirements of the County's Domestic Partnership Act at time of contract award and provide benefits to Domestic Partners of its employees on the same basis as it provides benefits to employees' spouses.
- ☐ 3. The Vendor will not comply with the requirements of the County's Domestic Partnership Act at time of award.
- ☐ 4. The Vendor does not need to comply with the requirements of the County's Domestic Partnership Act at time of award because the following exception(s) applies: **(check only one below)**.
- ☐ The Vendor employs less than five (5) employees.
- ☐ The Vendor is a governmental entity, not-for-profit corporation, or charitable organization.
- ☐ The Vendor is a religious organization, association, society, or non-profit charitable or educational institution.
- ☐ The Vendor does not provide benefits to employees' spouses.
- ☐ The Vendor provides an employee the cash equivalent of benefits. (Attach an affidavit in compliance with the Act stating the efforts taken to provide such benefits and the amount of the cash equivalent).
- ☐ The Vendor cannot comply with the provisions of the Domestic Partnership Act because it would violate the laws, rules or regulations of federal or state law or would violate or be inconsistent with the terms or conditions of a grant or contract with the United States or State of Florida. Indicate the law, statute or regulation (State the law, statute or regulation and attach explanation of its applicability).

AUTHORIZED SIGNATURE/ NAME

TITLE

DATE

DRUG-FREE WORKPLACE REQUIREMENT CERTIFICATION FORM

The completed and signed form should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

Section 21.31.a. of the Broward County Procurement Code requires awards of all competitive solicitations requiring Board Award be made only to firms certifying the establishment of a drug free workplace.

The undersigned vendor hereby certifies that it will provide a drug-free workplace program by:

- (1) Publishing a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the offeror's workplace, and specifying the actions that will be taken against employees for violations of such prohibition;
- (2) Establishing a continuing drug-free awareness program to inform its employees about:
 - i. The dangers of drug abuse in the workplace;
 - ii. The offeror's policy of maintaining a drug-free workplace;
 - iii. Any available drug counseling, rehabilitation, and employee assistance programs; and
 - iv. The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
- (3) Giving all employees engaged in performance of the contract a copy of the statement required by subparagraph (1);
- (4) Notifying all employees, in writing, of the statement required by subparagraph (1), that as a condition of employment on a covered contract, the employee shall:
 - i. Abide by the terms of the statement; and
 - ii. Notify the employer in writing of the employee's 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 of any state, for a violation occurring in the workplace NO later than five days after such conviction.
- (5) Notifying Broward County government in writing within 10 calendar days after receiving notice under subdivision (4) (ii) above, from an employee or otherwise receiving actual notice of such conviction. The notice shall include the position title of the employee;
- (6) Within 30 calendar days after receiving notice under subparagraph (4) of a conviction, taking one of the following actions with respect to an employee who is convicted of a drug abuse violation occurring in the workplace:
 - i. Taking appropriate personnel action against such employee, up to and including termination; or
 - ii. Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state, or local health, law enforcement, or other appropriate agency; and
- (7) Making a good faith effort to maintain a drug-free workplace program through implementation of subparagraphs (1) through (6).

AUTHORIZED SIGNATURE/ NAME

TITLE

DATE

SUBCONTRACTORS/SUBCONSULTANTS/SUPPLIERS REQUIREMENT FORM

The completed and signed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

- A. The Vendor shall submit a listing of all subcontractors, subconsultants and major material suppliers (firms), if any, and the portion of the contract they will perform. A major material supplier is considered any firm that provides construction material for construction contracts, or commodities for service contracts in excess of \$50,000, to the Vendor.
- B. If participation goals apply to the contract, only non-certified firms shall be identified on the form. A non-certified firm is a firm that is not listed as a firm for attainment of participation goals (ex. County Business Enterprise or Disadvantaged Business Enterprise), if applicable to the solicitation.
- C. This list shall be kept up-to-date for the duration of the contract. If subcontractors, subconsultants or suppliers are stated, this does not relieve the Vendor from the prime responsibility of full and complete satisfactory performance under any awarded contract.
- D. After completion of the contract/final payment, the Vendor shall certify the final list of non-certified subcontractors, subconsultants, and suppliers that performed or provided services to the County for the referenced contract.
- E. The Vendor has confirmed that none of the recommended subcontractors, subconsultants, or suppliers' principal(s), officer(s), affiliate(s) or any other related companies have been debarred from doing business with Broward County or any other governmental agency.

If none, state "none" on this form. Use additional sheets as needed. Vendor should scan and upload any additional form(s) in BidSync.

1. Subcontracted Firm's Name:

-

Subcontracted Firm's Address:

Subcontracted Firm's Telephone Number:

-

Contact Person's Name and Position:

Contact Person's E-Mail Address:

Estimated Subcontract/Supplies Contract Amount:

Type of Work/Supplies Provided:

-

2. Subcontracted Firm's Name:

-

Subcontracted Firm's Address:

Subcontracted Firm's Telephone Number:

-

Contact Person's Name and Position:

Contact Person's E-Mail Address:

Estimated Subcontract/Supplies Contract Amount:

Type of Work/Supplies Provided:

-

3. Subcontracted Firm's Name:

Subcontracted Firm's Address:

Subcontracted Firm's Telephone Number:

Contact Person's Name and Position:

Contact Person's E-Mail Address:

Estimated Subcontract/Supplies Contract Amount:

Type of Work/Supplies Provided:

4. Subcontracted Firm's Name:

Subcontracted Firm's Address:

Subcontracted Firm's Telephone Number:

Contact Person's Name and Position:

Contact Person's E-Mail Address:

Estimated Subcontract/Supplies Contract Amount:

Type of Work/Supplies Provided:

I certify that the information submitted in this report is in fact true and correct to the best of my knowledge.

| | | | |
|---------------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Authorized Signature/Name | Title | Vendor Name | Date |

TRENCH SAFETY ACT REQUIREMENT FORM

The completed and signed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

Florida Trench Safety Act, Section 553.60, Florida Statutes, incorporates the Occupational Safety & Health Administration (OSHA) excavation safety standards, 29 C.F.R Section 1926.650, as Florida's own standards. The Trench Safety Act will apply to any individual project that has trenches in excess of 5 feet deep.

The Vendor, by virtue of the solicitation submission, affirms that the Vendor is aware of this Act, and will comply with all applicable trench safety standards, including any special shoring requirements, if applicable. Such assurance shall be legally binding on all persons employed by the Vendor and subcontractors.

The Vendor is also obligated to identify the anticipated method and cost of compliance with the applicable trench safety standards. The Vendor further identified the costs and methods summarized below: (fill in either Open-End or Fixed Contract section)

Open-end Contract:

| Description | Unit of Measure | Unit Price | Method |
|----------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |

Special Shoring, if applicable:

SQ. FT.

| | | | |
|----------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |

Fixed Contract:

| Description | Unit of Measure | Quantity | Unit Price | Ext. Price | Method |
|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |

Special Shoring, if applicable:

SQ. FT.

Unit Price

Method

| | | | |
|----------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |

Total \$

| | | | |
|----------------------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Authorized Signature/Name | Title | Vendor Name | Date |

Workforce Investment Program Requirements:

- A. In accordance with Broward County Workforce Investment Program, Administrative Code, Section 19.211, the Workforce Investment Program (Program) this solicitation is a covered contract if the open-end contract award value exceeds \$500,000 per year or if the individual project value exceeds \$500,000 under a fixed-term contract. The Program encourages Vendors to utilize CareerSource Broward (CareerSource) and their contract partners as a first source for employment candidates for work on County-funded projects, and encourages investment in Broward County economic development through the hiring of economically disadvantaged or hard-to-hire individuals.
- B. Compliance with the Program, including compliance with First Source Referral and the Qualifying New Hires goals, is a matter of responsibility. Vendor should submit the **Workforce Investment Program Certification Form** with its response. If not provided with solicitation submittal, the Vendor must supply within three business days of County's request. Vendor may be deemed non-responsible for failure to comply within stated timeframes.
- C. The following is a summary of requirements contained in the Program. This summary is not all-inclusive of the requirements of the Program. If there is any conflict between the following summary and the language in the Program, the language in the Program shall prevail. In compliance with the Program, Vendor (and/or its subcontractors) shall agree to:
 - 1. be bound to contractual obligations under the contract;
 - 2. use good faith efforts to meet First Source Referral goal for vacancies that result from award of this contract;
 - 3. publicly advertise any vacancies that are the direct result of this contract, exclusively with CareerSource for at least five (5) business days;
 - 4. review qualifications of CareerSource's Qualified Referrals and use good faith efforts to interview Qualified Referrals that appear to meet the required qualifications;
 - 5. use good faith efforts to hire Qualifying New Hires (as defined by the Program) for at least fifty percent (50%) of the vacancies (rounded up) that are the direct result of this contract;
 - 6. obtain a hired worker's written certification, attesting to a status as a Qualifying New Hire, Economically Disadvantaged Worker, or Hard-to-Hire worker (if applicable);
 - 7. retain records relating to Program requirements, including: records of all applicable vacancies; job order requests to CareerSource; qualified referral lists; and records of candidates interviewed and the outcome of the interviews.
 - 8. provide to the County any documents and records demonstrating Vendor's compliance and good faith efforts to comply with the Program;
 - 9. submit to the County an annual report by January 31st and within 30 days of contract completion or expiration; and
 - 10. ensure that all of its subcontractors comply with the requirements of the Program.

- D. Further information about the Program, Vendor's obligations, and the Qualifying New Hire's certification form may be obtained on the Office of Economic and Small Business Development website:

broward.org/econdev/Pages/WorkforceInvestmentProgram.aspx. Vendor is responsible for reading and understanding requirements of the Program.

- E. Subcontractors: Vendor's subcontractors shall use good faith efforts to meet the First Source Referral and the Qualifying New Hires goals, in accordance with the Program. The Vendor shall include in any subcontracts a requirement that the all subcontractors comply with the Program requirements. The Vendor shall be responsible for compliance by any subcontractor with the Program as it applies to their subcontract.
- F. Reporting: Vendor shall maintain and make available to County upon request all records documenting Vendor's compliance and its subcontractors' compliance with the requirements of the Program, and shall submit the required reports to the Contract Administrator annually by January 31 and within thirty (30) days after the conclusion of this contract. Failure to timely comply with reporting requirements shall constitute a material breach of this contract.
- G. Evaluation: The Contract Administrator will document the Vendor's compliance and good faith efforts as part of the Vendor's Performance Evaluation.
- H. Failure to demonstrate good faith efforts to meet the First Source Referral and the Qualifying New Hires goal shall constitute a material breach of this contract.

WORKFORCE INVESTMENT PROGRAM CERTIFICATION FORM

This form(s) should be returned with the Vendor's submittal. If not provided with solicitation submittal, the Vendor must supply information within three business days of County's request. Vendor may be deemed non-responsible for failure to comply within stated timeframes.

In accordance with the Workforce Investment Program:

(Vendor) agrees to be bound to the contractual obligations of the Workforce Investment Program, Broward County Administrative Code Section 19.211, requiring our firm to use good faith efforts to meet the First Source Referral Goal and the Qualifying New Hires Goal.

The statement must be signed by an authorized signatory of the firm. Receipt of the signed statement from the Vendor is a matter of responsibility. A firm not offering an affirmative response in this regard will be found "non-responsible" to the solicitation and not eligible for further evaluation or award.

AUTHORIZED SIGNATURE/NAME

TITLE

DATE

Insurance Requirements: (Refer to the Insurance Requirement Form)

- A. The insurance requirement designated in the **Insurance Requirement Form** indicates the minimum coverage required for the scope of work, as determined by the Risk Management Division. Vendor shall provide verification of compliance such as a Certificate of Insurance, or a letter of verification from the Vendor's insurance agent/broker, which states the ability of the Vendor to meet the requirements upon award. The verification must be submitted within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes. Final award shall be subject to receipt and acceptance by the County of proof of meeting all insurance requirements of the bid.
- B. Without limiting any of the other obligations or liabilities of Vendor, Vendor shall provide, pay for, and maintain on a primary basis in force until all of its work to be performed under this Contract has been completed and accepted by County (or for such duration specified), at least the minimum insurance coverage and limits set forth in the Insurance Requirement Form under the following conditions listed below. If a limit or policy is not indicated on Insurance Requirement certificate by a checked box, it is not required as a condition of this contract.
1. Commercial General Liability with minimum limits per occurrence, combined single limit for bodily injury and property damage, and when indicated a minimum limit per aggregate. County is to be expressly included as an Additional Insured in the name of Broward County arising out of operations performed for the County, by or on behalf of Vendor, or acts or omissions of Vendor in connection with general supervision of such operation. If Vendor uses a subcontractor, then Vendor shall require that subcontractor names County as an Additional Insured.
 2. Business Automobile Liability with minimum limits per occurrence, combined single limit for bodily injury and property damage. Scheduled autos shall be listed on Vendor's certificate of insurance. County is to be named as an additional insured in the name of Broward County.

Note: Insurance requirements for Automobile Liability are not applicable where delivery will be made by a third party carrier. All vendors that will be making deliveries in their own vehicles are required to provide proof of insurance for Automobile Liability and other pertinent coverages as indicated on the Insurance Requirement certificate, prior to award. If deliveries are being made by a third party carrier, other pertinent coverages listed on the Insurance Requirement certificate are still required.

Vendor should indicate how product is being delivered:

Vendor Name:

Company Vehicle: Yes ☐ or No ☐

If Common Carrier (indicate carrier):

Other:

3. Workers' Compensation insurance to apply for all employees in compliance with Chapter 440, the "Workers' Compensation Law" of the State of Florida and all applicable federal

laws. The policy must include Employers' Liability with minimum limits each accident. If any operations are to be undertaken on or about navigable waters, coverage must be included for the U.S. Longshoremen & Harbor Workers Act and Jones Act.

4. Excess Liability/Umbrella Insurance may be used to satisfy the minimum liability limits required; however, the annual aggregate limit shall not be less than the highest "each occurrence" limit for the underlying liability policy. Vendor shall endorse County as an Additional Insured unless the policy provides coverage on a pure/true "Follow-form" basis.
5. Builder's Risk or equivalent coverage (such as Property Insurance or Installation Floater) is required as a condition precedent to the issuance of the Second Notice to Proceed for projects involving but not limited to: changes to a building's structural elements, work compromising the exterior of the building for any extended period of time, installation of a large single component, or remodeling where the cost of remodeling is 20% or more the value of the property. Coverage shall be, "All Risks" Completed Value form with a deductible not to exceed Ten Thousand Dollars (\$10,000.00) each claim for all perils except for wind and flood.
6. For the peril of wind, the Vendor shall maintain a deductible that is commercially feasible which does not exceed five percent (5%) of the value of the Contract price. Such Policy shall reflect Broward County as an additional loss payee.
7. For the peril of flood, coverage must be afforded for the lesser of the total insurable value of such buildings or structures, and the maximum amount of flood insurance coverage available under the National Flood Program. Vendor shall maintain a deductible that is commercially feasible and does not exceed five percent (5%) of the value of the Contract price. Such Policy shall reflect Broward County as an additional loss payee.
8. The County reserves the right to provide Property Insurance covering the Project, materials, equipment and supplies intended for specific installation in the Project while such materials, equipment and supplies are located at the Project site, in transit, or while temporarily located away from the Project site. This coverage will not cover any of the Vendor's or subcontractors' tools, equipment, machinery or provide any business interruption or time element coverage to the Vendor(s).
9. If the County decides to purchase Property Insurance or provide for coverage under its existing insurance policy for this Project, then the insurance required to be carried by the Vendor may be modified to account for the insurance being provided by the County. Such modification may also include execution of Waiver of Subrogation documentation.
10. In the event that a claim occurs for this Project and is made upon the County's insurance policy, for other than a windstorm, Vendor will pay at least Ten Thousand Dollars (\$10,000.00) of the deductible amount for such claim.
11. Waiver of Occupancy Clause or Warranty: Policy must be specifically endorsed to eliminate any "Occupancy Clause" or similar warranty or representation that the building (s), addition(s) or structure(s) in the course of construction shall not be occupied without specific endorsement of the policy. The Policy must be endorsed to provide that the Builder's Risk coverage will continue to apply until final acceptance by County.
12. Pollution Liability or Environmental Impairment Liability: including clean-up costs, with minimum limits per claim, subject to a maximum deductible per claim. Such policy shall remain in force for the minimum length of time indicated, include an annual policy aggregate and name Broward County as an Additional Insured. Vendor shall be responsible for all deductibles in the event of a claim.


13. Professional Liability Insurance with minimum limits for each claim, subject to a maximum deductible per claim. Such policy shall remain in force for the minimum length of time indicated. Vendor shall notify County in writing within thirty (30) days of any claim filed or made against its Professional Liability Insurance policy. Vendor shall be responsible for all deductibles in the event of a claim. The deductible shall be indicated on the Vendor's Certificate of Insurance.
- C. Coverage must be afforded on a form no more restrictive than the latest edition of the respective policy form as filed by the Insurance Services Office. If the initial insurance expires prior to the completion and acceptance of the Work, renewal certificates shall be furnished upon expiration. County reserves the right to obtain a certified copy of any insurance policy required by this Section within fifteen (15) calendar days of a written request by County.
 - D. Notice of Cancellation and/or Restriction: the policy(ies) must be endorsed to provide Broward County with at least thirty (30) days' notice of cancellation and/or restriction.
 - E. The official title of the Certificate Holder is Broward County. This official title shall be used in all insurance documentation.
 - F. Broward County's Risk Management Division reserves the right, but not the obligation, to review and revise any insurance requirements at the time of contract renewal and/or any amendments, not limited to deductibles, limits, coverages and endorsements based on insurance market conditions affecting the availability or affordability of coverage; or changes in the scope of work/specifications affecting the applicability of coverage.

Project: Well Rehabilitation Master Agreement
Agency: Water and Wastewater Services

| TYPE OF INSURANCE | ADDL INSD | SUBR WVD | MINIMUM LIABILITY LIMITS | | |
|---|-------------------------------------|-------------------------------------|--|-------------------------------------|------------------------|
| | | | | Each Occurrence | Aggregate |
| GENERAL LIABILITY - Broad form <input checked="" type="checkbox"/> Commercial General Liability <input checked="" type="checkbox"/> Premises-Operations <input checked="" type="checkbox"/> XCU Explosion/Collapse/Underground <input checked="" type="checkbox"/> Products/Completed Operations Hazard <input checked="" type="checkbox"/> Contractual Insurance <input checked="" type="checkbox"/> Broad Form Property Damage <input checked="" type="checkbox"/> Independent Contractors <input checked="" type="checkbox"/> Personal Injury Per Occurrence or Claims-Made: <input checked="" type="checkbox"/> Per Occurrence <input type="checkbox"/> Claims-Made Gen'l Aggregate Limit Applies per: <input type="checkbox"/> Project <input type="checkbox"/> Policy <input type="checkbox"/> Loc. <input type="checkbox"/> Other _____ | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Bodily Injury | | |
| | | | Property Damage | | |
| | | | Combined Bodily Injury and Property Damage | \$1,000,000 | \$2,000,000 |
| | | | Personal Injury | | |
| | | | Products & Completed Operations | | |
| | | | | | |
| | | | | | |
| AUTO LIABILITY <input checked="" type="checkbox"/> Comprehensive Form <input checked="" type="checkbox"/> Owned <input checked="" type="checkbox"/> Hired <input checked="" type="checkbox"/> Non-owned <input checked="" type="checkbox"/> Any Auto, If applicable <i>Note: May be waived if no driving will be done in performance of services/project.</i> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Bodily Injury (each person) | | |
| | | | Bodily Injury (each accident) | | |
| | | | Property Damage | | |
| | | | Combined Bodily Injury and Property Damage | \$1,000,000 | |
| <input type="checkbox"/> EXCESS LIABILITY / UMBRELLA Per Occurrence or Claims-Made: <input type="checkbox"/> Per Occurrence <input type="checkbox"/> Claims-Made <i>Note: May be used to supplement minimum liability coverage requirements.</i> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | |
| <input checked="" type="checkbox"/> WORKER'S COMPENSATION <i>Note: U.S. Longshoremen & Harbor Workers' Act & Jones Act is required for any activities on or about navigable water.</i> | N/A | <input checked="" type="checkbox"/> | Each Accident | STATUTORY LIMITS | |
| <input checked="" type="checkbox"/> EMPLOYER'S LIABILITY | | | Each Accident | \$1,000,000 | |
| <input checked="" type="checkbox"/> POLLUTION / ENVIRONMENTAL LIABILITY | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | If claims-made form: | \$1,000,000 | |
| | | | Extended Reporting Period of: | 3 years | |
| | | | *Maximum Deductible: | \$10,000 | |
| <input type="checkbox"/> PROFESSIONAL LIABILITY (ERRORS & OMISSIONS) All engineering, surveying and design professionals. | N/A | <input checked="" type="checkbox"/> | If claims-made form: | | |
| | | | Extended Reporting Period of: | | |
| | | | *Maximum Deductible: | | |
| <input type="checkbox"/> Installation floater is required if Builder's Risk or Property are not carried. <i>Note: Coverage must be "All Risk", Completed Value.</i> | | | *Maximum Deductible (Wind and/or Flood): | Not to exceed 5% of completed value | Completed Value |
| | | | *Maximum Deductible: | \$10 k | |
| Description of Operations: "Broward County" shall be listed as Certificate Holder and endorsed as an additional insured for liability, except as to Professional Liability. County shall be provided 30 days written notice of cancellation, 10 days' notice of cancellation for non-payment. Contractors insurance shall provide primary coverage and shall not require contribution from the County, self-insurance or otherwise. Any self-insured retention (SIR) higher than the amount permitted in this Agreement must be declared to and approved by County and may require proof of financial ability to meet losses. Contractor is responsible for all coverage deductibles unless otherwise specified in the agreement. | | | | | |

CERTIFICATE HOLDER:

Broward County
115 South Andrews Avenue
Fort Lauderdale, Florida 33301


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Risk Management Division

Question and Answers for Bid #OPN2118442B1 - Well Rehabilitation

Overall Bid Questions

There are no questions associated with this bid.