**JUNE 18, 2019**
**BOARD OF COUNTY COMMISSIONERS**
**ORANGE COUNTY, FLORIDA**
**ADDENDUM NO. 3 / RFP Y19-822**

**ENGINEERING SERVICES FOR KIRBY SMITH FORCEMAIN, RECLAIMED WATER MAIN, AND STORAGE TANK PROJECT**

**RFP OPENING DATE: JUNE 27, 2019**

This Addendum is hereby incorporated into the bid documents of the project referenced above. The following items are clarifications, corrections, additions, deletions and/or revisions to and shall take precedence over the original documents.

**A. CLARIFICATIONS**

**a.** The RFP awards a total of **75 weighted points** for meeting the County's M/WBE program's goals. These points shall be awarded as follows:

i. **37.5 weighted points** for meeting the County's certified M/WBE subcontract utilization goal; and

ii. **37.5 weighted points** for meeting the County's Minority/Women

**B. ~~EXHIBIT A~~ IS DELETED IN ITS ENTIRETY AND REPLACED WITH REVISED EXHIBIT A, ATTACHED AND LABELLED THIS ADDENDUM.**

**C.** The Proposer shall acknowledge receipt of this addendum by completing the applicable section in the solicitation or by completion of the acknowledgement information on the addendum. Either form of acknowledgement must be completed and returned not later than the date and time for receipt of proposal.

**D.** All other terms, conditions and specifications remain the same.

**Receipt acknowledged by:**

_____ _____
**Authorized Signature** **Date Signed**

_____
**Title**

Y19-822-TA, ADDENDUM 3, REVISED EXHIBIT A

# KIRBY SMITH ROAD FORCEMAIN, RECLAIMED WATER MAIN AND A STORAGE TANK PROJECT

ORANGE COUNTY UTILITIES DEPARTMENT

This is a request for a proposal from engineering firms (Engineer) for performing the services required to construct the Kirby Smith Road Forcemain, Reclaimed Water Main and A Storage Tank (Project). Information concerning the Project is presented in the following.

## PROJECT PURPOSE

The Project will provide a transmission forcemain to convey wastewater generated in the existing and future development areas within the Department's East Service Area (ESA) to the Eastern Water Reclamation Facility. The Project will provide a means to enhance the reclaimed water main projected capacity to the East Service Area Storage and Re-Pump Facility (Wewahootee SRF). An additional 1.5 million gallon (MG) storage tank and a 3,000 gallons per minute (gpm) pumping capacity and miscellaneous appurtenances will be added at the Wewahootee SRF.

## DESCRIPTION OF PROJECT

*Kirby Smith Corridor:*
The proposed 20-inch diameter wastewater transmission forcemain will transport wastewater from a future development connection of a 20-inch forcemain located near the intersection of Narcoossee Road and Tavistock Lakes Boulevard, route along Narcoossee Road, Tyson Road, Kirby Smith Road, North Shore Club Boulevard, Moss Park Road to an existing 20-inch forcemain at the intersection of Moss Park Road and Storey Park Boulevard. The length of the new forcemain to be installed is approximately 23,000 linear feet (LF).

The proposed parallel 24-inch diameter reclaimed water main will transport reclaimed water from an existing 24-inch reclaimed water main located near the intersection of Narcoossee Road and Tyson Road, route along Tyson Road, Kirby Smith Road, North Shore Club Boulevard, Moss Park Road to an existing 20-inch reclaimed water main at the intersection of Moss Park Road and Storey Park Boulevard. The length of the new reclaimed water main to be installed is approximately 21,000 linear feet (LF).

*John Wycliffe Boulevard Corridor:*
The proposed 16-inch reclaimed water main from the intersection of John Wycliffe Boulevard and Mossy Oak Drive will connect to an existing 16-inch reclaimed water main located at the Moss Park Road and John Wycliffe Boulevard. The length of the new16-inch reclaimed water main to be installed is approximately 4,200 linear feet (LF).

There are two (2) railroad crossing locations by the pipes utilizing the bore and jack method of construction. The pipe corridor analysis will be required to determine utility easement

requirements, evaluation of existing utilities, determination of the point of connections to existing facilities, and constructability.

In order to provide more storage for peak reclaimed water demands in the area, a new 1.5 MG ground storage tank and a 3,000 gallons per minute (gpm) pumping capacity and miscellaneous appurtenances will be added at the Wewahootee SRF. This will bring the total reuse storage capacity at the SRF to 3.0 MG.

The proposal shall address the following scope of engineering services.

**SCOPE OF ENGINEERING SERVICES**

The selected engineering firm shall provide the following services:

1. Preliminary Engineering;
2. Surveying Services;
3. Geotechnical Investigation;
4. Ecological Investigation;
5. Preparation of Construction Documents;
6. Permitting;
7. Public Relations;
8. Bidding Assistance; and,
9. Construction Administration Services.

**Preliminary Engineering**

The purpose of the preliminary engineering phase is to formulate and present project completion alternatives to the Department in a manner that will allow the Department to make an informed decision as to how the project shall proceed. The preliminary engineering phase shall include:

1. Meet with the Department to initiate the Project and to insure that the Engineer and any sub-consultants to the Engineer fully understand the intent of the Project, the scope of work for the Project and the specific requirements of the Department pertaining to the above listed scope of engineering services.

2. Coordinate and attend the kick-off meeting, prepare meeting agenda and meeting minutes.

3. If necessary and after consultation with the Department Project Manager, collect and review any information that may have a bearing and impact on the planning, design, approval, permitting, construction or operation of the Project.

4. Collect and review all available information such as records, maps, aerials, surveys, easements, ROW records, plans, record drawings, soils investigation reports, privately owned utility system data, zoning classification, 100 year flood plain elevation, building codes and standards that may be pertinent to execution of the Project.

5. Evaluate existing conditions along the proposed pipe installation route by site visitation. Consider current field conditions and any proposed site improvements and/or changes that may impact the project and recommended location of the proposed pipeline.

6. Review all requirements of all agencies having jurisdiction over the Project. Collect and review any other information that may have a bearing and impact on the planning, design, approval, permitting, construction or operation of the Project.

7. Provide a pipe corridor analysis for the proposed transmission mains to determine utility easement requirements, evaluation of existing utilities, determination of the point of connections to existing facilities, and constructability.

8. Prepare a preliminary layout of proposed construction alignment of the reclaimed water main and forcemain which indicates all major conflicts with existing utilities and all areas where special construction techniques must be considered. Additionally, present any other pertinent information necessary for the Department to evaluate the proposed alignment. NOTE: NO SURVEYING SERVICES SHALL BE PERFORMED DURING THE PRELIMINARY ENGINEERING PHASE OF WORK UNLESS PRE-APPROVED BY THE PROJECT MANAGER PRIOR TO THE WORK BEING PERFORMED.

9. Evaluate existing conditions at the site by field visit. Consider current field conditions and any proposed site improvements and/or changes that may impact the project and location of the storage tank and appurtenances.

10. Prepare a preliminary estimate of probable construction costs for the Project based on the preliminary alignment drawings.

11. Prepare a Preliminary Design Report (PDR) which presents the findings and conclusions that resulted from the preliminary engineering effort; at a minimum, include illustrative sketches/plans (pipe alignment lay-out), permit requirements, easement requirements, future plans of other utilities and agencies that may affect Project (if applicable) and the conclusions and recommendations concerning further execution of the Project.

12. Submit six (6) copies of the PDR to the Department for its review.

13. Meet with the Department to discuss the PDR; revise and finalize the Memorandum following comments from the Department. Submit two (2) hard copies and a digital copy as a single PDF of the final PDR.

**Surveying Services**

1. Provide a boundary and topographic survey of the site. Surveying services must meet the minimum requirements of the Department for survey accuracy and control as described in ***Attachment A***-*Minimum Requirements For Survey Accuracy and Control* and in the Department's Standards and Construction Specifications Manual, (Manual), dated 11 February 2011, or most current edition. Engineer shall be responsible for familiarization with survey requirements stated in the Department's Manual to include but not limited to Chapter 2 General Requirements and Design Standards and Chapter 3 Specifications.

Survey services are to provide the Department with sufficient data to ascertain that the proposed utility is within the existing and/or proposed right of way, existing or proposed easement or an existing or proposed site boundary as indicated on the construction drawings.

2. If Engineer believes additional survey is necessary, demonstrate to the PM the reasons for the need for additional survey.

3. AFTER CONSULTATION AND APPROVAL BY THE PM, perform any additional boundary or topographic survey of the proposed construction site and existing utility tie-in locations for preparation of the construction drawings. Obtain title information pertaining to existing or proposed easements and/or deeded right of way and related pertinent right of way maps, maintenance maps, plats and similar documents. Existing underground utilities flagged by the respective utility owners shall be located by the survey. Existing wetlands boundaries flagged by others shall be located by the survey.

4. If necessary, determine if additional excavation of the horizontal and vertical location of existing pipes at proposed "tie-in" locations and of existing utilities at critical utility crossings is needed. The number of tie-in locations to be determined by Engineer after consultation with the Department PM.

5. Determine by excavation the horizontal and vertical location of existing utilities along a proposed utility corridor within an existing right-of-way within ten (10) feet from either side of the centerline of the proposed new utility at intervals determined after consultation with the Department PM.

**Geotechnical Investigation**

1. Perform a geotechnical evaluation of the sites to insure that the geotechnical properties of the site are sufficient to facilitate design of the proposed utilities and the construction of the Project. Submit a Geotechnical Report that includes at a minimum the following:
    a. Soil boring logs and classifications;
    b. Existing groundwater levels and estimated seasonal high levels;
    c. Pipe trench preparation and backfill recommendations;
    d. Dewatering discharge recommendations; and,
    e. Other concerns as appropriate to perform the Project.
    f. Ground penetrating radar (GPR) if requested.

2. Determine potential groundwater contamination points along the utility corridor / tie-in route that may affect construction techniques and the acceptable point of discharge of groundwater from construction trench dewatering. If potential contamination points are suspected, groundwater sampling shall be performed and water samples provided to a lab for analyzing for the water quality parameters specified in the FDEP Generic Permit for the Discharge of Produced Ground Water from any Non-contaminated Site Activity, Chapter 62-621, paragraph 62-621.300(2), F.A.C. Should the results of the water analysis exceed the allowable levels of the parameters specified in the Screening Values for Discharge of Produced Ground Water in the afore mentioned Permit, the Engineer shall

provide recommendations in the Report to remedy the discharge of the contamination when dewatering.

3. If required and after CONSULTATION AND APPROVAL BY THE PM, submit a supplemental Geotechnical Report to the Department that includes additional findings pertinent to construction of the Project and include an unbound copy of the original and supplemental Geotechnical Report with the unbound technical specifications submitted for bidding purposes.

**Ecological Investigation**

1. Provide ecological consulting services to insure compliance with any permitting requirements of the Florida Department of Environmental Protection, South Florida Water Management District, Florida Fish and Wildlife Conservation Commission, the Orange County Environmental Protection Division and other governmental agencies as applicable.

2. Identify existing wetlands; perform corridor assessment to evaluate existence of threatened and endangered species and quality of potentially jurisdictional wetlands.

3. Request and conduct site reviews with governmental agencies for wetlands determination

4. Prepare reports and permit applications related to ecological conditions at the Project, determine mitigation requirements and alternatives if applicable

5. Provide other biological and ecological support data as necessary in order to represent the Department's interest with governmental agencies

**Construction Documents**

The construction documents shall be complete and meet all requirements for competitive bid of the construction contract and subsequent construction of the Project. All documents shall comply with ***Attachment B***-*Supplemental Requirements For Design and Record Documents* and the current requirements of the Manual including but not limited to Chapter 2 General Requirements and Design Standards, 3.03 Construction Plans. A quality assurance and "constructability" review shall be provided prior to all submittals to the Department. Design services will include submittal of construction documents at the 60%, 90%, and 100% level of completion.

60% Construction Document Submittal

The 60% complete construction document submittal shall be defined as a complete set (all sheets that will be in the bid package) of drawings for construction of the proposed water and reclaimed water mains and ground storage tank including all plan and profile drawings indicating all survey and topographic information, all existing utility locations, all new utility connections, all applicable construction details, a preliminary draft of all sections of the technical specifications and an opinion of the probable construction cost. If determined by the PM that the 60% level of completion requirements are not met, the corrected 60% construction documents shall be resubmitted and, if applicable, another 60% review meeting shall be attended by the Engineer.

The following items shall be addressed on the plans and/or submitted with the 60% construction documents:

1. Submit all survey field notes and other pertinent survey data in electronic format. The Surveyor shall be totally responsible for the QA/QC process of their services. Data shall include but not be limited to the following:
    a. Computations – Traverse closures and control coordinates
    b. Electronic files of data collected, control, title search of public records, last deeds of records or other data utilized in the survey effort.
    c. Survey Map Report
    d. QA/QC surveying review checklist
    e. If applicable, three (3) copies of any easement boundary surveys, signed and sealed by the Surveyor, and a digital copy as a single PDF file of all surveys.

2. All survey requirements stated in Chapter 2, Paragraph 3.03 K. Survey Requirements of the Manual shall be met.

3. The Surveyor's name, registration number, and the date the survey was performed shall be indicated on the construction drawings.

4. The Drawings shall state what datum was used to set the controls shown on the Drawings.

5. Any boundary surveys shall be shown on the construction drawings.

6. The baseline with state plane coordinates and elevations shall be shown on the plan and profile sheets. Stations and offsets from the baseline to the proposed mains shall be shown. Found or set monuments for rights-of-ways, easements, or pump station sites shall be adequately depicted on the construction drawings.

7. All existing utilities shall be shown on the plans in accordance with the requirements of CI/ASCE 38-02, ASCE Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data. Existing utilities shall be identified by a Subsurface Utility Quality Level Index and shown by an appropriate abbreviation and legend. The following Note shall be placed on the plan and profile drawings:

    **NOTE:** This drawing was prepared in conformance with ASCE standard CE/ASCE 38-02" American Society of Civil Engineers Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data".

8. Existing utility information shall be indentified in accordance with Exhibit 2111-1. Existing Utility Quality Levels of the Manual. Existing Utility Quality Level Index Notes, corresponding Legend and Abbreviations, and a Horizontal and Vertical data table shall be place on the plan and profile drawings.

9. The date(s) of the field work shall be given with the Subsurface Utility Data. **Failure to properly locate Utility Quality Level A utilities may require the Engineer to pay all incidental costs for the need to relocating the proposed pipe(s) during construction as a result of existing utility location errors as shown on the plans.**

10. Utility quality level A locations and attribute information are required for existing utilities named as follows:

    a. All utilities along the proposed pipe within 10' from either side of the centerline of the proposed pipe at minimum intervals determined by the PM,
    b. Proposed pipe crossings of existing utilities, and
    c. Proposed pipe connections to existing utilities

11. Present verification that Sunshine One was notified including,
    a. List of Utilities with matching design ticket provided by SSOCOF One Call.
    b. Copies of letters requesting markups sent to utilities
    c. Verification of follow-up with utilities that did not respond by date requested

12. Coordinate with the Orange County Public Works Department (Public Works). Submit one (1) printed set of 60% construction drawings as a separate submittal package with cover letter for review and comment to each:
    a. Manager of Development Engineering Division;
    b. Manager of the Roads and Drainage Division; and,
    c. Manager of the Public Works Engineering Division

13. Meet with Public Works staff if requested by Public Works and/or the PM to discuss the 60% submittal.

14. Incorporate Public Works comments into the drawings and specifications after approval by the PM. An email shall be submitted by the Engineer verifying whether each of the preceding Public Works Divisions have reviewed and commented on the Drawings.

15. Submit seven (7) sets of construction drawings and technical specifications and a digital copy as a single PDF file at a 60% level of completion to the Department for review.

16. Meet with the Department to discuss the 60% submittal, prepare a written list of Department comments, submit to Department for verification and subsequently revise the construction documents per the Department's comments.

<u>90% Construction Document Submittal</u>

The 90% complete construction document submittal shall be defined as a complete set of **<u>bid ready</u>** construction drawings and technical specifications with all Department's 60% review comments addressed, the Bid Schedule and a signed and sealed opinion of the probable construction cost. A design Asset Attribute Table shall be included in the 90% plans in accordance with the requirements of the Manual. If determined by the PM that the 90% level of

completion requirements are not met, the corrected 90% construction documents shall be resubmitted and, if applicable, another 90% review meeting shall be attended by the Engineer.

1. Submit seven (7) sets of construction drawings and technical specifications and a digital copy as a single PDF file of the 90% to the Department for review.

2. The Engineer shall prepare and submit a QA/QC engineering review checklist. The Engineer shall be totally responsible for the QA/QC process of their services.

3. Meet with the Department to discuss the 90% submittal, prepare a written list of Department comments and submit to Department.

4. Red-line a set of plans showing the Departments 90% review comments. Red-line and flag each page of the specification showing the Department's 90% review comments.

5. Submit the red-lined documents to the PM for their submittal to the Department's Bid Ready Group (BRG). Do not make changes to the project documents until instructed by the PM.

6. Meet with the PM and the BRG. The BRG will perform a final review. Any final comments will be transmitted by the Department's PM to the Engineer. Incorporate any final comments from the BRG into the 100% complete drawings and specifications.

7. Submit one (1) set of 100% complete construction drawings to the Department's GIS Section to assign asset numbers.

8. Submit four (4) signed and sealed hardcopy sets of construction drawings and technical specifications, a digital copy of the drawings and specifications as a single PDF and a copy of the drawings in AutoCAD™ format to the County. Specifications will be in Microsoft Word ™format.

9. Prepare and provide the Engineer's Estimate of Probable Cost, signed and sealed by a State of Florida Registered Professional Engineer.

10. Provide a suggested scope of geotechnical testing laboratory services and construction material testing services that shall be required during construction of the Project.

**Permitting**

1. Prepare and submit all required Project related permit applications and supporting documentation necessary to obtain required permits for construction and operation of the Project from all agencies (For example, Orlando Utilities Commission Railroad Crossing Application/Permit, Florida Department of Environmental Protection, Florida Department of Transportation, County Public Works Department, Water Management Districts, etc.) with jurisdiction over the Project.

2. Respond to all requests for additional information from permitting agencies.

3. Pay fee for all permits. The Department will reimburse fees paid by the Engineer.

**Public Relations: Community Meeting/Public Notification-Flier Production and Mailing Procedure**

The Engineer shall prepare for and conduct a pre-construction community meeting to discuss the proposed construction with potentially affected property owners.

1. Determine and recommend to the PM the location of schools, meeting halls, etc. that would be appropriate for a community meeting for the Project.

2. Provide notification of the community meeting to owners of property adjacent to and or affected by the proposed construction:

    a. Obtain the Community Meeting Notice guidelines and coordinate with the PM (or Department designee);

    b. Address the procedures and information for notice production and mailing in ***Attachment C -*** *Community Meeting Notice Production and Mailing Procedure;*

    c. Determine the design and contents of the notice; and,

    d. Determine the number of notices to be printed and the property mailing addresses.

3. Mail Department approved notice to affected property owners

4. Attend community meeting, prepare agenda, necessary presentation boards and exhibits, make a presentation to attendees and address questions

5. Provide the PM with a written summary of items discussed and any concerns raised by the attendees concerning the pending project

**Bidding Assistance**

1. Create construction plans and specifications for bidding and ePlan™ distribution by the Orange County Procurement Division. Provide Procurement:

    a. Two (2) sets of half-size construction plans

    b. Two (2) sets of full-size construction plans

    c. One (1) single-sided, unbound, hardcopy of technical specifications

    d. One (1) CD with Microsoft Word file of Bid Schedule, Index of Drawings, Drawings Table of Contents

    e. Five (5) CD's each containing 2 file folders

        i. 1 folder contains pdf of plans

        ii. 1 folder contains pdf of specifications

2. Attend a pre-bid conference scheduled by the Department.

3. Consider written questions from bidders related to the Project and prepare all addenda as required to interpret, clarify or expand the Bidding Documents. Submit addenda to department in a timely manner that allows reception of addenda by all bidders no later than a minimum of three (3) days prior to bid opening date.

4. Attend the bid opening and obtain copies of all bids

5. Prepare a tabulation of all bids received, review and evaluate the apparent three (3) lowest bidders' unit prices, similar projects and references and make recommendations to the Department's PM regarding the award of the construction contract.

6. Attend one (1) informal and one (1) formal bid protest hearing

7. Provide necessary documents to rebid the project, repeat previous items 3, 4, and 5.

**Construction Administration**

The Department's Field Services Division provides construction inspection. If requested by the Field Services Division, the engineer will provide general consultation and advice. All instructions to the Contractor(s) shall be issued through the Department. The following tasks will be accomplished during the construction phase.

1. Modify bidding documents, if required, and obtain all County/Procurement required and contractor executed documents; provide the County ten (10) full size and five (5) half-size signed and sealed sets of the construction drawings and fifteen (15) complete Project Manuals (collectively referred to as the "conformed" Contract Documents) for the Department's use during the construction phase of the Project.

2. Provide PM a scanned digital version of the hard copy Conformed Construction Drawings in protected Adobe Acrobat document file (pdf) format and comprised of files in the tagged information file (.tif) format and signed and sealed by the Engineer of Record.

3. Provide a digital version of the Conformed Construction Drawings submitted in AutoCAD format.

4. Plan, organize and conduct a pre-construction conference; distribute Conformed Contract Documents, take meeting minutes and distribute written minutes to all attendees.

5. Review shop drawings and product submittals for conformance with the Contract Documents.

6. Attend monthly construction progress meetings, take meeting minutes and distribute minutes to all attendees. Concurrently on the day of the monthly construction progress meeting, observe the construction of the Project and discuss any concerns with the Department.

7. On a monthly basis review contractor surveyor certified as-built Asset Attribute Table and Pipe Deflection Table and provide comment to Department

8. The Field Services Division executes change orders. If requested by the Department, evaluate requests for changes in contract price and time made by the Contractor and prepare as many as five (5) change orders if required.

9. Conduct substantial and final completion inspections of Project and prepare appropriate "punch lists".

10. Review the Asset Attribute Data Table prepared by the construction contractor's State of Florida registered Professional Surveyor; review and revise the Asset Attribute Table to reflect as-built/record drawing information provided by the contractor

11. Prepare Record drawings in accordance with ***Attachment B****-Supplemental Requirements for Design and Record Documents*; provide three (3) sets of prints of the record drawings and an electronic file of the record drawings utilizing the AutoCAD™ format to the Department; additionally provide electronic files of scanned images of the record drawings in the ".tif" file format to the Department.

12. Prepare necessary documents and submit the Project certification of completion and any necessary partial certifications to the FDEP to obtain all approvals for release of the water main (and reclaimed water main, if applicable) for use.

**QUALITY ASSURANCE**

The Engineer shall be responsible for the professional quality of all deliverables. The Engineer shall have and shall implement an internal Quality Assurance (QA) Plan that as a minimum provides review of all deliverables and significant calculations by another qualified professional that was not responsible for preparing the deliverable or calculation. The Engineer's Project Manager shall certify with each deliverable that the appropriate internal QA review was performed prior to submittal to the County. Any exceptions will require approval by the County Project

**ORGANIZATIONAL CHART**

The proposal shall contain a chart that depicts the organizational hierarchy of the Project team. The chart shall contain names, position title and responsibility of each team member of the primary firm, the name of all sub-consultant firms and depict the flow of communication and responsibility for task performance. An expanded organizational chart may be requested once an engineering firm is selected to perform the Project.

**SCHEDULE**

Prepare a schedule for the accomplishment of the Project that reflects the proposed elapsed time in days for completion of the preliminary engineering design, construction documents phase (final design), the bidding phase, and the construction phase of the Project. The schedule identifies and addresses accomplishment of each task enumerated in Utilities Standard Schedule

Events. The duration of activities controlled by the County shall be estimated and included in the schedule.

**ATTACHMENT A**
**Minimum Requirements**
**For Survey Accuracy and Control**

Surveying services are to provide Orange County Utilities with sufficient data to ascertain that proposed water, wastewater, reclaimed water mains and pump station sites are within the existing and/or proposed rights of way, easement or site boundary and as indicated on the construction drawings.

Horizontal and Vertical Controls

Horizontal and vertical controls shall be shown on the design drawings sufficiently to determine locations and elevations for the contractor to establish his work.

- Vertical control data shall be based on the North American Vertical Datum 1988. Benchmark(s) shall be provided for each of the Design Drawings.
- The horizontal control data shall be relative to the Florida State Plane Coordinate system, East Zone, North American Datum of 1983/1990 adjustment.

Rights-of-Way, Easements, and Pump Station Sites

Survey information for rights-of-ways, easements, and pump station sites shall be adequately depicted on the design drawings. Any survey of rights-of-ways, easements, and pump station sites shall either meet or exceed Chapter 61G17-6 F.A.C. "Minimum Technical Standards" or meet or exceed standards in Table 01050-1-1 Minimum Survey Accuracies in the OCU Capital Improvement Program standard specifications, whichever is more stringent. The survey of easements shall be executed as boundary surveys.

Control and Traverse Points Positional Reliability

Control and traverse points which comprise the overall geometry of the survey shall maintain a minimum positional reliability of 1:10,000 feet relative to the nearest geodetic control station and shall be shown on the survey. All baseline control traverses shall be tied to a least two existing horizontal controls of second order class I or higher standards or a control established by the County. In the event that a control monument will be established by GPS techniques, control monuments as a minimum will be available with State Plane Coordinates at each end of the traverse. Location of easements, Right-of-Way, and pump station sites shall be monumented.

Survey Map Report

A Survey Map Report shall be prepared. At a minimum, the Survey Map Report shall identify real estate title information used, measurements and computations made, accuracies obtained for the survey traverse, rights-of-way, easements, and pump station site, information obtained from surveying, possible boundary issues, and obstructions within the easements. The Report shall also describe the positional accurancy for the control points and bench mark elevations that were used.

Electronic submittal at 60% Design Submittal

All survey field notes and other pertinent survey data in electronic format shall be provided at the 60% design review meeting. Data shall include but not be limited to the following:

- Computations – Traverse closures and control coordinates

- Electronic files of data collected, control, title search of public records, last deeds of records or other data utilized in the survey effort.
- Survey Map Report
- Surveyor shall prepare and submit a QA/QC surveying review checklist. The Surveyor shall be totally responsible for the QA/QC process of their services
- The survey electronic files shall be signed and sealed by a registered surveyor by creating a "signature" file in accordance with Chapter 61G17-7.0025, F.A.C.
    1. Electronic files shall be sealed by creating a "signature" file that contains the Engineer, date, a brief overall description of the documents and a list of the electronic files to be sealed. Each file in the list shall be identified by its file name utilizing relative Uniform Resource Locators (URL) syntax described in the Internet Architecture Board's Request for Comments (RFC) 1738, December 1994, which can be obtained from the Internet website: ftp://ftp.isi.edu/in-notes/rfc1738.txt
    2. Each file shall have an authentication code defined as an SHA-1 message digest described in Federal Information Processing Standard Publication 18j0-1 "Secure Hash Standard," 1995 April 17, which can be obtained from the internet website: http://www.itl.nist.gov/fipspubs/fip180-1.htm
    3. For those sheets that are electronically signed and sealed by a registered surveyor, the following note shall be placed legibly on the sheet. The note shall be located outside and along the right sheet border line, within 1/8-inch of the line and beginning within one inch of the bottom sheet border line.
    *"NOTICE: THE OFFICAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G17-7.0025, F.A.C"*

**ATTACHMENT B**
**Supplemental Requirements**
**For Design and Record Documents**

Engineering services are to provide Orange County Utilities with sufficient data to ascertain that proposed water, wastewater, reclaimed water mains and pump station sites are within the existing and/or proposed boundaries and as indicated on the construction drawings**. A *pre-proposal meeting with the OCU Project Manager, Engineer and Surveyor is required to define scope of services.***

Design Asset Attribute Data Table
Both a design Asset Attribute Table and a partially complete contractor surveyor's as-built Asset Attribute Table shall be included in the design drawings. As a reference, see *TABLE A "Types of Assets and Minimum Survey Accuracies"* and *TABLE B "Asset Attribute Data Examples".*

Design Construction Documents Design Reviews
Pipe deflections shall be designed to not exceed the pipe manufacturer's recommended maximum deflection. Engineer shall add fittings to the design when the pipe deflections would exceed the pipe manufacturer's recommendations. Design drawings and specifications shall be in accordance with the OCU Standards and Construction Specifications Manual. Any modifications to OCU Standard Details shall be noted during the 60% and 90% design review meetings.

The Engineer shall prepare and submit a QA/QC engineering review checklist during design reviews. The Engineer shall be totally responsible for the QA/QC process of their services.

The Engineer shall include the most current Section 01720, Project Record Documents, of the OCU Capital Improvement Project standard specifications. The Asset Attribute Data and Pipe Deflection Table forms can be found on the County's website: <http://www.orangecountyfl.net/WaterGarbageRecycling/UtilitiesCapitalImprovementProgram.aspx>

Bid-Ready Checklist
After the 90% design review meeting, Engineer shall submit the following:

- Engineer's review comment tracking spreadsheet completed
- QA/QC engineering review checklist
- Supplementary Conditions, if applicable
- Project construction schedule included in the specifications
- Geotechnical report included
- Current status of each permit required
- Current status of easement sketches and descriptions
- Bid form (must match Measurement and Payment specification section)
- Engineers construction cost estimate
- Public Works review comments or emails

Conformed Contract Documents
The Conformed Contract Documents submittal shall include:

- A scanned digital version of the certified, hard copy Conformed Construction Drawings in protected Adobe Acrobat document file (pdf) format and comprised of files in the tagged information file (.tif) format and signed and sealed by the Engineer of Record.

Record Drawings

The Engineer shall develop the Record Drawings from the Construction Record Documents supplied by the Contractor. The Engineer shall identify substantive deviations from the original design documents and state whether the deviations are such that the original engineering design intent has, or has not, been "materially" accomplished by the finished construction. The Engineer shall fully and completely delineate the scope of the Engineer's work in preparing all Record Documents and indicate what specific services were performed by the Engineer, or the engineering firm, upon which the opinion in the Engineer's certification is based. The National Council of Engineering Examiners & Surveyors (NCEES) suggests that such a statement should include statements noting.

- That the "record/as-built" drawing is a compiled representation of the constructed project;
- A listing of the sources and the basis of information used in the preparation of the "record/as-built" drawing;
- That the drawing is believed to be correct to the best of the Engineer's knowledge; and
- That the drawings meet the design intent including, but not limited to location of installed assets and pipe deflections.

Appropriate notes on the Record Drawings or disclosures accompanying the certification can clarify an Engineer's determination that such modifications do or do not "materially" affect the permitted design.

An Asset Attribute Data Table, certified by the contractor's surveyor, shall be included in the Record Drawings. In addition the utilities asset and coordinates shall be indicated on each sheet of the Record Drawings for the assets shown on that drawing. Assets and coordinates for each sheet shall be shown in a table formatted identically to overall project Asset and Coordinate Table.

The Record Drawings submittal shall include:

- Three (3) certified, full size, hard copy sets of Record Drawings signed and sealed by the Engineer of Record.
- A scanned digital version of the certified, hard copy Record Drawing in protected Adobe Acrobat document file (pdf) format and comprised of files in the tagged information file (.tif) format and signed and sealed by the Engineer of Record.
- A revised digital Record Drawing shall be submitted in AutoCAD (.dxf or .dwg) format.
- The electronic files shall be signed and sealed by creating a "signature" file in accordance with Chapter 61G15-23.003, F.A.C.
    1. Electronic files shall be sealed by creating a "signature" file that contains the Engineer, date, a brief overall description of the documents and a list of the electronic files to be sealed. Each file in the list shall be identified by its file name utilizing relative Uniform Resource Locators (URL) syntax described in the Internet Architecture Board's Request for Comments (RFC) 1738, December 1994, which can be obtained from the Internet website: ftp://ftp.isi.edu/in-notes/rfc1738.txt

2. Each file shall have an authentication code defined as an SHA-1 message digest described in Federal Information Processing Standard Publication 18j0-1 "Secure Hash Standard," 1995 April 17, which can be obtained from the internet website: http://www.itl.nist.gov/fipspubs/fip180-1.htm
3. For those sheets that are electronically signed and sealed by the Engineer, the following note shall be placed legibly on the sheet. The note shall be located outside and along the right sheet border line, within 1/8-inch of the line and beginning within one inch of the bottom sheet border line.

   *"NOTICE: THE OFFICAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE* 61G15-23.003, F.A.C*"*

**Table A**
**Types of Assets and Minimum Survey Accuracies**

| Type | Horizontal Accuracy (feet) | Elevation Accuracy (feet) | Location: Horizontal Center and Vertical Top, unless otherwise specified |
|---|---|---|---|
| Bench Marks | 0.01 | 0.01 | Point |
| Baseline Control Locational Accuracy | 0.01 | N/A | Point |
| Tract and Easement Corners | * | N/A | Survey Monuments |
| Pipe, at 100-feet maximum intervals | 0.1 | 0.1 | Pipe, Pipe at Valves, Pipe at Bore & Jack Casing |
| Pipe, (PVC) >16-inch at every pipe joint | 0.1 | 0.1 | Pipe, Pipe at Valves, Pipe at Bore & Jack Casing |
| Fittings, Sleeves, Tapping Saddle, Service Saddles, Cap or Plugs. | 0.1 | 0.1 | |
| Pipe, Restrained | 0.1 | 0.1 | Restrained Joint Limits |
| Connections | 0.1 | 0.1 | Pipe |
| Bore & Jack Casing | 0.1 | 0.1 | Top of Casing at the Casing Limits |
| Directional Drill | 0.1 | 0.1 | 10-foot intervals during the directional drill operation or intervals not to exceed the drilling rod length |
| Hydrants | 0.1 | 0.1 | Operating Nut |
| Valves (Operating Nut) | 0.1 | 0.1 | Operating Nut |
| Valve (Pipe Location) | 0.1 | 0.1 | Top of Pipe at Valve location |
| Air Release, Blow off, and Backflow Valves | 0.1 | 0.1 | Valve Enclosure |
| Master Meters, Deduct Meters & Wastewater Meters | 0.1 | 0.1 | Register |
| Meter Box | 0.1 | 0.1 | |
| Clean out - | 0.1 | 0.1 | |
| Manhole Rim | 0.1 | 0.1 | Manhole – top of rim |
| Manhole Inverts | N/A | 0.01 | Pipe Inverts |
| Pump Station (Public & Private) | 0.1 | 0.01 | Wetwell top of slab and Pipe Inverts |
| Production Well or Monitoring Well | 0.1 | 0.1 | Well – top of casing |
| Grease Interceptor | 0.1 | 0.1 | |
| Oil / Water Separators | 0.1 | 0.1 | |
| Pipe, abandoned in place or removed | 0.1 | 0.1 | Limits of Abandoned or Removed Pipe |
| Existing Utilities and appurtenant structures** | 0.1 | 0.1 | underground feature or structure |

* Shall conform to the requirements of the "Chapter 5J-17, 'Minimum Technical Standards', F.A.C.", certified by a SURVEYOR.

** Existing utilities including but not limited to water, wastewater, reclaimed water, stormwater, fiber optic cable, electric, gas and structures within the limits of construction.

*** Fittings rotated in X,Y,Z plane or vertical shall be shot to maintain flowline for the horizontal and vertical locations of the coordinate

Note: All survey values to be reported to second decimal point (x.xx)

Reference: OCU Master CIP Technical Specifications, Section 01050 Surveying and Field Engineering, January 2016

# TABLE B
# Asset Attribute Data Examples

## Valves Worksheet

Asset Attribute Table Examples

| | A | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ID Number | Plan Sheet # | Easting | Northing | Elevation | Valve Type | Main Type | Valve Size | Valve Manufacturer | Valve Model # | # of Turns to Close | Gear Actuator | Gear Ratio | Side Actuator | Actuator Manufacturer | Comments |
| 2 | ARV-1 | C300 | 518060.09 | 1483231.33 | 81.72 | ARV - Combination | Water Main | 2 | Brand H | 100XT | | | | | | |
| 3 | ARV-1 | C303 | 518083.55 | 1483280.50 | 81.15 | ARV - Vacuum | Force Main | 4 | Brand G | 1000 | | | | | | |
| 4 | BFP-1 | C303 | 518086.00 | 1483282.88 | 78.21 | Backflow Preventer | Reclaimed Water Main | 8 | Brand F | 2000 fgs | | | | | | |
| 5 | BO-9 | C405 | 518088.83 | 1483289.43 | 78.20 | Blowoff | Water Main | 2 | Brand E | 14 turbo | | | | | | |
| 6 | BFV-1 | C405 | 518088.11 | 1483295.00 | 81.95 | Butterfly | Water Main | 30 | Brand D | 230 xls | 200 | Yes | 3 to 1 | Yes | Brand C | |
| 7 | GV-3 | C405 | 518132.54 | 1483372.75 | 81.23 | Gate | Water Main | 16 | Brand C | 2225846 | 300 | Yes | 3 to 1 | NO | | |
| 8 | LS-W1 | C405 | 576779.36 | 1539706.97 | 64.30 | Line Stop | Water Main | 16 | Brand B | 7r6r44 | | | | | | |
| 9 | PV-22 | C405 | 576880.60 | 1539718.32 | 64.52 | | Force Main | 12 | Brand A | Z100 | 200 | Yes | 3 to 1 | Yes | Brand A | |
| 10 | | | | | | | | | | | | | | | | |

General Info / Hydrant / **Valve** / Manhole / Meter / Fitting / Cleanout / Pipe / Pumpstation / Well / Property of

## Meter Worksheet

Asset Attribute Table Examples

| | A | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| 1 | ID Number | Plan Sheet # | Easting | Northing | Elevation | Main Type | Comments |
| 2 | MM-1 | C-6 | 576533.64 | 1539520.08 | 58.01 | Water Main | |
| 3 | RWMM-1 | C-6 | 576937.42 | 1539598.78 | 64.84 | Reclaimed Water Main | |
| 4 | | | | | | | |

Hydrant / Valve / Manhole / **Meter** / Fitting / Cleanout / Pipe / Pumpstation / Well / Property or Easement Corner / Existing OC Utility Crossing

## Fitting Worksheet

Asset Attribute Table Examples

| | A | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|
| 1 | ID Number | Plan Sheet # | Easting | Northing | Elevation | Main Type | Fitting Type | Comments |
| 2 | FM-1 | C-3 | 572399.28 | 1539339.13 | 46.27 | Force Main | Bend 11 1/4° | |
| 3 | FM-2 | C-3 | 574840.74 | 1539856.91 | 51.73 | Force Main | Bend 22-1/2° | |
| 4 | RW-1 | C-4 | 574887.22 | 1539849.64 | 51.75 | Reclaimed Water Main | Cross | |
| 5 | RW-2 | C-4 | 574904.30 | 1539849.56 | 48.98 | Reclaimed Water Main | Reducer | |
| 6 | WM-1 | C-5 | 572532.38 | 1539848.16 | 54.42 | Water Main | Tapping Saddle | |
| 7 | WM-2 | C-5 | 572631.00 | 1539337.10 | 45.27 | Water Main | Tee | |
| 8 | | | | | | | | |

General Info / Hydrant / Valve / Manhole / Meter / **Fitting** / Cleanout / Pipe / Pumpstation / Well / Property or Easeme

## Pipes Worksheet

Asset Attribute Table Examples

| | A | C | D | E | F | G | H | I | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ID Number | Plan Sheet # | Easting | Northing | Elevation | Main Type | Type of Shot | Construction Method | Material | Pressure Class | Manufacturer | Comments |
| 2 | CSNG-1 | C-4 | 517827.57 | 1482195.46 | 78.83 | Force Main | Bore & Jack (Casing) | | PVC | DR18 | Brand A | |
| 3 | CSNG-2 | C-4 | 517848.20 | 1482195.31 | 78.38 | Force Main | Bore & Jack (Casing) | | PVC | DR18 | Brand A | |
| 4 | RW-1 | C-7 | 517731.98 | 1482237.24 | 80.42 | Reclaimed Water Main | Restraint Joint Limit | Open Cut | DIP | Class 250 | Brand B | |
| 5 | RW-2 | C-7 | 517732.85 | 1482338.10 | 80.94 | Reclaimed Water Main | Restraint Joint Limit | Open Cut | DIP | Class 250 | Brand B | |
| 6 | WM-1 | C-9 | 573309.07 | 1539372.90 | 56.10 | Water main | Shot on Pipe | Open Cut | PVC | DR18 | Brand C | |
| 7 | WM-2 | C-9 | 573308.75 | 1539375.00 | 54.66 | Water main | Shot on Pipe | Open Cut | PVC | DR18 | Brand C | |
| 8 | FMDD-1 | C-4 | 504345.94 | 1488969.20 | 114.14 | Force Main | Shot on Pipe | Directional Drill | HDPE | DR17 | Brand X | |
| 9 | FMDD-2 | C-4 | 504360.86 | 1488970.50 | 112.74 | Force Main | Shot on Pipe | Directional Drill | HDPE | DR17 | Brand X | |
| 10 | FMDD-3 | C-4 | 504377.19 | 1488971.20 | 106.14 | Force Main | Shot on Pipe | Directional Drill | HDPE | DR17 | Brand X | |
| 11 | FM-9 | C-4 | 504480.47 | 1488952.90 | 105.24 | Force Main | Shot on Pipe | Open Cut | PVC | DR18 | Brand C | |
| 12 | | | | | | | | | | | | |

General Info / Hydrant / Valve / Manhole / Meter / Fitting / Cleanout / **Pipe** / Pumpstation / Well / Property or Easemen

## Pump Station Worksheet

Asset Attribute Table Examples

| | A | C | D | E | F | G |
|---|---|---|---|---|---|---|
| 1 | ID Number | Plan Sheet # | Easting | Northing | Elevation | Comments |
| 2 | PS-1 | C-40 | 517914.35 | 1482906.56 | 83.91 | |
| 3 | | | | | | |

Valve / Manhole / Meter / Fitting / Cleanout / Pipe / **Pumpstation** / Well / Property or Easement Corner / Existing OC Utility Crossing

## Well Worksheet

Asset Attribute Table Examples

| | A | C | D | E | F | G | I |
|---|---|---|---|---|---|---|---|
| 1 | ID Number | Plan Sheet # | Easting | Northing | Elevation | Well Type | Comments |
| 2 | | | | | | Well | |
| 3 | | | | | | Monitoring Well | |
| 4 | | | | | | | |

Meter / Fitting / Cleanout / Pipe / Pumpstation / **Well** / Property or Easement Corner / Existing OC Utility Crossing / Grease Interceptor

## Easements Worksheet

Asset Attribute Table Examples

| | A | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| 1 | ID Number | Plan Sheet # | Easting | Northing | Elevation | Boundary Corner Type | Comments |
| 2 | Corner-1 | C-8 | 463484.59 | 1511029.72 | | Pump Station Tract | N.W. CORNER |
| 3 | Corner-2 | C-8 | 463523.24 | 1511040.01 | | Pump Station Tract | N.E. CORNER |
| 4 | Corner-3 | C-8 | 463480.45 | 1511015.23 | | Pump Station Tract | S.W. CORNER |
| 5 | Corner-4 | C-8 | 463526.97 | 1511025.49 | | Pump Station Tract | S.E. CORNER |
| 6 | | | | | | Easement | |
| 7 | | | | | | Property | |
| 8 | | | | | | | |

Meter / Fitting / Cleanout / Pipe / Pumpstation / Well / **Property or Easement Corner** / Existing OC Utility Crossing / Grease Interceptor

## Existing OC Utility Crossing

Asset Attribute Table Examples

| | A | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|
| 1 | ID Number | Plan Sheet # | Easting | Northing | Existing Pipe Elevation | Proposed Crossing Elevation | Existing Main Type | Comments |
| 2 | | | | | | | | |
| 3 | CR-02 | AT-1 | 474767.95 | 1500585.09 | 98.20 | 106.20 | Force Main | |
| 4 | CR-03 | AT-1 | 475239.63 | 1500596.35 | 99.10 | 113.88 | Force Main | |
| 5 | CR-04 | AT-1 | 475239.61 | 1500588.49 | 94.30 | 112.45 | Reclaimed Water Main | |
| 6 | Conf-1 | C-750 | 463464.47 | 1511013.75 | 100.54 | 104.88 | Water main | |
| 7 | Conf-2 | C-750 | 463163.91 | 1510693.49 | 98.32 | 103.57 | Storm Main | |
| 8 | | | | | | | | |

Pipe / Pumpstation / Well / Property or Easement Corner / **Existing OC Utility Crossing** / Grease Interceptor

Reference: OCU Master CIP Technical Specifications, Section 01050 Surveying and Field Engineering, January 2016

**ATTACHMENT C**
**Community Meeting Notice Production and Mailing Procedure**

**Purpose:** Notification of all owners of property adjacent to or affected by the proposed utility infrastructure construction.

**Note:** Project engineering consultants (engineer) preparing fee proposals for Department Capital improvements Projects will include a line item and fee in their proposal for coordinating with Department (PM) for the development, printing and mailing of community meeting notices. Fee direct costs can be determined by examination of the area of the Project utilizing tax maps, etc.

**General Procedure:**

1. Engineer identifies a location for the community meeting that is in proximity of the proposed construction and provides location to PM.

2. PM establishes date for the community meeting and coordinates with District Commissioner's Office.

3. Engineer identifies properties adjacent to/affected by proposed construction utilizing County Buffer Notification Criteria or instructions from PM and obtains property owner's mailing address. Consultant develops mailing list and provides a copy upon request to the PM.

4. Engineer coordinates with PM to develop a color, computer generated, 8½ x 11-inch size community meeting notice with location map utilizing Word™ and based on OCU guidelines. (PM provides Community Meeting Notice guidelines.)

5. PM sends draft notice to Department Public Information Officer (PIO) for review and final approval by Department Director. PIO requires 10 working days from receipt of draft notice for approvals.

6. PM has consultant make any changes required by the PIO and sends final notice to the PM to obtain final approvals. This may require two iterations.

7. Approval of the notice with any changes will be given to consultant for printing* and mailing. All notices will meet the requirements set by the County, the Department and the Orange County Public Notification Task Force.

8. Date for community meeting/notice mailing is determined as follows:
    - Notice of construction community meeting - Meeting is held during period between finish of design but before advertising for construction bids. Included in this notice is the anticipated construction start date. Property owners should receive notice two (2) weeks prior to the meeting.

- For notices for construction status for projects that are 1 year or more in length, a notice may be sent to the subject property owners every 6 months starting from the date of the first construction status notice mailing. The notice shall give the status of the Project.

- Additional notices may be needed if an urgent or emergency situation arises on the Project where public notification is warranted.

**Fliers shall be printed on white glossy recycled 8 ½ x 11-inch paper.*
**Paper stock shall be a minimum of 60lb weight.*
*Printing shall utilize the four-color process.*