

Loxahatchee River District

Water Reclamation | Environmental Education | River Restoration

2500 Jupiter Park Drive, Jupiter, Florida 33458

Telephone (561) 747-5700 • Fax (561) 747-9929 • www.loxahatcheeriver.org



D. Albrey Arrington, Ph.D., Executive Director

MEMORANDUM

TO: D. ALBREY ARRINGTON, Ph.D.
Executive Director

FROM: CLINTON R. YERKES *CR*
Deputy Executive Director

DATE: APRIL 12, 2016

SUBJECT: ALT. A1A 16" F.M. EXTENSION
Award of Engineering Services Contract

Last month staff presented and the Board approved an Engineering Services contract for Hazen & Sawyer to design, permit, bid and provide construction services for the replacement force main that will hang on the Alt. A1A Bridge along with the Jupiter water main.

Mathews Consulting had recently completed a preliminary design report evaluating several alternatives for replacing and providing emergency backup to the 24" ductile iron force main, constructed in the mid-1970's, under the Loxahatchee River, west of the FEC railroad tracks. Attaching to the bridge was a highly ranked alternative, and was also considered for an emergency backup, if the line was not replaced in the near future.

This month we are requesting approval of a contract with Mathews Consulting, Inc. for engineering services for the portion of line that is off of the bridge at each end and ties back into the existing force main, which is on the east side of the FEC railroad tracks. Mathews had performed some of the preliminary investigation work during preparation of the above mentioned report.

This is a budgeted item for the current fiscal year and will carry over to FY 2017.

A copy of the proposal to provide engineering services for this project in accordance with the Continuing Contract for services is attached for your review.

The following motion is suggested for approval:

"THAT THE DISTRICT GOVERNING BOARD authorize award of contract to Mathews Consulting, Inc, for the Alt. A1A 16" Force Main Extension, in accordance with their proposal dated April 12, 2016, in the amount of \$125,429.00.

and

The Board authorizes a Contingency Amount of \$6,250.00."

Thank you for your consideration of this matter and should you have any questions please contact me.

V:/cip/proj/Alt A1A FM Xtn/Contract/Board Awrd memo

Stephen B. Rockoff
Board Member

Dr. Matt H. Rostock
Board Member

Gordon M. Boggie
Chairman

Harvey M. Silverman
Board Member

James D. Snyder
Board Member

**AGREEMENT BETWEEN LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT
AND MATHEWS CONSULTING, INC.
FOR PROFESSIONAL ENGINEERING SERVICES**

“ALTERNATE A1A 16-INCH FORCE MAIN EXTENSION”

DATE: April 12, 2016

BACKGROUND

This Agreement is for the performance of engineering services by Mathews Consulting, Inc. (MC) pursuant to the Continuing Contract for Professional Engineering Services between Loxahatchee River District (District) and MC dated February 3, 2015, hereafter referred to as the Contract. The District has the right to stop work at any time being only responsible for costs incurred up to that time.

The Loxahatchee River Environmental Control District (District) provides wastewater service to Jupiter, Tequesta, portions of Juno Beach, unincorporated northern Palm Beach County and unincorporated southern Martin County. The wastewater flow from the northeast service area is collected and pumped to an existing 24" subaqueous force main that crosses the Loxahatchee River and directs the flow south and ultimately flows west to the District's WWTP. The 24" subaqueous force main (approx. 1,200 LF) was constructed in 1977 and the material is DIP Ball & Socket. Based on past studies, it appears that the existing 24" subaqueous force main is oversized to handle the current and projected wastewater flows from this area. Also, downstream of the existing river crossing, the District has already replaced the old 24" DIP force main with a smaller 16" PVC force main.

The District previously engaged Mathews Consulting (MC) to prepare a Preliminary Design Report (PDR) that investigated the following alternatives for rehabilitation/replacement of the existing 24" subaqueous force main:

- *Alternative 1* – use the existing 24" DIP subaqueous force main as a casing pipe for a new smaller 18" HDPE piping that would need to be pulled (sliplined) thru the existing piping.
- *Alternative 2* – construct a new smaller (18" HDPE) force main (on either the east or west side) of the existing A1A bridge by directional drilling methods.
- *Alternative 3* – install a cured-in-place liner in the existing 24" DIP subaqueous force main.
- *Alternative 4* – construct a new smaller force main (18" HDPE) by directional drilling methods and also install a cured-in-place liner in the existing 24" DIP subaqueous force main for redundancy.
- *Alternative 5* – install a new 16" DIP force main on the existing A1A bridge (on the west side).

Based on our review of each of the Alternatives, MC recommended that Alternative 5 would provide the District with the most cost effective option, improved constructability, and long term reliability. This Alternative 5 also provides the District with the ability to still utilize the existing subaqueous force main as a redundant back up system.

The District has entered into an Interlocal Agreement with the Town of Jupiter to have the Town's Engineer (Hazen and Sawyer) design, permit and bid the 16" force main aerial bridge crossing. MC will design, permit, bid and provide construction administration and part-time inspection services for the 16" force main piping once it goes underground on both sides of the bridge and MC will tie the new 16" force main into the Districts existing force main system. Refer to **Exhibit A** for the Project Location Map for the areas included in this Agreement between the District and MC.

The design elements are assumed to include the following:

- Approximately 1,700 LF of 16" PVC C-905 force main that is assumed to be designed under the existing sidewalk in FDOT ROW or a few feet from the edge of the sidewalk in FEC Railway ROW.
- One (1) Jack & Bore on the south side of the Bridge. Approximately 150 LF of 16" DIP force main (carrier pipe) and 24" Steel (casing pipe).
- One (1) Jack & Bore on the north side of the Bridge. Approximately 100 LF of 16" DIP force main (carrier pipe) and 24" Steel (casing pipe).
- Two (2) Jack & Bore Entry and Exit Pits.
- Connection to existing 24" force main on south side of the Bridge and connection to existing 16" force main on the north side of the bridge.
- Connection to the proposed 16" force main on each side of the Aerial Bridge crossing.

Final pipeline routing may decrease or increase the pipeline length estimates accordingly.

SCOPE OF WORK

The District has requested comprehensive engineering services from MC to provide data collection, engineering design, permitting, bidding assistance, construction administration, and part-time construction inspection services related to the Alternate A1A Force Main Extension Project. The project is assumed to be bid as a Single Bid Package. Specific project elements include the following:

- Task 1 – Data Collection
- Task 2 – Design Services
- Task 3 – Permitting Services
- Task 4 – Bidding Assistance
- Task 5 – Construction Administration Services
- Task 6 – Resident Project Representative

TASK 1 – DATA COLLECTION

Subtask 1.1 – Survey

Consultant shall furnish the services of a professional surveyor to provide survey services consisting of field topography and horizontal locations referenced by baseline stationing. All existing facilities and utilities within the established project limits will be referenced by baseline station with an offset distance (left or right) from baseline for the project and will include the following:

1. Topography survey at 100-foot intervals (except in FEC ROW for the Jack & Bore crossings the interval shall be 25-ft) and at major ground elevation changes to depict existing ground profile at proposed project area. This shall be accomplished by creating a baseline in the field to collect pertinent data which shall include the following:
 - a. Location of all visible fixed improvements within the project limits, including physical objects, roadway pavement, railway tracks (top & bottom rails), railway swales, canals, driveways, sidewalks, curb, trees, signs, fences, power poles, buildings, and other encumbrances, including

- point of curvature and point of tangency. This also includes the horizontal location of the front two corners of the building on each lot and finished floor elevations.
- b. Location of all known above and below ground existing utilities: FP&L, BellSouth, Cable TV, Natural Gas, Potable Water (pipe diameter, valves, fire hydrants, and meters), Force Mains (pipe diameter, TOP, and valves), Reclaimed Water Mains (pipe diameter, TOP, and valves), Sanitary Sewer (pipe diameter, manhole inverts and direction, rim elevations, laterals, and clean-outs), Storm Sewers (pipe diameter, manhole inverts and direction, catch basins, and rim/grate elevations), and all other accessible structures.
 - c. Identify platted rights-of-way (including bearing and distances for centerline), lot numbers, house address, ownership lines, block numbers and dedicated easements.
 - d. Elevations along road right-of-way or easements shall be indicated every 100 feet, at a minimum, to indicate centerline grades, edge of pavement grades, and shoulder grades, low points, and all right-of-way or easement lines. Intermediate grades shall be indicated at all grade breaks, driveways, sidewalks and 10 feet beyond R-O-W/Easement lines.
 - e. Provide and reference benchmarks at **maximum 600-foot intervals**. Elevations to be referenced to an existing established City or County Benchmark.
 - f. The above topographical survey data will be prepared in AutoCAD (Version 2014) format at a scale of 1"=20', as one continuous file. Mathews Consulting standard layering system shall be used.

Subtask 1.2 – Utility Coordination

Coordination with utility agencies (electric, phone, gas, CATV, and water) shall be performed to collect record information. MC shall forward copies of the survey information to the Utility Companies and ask them to "red-line" their known utilities onto the survey drawings. The information will be incorporated by MC into the design drawings. If coordination with any Utility Company proves to be problematic, the District will be notified. This Subtask includes reconciling apparent discrepancies between record information and existing photographic and field-verification information.

Subtask 1.3 – Subsurface Investigations

MC shall furnish the services of a professional geotechnical firm to provide a geotechnical evaluation of the project area, and have 5 soil borings (4 borings to an average depth of 20-ft., 1 boring to an average depth of 10-ft.) done for soil strata identification and to determine the ground water level as part of the project.

TASK 2 – DESIGN SERVICES

Design shall consist of preparation of Contract Specifications, Contract Drawings (plan/profile), and Construction Cost Opinion.

Subtask 2.1 Construction Documents

Preparation of construction documents shall include contract drawings and technical specifications. Contract drawings shall include: cover sheet, general notes, plan/profile drawings, jack & bore drawings, and miscellaneous detail sheets. A preliminary drawing list is included in Exhibit B. The drawing scale shall be 1-inch equals 20 feet for pipeline plan and 1-inch equals 2 feet for pipeline profile. MC shall prepare the engineering design elements on topographic survey information in an AutoCAD release 2014 format. Contract documents shall include: "front-end" documents and technical specifications and shall

conform to the District Standards. The jack & bore design shall conform to FEC Railway standards. Any force main located in FDOT ROW shall conform to FDOT Standards.

Drawings and specifications (three copies) shall be submitted for District review at 50% (plan view only), 75% (plan/profile) and 100% (plan/profile) stages. MC shall meet with the District to discuss comments, and incorporate comments into final documents. MC shall also furnish a pdf of the drawings with each submittal.

Also included in this subtask, is coordination with Hazen and Sawyer regarding the locations of the tie-ins on each side of the Aerial Bridge crossing.

Subtask 2.2 Construction Cost Opinion

Preparation of construction cost opinion at 50%, 75% and 100% design stages. The construction cost opinion shall reflect changes in general scope, extent or character of design requirements incorporated during the various design review stages.

Subtask 2.3 Design Meetings

MC shall attend "kick-off" meeting and three (3) design review meetings (50%, 75% and 100%) with the District and provide a written summary of the issues discussed.

Subtask 2.4 Quality Assurance

MC shall provide internal QA/QC reviews on the 50%, 75% and 100% Design Documents (e.g. drawings, specifications, and cost estimates).

TASK 3 – PERMITTING PHASE

During the Design Phase, MC shall meet with the potential permitting and other interested agencies to determine all potential permitting requirements. Agencies anticipated having interest in project include: Palm Beach County Health Department (PBCHD) and Palm Beach County.

Permit applications shall be completed as required for PBCHD (**Task 3.1**):

- Notification/Application for Constructing a Domestic Wastewater Collection/Transmission System.

Permit applications shall be completed as required for FEC Railway (**Task 3.2**):

- Utility Crossing License Application(s) for each jack & bore in project area.

Permit applications shall be completed as required for Town of Jupiter (**Task 3.3**):

- Engineering Permit.

Permit applications shall be completed as required for FDOT (**Task 3.4**):

- Utility ROW Permit.

Associated permit application fees shall be determined by MC and paid by District.

In addition to preparing the permit applications for appropriate regulatory agencies, MC shall assist the District in consultations with the appropriate authorities. Consultation services shall include the following:

- Attend up to one (1) pre-application meeting and/or telephone meeting with the staff of each of the agencies.
- Attend up to one (1) meeting and/or telephone meeting with each of the agencies during review of the final permit applications.
- Respond to request(s) for additional information from each agency.

TASK 4 – BIDDING ASSISTANCE

Subtask 4.1 Bid Advertisement

MC shall assist District in advertising for and obtaining bids or negotiating proposals for construction (including materials, equipment and labor). It is anticipated that work shall be awarded under a single construction contract. MC shall provide up to 10 pdf sets of bid documents on DVD's. District shall receive and process deposits for bidding documents and shall maintain a record of prospective bidders to whom bidding documents have been issued.

Subtask 4.2 Pre-Bid Conference

MC shall conduct pre-bid conference in conjunction with District staff and provide a written summary of issues discussed.

Subtask 4.3 Bid Clarification/Addenda

MC shall assist District in issuing addenda and shall provide supplemental information or clarification, as appropriate, to interpret, clarify, or expand the bidding documents to all prospective bidders during the bid period. District shall issue any addenda's to prospective bidders.

Subtask 4.4 Contract Award

MC shall conduct the bid opening and prepare bid tabulation. MC shall assist District in evaluating bids and proposals, including reference checks. MC shall submit to District written recommendation concerning contract award to the lowest responsive responsible bidder.

Subtask 4.5 Conformed Contract Documents

Prepare conformed Contract Documents for use by the Contractor and District during construction.

TASK 5 – CONSTRUCTION ADMINISTRATION SERVICES

The general administration services during construction of the Alternate A1A 16" Force Main Extension project shall include the following tasks:

Subtask 5.1 Preconstruction Conference

MC shall attend a preconstruction conference with representatives of District, contractors and major subcontractors for the construction contract. MC shall prepare, in writing, minutes of conference.

Subtask 5.2 Submittal Review

MC shall review and process shop drawings, samples, schedules, certifications and any other data which the construction contractor is required to submit. The review will be for general conformance with the design intent and compliance with the construction contract documents. Review of up to 30 submittals (which includes submittals and re-submittals, if required) is included in the budget for this subtask. Consultant will submit reviewed shop drawings/submittals to District for their records.

Subtask 5.3 Pay Estimate/Schedule Review

Based on onsite observations as an experienced and qualified design professional and on review of Contractor applications for payment and accompanying data and schedules, determine the amounts owing to the Contractor and recommend, in writing, payments to Contractor in such amounts. Review of stored materials, items and invoices as required. This also includes monitoring the construction schedule monthly (for 5 months) and reporting to the District conditions which may cause delays in completion.

Subtask 5.4 Construction Clarifications

Respond in writing to Contractor's Request for Information (RFI) regarding design documents during the 5-month construction period. MC shall issue interpretations and clarifications of the Contract Documents, along with associated support materials, as requested by the Contractor. Those interpretations will be rendered and a response prepared and submitted to the Contractor within 3 to 5 working days.

Subtask 5.5 Review Change Orders

Provide services in connection with preparing change orders to reflect changes to the construction project, limited to minor changes requested by Contractor. Analysis of major design modifications, including the preparation of significant Drawing revisions, are not included, and may require additional authorization.

Subtask 5.6 Progress Meetings

MC shall conduct monthly construction progress meetings (estimated 4 meetings) to be held District offices and provide a written summary of the issues discussed.

Subtask 5.7 General Administration

MC shall provide general project administration for the duration of the 5-month construction project. Two (2) hours a week for a total of 20 weeks is assumed in budgeting this task. Items shall include coordination with District, Contractor, Town of Jupiter, Hazen and Sawyer, FEC Railway, FDOT; visiting project site; and reviewing as-builts.

Subtask 5.8 Certification of Construction Completion

MC shall certify to the Florida Department of Environmental Protection, FEC Railway, FDOT, and Town of Jupiter based on the visible project features, MC's part-time inspections, and review of the testing reports, that the project was constructed in accordance with the plans and specifications submitted in the permit applications.

Subtask 5.9 Substantial and Final Inspections

MC shall conduct a substantial and final inspection with the District and Contractor to determine if the project has been completed in accordance with the contract documents and if the construction contractor has fulfilled his obligations thereunder. A punch-list will be prepared for each inspection (substantial and final) for the project. MC shall recommend, in writing, final acceptance of the work to the District. The District may, at District's option proceed to make final payment to the construction contractor.

TASK 6 – RESIDENT PROJECT REPRESENTATIVE SERVICES

The Construction Inspections phase services to be provided by the Consultant include the following:

1. Provide a Part-time Construction Inspector (20 hours/week) during the construction of the work in a total period of not-to-exceed 88 working days (for a total of 352 hours) for the construction contract. MC will provide inspections on Monday thru Friday (4 hrs each day). Activities performed under this task consist of furnishing a Construction Inspector during the construction of the project, to observe the quality of the work by the Contractor, who will:
 - Serve as Consultant's liaison with construction contractor, working principally through the contractor's construction manager and assist him in understanding the intent of the contract documents.
 - Conduct on-site observations of the work in progress to assist in determining if the work is proceeding in accordance with the contract documents and that completed work conforms to the contract documents. Report, in writing, whenever Consultant believes that work is unsatisfactory, faulty or defective, or does not conform to the contract documents, or does not meet the requirements of inspections, tests or approval required to be made, or has been damaged prior to final payment.
 - Accompany visiting inspectors representing public or regulatory agencies having jurisdiction over the project. Record, in writing, the outcome of these inspections and report same to District.
 - Consider and evaluate construction contractor's suggestions for modifications in drawings or specifications and report them to District, in writing. MC shall make recommendation for action by the District.
 - Observe all flushing and testing of the pipe.
 - Inspect the work for the tie-in locations on each side of the Aerial Bridge crossing.

LIMITATIONS OF AUTHORITY

Except upon written instructions of Engineer, Resident Project Representative:

1. Shall not authorize any deviation from the Contract Documents or approve any substitute materials or equipment.
2. Shall not exceed limitations on Engineer's authority as set forth in the Contract Documents.
3. Shall not undertake any of the responsibilities of Contractor, Subcontractors or Construction Manager, or expedite the Work.
4. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the Contract Documents.

5. Shall not advise on or issue directions as to safety precautions and programs in connection with the Work.
6. Shall not participate in specialized field or laboratory tests.

ALLOWANCE – Soft Digs & Utility Sweeps

MC shall furnish the services of a professional underground services company to provide underground field locations (e.g. soft-digs) of affected utilities in the project area. The work shall consist of measuring and recording the approximate horizontal location of up to twenty (20) utility locations. Each soft-dig costs \$330.00 (so 20 soft-digs = \$6,600). The professional underground services company shall also provide subsurface utility targeting in the project area (if required). The work shall consist of conducting a thorough electronic search for buried utility systems. The investigation will be accomplished using active and passive type utility detection gear that detects induced or naturally occurring energy fields present on conductive utilities. Field sheets will be generated that show the location, trend and configuration of utilities detected (the price for this work is \$2,750). The total allowance is \$9,350.

ADDITIONAL SERVICES

MC shall provide additional engineering as requested by the District for engineering services that are not covered under this Scope of Work. Services shall be reimbursed in accordance with Mathews Consulting's fee schedule included in Exhibit D. Services performed under this task will be on as-directed basis in accordance with a written Notice-to-Proceed from District. The Notice-to-Proceed issued shall contain the following information and requirements.

- A detailed description of the work to be undertaken.
- A budget establishing the amount of the fee to be paid in accordance with the Agreement.
- A time established for completion of the work.

ASSUMPTIONS

Work described herein is based upon the assumptions listed below. If conditions differ from those assumed in a manner that will affect schedule or Scope of Work, MC shall advise District in writing of the magnitude of the required adjustments. Changes in completion schedule or compensation to MC will be negotiated with District. Services to be provided by the District and other related key assumptions include:

1. MC assumes that all existing and proposed infrastructure pipeline alignments are within the District's, Town of Jupiter, FDOT and FEC Railway rights-of-way.
2. District will be responsible for acquisition of easements (including temporary construction easements), if required. Surveying and legal work necessary to prepare document for and to secure easements (temporary and permanent) required for installation of the piping and improvements is the responsibility of the District.
3. District will provide MC record drawings of all available existing facilities in the project area.
4. District will locate District facilities and provide available record information as necessary.
5. MC assumes construction duration of 5 months, with actual construction activities at site of 4 months.

6. Contractor shall be responsible for preparing Record Drawings.
7. A single bidding effort is assumed. Re-bidding of the project is considered an Additional Services item not currently included in this Scope of Work.
8. The design is to be based on the federal, state and local codes and standards in effect at the beginning of the project. Revisions required for compliance with any subsequent changes to those regulations is considered an Additional Services Item not currently included in this Scope of Work.
9. MC assumes that there are no contaminated soils or groundwater in the project area.
10. MC assumes the project area is not on Sovereign Submerged Land.
11. District is responsible for all permitting fees, including costs of public notification in local newspapers.
12. Assisting the District in the settlement of construction contract claims is an Additional Services and is not included in this Scope of Services.

GENERAL CONDITIONS

1. MC will invoice the District on a monthly basis for services completed to date. Payment of all applicable costs will be made by District to MC within 30 days of receipt of invoice.
2. MC shall purchase and maintain insurance for coverage's listed below:

a.	Workers Compensation State Employer's Liability	Statutory \$100,000 / \$500,000
b.	Comprehensive General Liability Bodily Injury and Property Damage, Combined Single Limit	\$1,000,000
c.	Automobile Liability: Bodily Injury and Property Damage, Combined Single Limit	\$1,000,000
d.	Professional Liability: Errors and Omissions	\$1,000,000

CONTRACT PERFORMANCE

COMPLETION DATES

The duration of major work tasks (calendar days) are as indicated on the Project Schedule shown in Exhibit C.

SUMMARY OF PROPOSED FEES

Proposed labor costs and associated expenses for engineering services (Not-to-Exceed) are tabulated below and detailed in Exhibit D.

<u>ENGINEERING SERVICES</u>	<u>ENGINEERING FEE</u>
Task 1 – Data Collection	\$16,091 (NTE)
Task 2 – Design Services	\$32,645 (NTE)
Task 3 – Permitting Services	\$6,625 (NTE)
Task 4 – Bidding Assistance	\$4,943 (NTE)
Task 5 – Construction Administration Services	\$20,095 (NTE)
Task 8 – Construction Inspections	\$31,680 (NTE)
Allowance (soft-digs & utility targeting)	\$9,350 (TE)
Reimbursables	\$4,000 (NTE)
TOTAL ENGINEERING SERVICES	<u>\$ 125,429.00</u>

DELIVERABLES

TASKS	DELIVERABLES	QUANTITY
1. Construction Document Production	50% Drawings & Specs	3 – Sets (22" x 34")
	75% Drawings & Specs	3 – Sets (22" x 34")
	100% Drawings & Specs	3 – Sets (22" x 34")
	Cost Estimate @ 50%, 75% & 100%	3 – Sets
2. Bidding Services	Bidding Sets	10- DVD (pdf)
	Addenda if required	As required
3. Permitting Services	Permit Applications(PBCHD, TOJ, FDOT & FEC)	4 – Sets each Permit
4. Construction Services	District Sets	3 – Sets (22" x 34")
	Contractor Sets	4 – Sets (22" x 34")

Exhibit A
Project Location Map

