

**TASK ORDER 07-24**

**ENGINEERING DESIGN, PERMITTING, AND BID PHASE FOR THE  
REHABILITATION OF WASTEWATER PUMP STATION R**

This TASK ORDER 07-24 is issued under the terms and conditions of the MASTER AGREEMENT TO PROVIDE GENERAL ENGINEERING SERVICES TO THE CITY OF KEY WEST ("AGREEMENT") between the City of Key West ("CITY") and Jacobs Engineering Group, Inc. ("CONSULTANT") executed on March 29<sup>th</sup>, 2023, as Contract Number 22-006.

**A. SCOPE OF SERVICES**

Specific services which the CONSULTANT agrees to furnish are summarized on the "Scope of Services". This Task Order, when executed, shall be incorporated in and shall become an integral part of the AGREEMENT. Notwithstanding any reference to the contrary on any Task Order issued by the City, the terms of the Master Agreement to Provide General Engineering Services to the City of Key West (Contract Number 22-006) will govern the Scope of Work.

**B. TIME OF COMPLETION**

Start date for this project will be no later than ten days after execution of this authorization. The duration of this TASK ORDER is estimated in seventy-four (74) weeks.

**C. COMPENSATION**

Compensation for Labor portion of Task A TASK ORDER TO 07-24, will be on a lump sum fee basis as stipulated in Article 5, Paragraph 5.1.1 of the AGREEMENT. Compensation for other direct charges will be on Cost Reimbursable basis as stipulated in Article 5, Paragraph 5.1.2 of the AGREEMENT. The estimated compensation is shown as Attachment A.

**D. ACCEPTANCE**

By signature, the parties each accept the provisions of this TASK ORDER 07-24 and authorize the CONSULTANT to proceed at the direction of the CITY's representative in accordance with the "SCOPE OF SERVICES."

For Jacobs Engineering Group Inc.

For City of Key West



Jill Rankin, P.E.  
Manager of Projects

\_\_\_\_\_

City Manager

 8/29/2024

Axel Rivera, P.E.  
Senior Project Manager

Dated the \_\_\_\_ day of \_\_\_\_\_, 2024.

ATTEST:

\_\_\_\_\_

*RR*

**TASK ORDER 07-24**  
**ENGINEERING DESIGN, PERMITTING, AND BID PHASE FOR THE**  
**REHABILITATION OF WASTEWATER PUMP STATION R**

**SCOPE OF SERVICES**

**Background**

The City of Key West (CKW) owns and operates twenty-five wastewater pump stations responsible for conveying wastewater flows to the Richard A. Heyman Environmental Protection Facility. Pump Station R is part of those twenty-five facilities. In 2015, CH2M HILL Engineers Inc. (acquired by Jacobs Engineering Group Inc.) inspected these pump stations and provided a condition assessment report to CKW. The report identified pump station components that need rehabilitation or replacement, provided budget-level cost estimates, and prioritized pump stations requiring rehabilitation.

The proposed scope of work is based on the City of Key West Wastewater Pump Stations Condition Report for Pump Station R, and the site visit held on June 10<sup>th</sup>, 2024, with the CKW Staff. The CONSULTANT shall develop construction documents for the Rehabilitation of Pump Station R based on the following:

1. Wet Well
  - a. Replacement of existing pumps. New pumps to be Wilo Pumps with soft starts, rails and base plates.
  - b. Relining of wet well floor after modifications.
  - c. Installation of new access hatch for wet well.
  
2. Valves Vault
  - a. Replacement of plug valves, check valves, bypass valves and assemblies.
  - b. Redesign access hatch.
  - c. Recoat of walls and floor after new hatch(es) are installed.
  
3. Flow Meter Vault
  - a. Replacement of flow meter.
  - b. Replacement of access hatch.
  - c. Recoat of walls and floor.
  
4. Pipe
  - a. Replacement of DIP with HDPE within pump station area to the street. All necessary bracing within vaults and restraints as needed.
  
5. Generator and platform
  - a. Assessment/Inspection of existing generator.
  - b. Replacement of ATS and controller.
  - c. Rehabilitation of the support base of the generator (wire brushing, and painting).
  - d. Replacement of flow meter, salinity meter, control panel with TCU and main shut off.

6. Odor Control Unit
  - a. Replacement and existing Odor Control Unit and possible relocation next to generator platform due to backflow preventer relocation. The redesign of the generator platform could be considered to elevate the new Odor Control Unit.
7. Bypass Pumping Connection Point
  - a. Bring bypass pumping connection point above ground with new isolation valve.
8. Fresh water backflow preventer
  - a. Relocate freshwater backflow preventer closer to fence line.
9. Site lighting
  - a. Relocate existing light from power pole and on to dedicated pole(s) inside station.
10. Fence restoration
  - a. Replace or repair like kind or composite. Needs to be more secure than existing.
11. Relocate existing antenna away from tree.
12. Installation of a Temporary Bypass Pumping System to redirect the flow during the rehabilitation work. Identify possible location of the temporary bypass installation.

## **Task A – Design Documents**

### *Subtask A.1 –Intermediate Design, 60% Design*

The CONSULTANT team will conduct a virtual kickoff meeting with CKW and initiate the collection of relevant information, such as as-built drawings, pump O&M manuals, pump model and manufacturer name (nameplate), average and peak flows, maintenance log, electrical consumption, and review the overall scope of improvements to the pump station.

Based on the specifications of the existing pumps and available historical flows, the CONSULTANT will select the new pumps from CKW's approved manufacturers. The CONSULTANT will evaluate the generator and electric components to provide recommendations. These recommendations could include leaving it as it is, replacing or rehabilitating it. The design of improvements for the existing generator are not included in the scope and would need to be funded with the additional services.

This scope does anticipate topographic surveys. Attachment C includes the proposal for Topographic Survey.

Based on the comments received in the kickoff meeting, the data provided by the CKW and the site visit, the CONSULTANT will prepare the 60 percent design documents.

To maintain an expedited schedule, it is assumed that one set of written comments from the CKW reviewers to the Consultant will be provided within two weeks of submission.

The Consultant will conduct a two-hour virtual design review meeting with CKW staff to discuss comments on the 60% design documents. Accepted comments will be incorporated in the next design phase.

*Deliverables (issued electronically in .pdf format)*

1. A Request for Information (RFI) to gather the relevant information and other information discussed during the kickoff meeting.
2. Baseline Project Schedule and Updated Project Schedule.
3. Plan and profile of proposed improvements.
4. Design drawings up to 60% and technical specifications for major equipment.
5. Draft list of proposed technical specifications.
6. Class 3 AACE International construction cost estimate.
7. Meeting agenda and design review meeting minutes including 60% comments.

*Subtask A.2 – 90% Design*

The CONSULTANT will progress the design up to 90 percent and incorporate the comments received on the 60 percent design. This deliverable includes the preparation of required design drawings and technical specifications. The CONSULTANT will conduct a one-hour virtual design review meeting with CKW to discuss comments on the 90% design documents. The comments received from this meeting will be incorporated into the 100% Design Documents. The CONSULTANT is anticipating receiving one set of comments from the CITY.

After submitting the 90 percent design documents, the CONSULTANT will prepare a Class I Cost Estimate.

*Deliverables (issued electronically in .pdf format)*

1. 90 percent Design Drawings (11" x 17") and Technical Specifications.
2. Class 1 AACE International construction cost estimate.
3. Updated schedule in electronic format (PDF) and one hard copy.
4. Front end documents.
5. Meeting agenda and design review meeting minutes including 90% comments.

*Subtask A.3 – Permitting*

CONSULTANT will prepare a letter for the Florida Department of Environmental Protection (FDEP) stating the proposed improvements to Pump Station R and request confirmation that a permit is not required. The

CONSULTANT will submit a draft of the proposed letter to the CKW for review and comments. No permitting applications are included in this scope of work.

Deliverables (issued electronically in .pdf format)

1. An electronic copy of the FDEP letter.

## **Task B – Bid Phase**

Bidding services are based on a Bid Period of 30 days. The CONSULTANT will provide the following services to the CKW:

1. CONSULTANT will prepare bid ready (100 percent) plans and the specifications based on the 90 percent review meeting comments. Only minor comments from the 90 percent design are anticipated.
2. Provide CKW with contract documents, in PDF format.
3. All communications with bidders on technical aspects of the design will be forwarded by the CKW, and reviewed by the CONSULTANT, for inclusion in ADDENDA, if required.
4. Attend one pre-bid meeting to familiarize bidders with the scope of work and to answer questions that may arise. Three CONSULTANT's staff will remotely attend the meeting.
5. Issue up to two ADDENDA.
6. Bids will be received, opened, and read aloud by the CKW at the designated time and location.
7. Review and evaluate bids for compliance and completeness. The CONSULTANT will prepare an award letter for the CKW selected successful bidder.
8. Preparation of bid tab document.
9. Prepare conformed contract documents for use by CKW, CONSULTANT, and Contractor during construction. Including one set of electronically signed and sealed documents for submission by the contractor to the City of Key West Building Department (if required).

Bid services will be considered complete upon the CONSULTANT's review and forwarding of the Contractors executed documents to the CKW, and submittal of conformed documents.

Deliverables – (electronically in PDF format):

- Six hard copies of Conformed Contract Documents. Two of these copies are for OMI (Operations Management International, Inc.), one full size set of drawings and one CD containing specifications and drawings in PDF format for successful bid.
- Pre-bid meeting minutes and attendant list.

- Addenda.
- Recommendation of award letter.
- Two copies of Contract Documents for execution for the successful bidder. (Hard copies).

## **Task C – Limited Construction Phase Engineering Services**

The CONSULTANT will provide engineering support to assist the CITY during the construction of the project. The services include review of submittals and requests for information (RFI), substantial completion inspection and preparation of record drawings, which are described in more detail below:

1. CONSULTANT’S project manager to attend one (1) virtual preconstruction meeting conducted by CKW staff.
2. CONSULTANT’S project manager to attend virtual construction progress meetings once a month conducted by the CKW staff. This scope and fee assume a total of ten (10) monthly progress meetings over the duration of the project.
3. Review of shop drawings and other data that the Contractor is required to submit. CONSULTANT shall review and approve or take other appropriate action upon Contractor’s submittals such as shop drawings, product data and samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents. CONSULTANT will reasonably rely upon the accuracy and completeness of the information provided. Reviews shall be completed within 14 calendar days after the package is transmitted electronically by the CITY to the CONSULTANT. It is assumed that the Contractor shall submit complete and timely shop drawings. This scope and fee assume a total of 26 submittals (see attachment “D” for the list of anticipated submittals) with 13 resubmittals.
4. Provide technical interpretations of the drawings, specifications, and Contract Documents, and evaluate requested deviations from the approved design or specification. This scope and fee assume a total of ten (10) requests for information.
5. Review of Contractor’s As-Built Drawings and preparation of Record Drawings.
6. Attendance to Substantial Completion Inspection and preparation of electrical, and I&C work punch list items.

The assumed construction duration is ten (10) months. If construction duration extends more than 10 months and/or if the number of submittals/RFIs exceed the scope, the Consultant and CKW will negotiate a task order amendment for additional time, scope, and fee.

Deliverables:

- Responses to Submittals, and RFIs.
- Electrical, and I&C work punch list items.
- Record Drawings.

### **CKW's Responsibilities**

To assist meeting schedule and budget estimates contained in this proposal, the CKW will provide the following:

1. Prompt review and comment on all deliverables (within ten working days of document reception).
2. Facilitate access to required facilities.
3. Attendance of key personnel at meetings as requested.
4. Contract and manage the construction contract with selected contractor.

### **Compensation**

The estimated compensation for this TASK ORDER 07-24 is \$296,331.00. Attachment "A" presents costs by task, subtask, and per diem code.

These expenses will be fully reimbursed according to the Master Service Agreement (MSA) directives.

### **Completion Dates**

The design Phase may begin within ten days from the NTP. Periods of performance shown below are assumed to run consecutively, with the Kick-off meeting occurring within two weeks of receiving NTP.

<b>Task Name</b>	<b>Task Start (wk)</b>	<b>Task End (wk)</b>	<b>Task Duration (wk)</b>
<b>Task A – Design Documents</b>			
Kickoff Meeting	1	2	2
Subtask A.1 – Intermediate Design 60%	2	14	12

Subtask A.1 – Reviewal period	14	16	2
Subtask A.2 – 90% Design	16	22	6
Subtask A.2 – Reviewal period	22	24	2
Subtask A.3 – Permitting (after 60% Design)	16	20	4
<b>Task B – Bid Phase</b>			
Subtask B.1 – Bid Documents	24	26	2
Subtask B.2 Procurement Process	26	34	8
<b>Task C – Limited Construction Phase Engineering Services</b>	34	74	40

The estimated project duration is 74 weeks.

## Assumptions

The following assumptions were used in the development of this Task Order.

1. The services in the Task Order will be considered complete once the 100% Design Drawings and Technical Specifications are delivered to the CITY and Limited Construction Phase Engineering Services are completed.
2. The design will be based on the federal, state, and local codes and standards in effect at the start of the project. Any changes in these codes may necessitate a change to scope.
3. Existing utilities have been constructed in accordance with provided record documentation. The design of existing structures complied with governing codes at time of original design, not necessarily the current ones.
4. The design documents will be prepared for a single construction contract.
5. The CONSULTANT master specifications will be used as the basis for all technical sections in Divisions 1 through 49.
6. Legal, easement, or plat surveys are not included in the scope of work. If additional property is required, it shall be the responsibility of the CITY to obtain it.
7. This Task Order assumes that no FDEP permit is required, and it does not include any Building Department permit application. If permits are required, negotiated, and agreed, the CONSULTANT will not be responsible for delays associated with regulatory agencies unless caused by CONSULTANT.

8. The construction contract will be awarded after the first bidding process. Re-bidding will be considered as an Additional Service.
9. This Task Order anticipates that submittal review comments that can significantly impact the design plans and technical specifications shall be provided during the 30, 60 and 90 percent review stages. Due to this, significant revision or addition requests received after the approval of the 30, 60 and 90 percent submittals will require a negotiation to compensate for the additional effort not included in the economic proposal. To avoid significant revisions, The CITY will authorize CONSULTANT in writing to proceed to the next design milestone (i.e., 30% to 60%).
10. CITY will assist the CONSULTANT with any available survey data, record drawings, and historical information. CAD native files of survey and record drawings, include updated site plan, including recent improvements, spot elevations, main utilities.
11. Demolition plans will be prepared based on available record drawings provided by CKW.
12. CITY will provide CONSULTANT with consolidated written review comments following receipt of deliverables (design review workshops, reports, permit applications) and completion of the submittal review within 10 working days.
13. No Architectural, Hydraulic, or Landscaping disciplines are included in this scope. If these services are required, the additional scope of work will be negotiated.
14. CONSULTANT will provide detailed minutes of meetings to all attendees within ten working days of meetings. After allowing five working days with no comments, the CONSULTANT will assume the minutes as final.
15. BIM modeling is not included in this Scope of Work.
16. Ground modification techniques, deep foundations or specialized foundation systems are not included in this Scope of Work. If those services are deemed necessary after the geotechnical analysis is finalized, renegotiation of this scope of work will be necessary.
17. This Scope of Work does not include environmental site assessments or environmental mitigation services.
18. CONSULTANT standard specifications will be used for this project. Technical specifications will be prepared in Microsoft Word format and follow the Construction Specifications Institute numbering system (Divisions 1- 49). CKW will provide the Division 0.
19. Cost estimates will be prepared in accordance with the American Association for Cost Engineering.
20. CKW will reproduce and distribute the contract bidding documents and addenda, maintain the plan holders list, tabulate bids, and make award recommendations.
21. The design, installation and construction of a temporary flow bypass is the Contractor's responsibility.

CONSULTANT services will provide a conceptual design taking into consideration space constraints and temporary pipe routing.

22. Providing Construction/Cost Estimates - In providing opinions of cost, financial analyses, economic feasibility projections, for the project, Jacobs has no control over cost or price of labor and materials; unknown or latent conditions of existing equipment or structures that may affect operation or maintenance costs; competitive bidding procedures and market conditions; time or quality of performance by operating personnel or third parties; and other economic and operational factors that may materially affect the ultimate project cost or schedule. Therefore, Jacobs makes no warranty that Client's actual project costs, financial aspects, economic feasibility, will not vary from CONSULTANT'S opinions, analyses, projections, or estimates and the CONSULTANT shall have no liability for such variances.
23. No CONSULTANT-produced operations and maintenance manuals are included in this scope of services.
24. It is assumed that CONSULTANT will provide services during construction for a 10-month construction project. Should time extension(s) become necessary for completion of the project through no fault of CONSULTANT, the CITY and CONSULTANT shall meet to discuss the level of effort and any additional compensation that may be required.
25. The CITY will be responsible for providing full-time on-site inspection during construction and start-up activities, prepare daily diaries and maintain document control for all construction documents. The CONSULTANT will receive copies of these diaries.
26. The presence or duties of CONSULTANT personnel at a construction site, whether as onsite representatives or otherwise, do not make CONSULTANT or CONSULTANT'S personnel in any way responsible for those duties that belong to CITY and/or the construction contractors or other entities, and do not relieve the construction contractors or any other entity of their obligations, duties, and responsibilities, including, but not limited to, all construction methods, means, techniques, sequences, and procedures necessary for coordinating and completing all portions of the construction work in accordance with the construction Contract Documents and any health or safety precautions required by such construction work.
27. CONSULTANT AND CONSULTANT'S personnel have no authority to exercise any control over any construction contractor or other entity or their employees in connection with their work or any health or safety precautions and have no duty for inspecting, noting, observing, correcting, or reporting on health or safety deficiencies of the construction contractor(s) or other entity or any other persons at the site except CONSULTANT'S own personnel.
28. The presence of CONSULTANT'S personnel at a construction site is for the purpose of providing to CITY a greater degree of confidence that the completed construction work will conform generally to the construction documents and that the integrity of the design concept as reflected in the construction documents has been implemented and preserved by the construction contractor(s). CONSULTANT neither guarantees the performance of the construction contractor(s) nor assumes responsibility for construction contractor's failure to perform work in accordance with the construction documents.

29. CONSULTANT will reasonably rely upon the accuracy, and completeness of any information/data provided by the City or other third parties.
30. The CITY shall review all reports, sketches, drawings, specifications, contracts, and other documents presented by Engineer.
31. The CITY will be furnishing Data/Information – CONSULTANT will reasonably rely upon the accuracy, timeliness, and completeness of the information/data provided by the CITY or other third parties without independent verification. Additional effort by the CONSULTANT due to invalid data or information provided by the CITY or other third-parties may entitle the CONSULTANT to additional compensation.

## **Exclusions**

1. A basis of design report (BODR) is not included in this Scope of Work. If the permitting agencies require a BODR as part of the permitting process, the CONSULTANT will request CKW to renegotiate the scope of work.
2. Corrosion analysis or infrastructure condition assessments are not included in this Scope of Work.
3. CONSULTANT understands there is no CBE participation requirements, therefore they are not included in this proposal.
4. In providing opinions of cost, financial analyses, economic feasibility projections, for the project, Jacobs has no control over cost or price of labor and materials; unknown or latent conditions of existing equipment or structures that may affect operation or maintenance costs; competitive bidding procedures and market conditions; time or quality of performance by operating personnel or third parties; and other economic and operational factors that may materially affect the ultimate project cost or schedule. Therefore, Jacobs makes no warranty that Client's actual project costs, financial aspects, economic feasibility, will not vary from CONSULTANT'S opinions, analyses, projections, or estimates and the CONSULTANT shall have no liability for such variances.
5. The design will be based on the federal, state, and local codes and standards in effect on the effective date of the authorization. Any changes in these codes or standards may necessitate a change in scope, to include an equitable adjustment.
6. Review of pay applications and change order requests.
7. Construction Inspections.

## **Additional Services**

As directed, the CONSULTANT will provide additional services related to the project but not Included within this Scope of Services. These and other services can be provided, if desired by CKW, as an amendment to the Task Order. Work will begin for Additional Services after receiving a written notice to proceed from the CKW. Additional services may include, but are not limited to, the following:

1. Detailed Design of additional rehabilitation to the wastewater pump stations not already identified above.
2. Re-bidding any or all portions of this project.
3. Review of Contractor pay applications.
4. Application for a Building Permit (if necessary). Permitting for the Florida Department of Environmental Protection (FDEP) if required.
5. Additional Site Visits.

**Attachment A: COMPENSATION**

City of Key West Rehabilitation of Pump Station "R"																			
	PM	Design Manager	Mechanical	Electrical	Structural	Civil	Spec. Processor	CAD	DDL	Permitting	QC	Cost Estimator	Project Controls	Project Assistant - Document Control	HSE Manager	Total Hours	Fee		
	Eng 5	Eng 6	Eng 5	Eng 4	Eng 2	Eng 1	Eng 2	Tech 4	Eng 5	Eng 4	Eng 8	Eng 4	Tech 6	Administrative Assistant	Tech 6				
<b>Tasks \ Rates</b>	215.00	247.00	215.00	188.00	149.00	120.00	149.00	124.00	215.00	188.00	288.00	188.00	179.00	113.00	179.00				
<b>Task A – Design Documents</b>																			
Subtask A.1 – Intermediate Design 60%	30	35	149	100	68	45	20	174	42		35	30	10	18	4	760	\$ 135,308.00		
Subtask A.2 – Full Design 90%	22	25	65	65	35	17	30	110	30		30	20	10	18		477	\$ 85,139.00		
Subtask A.3 – Permitting	4	2						2		8						16	\$ 3,106.00		
<b>Subtotal Task A</b>																<b>1253</b>	<b>\$ 223,553.00</b>		
<b>Task B – Bid Phase Services</b>	8	8	4	4	4	2	1	8					8			<b>47</b>	<b>\$ 8,717.00</b>		
<b>Task C - Limited Construction Phase Engineering Services</b>																			
Subtask C.1 Submittals Review (39)	14		24	24	20	27								12		121	\$ 20,258.00		
Subtask C.2 RFIs Review (10)	5		6	6	6	2								5		30	\$ 5,192.00		
Subtask C.3 Preconstruction Meeting Attendance, Monthly Meetings (10) Project Controls and Invoicing	24												10			34	\$ 6,950.00		
Subtask C.4 - Substantial Completion Inspection	16			16												32	\$ 6,448.00		
Subtask C.5 - Review of As-Built Drawings and Preparation of Record Drawings	4		8	8	8	8		8	7							51	\$ 8,733.00		
<b>Subtotal Task C</b>																<b>268</b>	<b>\$ 47,581.00</b>		
<b>Total Hours</b>	127	70	256	223	141	101	51	302	79	8	65	50	38	53	4	<b>1,568</b>			
<b>Total Lump Sum Labor</b>	\$ 27,305	\$ 17,290	\$ 55,040	\$ 41,924	\$ 21,009	\$ 12,120	\$ 7,599	\$ 37,448	\$ 16,985	\$ 1,504	\$ 18,720	\$ 9,400	\$ 6,802	\$ 5,989	\$ 716		<b>\$ 279,851.00</b>		
																	<b>Total Labor</b>	<b>\$ 279,851.00</b>	
																		<b>Reimbursable expenses Tasks A &amp; B:</b>	<b>\$ 3,600.00</b>
																		<b>Reimbursable expenses Task C:</b>	<b>\$ 3,400.00</b>
																		<b>Subconsultant - Topographic Survey:</b>	<b>\$ 9,480.00</b>
																		<b>Total Fee</b>	<b>\$ 296,331.00</b>

## Attachment B: LIST OF DRAWINGS

<b>Preliminary Drawing List</b>	
<b>Drawing #</b>	<b>Description</b>
1	Vicinity and Location Maps and Index of Drawings
2	Abbreviations
3	General Notes & Legends
4	Civil Legend
5	Structural Notes
6	Electrical Legend
7	Electrical Legend
8	Mechanical legend
9	Demolition & Conceptual Temporary Bypass Plan
10	Pump Station Improvements Site Plan
11	Standard Details
12	Pump Station Yard Piping Improvements
13	Standard Details Yard Piping
14	Demolition Plans, Sections and Details
15	Mechanical Plan & Sections
16	Mechanical Standard Details 1
17	Mechanical Standard Details 2
18	Mechanical Demolition
19	Electrical Plan & Sections
20	Electrical Single Line Diagram
21	Electrical Standard Details 1
22	Electrical Standard Details 2
23	Electrical Demolition
24	Structural Plan & Sections
25	Structural Standard Details 1
26	Structural Standard Details 2
27	Structural Demolition

## **Attachment C: TOPOGRAPHIC SURVEY PROPOSAL**

STATEMENT OF WORK  
SURVEYING SERVICES for  
Pump Station R Rehabilitation  
Key West, FL  
July 30, 2024

1.1 INTRODUCTION AND BACKGROUND

- A. Provide a design of the rehabilitation of wastewater pump station R.

1.2 SUMMARY OF WORK

- A. Identification of licensed land surveyor in the State of Florida as the responsible party and Surveyor of Record for the work to be performed, based the requirement of the statement of work.
- B. Control Surveys: Recover and confirm existing control suitable for the Work described herein. Establish control onsite to complete the Work specified herein. Known survey control is shown and described in Attachment 1
- C. Provide Surveyor Report, mapping, and electronic data.
- D. Proposed schedule.
- E. Topographic and planimetric Surveys: Survey topographic and planimetric features in the areas depicted in Attachment 1.

1.3 GENERAL PROVISIONS

- A. Follow all local and state regulations for accessing public and private property, and restore Site to condition existing prior to Surveyors' entry or as agreed upon with the property owner.
- B. Coordinate permissions for access to property with the CLIENT as required. Contact landowners and negotiate access as necessary. Client is to provide the contact information for site access.
- C. Complete the work under direction of a Professional Land Surveyor, hereafter called SURVEYOR, licensed/registered in the state of Florida.
  - 1. Conduct work using equipment, personnel, and procedures that will ensure compliance with the accuracy standards as defined herein.
  - 2. It is the responsibility of the SURVEYOR to ensure the Work under this agreement complies with state, local and Federal regulations and professional standards and the requirements of this Scope of Work.
  - 3. Documents submitted shall bear the Surveyor's seal, signature, and certification that Work was done under the Surveyor's supervision and that information contained in the document is true and accurately shown.

- D. Surveyor is responsible for the quality control of the survey work which includes but is not limited to: field work checks, equipment calibration, office calculations, drawings, and a final peer review of all deliverables. Provide documentation of quality control procedures in the survey report.
- E. Data and deliverables prepared for this survey are the property of the Owner and JACOBS.
  - 1. Surveyor also understands and agrees that Owner and JACOBS may reproduce the drawings and use the information provided on the drawings.
  - 2. Prepare reports in connection with the investigative work for this Site without incurring obligation for additional compensation to Surveyor.
  - 3. Original drawings, copies of field notes, and required survey reports are the property of the Owner and JACOBS.
  - 4. Submit required documents and copies of field notes to JACOBS upon completion of the Work or upon request.

#### 1.4 STANDARDS

- A. Survey Accuracy Standard: FGDC Geospatial Positioning Accuracy Standards, Part 4: Standards for Architecture, Engineering, Construction (A/E/C), and Facility Management.
- B. Utility Location: ASCE 38-02, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data.
- C. Map Accuracy Standards: ASPRS 2014 Map Accuracy Standards.
- D. CAD Standards: National CAD Standards (NCS), as published for the National Institute of Building Sciences.

#### 1.5 TECHNICAL SPECIFICATIONS

- A. Datums:
  - 1. Surveyor shall research, recover, and confirm existing horizontal and vertical control networks found on or near Site. Provide documentation in the surveyor's report to include monuments to be used as a basis of survey. Coordinate selection of monuments with JACOBS before beginning work.
    - a. Surveyor shall confirm horizontal and vertical coordinate system and datums are consistent with coordinate system and datums currently in use onsite.
    - b. In the event that variations are found between datums listed, Surveyor shall report values in both systems.
  - 2. Horizontal:
    - a. Data shall be reported as North American Datum of 1983 (NAD 83), current adjustment, Florida State Plane Coordinate System, East Zone.
    - b. Surveyor shall notify JACOBS Project Manager if an alternative to specified datum is recommended to be used. JACOBS must approve use of alternative datum prior to conducting any work.
  - 3. Vertical:
    - a. Data shall be reported as North American Vertical Datum of 1988 (NAVD 88) current adjustment.

- b. Surveyor shall notify JACOBS Project Manager if an alternative to specified datum is to be used. JACOBS must approve use of alternative datum prior to conducting any work.
- 4. Values shall be delivered in US Survey Feet, as defined or as legally adopted by the state or municipality in which the Work is being delivered.

B. Accuracy

1. Control:

- a. Horizontal control work shall comply with Third Order Class II (1:5,000) or better, as outlined in the FGDC Geospatial Positioning Accuracy Standards, Part 4: Standards for Architecture, Engineering, Construction (A/E/C), and Facility Management. If GPS is used (only if acceptable for the type of survey required), relative horizontal accuracy shall conform to the FGDC Geospatial Positioning Accuracy Standards, Part 2: National Standard for Spatial Data Accuracy.
- b. Vertical Control work shall be Third Order ( $0.050\sqrt{m}$ ) or better, as outlined in the FGDC Geospatial Positioning Accuracy Standards, Part 4: Standards for Architecture, Engineering, Construction (A/E/C) and Facility Management.

2. Other Features:

- a. All other surveys (other than control surveys if required), shall comply with FGDC Geospatial Positioning Accuracy Standards, Part 4: Standards for Architecture, Engineering, Construction (A/E/C), and Facility Management with accuracy tolerances of plus or minus 0.10 feet for the horizontal and plus or minus 0.03 feet for the vertical, if applicable, on all other hard surfaces and plus or minus 0.10 feet for the vertical on soft or natural ground surfaces (if applicable).
- b. Surveyor shall report all control coordinates X, Y & Z of points to four decimal places. All other coordinates shall be reported to three decimal places.
- c. When higher vertical/elevation accuracy tolerance is required, RTK GPS cannot be used.

1.6 MAP PRODUCTS MINIMUM CONTENT REQUIREMENTS

- A. Scale: 1-inch equals 20 feet.
- B. Contour Interval: one-foot CI.
- C. Spot Elevations: 25 feet Grid (nominal).

Minimum Content Requirements		
Title Block	North Arrow	Scale (Bar) Contour Interval
Date of Survey	Legend w/ Symbols & Abbreviations	Datum: Horizontal and Vertical
Grid Ticks	Grid Values	Survey Control Points Found and Set
Surveyors Certificate	Surveyors Seal & Signature	For Boundary Plat - State and Local Requirements

## 1.7 SURVEY ITEMS

### A. Control survey

1. Perform control survey to establish control for all survey activities for the project area and establish control monuments for future work.
2. Provide report documenting the control point survey and compliance with closure requirements.
3. Surveys shall include at least 2 control points around perimeter of proposed Site
  - a. Primary control points shall be set by driving an iron pin, 2 feet or longer, 5/8-inch diameter, flush with the ground just outside the limits of the topographic survey or equivalent marker set in pavement or concrete. These points shall be:
    - 1) Marked with a 4-foot lath displaying point number.
    - 2) Part of the main traverse or network adjustment for Site.
    - 3) Tied to datum system and specifications as outlined for control points in the next section with X, Y, and Z coordinates listed to the nearest 0.01 foot.
  - b. Include control points in the base map deliverables, both hardcopy and electronic.
  - c. Set secondary control points with hub and tack, nails, scribes in concrete, or similar, in locations least likely to be disturbed by activities and to maximize line of sight visibility with other control points.

### B. Topographic and Planimetric Survey:

1. Perform topographic survey for the project area, as shown in Exhibit A.
2. Locate three-dimensional features, including, but not limited to:
  - a. Abrupt changes in slope (breaklines), edges of structures, road crowns, top and flow line of curbs, edges and bottoms of streams and ditches.
  - b. Include void area break lines where DTM data was not captured and a boundary edge breakline to confine the limits of the DTM surface and subsequent contours generated by the DTM surface.
  - c. Top of grates, manhole lids, and pipe inverts at all structures and other surface features.
3. Include spot elevation points with X, Y, and Z coordinates at grid spacing specified above.
4. Include all surface features, manmade and natural, Within the subject area including, but not limited to the following items:
  - a. Fire hydrants, manholes, gas line markers, edge of road, structures, valves and valve stems, above ground pipe, crossings, and associated structures, debris/rock/fill areas, power poles, transformers, and cabinets, light poles, fences and gates, guard rails, culverts, trees 6" and larger, and other at grade or above ground features.
5. Include utility locate marks and utilities that can be located by the use of existing plans and visual field inspection. Services provided shall be Quality Level C, of ASCE 38-02.
  - a. Arrange for utility location/mark-out call services. (Not applicable)
  - b. Comply with all state, and local procedures and regulations related to utility location/mark-out services.
  - c. Report utility research activities including records found and reviewed, One-Call notification requests and procedures followed, and correspondence with utility purveyors. We shall initiate a Locate Ticket with Sunshine 811.
  - d. Locate and map utilities found Within the Survey limits
    - 1) Include utilities found in record documents in addition to that field located. Utility shall be compiled on separate CAD layers.

## 1.8 DELIVERABLES

- A. Provide preliminary copies of all deliverables listed below for review. Upon receiving comments from JACOBS, provide final copies with revisions. Provide one signed and sealed hard copies and one electronic copy of the final drawings in PDF and CADD format.
- B. Preliminary schedule for completion of the activities listed herein.
- C. Surveyor's Report:
  - 1. Provide Surveyor's Report which defines horizontal and vertical datums, control monuments recovered, and control set used as basis for survey.
  - 2. Describe equipment and methodology used to perform the Work.
  - 3. Describe results of survey and accuracies obtained.
  - 4. Provide one paper copy and one electronic copy of the technical memorandum in Microsoft Word™ format.
    - a. Paper copy of report shall contain coordinate printout of locations surveyed and shall be stamped, dated, and signed by Surveyor-in-responsible-charge and certify the Work was completed in compliance with the specification stated herein.
  - 5. Horizontal and Vertical Control Assessment: Provide data/recover sheets for existing and new control stations used for Project.
- D. Field Notes:
  - 1. Provide copy of field notes and electronically collected notes of X, Y coordinates and ground surface elevations.
  - 2. Notes shall include names of field crew members, survey control, datum used as specified, and daily weather conditions including temperature and barometric pressure.
  - 3. Field notes, electronic output and scans of hardcopy notes, shall be available the day following each day's work, or upon request.
  - 4. Copies of field notes shall be made available within 24 hours.
- E. Coordinate Report:
  - 1. Provide coordinates of requested information, as listed in description of Work, in Excel format with X, Y coordinates listed to the nearest 0.01 foot for hard surfaces and ground surface elevation to the nearest 0.10 foot.
  - 2. List the coordinate identifier or name and a description along with the horizontal and vertical coordinate information.
- F. A copy of information collected and created in the course of completing the Work described herein.
- G. CADD files on CD-ROM, USB flash drive, or Portable Hard Drive.
  - 1. DTM or TIN surface model with 3D graphic triangles, 3D contour lines and features.
  - 2. A 20-scale, 1-foot contour interval topographic/planimetric map.

## 1.9 REQUIRED FORMATS

- A. CADD Format:
  - 1. Provide survey information in a MicroStation or AutoCAD electronic drawing.
  - 2. Drawing shall show information established and provided to mapping consultant where applicable.

3. Electronic drawing symbology shall conform to the National CAD Standards (NCS), as published for the National Institute of Building Sciences.
4. If a 3-D file is provided, all information shall be at the correct elevation for all elements of the file.
5. Provide DTM/TIN surface model with 3D graphic triangles, 3D contour lines and features compatible with InRoads.

#### 1.10 DATA DELIVERY FORMAT

##### A. Survey Points in Coordinate Geometry Format:

1. Provide comma-delimited ASCII file of survey shots/points shall be collected in the following format:
  - a. Point number, northing, easting, elevation, field code, point description.
  - b. Northings and Eastings should be reported to four decimal places, unless otherwise agreed upon.
  - c. Elevations should be reported to three decimal places, unless otherwise agreed upon.
  - d. Field-collected data shall have unique point numbers assigned and point numbers shall not be re-used in subsequent field surveys for the Project.
  - e. Provide copies of supporting field notes and sketches.

##### B. Terrain Data:

1. Provide the following point types:
  - a. Random points or spot elevations.
  - b. Breaklines (faults) including normal, proximity, and wall breaklines.
  - c. Boundaries, both perimeter/tin as well as any hidden (void) boundaries used.
2. Provide in CAD Files. File specifications are listed below:
  - a. Layer or level separate the data by point types (random/spot, breaklines, perimeter/tin, voids).
  - b. Breaklines should be layer separated by feature code
  - c. Layer names should be logically named or match the feature code.
  - d. Breakline, boundary and void data should be 3-D line strings or polylines.
  - e. Spot elevations or random points should be MicroStation 3-D lines of zero length. Text nodes, cells and blocks are not permitted.
3. Provide digital Terrain Model Data in CADD format with the following items:
  - a. CAD file with Triangulated Irregular Network (3D faces) displayed on a unique layer/level.
  - b. CAD file with contours displayed from TIN on a unique layer/level. Contour Interval to be agreed upon prior to delivery.
  - c. Note settings used by surveyor of record for Stroking, curve and linear, as well as Triangle Side Length. Embed notes in the CAD file.
  - d. Note or color code any “switched” or “flip-flopped” triangles used in DTM development.

#### 1.11 PAYMENT SCHEDULE FORM FOR SURVEYING SERVICES

A Offeror’s Name: Keith M. Chee-A-Tow/ AVIROM & ASSOCIATES, INC.

B. Offeror shall provide Fixed Unit Prices to complete the services specified below.

<b>Description</b>	<b>Qty.</b>	<b>Units</b>	<b>Unit Price</b>	<b>Extended Total</b>
1. Control Survey	1	Lump Sum	\$2,184.00	\$2,184.00
2. Topographic and Planimetric Survey	1	Lump Sum	\$7,296	\$7,296.00
<b>TOTAL PRICE</b>				\$9,480.00

END OF SECTION

**CLARIFICATIONS:**

1. Delays caused by the inability to gain access to the property at no fault of Avirom & Associates Inc. will incur additional charges.
2. Requirements to the survey requested by government agencies that are more stringent than Standards of Practice as set forth in Chapter 5J-17 FAC pursuant to Section 472 Florida Statutes will be an additional fee to client based on our current/contracted hourly rates.
3. This proposal is based on the site being free and clear of storm debris. We will not move obstacles that impede obtaining the survey data or if field conditions are considered hazardous to the safety of our crews.
4. The tree species shall be listed to the best of knowledge and ability of the surveyor (without the benefit of a botanist or landscape architect). It is the responsibility of the end user to verify the identity of the species. The location of shrubbery and landscaping is not included in this proposal. Large, bunched groups of trees shall be located as clusters with a count and diameter listed. We will not locate exotic or non-native species. Mangroves consist of prop roots and by nature do not possess a defined tree trunk; therefore, the edge of the mangroves will be located.
5. Generally, Sunshine 811 is non-responsive to requests from surveyors especially as it relates to design location. We shall attempt to generate a Locate Ticket with Sunshine 811 and copy the client with the request and response, if any.

**OFFEROR:**

Keith M. Chee-A-Tow, P.L.S.  
Senior Project Surveyor  
**AVIROM & ASSOCIATES, INC.**

# EXHIBIT A



## Attachment D: LIST OF ANTICIPATED SUBMITTALS

	<b>Specification Section Name</b>
1	Anchorage and Bracing
2	Demolition
3	Repair of Concrete Surfaces and Structural Concrete
4	Structural Concrete Mix Design and Concrete Doweling
5	Epoxy Grouting/Poly Grouting (one package)
6	Anchors/Welding (one Package)
7	Metal Fabrications, Aluminum Railings, Metal G ratings (one package)
8	Painting and Coatings (Assuming one Package)
9	Surge Protective Device
10	Facility Lightning Protection
11	Electrical
12	Electrical Systems Analysis
13	Commissioning of Electrical Systems
14	Service Entrance Automatic Transfer Switch
15	Lighting
16	Dewatering/Trench Backfill
17	Asphalt Paving
18	Chain Link Fences and Gates
19	Turf and Grasses
20	Temporary bypass Pumping System
21	PVC and HDPE Pipes and Fittings (assuming one package)
23	Pipping Support Systems
24	All Process Piping (assuming on package)
25	Process Piping Specialties
26	Control System
27	Submersible Pumps