

## ENGINEERING SERVICES WORK ORDER \_\_\_\_\_

This Work Order Number 4 is entered into as of this 27 day of January, 2025, pursuant to that certain Continuing Contract Agreement, dated May 2, 2023, ("Agreement"), by and between INDIAN RIVER COUNTY, a political subdivision of the State of Florida ("COUNTY") and Tetra Tech ("Consultant").

The COUNTY has selected the Consultant to perform the professional services set forth on Exhibit A (Scope of Work), attached to this Work Order and made part hereof by this reference. The professional services will be performed by the Consultant for the mutually agreed upon lump sum or maximum amount not-to-exceed professional fee. Any additional costs must be approved in writing, and at a rate not to exceed the prices set forth in Exhibit B of the Agreement (Rate Schedule) for RFQ 2023015, made a part hereof by this reference. The Consultant will perform the professional services within the timeframe more particularly set forth in Exhibit A (Time Schedule), attached to this Work Order and made a part hereof by this reference all in accordance with the terms and provisions set forth in the Agreement. Pursuant to paragraph 1.4 of the Agreement, nothing contained in any Work Order shall conflict with the terms of the Agreement and the terms of the Agreement shall be deemed to be incorporated in each individual Work Order as if fully set forth herein.

IN WITNESS WHEREOF, the parties hereto have executed this Work Order as of the date first written above.

CONSULTANT:

By:   
Name: Jon Bundy, P.E.  
Title: Vice President

BOARD OF COUNTY COMMISSIONERS OF  
INDIAN RIVER COUNTY:

By: \_\_\_\_\_  
Joseph E. Flescher, Chairman

BCC Approval Date: \_\_\_\_\_

By: \_\_\_\_\_  
John A. Titkanich, Jr., County Administrator

Approved as to Form and Legal Sufficiency:

By: \_\_\_\_\_  
Jennifer W. Shuler, County Attorney

Ryan L. Butler, Clerk of Court and Comptroller

Attest: \_\_\_\_\_  
Deputy Clerk

(SEAL)



November 12, 2024

Mr. Howard Richards, PE  
Capital Projects Manager  
IRC Department of Utility Services  
1801 27<sup>th</sup> Street – Building A  
Vero Beach, FL 32960

**Subject: Hobart WTP Post Filtration Improvements, Alternatives Analysis**

**Tt # 200BP Indian River County Department of Utility Service**

Dear Mr. Richards:

Please find the attached proposal for the Hobart WTP post filtration improvements alternatives analysis technical memorandum in response to your request for proposal. Our evaluation will focus on the existing configuration of the Hobart WTP and integrating the operation of the north and south systems into one, integrated WTP. This includes evaluating different alternatives that can be presented to the County for consideration for final design. The evaluation will also include a review of the efficiency of the existing scrubber system and recommendations for improvement, as well as recommendations for instrumentation and control improvements for four (4) chemical feed systems (carbon dioxide, lime, caustic, and sulfuric acid).

Thank you for the opportunity to provide these services to the County and let us know if there is any additional documentation that you require.

Very truly yours,

**Tetra Tech**

A handwritten signature in black ink, appearing to read 'Jennifer Ribotti'.

Jennifer Ribotti, P.E.  
Project Manager

Attachments:

JCR/pt/IRCDUS Post Filtration Improvements/Richards\_Cover Letter

## **ATTACHMENT A**

### **INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES**

#### **HOBART WTP POST FILTRATION IMPROVEMENTS, ALTERNATIVE ANALYSIS IRCDUS PROJECT ID 12.24.504**

##### **I. BACKGROUND**

Indian River County Department of Utility Services (County) operates the Hobart Water Treatment Plant (WTP) to provide potable water service to its customers. The WTP has a capacity of 11.4 MGD and an average daily flow of approximately 7.0 MGD. The raw water source for the WTP is groundwater from the Upper Floridian Aquifer. At the Hobart WTP, it undergoes pretreatment, membrane treatment (nanofiltration), degasification and the addition of chemicals for stabilization, disinfection, remineralization, and pH and alkalinity control of the treated water.

The Hobart WTP is configured such that there are two (2) sets of process equipment which mirror each other ("north" and "south" systems). Each set consists of four (4) nanofiltration skids, dedicated to a specific clearwell, for a total of eight (8) nanofiltration skids and two (2) clearwells at the WTP. A bottleneck has been created with the operation of the Hobart WTP when maintenance or downtime of one of the clearwells is required. The transfer pumps for the Hobart WTP are all situated on the south clearwell, which does not allow individual operation of the north system if the south system requires maintenance. Individual clearwells cannot be cleaned if required without impacting operation and system downtime.

Another operational concern with the existing configuration of the Hobart WTP is that the north and south systems do not allow for individual operation of nanofiltration skids on either side of the system without having to run the entire post treatment system, including the degasifiers, transfer pumps, chemical feed systems and other related equipment.

The County has a desire to combine the operation of the north and south systems into one, integrated WTP. This includes, but is not limited to, simplifying maintenance (clean either clearwell without having to shutdown the entire system), operating all nanofiltration skids together as one WTP, and having the ability to control both systems from SCADA. The County would also like to optimize the efficiency of the existing scrubbers and add instrumentation and control improvements to the chemical feed systems (carbon dioxide, lime, caustic and sulfuric acid).

The County has requested an alternatives analysis from Tetra Tech, where different alternatives will be presented in a technical memorandum format to the County for consideration of implementation at the Hobart WTP. The alternatives analysis will include evaluations from different disciplines including civil, process, structural, electrical and instrumentation and controls.

The professional services described herein will be performed in accordance with the Continuing Contract Agreement for Engineering Services, dated May 2<sup>nd</sup>, 2023 between Indian River County and Tetra Tech, Inc.

## II. SCOPE OF WORK

### **Task 1 – Project Management**

1. This task consists of overall management of the project services during the alternatives analysis technical memorandum development. Tasks include QA/QC, budget management, monthly invoicing, tracking and status of project, schedule monitoring and coordination with the County.

### **Task 2 – Project Kickoff and Site Visit**

1. Attend a project kickoff meeting with the County to establish goals and outline of the alternatives analysis technical memorandum. Following the meeting, perform a site visit with operations staff.

### **Task 3 – Data Review and Workshop**

1. Review of existing data and initial development of the conceptual alternatives.
2. Attend a workshop with the County to discuss priorities for plant operations and support facilities and discussion of preliminary alternatives with County staff. It is anticipated that 2 to 3 alternatives will be identified for the County's consideration for integrating both the north and south systems at the Hobart WTP into one. Each alternative will evaluate life cycle cost, impact to plant operations, overall feasibility of implementation, and anticipated phasing for implementing the improvements at the WTP. The timing of the workshop will be coordinated with the County.

### **Task 4 – Alternatives Analysis Evaluation**

1. The objectives of the Alternatives Analysis will generally include the following for each alternative proposed:
  - a. System hydraulic evaluation. The evaluation will include 1) reviewing the existing system hydraulics and 2) proposed system hydraulics with each alternative. A summary of each alternative and the impact it will have on the existing system hydraulics will be provided.
  - b. Proposed plan for demolition and removal of equipment and structures. Each alternative will include a proposed plan for demolition of any identified equipment that is necessary to demolish or remove in order to implement the proposed alternative. This will require evaluation of site/civil constraints and additional space as needed, structural impacts/modifications to existing structures, and demolition or removal of existing equipment.
  - c. Proposed project phasing. Each alternative will have a proposed project phasing plan in order to assist the County in evaluating the timeline anticipated for implementing the proposed improvements. The proposed project phasing will include considerations for minimizing plant downtime.
  - d. Design criteria including any preselection of equipment. If an alternative requires the addition of new equipment, such as pumps, a new clearwell and associated appurtenances, degasification, scrubbers, chemicals or other equipment, the design criteria will be preliminarily established.

- e. Review of existing scrubber system and improvement recommendations. The County also requested 1) a review of the existing scrubber system and the efficiency in an effort to provide recommendations for optimization to the County, and 2) instrumentation and control improvements for the carbon dioxide, lime, caustic and sulfuric acid systems.
- f. Design criteria and recommendations for instrumentation and control improvements. Each alternative will include preliminary design criteria and recommendations necessary to implement instrumentation and control improvements. This includes any modifications necessary to the existing SCADA system.

The evaluation will also include review of the existing instrumentation and controls for chemical storage and feed systems (carbon dioxide, lime, caustic and sulfuric acid) and recommendations for improvement.

- g. Proposed site layout and plans. Each alternative will include a proposed site layout generally detailing where the proposed improvements or modifications will be on the existing site. Any site constraints will first be identified through discussions with the County.
- h. Revised process flow and instrumentation diagrams. Each alternative will include revised process flow and instrumentation diagrams, detailing the modifications necessary to implement the alternative.
- i. Discussion of considerations and/or risks for continuity of operations. A section in the report will include discussion on considerations for each alternative in order to establish the minimum downtime for the Hobart WTP during construction. It will also include discussion on how each alternative will help improve continuity of operations in regard to operating the WTP as an integrated plant, maintenance, cleaning, bypass, etc. once the improvements are implemented.
- j. Planning level cost estimate. A planning level cost estimate will be developed for each alternative presented. The cost estimate will include contingency.
- k. Life cycle cost of each alternative to assist the County with decision making. After a planning level cost estimate is developed for each alternative, the life cycle cost, or assessing the total cost of the alternative over the course of its life cycle will be presented. The analysis will include evaluating capital, operation and maintenance and disposal costs. The analysis will also include considerations for a discounted cash flow and the net present value.
- l. Summary of recommendations. A summary of recommendations for the different alternatives will be presented, including a recommendation of the most feasible alternative relative to cost, timeframe, operational flexibility and feasibility.

#### **Task 5 – Technical Memorandum**

1. Prepare a Draft Alternatives Analysis Technical Memorandum that presents the different alternatives summarized above under Item No. 1 and most feasible alternative recommendation. Provide the County with one (1) hard copy of the Draft and a PDF format copy for review.

2. Attend a review meeting with the County to discuss the draft technical memorandum, modify the report per the County's direction, and develop concurrence regarding the alternatives and proposed recommendations prior to finalizing the report.
3. Provide the County with two (2) copies of the Final Alternatives Analysis Technical Memorandum and a PDF format copy.

### III. PROJECT REPRESENTATIVES

Indian River County: Howard Richards, P.E.

Tetra Tech: Jennifer Ribotti, P.E.

### IV. OWNER'S RESPONSIBILITIES

The County will provide all pertinent information needed for evaluating existing plant operations and treatment goals. The County shall also provide historical operations and maintenance records that should be taken into consideration by Tetra Tech for the design of the new equipment or systems to replace existing.

### V. DELIVERABLES

1. Draft Alternatives Analysis Technical Memorandum (PDF Format/1 hard copy)
2. Final Alternatives Analysis Technical Memorandum (PDF Format/2 hard copies)

### VI. COMPENSATION SUMMARY

**Attachment B** presents a more detailed breakdown of the estimated compensation defined in the Scope of Services. The total lump sum compensation for this proposal is **\$245,585.15**. The County will be invoiced monthly for charges incurred during the previous month and submit the invoice by the 15<sup>th</sup> of the following month.

Scope Item	Compensation
Task 1 – Project Management	\$18,600.00
Task 2 – Project Kickoff and Site Visit	\$11,032.00
Task 3 - Data Collection and Workshop	\$41,844.00
Task 4 – Alternatives Analysis Evaluation	\$141,713.00
Task 5 – Technical Memorandum	\$31,923.00
Task 4 – Other Direct Costs	\$473.15
<b>Total</b>	<b>\$245,585.15</b>

## VII. SCHEDULE

Task	Days	Estimated Duration (Months)	Cumulative Schedule (Days)	Cumulative Schedule (Months)
Project Kickoff, Site Visit and Data Collection	30	1	30	1.0
Alternatives Workshop	30	1	60	2.0
Draft AA Technical Memorandum	90	3	150	5.0
Draft AA Review Meeting	15	0.5	165	5.5
Final AA Technical Memorandum	30	1	195	6.5

