

City of Cocoa

Task Order 2023 – 33

Carbon Dioxide System Replacement – Design, Permitting and Bidding

Objective and Background

The City of Cocoa (City) has determined that the carbon dioxide storage and feed system at the Dyal WTP has reached the end of its projected useful life and requires replacement. Under this Task Order, Jacobs Engineering Group, Inc. (Jacobs) will provide engineering services for the design, permitting and bidding of the project to replace the system. Services proposed by Jacobs in this Task Order will be performed in accordance with the contract terms of the Agreement for Continuing Engineering Services for Water System awarded by the City of Cocoa (City) on February 5, 2020.

The City uses carbon dioxide in the groundwater treatment process to lower the pH after the lime softening process. Gaseous carbon dioxide is bubbled into the groundwater through diffusers in the recarbonation basins. Recarbonation after lime softening is critical to stop the lime softening process and optimize the pH for filter operations. The existing carbon dioxide equipment consists of two 70-ton liquid carbon dioxide storage tanks with associated refrigeration, vaporizer, and diffuser systems. The proposed design will be to replace the storage tanks in kind and to upgrade the diffuser feed system to a more efficient carbonic acid feed system.

Scope of Work

Task 1 - Design Services

Jacobs will provide engineering services to design the new carbon dioxide system including the following:

- Two liquid carbon dioxide storage tanks.
- Three carbonic acid feed systems including carrier water pumps and solution diffusers.
- Piping, valve and instrumentation required for operation and maintenance.
- Electrical power and communication from existing panels to the new equipment.

Task 1.1 – Preliminary Design

A preliminary design report will be developed to accompany the request for a modification to the FDEP permit. The preliminary design report will present design concepts for all professional disciplines required for the project. The report will address the items referenced in FAC 62-555.520(4) and will include some preliminary design drawings to depict the modifications.

The report will provide background on the existing treatment process, water quality and chemical use related to the carbon dioxide system. The report will review objectives and impacts to consider related to the carbon dioxide system replacement including discussion of

alternatives for storage tanks and feed systems. A preliminary control narrative will be provided in the report to discuss dosing controls and operation.

A draft preliminary design report will be issued to the City for review. One meeting will be held with the City to review the 30% design and discuss comments. After resolution of comments from the City, Jacobs will finalize the preliminary design.

Task 1.2 – Final Design

Final design documents will be developed that include drawings and technical specifications. The design documents may include photographs with notations to describe the work. The design documents will include a control narrative and I/O list, but programming will be provided by the City's automation consultant under a separate Task Order.

Draft final design documents will be issued to the City for review. One meeting will be held with the City to review the 90% design and discuss comments. After resolution of comments from the City, Jacobs will finalize the design documents for bidding.

Based on the finalized design documents for bidding, a Class 2 cost estimate will be prepared in accordance with the American Association for Advancement of Cost Estimating (AAACE). The cost estimate will be delivered with the final Bid Documents.

Task 1 Deliverables

- 30% Design Documents – Electronic submission (.pdf format) of the construction drawings, specifications, design details.
- 90% Design Documents – Electronic submission (.pdf format) of the construction drawings, specifications, design details.
- Bid Documents (100% Design) – Electronic submission (.pdf format) of the construction drawings, specifications, and design details.
- A construction cost estimate will be prepared for the Final Design Documents (100% design).

Task 2 - Permitting Services

Jacobs will prepare and submit an application for a Florida Department of Environmental Protection (FDEP) Permit to Construct PWS Components (Form 62-555.900(1)) for the project. The permit application will include supporting documentation and preliminary drawings as required by FDEP. The permit application will only be for a modification to the site equipment and no capacity rerating will be required. Jacobs will provide one response to a request for additional information.

Task 2 Deliverables

- Permit application package for FDEP Permit to Construct PWS Components including Form 62-555.900(1), drawings, and supporting documentation per FDEP requirements.

Task 3 - Bidding Services

Jacobs will provide services to assist the City in selection of a single contractor for the construction of the project. Jacobs will assist the City in conducting one pre-bid conference. Jacobs will assist the City in developing the agenda and content of the pre-bid conference. Jacobs will attend the pre-bid conference meeting, document questions asked during the

meeting, take minutes, and prepare a summary. The City will prepare and administer the Invitation to Bidders.

Jacobs will coordinate with the City for issuing responses to requests for additional information. Jacobs will provide technical interpretation of the contract bid documents and will prepare proposed responses to bidders' questions and requests. The City will issue addenda to prospective bidders.

Jacobs will review the bids, evaluate them for responsiveness, and bid amount. Jacobs will prepare a summary of its review and evaluation. The City will make the final decision on the award of the contract for construction and the accept a rejection of bids. Jacobs' services do not include bid protest situations. The City will prepare the notice of award; assembly, delivery and execution of the contract for construction and the notice to proceed.

Jacobs will modify the technical specifications and drawings as required to address bidder's questions and requests and then issue Conformed Documents to the City.

Task 3 Deliverables

- Pre-bid meeting agenda and summary.
- Responses to questions from proposers during the bidding process.
- Summary of bid review and evaluation.
- Conformed Documents – Electronic submission (.pdf format) of the construction drawings, specifications, and design details.

Assumptions

The following key assumptions apply:

- The City will assign a project manager who will be the Jacobs's main point of contact and will respond within ten business days of the date of each submittal. The City's project manager will also provide continuous coordination between the different City's departments (Operations, Management, Engineering, etc.).
- The design will be based on the federal, state, and local codes and standards in effect on the effective date of the authorization to proceed.
- All deliverables will be provided in electronic format as .pdf files.
- Design documents will be prepared for a single construction contract.
- Jacobs master technical specifications (Division 1 - 49) will be used as the basis for all specifications.
- Invitation to Bid documents, or the Division 0 specifications, will be developed by the City.
- The drawings will follow Jacobs CAE/CAD standards. Microstation will be used to develop the drawings.
- Design deliverables include a 30% package for permitting and 90% final design package. There is no intermediate 60% deliverable.
- Jacobs design deliverables will be provided to others for the construction of the work.
- Jacobs will pay the permit fee for the FDEP Permit to Construct PWS Components directly to the FDEP up to \$1,000.
- No meetings are included with permitting or regulatory agencies.
- The project schedule includes timeframes for Jacobs' design deliverables but does not include a schedule for permitting services. The timeframe for permitting services is not within Jacobs' control.

- The Contractor shall be responsible for permitting with the Orange County Building Department including development and submission of the permit application(s), coordination with the permitting agency, completion of permit requirements, and permit approval.
- The cost estimate will be prepared in accordance with the American Association for Advancement of Cost Estimating (AAACE) Class 2 cost estimate. All estimates of probable construction cost used for planning the project will be developed using the appropriate estimate class for completion of the design and consistent with Industry Standards, Association for the Advancement of Cost Engineering adjusted for local site conditions. The final construction cost can only be determined after competitive bidding of the project by City. In providing opinions of cost, financial analyses, economic feasibility projections, and schedules for the project, Engineer 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, Engineer makes no warranty that City's actual project costs, financial aspects, economic feasibility, or schedules will not vary from Engineer's opinions, analyses, projections, or estimates.
- The City will inform Jacobs's staff of any safety rules, personal protective equipment, safety precautions, restricted areas, hazardous chemicals, and emergency procedures (e.g., alarms, assembly areas, etc.) prior to the site visits.
- Jacobs will reasonably rely upon the accuracy and completeness of the information and data provided by the City or other third parties without independent verification.
- It is assumed the new equipment can be installed in the same outdoor location as the existing equipment. A temporary feed system may be required during construction to avoid operations shutdown.
- Existing electrical power and communications systems are adequate to supply sufficient power and communication functionality to the new equipment.
- Surveying services are not included in this scope.
- Landscape design is not included in this scope.
- Geotechnical services are not included in this scope.
- Services during construction shall be provided under a separate contract.

Schedule

The duration of the services provided under this Task Order are dependent on project permitting and bidding activities which are outside of Jacobs' control. This Task Order shall remain active to support the specified services throughout project design, permitting, and bidding.

Design Services provided under Task 1 are estimated to be completed within 24 weeks following Notice to Proceed as show in Table 1.

TABLE 1
Project Schedule

Task/Activity	Schedule
Preliminary Design Report (30% Design Submittal); 1 meeting	8 weeks following Notice to Proceed

TABLE 1
Project Schedule

Task/Activity	Schedule
Construction Document Submittal (90% Design Submittal); 1 meeting	10 weeks following Preliminary Design Report comment adjudication
Final Bid Documents Submittal (100% Design Submittal); no meeting	4 weeks following Contract Document comment adjudication

Note: A meeting is anticipated to be held with the City within 2 weeks after the 30% and 90% design submittals.

Permitting services provided under Task 2 are anticipated to begin after approval of the preliminary design report and 30% design package. The FDEP permit application will be submitted within 2 weeks after approval of the 30% design. The permit approval schedule is dependent on the regulatory agency.

Bidding services will commence after the City has published the project bid and will last the duration of the bidding process which is anticipated to be 6 weeks. The pre-bid conference is anticipated to be held within 2 weeks of the bid publications.

Compensation

Compensation for the services authorized under this task order will be provided using the time and materials basis method with budgets between the tasks and expenses being interchangeable as needed. Costs are summarized below by task.

Task	Hours	Fee
TASK 1 – DESIGN SERVICES	804	\$130,172
TASK 2 – PERMITTING SERVICES	42	\$6,564
TASK 3 – BIDDING SERVICES	50	\$9,162
EXPENSES & SUBCONSULTANTS	N/A	\$2,000
Grand Total	896	\$147,898

Levels of effort for tasks are estimates based on the best information available at the time of task order development. As projects scopes are better defined, actual levels of effort required and associated fees might differ and require coordination between JACOBS and the City.

Acceptance

This Task Order shall become part of the Agreement upon execution by both parties.

Approved for City of Cocoa

By _____

Title _____

Date _____

Accepted for JACOBS Engineering Group

By  _____

Title Vice President

Date July 19, 2023

City of Cocoa Task Order 2023-33 Carbond Dioxide System Replacement – Design, Permitting and Bidding Services Labor Hour Breakdown		Principal/Senior Reviewer/Consultant/Senior Project Manager	Senior Professional Engineer/Scientist/Consultant	Mid-Level Professional Engineer/Scientist/Consultant/Project Manager	Professional Engineer/Scientist/Consultant/Project Manager	Project Engineer/Scientist/Consultant	Junior Project Engineer/Scientist/Consultant	Construction Manager/Senior Technician*	Labor Hours	Labor Fee	
TASK #	TASK NAME	\$235.00	\$218.00	\$199.00	\$169.00	\$120.00	\$110.00	\$142.00			
1	DESIGN SERVICES										
		16	48	216	156	164	64	140	804	\$130,172	
								Task Subtotals	804	\$130,172	
2	PERMITTING SERVICES										
		2	2	6	16	0	16	0	42	\$6,564	
								Task Subtotals	42	\$6,564	
3	BIDDING SERVICES										
		2	4	20	16	0	0	8	50	\$9,162	
								Task Subtotals	50	\$9,162	
									Labor Total	896	\$145,898
									Expenses		\$2,000
									Subcontracts		\$0
									Task Order Total		\$147,898

* Labor hours for "Construction Manager / Senior Technician" rate category are for CAD technicians working on design documents.

EXHIBIT "A"**Jacobs Engineering Group Rate Schedule**

Classification	Description	Rate
Engineer 9	Principal	\$235
Engineer 8	Senior Reviewer/Consultant	\$235
Engineer 7	Senior Project Manager	\$235
Engineer 6	Senior Professional Engineer/Scientist/Consultant	\$218
Engineer 5	Mid-Level Professional Engineer/Scientist/Consultant/Project Manager	\$199
Engineer 4	Professional Engineer/Scientist/Consultant/Project Manager	\$169
Engineer 3	Junior Professional Engineer/Scientist/Consultant	\$142
Engineer 2	Project Engineer/Scientist/Consultant	\$120
Engineer 1	Junior Project Engineer/Scientist/Consultant	\$110
Engineer 0	Engineering Intern	\$95
Technician 5	Senior Construction Manager/Senior Designer	\$169
Technician 4	Construction Manager/Senior Technician	\$142
Technician 3	Senior Construction Inspector	\$120
Technician 2	Construction Inspector/Technician	\$110
Technician 1	Junior Construction Inspector/Junior Technician	\$85
Technician Aide	Technical Aide	\$80
Office	Office/Project Administration	\$85

Notes:

1. Billing rates for the City of Cocoa are designated for the length of this Agreement from February 2020 through January 2023.
2. These rates do not include other direct expense cost. Reimbursable other direct expenses shall be billed in accordance with the terms of the contract.
3. Billing rate schedule is for time basis work order and the City will be billed based on actual hours by category designated for an individual employee.
4. Jacobs reserves the right to request rate modifications for any future extensions to this agreement. Rate modifications must be established and agreed upon by both parties.
5. All copies, reproduction, subconsultant work, materials or equipment purchased or other direct costs shall be pass-thru cost without any mark-up.
6. Travel is reimbursable at the IRS rate for employees and specialists outside the Orlando office only.