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File #: 2023-3262 **Agenda Date:** 10/25/2023 **Agenda Item No:** 8.

FROM: Robert Thompson, General Manager
Originator: Mike Dorman, Director of Engineering

SUBJECT:

ACTIVATED SLUDGE AERATION BASIN REHABILITATION AT PLANT NO. 2, PROJECT NO. P2-136

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION:

A. Approve a Professional Design Services Agreement with Carollo Engineers, Inc. to provide engineering services for Activated Sludge Aeration Basin Rehabilitation at Plant No. 2, Project No. P2-136, for an amount not to exceed $5,891,599; and

B. Approve a contingency of $589,160 (10%).

BACKGROUND

The Activated Sludge (AS) facility at Orange County Sanitation District (OC San) Plant No. 2 was built in 1977 to provide 75 million gallons per day (mgd) of secondary treatment capacity. The AS plant was expanded to 90 MGD in 1996, rehabilitated in 2008, and recently repaired with maintenance projects. The AS facility consists of aeration basins, a liquid oxygen facility, and secondary clarifiers.

RELEVANT STANDARDS

- Comply with California Government Code Section 4526 to engage the best qualified firm “on the basis of demonstrated competence and qualifications” and “negotiate fair and reasonable fees”
- Commitment to safety & reducing risk in all operations
- 24/7/365 treatment plant reliability

PROBLEM

The AS facility is located within the coastal zone and much of the outdoor mechanical equipment and instruments are deteriorated due to atmospheric corrosion caused by the marine environment. Components of the mechanical and electrical equipment on top of the aeration basin deck require replacement, including the aeration mixer systems and sluice gates. Appurtenant facilities, including the purge fan rooms and odor control systems, will also require the replacement of their respective

mechanical components and instrumentation. The two carbon steel oxygen pipelines running from the liquid oxygen facility to the basins are also corroded and require replacement.

The concrete deck of the aeration basin has deteriorated and contains pervasive cracks throughout its surface. Containment of oxygen (supplied to the basins from the liquid oxygen facility) within the interior of the basins has not been successful and gas leaks and bubbles have been observed in the manways, pipe penetrations, and mixer pads. Past projects were performed to help mitigate these deficiencies until a full rehabilitation could be performed; however, the repairs have provided mixed results and the deck still experiences water and oxygen leakage. Leakage of pure oxygen is a potential safety issue due to a higher potential for combustion if any nearby work activity utilizes tools or processes that could produce sparks or flames.

Numerous maintenance activities regularly need to be performed that normally require access with trucks and equipment on the deck. The current deck structure is unable to support vehicles driving over it, such as maintenance pickup trucks and cranes. The deck was structurally evaluated and maximum weight limits were implemented to avoid further deterioration. Staff currently need to utilize outside vendors to mobilize a heavy-duty crane with a boom to perform required maintenance at increased maintenance cost.

PROPOSED SOLUTION

Approve a Professional Design Services Agreement for Activated Sludge Aeration Basin Rehabilitation at Plant No. 2, Project No. P2-136. This project will provide the design for the structural rehabilitation of the aeration basin and adjacent structures; the replacement of mechanical, electrical, and instrumentation equipment; restoration of the aeration basin deck loading; replacement of the oxygen piping from the liquid oxygen facility; and replacement of handrails at the secondary clarifiers. These improvements will increase safety, reduce operation and maintenance costs, and extend the useful life of the AS facility.

TIMING CONCERNS

If the project is delayed, the aeration basins may experience reduced safety, reduced reliability, increased operational and maintenance costs, and unexpected process facility outages with increased potential for reduced process capacity.

RAMIFICATIONS OF NOT TAKING ACTION

The aeration basin and secondary clarifiers would remain subject to an increased risk of equipment failure, oxygen leakage, and increased safety risk.

PRIOR COMMITTEE/BOARD ACTIONS

N/A

ADDITIONAL INFORMATION

Consultant Selection:

OC San requested and advertised for proposals for Activated Sludge Aeration Basin Rehabilitation at Plant No. 2, Project No. P2-136 on March 27, 2023. The following evaluation criteria were described in the RFP and used to determine the most qualified Consultant.

CRITERION	WEIGHT
Project Understanding and Approach	40%
Related Project Experience	30%
Project Team and Staff Qualifications	30%

Three proposals were received on May 4, 2023 and evaluated in accordance with the evaluation process set forth in OC San's Purchasing Ordinance by a pre-selected Evaluation Team consisting of OC San staff: Project Manager, Project Engineer, Engineering Supervisor, Engineering Supervisor, and Operations Supervisor. The Evaluation Team also included one non-voting representative from the Contracts Administration Division. The Evaluation Team scored the proposals on the established criteria as summarized in the table below:

Proposer	**Project Understanding & Approach** (Max. 40 Points)	**Related Project Experience** (Max. 30 Points)	**Project Team & Staff Qualifications** (Max. 30 Points)	**Total Score** (Max. 100 Points)
Carollo Engineers, Inc.	34	25	26	85
Hazen and Sawyer	27	23	22	72
CDM Smith Inc.	30	19	22	71

Based on the evaluation results, there was a clear, natural break in the scores between the highest-scoring proposer and the other proposers. Therefore, the Evaluation Team did not deem it necessary to conduct interviews.

Carollo Engineers, Inc. differentiated itself by portraying a firm understanding of the technical challenges and risks as well as offering potential innovative ideas and alternative solutions that could reduce project time and costs. The Carollo team highlighted extensive project experience accompanied by a project team that is well-qualified, with clear organizational roles. All aspects of the RFP criteria were responded to with detail and clarity to portray a clear path toward a successful design package.

Review of Fee Proposal and Negotiations:

Proposals were accompanied by sealed fee proposals. In accordance with the Purchasing Ordinance, the fee proposal of only the highest-ranked firm was opened after approval by the Director of Engineering of the Evaluation Team 's recommendation.

Staff conducted negotiations with Carollo Engineers, Inc. to clarify the requirements of the Scope of Work, the assumptions used for the estimated level of effort, and the proposed approach to meet the goals and objectives for the Project. This process entailed multiple follow up meetings, e-mails, and calls between Carollo and OC San staff to achieve an appropriate level of effort for the design of the project. Additionally, a site visit was conducted to help the Consultant team better understand field conditions and more accurately estimate the required design effort.

	Original Fee Proposal	Negotiated Fee
Total Hours	19,972	19,961
Total Fee	$6,035,804	$5,891,599

As a result of the negotiations, the total fee was reduced by approximately $144,000. The negotiations resulted in the following:

- Addition of SCADA monitoring and control of the odor control fan system to enhance the safety of the aeration basin
- Reduction in the number of drawings
- Reduction in the number of project meetings and workshops to meet project needs
- Reduction in the number of concrete core samples planned for the condition assessment

The Consultant's fringe and overhead costs, which factor into the billing rate, have been substantiated. The contract profit is 5.0%, which is based on an established formula based on OC San's standard design agreements.

Based on the above, staff has determined that the final negotiated fee is fair and reasonable for the level of effort required for this project and recommends award of the Professional Design Services Agreement to Carollo Engineers, Inc.

CEQA

The project is exempt from CEQA and a Notice of Exemption will be filed with the OC Clerk-Recorder after OC San Board of Directors approval of the Professional Design Services Agreement.

FINANCIAL CONSIDERATIONS

The request complies with the authority levels of OC San's Purchasing Ordinance. This item has been budgeted (Budget Update, Fiscal Year 2023-2024, Appendix A, Page 9, Activated Sludge Aeration Basin Rehabilitation at Plant No. 2, Project No. P2-136) and the budget is sufficient for the recommended action.

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Professional Design Services Agreement
- Presentation

TW:tk