
File #: 2022-2562

Agenda Date: 11/2/2022

Agenda Item No: 2.

FROM: James D. Herberg, General Manager
Originator: Riaz Moinuddin, Director of Operations & Maintenance

SUBJECT:

SONAR INSPECTION OF LARGE-DIAMETER SEWERS AND SIPHONS

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION: Recommend to the Board of Directors to:

- A. Approve a General Services Contract to Pipe and Plant Solutions, Inc. to provide Sonar Inspection Services, Specification No. S-2022-1327, for a total amount not to exceed \$344,949; and
- B. Approve a contingency of \$34,495 (10%).

BACKGROUND

Orange County Sanitation District (OC San) maintains more that 350 miles of gravity sewer pipes in its service area which are cleaned on a scheduled basis consistent with OC San's Sewer System Management Plan (SSMP). Line segments range in size from 8 inches to 120 inches. Depending on the pipe size and historical issues, cleaning frequencies have been developed and range from every 4 weeks to once every 5 years.

For smaller diameter pipes ranging from 8 inches to 18 inches, cleaning is conducted primarily through hydraulic flushing and vacuuming using a combination sewer cleaning vehicle. For medium diameter pipes ranging from 21 inches to 42 inches, pipes are cleaned mechanically using a cable tethered tire to act as a moving hydraulic scouring plug. Pipes greater than 42 inches are generally designed to be "self cleaning" by creating internal flow velocities that scour potential sediment. These pipes require special cleaning techniques such as flow diversions to increase flow velocity, specialized hydraulic cleaning systems, or human entry depending on the specific situation.

In 2020, a hydraulic analysis of large-diameter sewers and inverted siphons was performed to verify these sewers maintained adequate scour velocity in current flow conditions. At the same time, large diameter lines with known or suspected low flow velocities were inspected with a sonar device for pipe defects or sediment buildup below the water surface. The pilot inspection results provided information for sewer cleaning frequency recommendations; however, not all low velocity sewers were inspected with this sonar technology. In 2021, the hydraulic analysis was revised to consider wet weather conditions and to generate an updated list of large sewers that would benefit from sonar

inspection. A new scope of work was developed to solicit inspection services and complete the remaining inspections.

RELEVANT STANDARDS

- Ensure the public's money is wisely spent
- Protect OC San's assets
- Commitment to safety & reducing risk in all operations

PROBLEM

Large diameter (greater than 42 inches in diameter) sewers are not regularly cleaned by OC San and are typically assumed to be self-cleaning by design of proper scouring velocity. There exists the potential for unknown quantities of debris below the water line in large-diameter sewers with lower flow velocities, which may pose various risks, such as sanitary sewer overflow (SSO), grit removal overloading, and treatment plant inundation. Current cleaning methods may not be effective due to unknown conditions in the pipe.

PROPOSED SOLUTION

Based on the updated hydraulic model, perform sonar inspection of large-diameter sewers and inverted siphons with a higher probability of debris and sediment build-up. The efforts will reveal debris which may exist below the water surface, and help staff develop better strategies for managing debris and sediment build-up, including optimizing the cleaning of these assets.

TIMING CONCERNS

Staff would like to ensure that an unknown condition of debris build-up in the OC San collection system does not exist. The risk of an SSO or high debris event at the treatment plants could exist. For example, in August 2021, Plant No. 2 received a high amount of debris and rags, which overloaded the headworks grit handling system. Several collections and treatment plants rehabilitation projects depend on predictable flow patterns.

RAMIFICATIONS OF NOT TAKING ACTION

Delaying this inspection increases the risk of an SSO or debris overloading the treatment plants. Resources will not be expended effectively by cleaning large-diameter sewers and inverted siphons on the identified list and could be subsequently recategorized as self-cleansing post-inspection results.

PRIOR COMMITTEE/BOARD ACTIONS

N/A

ADDITIONAL INFORMATION

California Waste Discharge Requirements require OC San to have a SSMP. This plan contains a sub-plan known as the Preventive Maintenance Program. Effective sewer pipe cleaning and assessment is a stated action in the plan that must be adhered to in order to remain compliant with the state regulation.

A Notice Inviting Bids was issued on June 20, 2022 via Planetbids and closed on July 27, 2022. Three bids were received; below is the list of firms who submitted a bid:

Vendor	Bid	Determination
Pipe and Plant Solutions, Inc.	\$344,949	Responsive
RedZone Robotics, Inc.	\$675,000	Responsive
National Plant Services, Inc.	\$827,351	Responsive

Based on these results, staff recommends awarding a General Services Contract to Pipe and Plant Solutions, Inc. for a total amount not to exceed \$344,949.

CEQA

N/A

FINANCIAL CONSIDERATIONS

This request complies with the authority levels of OC San's Purchasing Ordinance. This item is budgeted in FY 2022-23 Budget Line item: Section 6, Page 76. Project contingency funds will not be used for this.

<u>Date of Approval</u>	<u>Contract Amount</u>	<u>Contingency</u>
11/16/2022	\$344,949	\$34,495 (10%)

ATTACHMENT

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

- General Services Contract