

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA



• Board of Directors Engineering, Operations, and Technology Committee

4/11/2023 Board Meeting

7-3

Subject

Authorize an agreement with Stantec Consulting Services, Inc. in an amount not to exceed \$900,000 for a detailed seismic analysis of the Lake Skinner outlet tower; and award a \$1,174,475 procurement contract to B&K Valves and Equipment, Inc. for the replacement of two valves at the Lake Skinner outlet tower; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

The Lake Skinner outlet tower is the only means of releasing water from Lake Skinner to supply the Robert A. Skinner Water Treatment plant (Skinner plant) and San Diego Pipeline Nos. 3, 5, and 6. This action authorizes a professional services agreement to conduct a detailed seismic analysis of the Lake Skinner outlet tower to assess the performance of the tower in the event of a major earthquake and determine if a retrofit of the structure is warranted. This action also awards a procurement contract to replace two 42-inch diameter butterfly valves at the Lake Skinner outlet tower. A recent investigation identified damage to the valve actuators; fully operational valves are required to maintain compliance with California Division of Safety of Dams (DSOD) requirements.

Details

Background

Lake Skinner was built in the early 1970s and is part of the Skinner Branch System that delivers water to south Riverside County and San Diego County areas. The Lake Skinner outlet tower controls the outflows from Lake Skinner, which supplies untreated water to the Skinner plant and San Diego Pipeline Nos. 3, 5, and 6. The outlet tower is the only means of releasing water from the reservoir.

The outlet tower is a circular, free-standing, 28.5-foot diameter reinforced concrete structure, which is equipped with five tiers of 42-inch diameter valves. The top four tiers contain six valves each and feed the Skinner plant and the San Diego pipelines. The lowest tier, tier five, contains two valves, which are designed for dewatering the reservoir and are not intended for daily operation.

In response to a directive from DSOD following the Lake Oroville spillway incident in February 2017, Metropolitan submitted a work plan to conduct a comprehensive assessment of the Lake Skinner spillway and appurtenant dam structures. In December 2017, Metropolitan's Board authorized a preliminary seismic analysis of the outlet tower and conduit in conjunction with the voluntary spillway assessment as part of the effort to improve its infrastructure reliability. The spillway investigation confirmed the adequacy of the spillway and resulted in minor repairs of the concrete spillway; this work was completed in 2018 and met the DSOD's requirements. While the tower's original design and construction met then-current seismic criteria, the preliminary structural analysis showed high stresses at the lower portion of the tower that could result in potential damage following a large seismic event. Staff recommends conducting a detailed structural analysis of the outlet tower to better characterize tower performance under a major earthquake using current seismic evaluation tools. The results of this assessment will facilitate the decision-making process as to the extent and type of potential seismic upgrades, if any.

During the course of the preliminary outlet tower seismic investigation, staff identified hairline cracks on the valve actuator for the valves that are located at the bottom of the tower. These two valves are critical to ensure that Lake Skinner can be fully dewatered in the event of a potential dam safety issue. The actuators for the valves

in question were repaired to ensure the valves are operable; however, replacement of the valve and actuator is recommended to ensure the long-term reliable and repeatable operation. Since a reliable operation of the valves is required to meet DSOD requirements and the valves are long-lead items, staff expedited the preparation of procurement documents. Staff recommends award of the procurement of the two tier-five valves at the bottom of the tower to ensure continued compliance with DSOD requirements for dewatering the reservoir.

In accordance with the April 2022 action on the biennial budget for fiscal years 2022/23 and 2023/24, the General Manager will authorize staff to proceed with the detailed seismic analysis and replacement of the valves, pending board award of the procurement contract described below. Based on the current CIP expenditure forecast, funds for the work to be performed pursuant to the subject contracts during the current biennium are available within the CIP Appropriation for Fiscal Years 2022/23 and 2023/24 (Appropriation No. 15488). This project has been reviewed in accordance with Metropolitan's CIP prioritization criteria and was approved by Metropolitan's CIP evaluation team to be included in the Supply Reliability Program.

Project No. 1 - Lake Skinner Outlet Tower – Studies and Investigations

The planned scope of work for the investigation includes: (1) a detailed seismic evaluation of the tower including assessment of soil conditions, soil-structure interactions, ground motion, and structural analyses of the tower; and (2) identification of feasible retrofit approaches and preliminary cost estimates, if necessary.

A total of \$1,290,000 is required for these activities. Allocated funds include \$900,000 for seismic analysis and technical assessments by Stantec Consulting Services, Inc. under a new agreement, as described below, and \$60,000 for an independent review under a new agreement, which will be awarded under the General Manager's contract authority. Allocated funds for Metropolitan staff activities include \$180,000 for technical oversight and review of consultant's work; \$89,000 for project management and project controls; and \$61,000 for the remaining budget.

Engineering Services (Stantec Consulting Services, Inc.) – New Agreement

Stantec Consulting Services, Inc. is recommended to conduct a detailed seismic analysis for the Lake Skinner outlet tower. Stantec was qualified via Request for Qualification No. 1215 and selected based on the firm's experience with similar structures. Planned study activities include: (1) development of a finite-element model of the Skinner outlet tower, (2) development of analysis criteria, (3) seismic analysis of the tower, (4) development of performance acceptance criteria, and (5) development of conceptual strengthening options and costs, if necessary.

This action authorizes a new agreement with Stantec Consulting Services, Inc. for a not-to-exceed amount of \$900,000 for engineering and technical services related to the detailed seismic analysis of the Lake Skinner outlet tower. A Small Business Enterprise participation level was not set for this agreement due to the unique nature of the seismic analysis.

Project No. 2 - Lake Skinner Outlet Tower Valve Replacement

The scope of the procurement contract includes furnishing two 42-inch diameter butterfly valves and actuators. Metropolitan forces will: (1) receive and off-load the new valves at the Skinner site; (2) remove the existing valves and install the new valves, and (3) shutdown, disinfect and return the tower to service.

A total of \$2,170,000 is required to perform this work. In addition to the amount of the contract, the allocated funds include \$208,000 for design services by Metropolitan staff; \$126,000 for factory fabrication inspection and functional testing; \$59,000 for submittals review, technical support, and responding to manufacturer requests for information; \$271,000 for Metropolitan forces activities as described above; \$98,000 for contract administration and project management; and \$233,525 for the remaining budget.

Attachment 1 provides the allocation of required funds. The total estimated cost to replace the two valves on the Lake Skinner outlet tower, including the amount appropriated to date, and funds allocated for the work described in this action, is \$2,370,000.

Award of Procurement Contract (B&K Valves and Equipment, Inc.)

Request for Bids No. 411322 for furnishing two butterfly valves for the Lake Skinner outlet tower was advertised for bids on August 1, 2022. As shown in **Attachment 2**, three bids were received and opened on

October 29, 2022. The bid from Veteran Distribution and Supply was deemed to be non-responsive due to exceptions taken by the bidder. The bid from B&K Valves and Equipment, Inc., in the amount of \$1,174,475, complies with the requirements of the specifications. The third bid was \$1,875,892.79. This amount includes all sales and use taxes imposed by the State of California. The budgetary estimate for this material based on a survey of vendors ranged from \$1 million to \$1.25 million. As a procurement contract, there are no subcontracting opportunities.

This action awards a \$1,174,475 procurement contract to B&K Valves and Equipment, Inc. to furnish two 42-inch valves and actuators to ensure continued compliance with DSOD requirements for the Lake Skinner outlet tower.

Alternatives Considered

Alternatives considered for completing the detailed seismic analysis included assessing the availability and capability of in-house Metropolitan staff to conduct this work. Metropolitan's staffing strategy for utilizing consultants and in-house Metropolitan staff has been: (1) to assess current work assignments for in-house staff to determine the potential availability of staff to conduct this work; and (2) for long-term rehabilitation projects, when resource needs exceed available in-house staffing or require specialized technical expertise.

In the case of this project, Metropolitan staff does not have the available resources nor the specialized software to perform the required detailed structural analysis. A consultant will be relied upon to provide specialized expertise in seismic modeling utilizing advanced structural programs to evaluate the anticipated performance of the tower following the maximum design earthquake.

For the replacement of the two valves, staff considered waiting until after the detailed seismic analysis is completed and combining the work with the larger project to seismically strengthen the tower. However, the analysis might find that an upgrade to the tower is not needed, and the valve replacement would have been unnecessarily delayed. Procurement of the valves at this time will ensure the tower's functionality and continued compliance with DSOD requirements.

Summary

This action authorizes a new agreement with Stantec Consulting Services, Inc., for a not-to-exceed amount of \$900,000, for engineering and technical services related to the detailed seismic analysis of the Lake Skinner outlet tower. This action also awards a \$1,174,475 procurement contract to B&K Valves and Equipment, Inc. to furnish two 42-inch diameter valves and actuators. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the Abstract of Bids, and **Attachment 3** for the Location Map.

Project Milestones

February 2025 - Procure and install two valves at the Lake Skinner outlet tower

May 2024 - Complete Lake Skinner outlet tower seismic analysis

Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Metropolitan Water District Administrative Code Section 8140: Competitive Procurement

By Minute Item 52778, dated April 12, 2022, the Board appropriated a total of \$600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/23 and 2023/24

By Minute Item 51046, dated December 12, 2017, the Board Authorize comprehensive assessments of the spillways and dam structures at Lake Mathews and Lake Skinner

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. In particular, the proposed action consists of the funding, design, minor alterations, and replacement of existing public facilities with negligible or no expansion of use and no possibility of significantly impacting the physical environment. In addition, the proposed action consists of basic data collection and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. This may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. Accordingly, the proposed action qualifies under Class 1, Class 2, and Class 6 Categorical Exemptions (Sections 15301, 15302, and 15306 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

- a. Authorize an agreement with Stantec Consulting Services, Inc., for a not-to-exceed amount of \$900,000, for detailed seismic analysis of the Lake Skinner outlet tower.
- b. Award a \$1,174,475 procurement contract to B&K Valves and Equipment, Inc. for the replacement of two valves at the Lake Skinner outlet tower.

Fiscal Impact: Expenditures of \$3.46 million in capital funds. All costs will be incurred in the current biennium and have been previously authorized.

Business Analysis: This option will improve the operational reliability of the Lake Skinner outlet tower.

Option #2

Do not proceed with the projects at this time.

Fiscal Impact: None

Business Analysis: This option will forego an opportunity to improve the operational reliability of the Lake Skinner outlet tower, which may lead to costly urgent repairs.

Staff Recommendation

Option #1

3/21/2023 Date

John V. Bednarski Manager/Chief Engineer Engineering Services

Adel Hagekhalil

3/24/2023 Date

General Manager

Attachment 2 – Abstract of Bids Attachment 3 – Location Map

Attachment 1 – Allocation of Funds

	Current Board Action (Apr. 2023)	
Labor		
Studies & Investigations	\$	180,000
Final Design		-
Owner Costs (Program mgmt.,		89,000
envir. monitoring)		
Submittals Review & Record Drwgs.		-
Construction Inspection & Support		
Metropolitan Force Construction		-
Materials & Supplies		-
Incidental Expenses		-
Professional/Technical Services		-
Stantec Consulting Services, Inc.		900,000
Independent Review		60,000
Right-of-Way		-
Equipment Use		-
Contracts		-
Remaining Budget		61,000
Total	\$	1,290,000

Allocation of Funds for Lake Skinner Outlet Tower Seismic Upgrade

The total amount expended to date to perfom the seismic analysis approximately \$860,000. The project costs are anticipated to be determined in mid-2024, upon completion of the seismic analysis.

Allocation of Funds for Lake Skinner Outlet Tower Valve Replacement

	Current Board Action (Apr. 2023)	
Labor		
Studies & Investigations	\$	40,000
Final Design		168,000
Owner Costs (Program mgmt., envir. monitoring)		98,000
Submittals Review & Record Drwgs.		59,000
Construction Inspection & Support		126,000
Metropolitan Force Construction		271,000
Materials & Supplies		-
Incidental Expenses		-
Professional/Technical Services		-
Right-of-Way		-
Equipment Use		-
Contracts		
B&K Valves and Equipment, Inc		1,174,475
Remaining Budget		233,525
Total	\$	2,170,000

The total amount expended to replace the tier five valves on the Lake Skinner Outlet Tower is approximately \$200,000. The total estimated cost to complete the valve replacement including the amount appropriated to date and funds allocated for the work described in this action is \$2,370,000.

The Metropolitan Water District of Southern California

Abstract of Bids Received on October 29, 2022, at 2:00 P.M.

RFB-KK-411322

Furnishing two 42" Butterfly Valves and Actuators for the Lake Skinner Outlet Tower

The work includes fabrication of two 42-inch butterfly valves and actuators.

Engineer's estimate: \$1 million to \$1.25 million

Bidder and Location	Base Bid Total Price ^{1.2}
Veteran Distribution and Supply Ellenton, FL	\$484,357.80 ³
B&K Valves and Equipment, Inc. Carlsbad, CA	\$1,174,475
Cascade Consultants LLC Yorba Linda, CA	\$1,875,892.79

¹ As a procurement contract, there are no subcontracting opportunities.

² Includes sales and use taxes of 7.75 percent imposed by the state of California

³ Non-responsive bid



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