



● **Board of Directors**  
***Engineering and Operations Committee***

6/14/2016 Board Meeting

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**8-5**

**Subject**

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Appropriate \$2.7 million; and award \$1,885,150 contract to Abhe & Svoboda, Inc. to replace fish screens on the Inlet/Outlet Tower at Diamond Valley Lake (Approp. 15441)

**Executive Summary**

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This action awards a construction contract to replace the fish screens mounted on the Inlet/Outlet Tower at Diamond Valley Lake (DVL). The fish screens prevent fish and debris from being drawn into and damaging the valves and pump-turbines at the Hiram W. Wadsworth Pumping Plant. The original screens are corroded and need to be replaced to protect the pumping plant equipment.

**Timing and Urgency**

The Inlet/Outlet Tower provides the primary means to fill and withdraw water from DVL. When water is drawn into the tower from the lake, four fish screens are placed over the ports to prevent fish, floating debris, or vegetation from being captured and transported to the pumping plant. Extensive corrosion has been observed on the lifting blocks, screen supports, and other structural elements of the fish screens. Continued corrosion of the fish screens could render the screens inoperable, and would increase the risk of damage to the pumping plant's valves and pump-turbines.

This project has been reviewed with Metropolitan's Capital Investment Plan (CIP) prioritization criteria and is included in the Distribution System Reliability Program. Funds for this action are available within Metropolitan's capital expenditure plan for fiscal year 2015/16.

**Details**

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**Background**

DVL is Southern California's largest surface water reservoir, with a maximum storage capacity of 810,000 acre-feet. DVL was completed in 2000 and is located south of the city of Hemet in Riverside County. The lake's Inlet/Outlet Tower is 266 feet high and is located east of Owen (West) Dam. The tower has nine tiers with twin 7-foot-diameter ports, spaced 25 feet apart, that allow water to enter or exit at different lake elevations. Flow through each port is controlled by a hydraulically operated butterfly valve. When lake water passes through the tower, it can be diverted to three locations: (1) Wadsworth pumping plant, which contains a bank of variable-speed pump-turbines; (2) a pressure control structure located adjacent to the pumping plant; or (3) the Eastside Pipeline, which can convey water north to the Lakeview Pipeline or Colorado River Aqueduct.

During lake withdrawals, fish screens are moved in front of the ports to prevent debris from entering the Inlet/Outlet Tower. A pulley system operated by a gantry crane mounted on top of the tower is used to raise and lower the four individual fish screen units to the desired port elevation.

Detailed inspections of the four fish screens identified that the coated carbon steel structural elements, including the hoist beam eye bars, support beams, and retaining pins, are severely corroded. The corrosion is likely caused by galvanic action between the stainless steel and carbon steel components of the screens. The corrosion damage is extensive, and continued deterioration of the structural components could impair the structural integrity of the

screens. Operation of the Inlet/Outlet Tower without the fish screens would risk damage to the valves at the tower, the pump-turbines at Wadsworth pumping plant, or the valves at the adjacent pressure control structure.

In February 2014, Metropolitan's Board authorized final design to replace the fish screens with units that would not be susceptible to galvanic corrosion. Final design has been completed, and installation of the new screens is recommended to move forward at this time.

### **DVL Inlet/Outlet Tower Fish Screen Replacement – Construction (\$2,700,000)**

The planned work under the contract includes removal of the existing fish screen assemblies, fabrication of new stainless steel fish screens, and installation of the new assemblies on the tower.

Specifications No. 1805 for the DVL Inlet/Outlet Tower Fish Screen Replacement was advertised for bids on February 17, 2016. As shown in [Attachment 2](#), nine bids were received and opened on April 28, 2016. The low bid from Abhe & Svoboda, Inc. in the amount of \$1,885,150 complies with the requirements of the specifications. The eight higher bids ranged from approximately \$1.92 million to \$4.19 million. The engineer's estimate was \$2.62 million. Staff investigated the difference between the engineer's estimate and the group of low bids and attributes the difference to a specification change issued by Metropolitan via an addendum during the bid period. This change modified the formulation of the stainless steel alloy for the fish screens, allowing a lower-cost alloy that would still satisfy the project requirements. Due to the specialized nature of the equipment furnished under this contract and the limited opportunity for subcontracting, Metropolitan did not establish a Small Business Enterprise (SBE) participation level for this work. Abhe & Svoboda, Inc. does not plan to use subcontractors for this contract.

This action appropriates \$2.7 million and awards a \$1,885,150 contract to Abhe & Svoboda, Inc. to install the new fish screens. In addition to the amount of the contract, the requested funds include \$145,000 for support by Metropolitan forces, which includes rehabilitation of the existing gantry crane, relocation of equipment to allow access for the contractor, and shutdown support. The requested funds also include \$292,000 for construction inspection; \$102,000 for submittals review, responding to requests for information, and preparation of record drawings by Metropolitan staff; \$95,000 for biological monitoring and project management; and \$180,850 for remaining budget.

Construction inspection will be performed by Metropolitan staff. For this project, the anticipated cost of inspection is approximately 14.4 percent of the total construction cost. Engineering Services' goal for inspection of projects with construction cost less than \$3 million is 9 to 15 percent. The total cost of construction for this project, which includes the construction contract and Metropolitan force activities, is \$2.03 million.

The total estimated cost to replace the fish screens on the DVL Inlet/Outlet Tower, including the amount appropriated to date and current funds requested, is approximately \$3.3 million.

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2015/16 capital expenditure plan. See [Attachment 1](#) for the Financial Statement, [Attachment 2](#) for the Abstract of Bids, and [Attachment 3](#) for the Location Map.

This work is included within capital Appropriation No. 15441, the Conveyance and Distribution System Rehabilitation Appropriation – FY 2006/07 Through FY 2011/12, which was initiated in fiscal year 2006/07. With the present action, the total funding for Appropriation No. 15441 will increase from \$87,139,000 to \$89,839,000.

### ***Project Milestone***

December 2017 – Completion of construction

### **Policy**

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Metropolitan Water District Administrative Code Section 5108: Appropriations

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

**California Environmental Quality Act (CEQA)**

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**CEQA determination for Option #1:**

The project was previously determined by the Board to be categorically exempt under Classes 1 and 2 (Sections 15301 and 15302 of the State CEQA Guidelines) on February 11, 2014. Since that time, the statute of limitations on the project has ended. With the current action, there is no substantial change being proposed since the original project was first approved in 2014. Hence, the previous environmental documentation in conjunction with the project fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further CEQA documentation is necessary for the Board to act with regard to the proposed action.

The CEQA determination is: Determine that the proposed action has been previously addressed in the 2014 categorical exemptions (Classes 1 and 2; Sections 15301 and 15302 of the State CEQA Guidelines) and that no further environmental analyses or documentation are required.

**CEQA determination for Option #2:**

None required

**Board Options**

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**Option #1**

Adopt the CEQA determination that the proposed action was previously addressed in the 2014 categorical exemptions and that no further environmental analyses or documentation are required, and

- a. Appropriate \$2.7 million; and
- b. Award \$1,885,150 contract to Abhe & Svoboda, Inc. to replace the fish screens on the Inlet/Outlet Tower at Diamond Valley Lake.

**Fiscal Impact:** \$2.7 million of capital funds under Approp. 15441

**Business Analysis:** This option will enhance reliability of Metropolitan’s assets and reduce the risk of costly future repairs.

**Option #2**

Do not proceed with the project at this time.

**Fiscal Impact:** None

**Business Analysis:** This option would forgo an opportunity to enhance reliability and to reduce the risk of damage to mechanical equipment at Wadsworth pumping plant and the DVL pressure control structure.

**Staff Recommendation**

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Option #1

  
 \_\_\_\_\_ 5/16/2016  
 Gordon Johnson Date  
 Manager/Chief Engineer  
 Engineering Services

  
 \_\_\_\_\_ 5/24/2016  
 Jeffrey Kightlinger Date  
 General Manager

[Attachment 1 – Financial Statement](#)

[Attachment 2 – Abstract of Bids](#)

[Attachment 3 – Location Map](#)

**Financial Statement for Conveyance and Distribution System Rehabilitation Appropriation – FY 2006/07 Through FY 2011/12**

A breakdown of Board Action No. 73 for Appropriation No. 15441 for the DVL Inlet/Outlet Tower<sup>1</sup> is as follows:

	<b>Previous Total Appropriated Amount (Feb. 2016)</b>	<b>Current Board Action No. 73 (June 2016)</b>	<b>New Total Appropriated Amount</b>
Labor			
Studies & Investigations	\$ 4,574,914	\$ -	\$ 4,574,914
Final Design	6,186,293	-	6,186,293
Owner Costs (Program mgmt., envir. monitoring)	7,754,123	90,000	7,844,123
Submittals Review & Record Drwgs.	1,008,670	102,000	1,110,670
Construction Inspection & Support	5,525,550	292,000	5,817,550
Metropolitan Force Construction	11,498,710	105,000	11,603,710
Materials & Supplies	3,333,040	40,000	3,373,040
Incidental Expenses	1,200,900	-	1,200,900
Professional/Technical Services	3,439,000	5,000	3,444,000
Right of Way	1,100,000	-	1,100,000
Equipment Use	330,200	-	330,200
Contracts	38,001,254	-	38,001,254
Abhe & Svoboda Inc.	-	1,885,150	1,885,150
Remaining Budget	3,186,346 <sup>2</sup>	180,850	3,367,196
<b>Total</b>	<b>\$ 87,139,000<sup>3</sup></b>	<b>\$ 2,700,000</b>	<b>\$ 89,839,000</b>

**Funding Request**

<b>Appropriation Name:</b>	Conveyance and Distribution System Rehabilitation Appropriation – FY 2006/07 Through FY 2011/12		
<b>Source of Funds:</b>	Revenue Bonds, Replacement and Refurbishment or General Funds		
<b>Appropriation No.:</b>	15441	<b>Board Action No.:</b>	73
<b>Requested Amount:</b>	\$ 2,700,000	<b>Budget Page No.:</b>	272
<b>Total Appropriated Amount:</b>	\$ 89,839,000	<b>Total Appropriation Estimate:</b>	\$ 121,000,000

<sup>1</sup>The total amount expended to date to replace the fish screens on the DVL Inlet/Outlet Tower is approximately \$606,000. The total estimated cost to complete this project, including the amount appropriated to date and current funds requested, is approximately \$3.3 million.

<sup>2</sup>Includes previous reallocation from Remaining Budget for the following projects: (1) \$14,914 for additional geotechnical investigations for the seismic upgrade of the Sepulveda Canyon Control Facility; (2) \$92,000 for increased costs for electrical service to the cathodic protection systems on the Allen-McColloch Pipeline; (3) \$190,000 for additional permitting and surveying on the Skinner area paving project; and (4) \$ 670,000 for contract change orders and environmental permitting for the seismic retrofit of the Santa Ana River Bridge, per Board Letter 7-3 in April 2016.

<sup>3</sup>The Financial Statement for previous Board Action No. 72 inadvertently omitted \$2.7 million appropriated in Board Action No. 71. The previous total appropriated amount has been corrected.

**The Metropolitan Water District of Southern California**

**Abstract of Bids Received on April 28, 2016 at 2:00 P.M.**

**Specifications No. 1805  
DVL Inlet/Outlet Tower Fish Screen Replacement**

The work consists of removing the existing fish screen assemblies from the DVL Inlet/Outlet Tower, fabricating new stainless steel fish screens, and installing the new assemblies on the tower.

Engineer's Estimate: \$2,620,000

<b>Bidder and Location</b>	<b>Total<sup>1</sup></b>
<b>Abhe &amp; Svoboda, Inc. / Alpine, CA</b>	<b>\$1,885,150</b>
Kana Engineering Group / Rancho Cucamonga, CA	\$1,920,983
Kaveh Engineering & Construction / Yorba Linda, CA	\$1,994,000
Environmental Construction, Inc. / Woodland Hills, CA	\$2,084,880
Irwin Industries, Inc. / Long Beach, CA	\$2,108,110
Hal Hays Construction / Riverside, CA	\$2,116,000
Kiewit Infrastructure West Co. / Santa Fe Springs, CA	\$2,127,000
Gracon LLC / Loveland, CO	\$2,310,900
SWC Contracting / Fallbrook, CA	\$4,193,747

<sup>1</sup> Due to the specialized nature of the equipment furnished under this contract and the limited opportunity for subcontracting, Metropolitan did not establish a Small Business Enterprise (SBE) participation level for this work.

# Distribution System

