



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

7/14/2015 Board Meeting

---

**8-1**

**Subject**

---

Appropriate \$27.4 million; award \$21,524,084 contract to Environmental Construction, Inc. to rehabilitate the east treatment basins at the Robert B. Diemer Water Treatment Plant; and authorize (1) agreement with Ninyo & Moore in an amount not to exceed \$436,000 for environmental services; and (2) increase of \$3.6 million in O&M expenditures for environmental remediation (Approp. 15380)

**Executive Summary**

---

This action awards a construction contract to rehabilitate the east flocculation and sedimentation basins at the Robert B. Diemer Water Treatment Plant. The work includes replacement and refurbishment of equipment, abatement of hazardous materials, and modification of the basins' electrical equipment. This action also authorizes a specialized agreement for materials testing and environmental monitoring.

**Timing and Urgency**

Reliable operation of a water treatment plant's flocculation and sedimentation processes is essential for it to comply with its operating permit and produce water that meets federal and state drinking water regulations. The mechanical, structural, and electrical components of the basins at the Diemer plant have deteriorated from over 50 years of continuous use. They need to be rehabilitated in order to maintain reliable treated water deliveries from the plant.

This project has been reviewed with Metropolitan's updated Capital Investment Plan (CIP) prioritization criteria and is included within the Treatment Plant Reliability Program. Funds for the equipment refurbishment work have been included in Metropolitan's capital expenditure plan for fiscal year 2015/16. The abatement work will be performed with operation and maintenance (O&M) funds.

**Details**

---

**Background**

The Diemer plant was placed into service in 1963 with an initial capacity of 200 million gallons per day (mgd), and was expanded in 1969 to its present capacity of 520 mgd. The Diemer plant delivers a blend of waters from the Colorado River Aqueduct and State Water Project to Metropolitan's Central Pool and to an exclusive service area in Orange County. The plant is located within the city of Yorba Linda.

The Diemer plant has eight flocculation/sedimentation basins. The four basins on the east side commenced operation in 1963, while the west basins were added in 1969. Each basin is 500 feet long by 100 feet wide, and is further divided into a 100-foot-long flocculation section and a 400-foot-long sedimentation section.

Flocculation and sedimentation are important unit processes within a conventional water treatment plant. Flocculation follows immediately after the initial chemical addition, and is designed to gently mix small particles and colloids in the water so they agglomerate to form settleable or filterable particles that can be subsequently removed by sedimentation and filtration.

The flocculation section of each basin is partitioned by wooden baffle walls into a number of long narrow compartments. Within each compartment, flocculation is enabled through gentle mixing by a series of horizontal paddle wheels. Water flows over and under the baffle walls, which are comprised of wooden boards stacked along their long edges and held in place by steel guides embedded in the concrete floor.

After passing the last set of baffle walls, water enters the sedimentation section, where large particles settle on the basin floor. The sedimentation section of each basin contains four subsections, and each has a circular clarifier/turntable assembly and catwalk that span either half-way or completely across the basin. The catwalks provide access to the top of the turntable assemblies for maintenance of motors, electrical panels, and controls for the scraping and collection mechanism. Settled solids are swept by the rotating scraping arms into center hoppers, where they are pumped to thickeners for further processing. Clarified water is collected in launder troughs and is then conveyed to the filters. While the equipment within these basins has received routine maintenance over its 50 years of operation, this equipment has begun to deteriorate in recent years.

In February 2013, Metropolitan's Board authorized design for comprehensive rehabilitation of the Diemer basins. Key components to be upgraded include basin inlet gates; flocculator drives and shafting; baffle boards and supports; turntable assemblies, rakes, and catwalks; launders; and structural supports for the equipment. In addition, modifications to the basins' electrical systems are needed for compliance with current electrical codes.

In order to comply with federal Toxic Substances Control Act (TSCA) regulations, the flexible joint sealant and adjacent concrete within the east basins will be removed and replaced. Since the basin equipment and baffle walls must be removed in order to gain access to the joints, the abatement work has been integrated into the overall scope of the basin rehabilitation.

The Diemer basin rehabilitation work will be completed in two phases in order to minimize operational impacts on the plant. In addition, shutdown activities on each side of the plant will be synchronized with needed filter upgrades. Final design for rehabilitation of the four east treatment basins has been completed, and staff recommends proceeding with construction at this time so the east basin work can be performed simultaneously with the east filter upgrades, which recently got underway.

### **Project No. 1 - Diemer East Basin Rehabilitation – Construction (\$27,400,000)**

Specifications No. 1800 for the Diemer East Basin Rehabilitation project was advertised for bids on April 23, 2015. As shown in [Attachment 2](#), eight bids were received and opened on June 2, 2015. The low bid from Environmental Construction, Inc. in the amount of \$21,524,084 complies with the requirements of the specifications. The seven higher bids ranged from approximately \$22.4 million to \$29.2 million, while the engineer's estimate was \$23.7 million.

For this contract, Metropolitan established a Small Business Enterprise (SBE) participation level of at least 20 percent of the bid amount. Environmental Construction, Inc. is an SBE firm, and thus achieves 100 percent participation. The subcontractors for this contract are listed in [Attachment 3](#).

This action appropriates \$27.4 million and awards a \$21,524,084 contract to Environmental Construction, Inc. to rehabilitate the east treatment basins at the Diemer plant. The environmental remediation portion of the contract, which will be executed with O&M funds, is \$3 million. The capital portion of the contract is \$18,524,084. The requested capital funds include the latter amount plus \$1.51 million for construction support by Metropolitan forces, which includes electrical system shutdowns and switchovers, supervisory control and data acquisition (SCADA) programming, equipment start-up and testing, and sequential shutdown and start-up of basins. The requested funds also include \$2,753,000 for construction inspection; \$1,578,000 for submittals review and record drawing preparation by Metropolitan staff; \$872,000 for contract administration, permitting, and project management; and \$2,162,916 for remaining budget.

Metropolitan staff will perform inspection of the construction, with specialized assistance from Ninyo & Moore for materials testing and environmental monitoring, as described below. For this project, the anticipated cost of inspection is approximately 11.6 percent of the total construction cost. Engineering Services' goal for inspection of projects with construction cost greater than \$3 million is 9 to 12 percent. The total cost of construction for this project, which includes the contract amount and Metropolitan force activities, is \$23,634,084.

**Project No. 2 – Diemer East Basin Environmental Remediation (No capital funds required)**

During the 1960s, when the Diemer plant was built, many commonly used construction materials contained substances that are now classified as hazardous. Metropolitan has established protocols for mitigation of these substances to ensure a safe working environment and to comply with hazardous material regulations. One component of the Diemer East Basin Rehabilitation project consists of abatement of these materials. A similar situation was previously encountered at the Jensen plant's Basin No. 3, which was successfully remediated in 2009. During the design phase for the Diemer treatment basin rehabilitation, staff performed demonstration testing to develop an abatement plan. Approval was obtained from the U. S. Environmental Protection Agency (EPA) in September 2014, enabling the abatement to proceed.

In accordance with provisions of the Governmental Accounting Standards Board (GASB), Metropolitan's work associated with environmental remediation must be conducted with O&M funds instead of a capital appropriation. The estimated cost for remediation at the Diemer basins is approximately \$3.6 million. This amount includes \$3 million for work performed by the contractor; \$436,000 for sampling and environmental monitoring by a specialty consultant; and \$164,000 for permitting by Metropolitan staff. Since the abatement protocol was not finalized prior to adoption of the biennial budget for fiscal years 2014/15 and 2015/16, the O&M expenditure plan will be revised to reflect this work.

This action authorizes an increase of \$3.6 million in the expenditure of O&M funds for the Water System Operations Group in fiscal year 2015/16 for environmental remediation associated with the Diemer East Basin Rehabilitation project. The remediation work will be executed under the subject construction contract, while specialized support will be provided by Ninyo & Moore, as discussed below.

**Specialized Environmental Services – Ninyo & Moore (New Agreement)**

Materials sampling and environmental monitoring for remediation of the Diemer treatment basins is recommended to be performed by Ninyo & Moore. Ninyo & Moore was prequalified via Request for Qualification No. 1012 to provide these types of services, and was selected for this project based on its experience in the highly specialized area of environmental remediation. The planned scope of work includes reviewing submittals from the contractor for the abatement plan; collecting samples of concrete, water, and sediments for chemical analyses based on protocols established in the EPA permit; performing industrial hygiene monitoring during the removal of joint sealants and concrete; and assisting in the preparation of manifests for waste disposal. The estimated cost for these services is \$436,000.

This action authorizes an agreement with Ninyo & Moore in an amount not to exceed \$436,000 to provide environmental support for the Diemer East Basin Rehabilitation project. Due to the specialized nature of these services, no SBE participation level was established for this agreement. Ninyo & Moore has identified Cardno, Orange Coast Analytical, Inc., and EMSL Analytical, Inc. as subconsultants under this agreement.

**Summary**

This action appropriates \$27.4 million; awards a contract to rehabilitate the east treatment basins at the Diemer plant; authorizes an agreement for environmental services; and authorizes an increase of \$3.6 million in the expenditure of O&M funds in fiscal year 2015/16. All work has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds for the capital portion of the work have been included in the capital expenditure plan for fiscal year 2015/16. See [Attachment 1](#) for the Financial Statement, [Attachment 2](#) for the Abstract of Bids, [Attachment 3](#) for the List of Subcontractors, and [Attachment 4](#) for the Location Map.

The total estimated cost to complete the capital portion of the Diemer East Basin Rehabilitation, including the amount appropriated to date and current funds requested, is approximately \$34.1 million.

The capital portion of the work is included within Appropriation No. 15380, the Diemer Improvements Appropriation, which was initiated in fiscal year 2001/02. With the present action, the total funding for Appropriation No. 15380 will increase from \$132,596,600 to \$159,996,600.

***Project Milestone***

July 2017 – Completion of rehabilitation of the Diemer east treatment basins

**Policy**

---

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)**

---

CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The overall activities involve 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, and minor cleanup actions taken to prevent, minimize, stabilize, or eliminate the release or threat of release of a hazardous substance. Accordingly, the proposed action qualifies under Class 1, Class 2, and Class 30 Categorical Exemptions (Sections 15301, 15302, and 15330 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under three Categorical Exemptions (Class 1, Section 15301; Class 2, Section 15302; and Class 30, Section 15330 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

**Board Options**

---

**Option #1**

Adopt the CEQA determination that the proposed action is categorically exempt from CEQA, and

- a. Appropriate \$27.4 million;
- b. Award \$21,524,084 contract to Environmental Construction, Inc. to rehabilitate the east treatment basins at the Diemer plant;
- c. Authorize agreement with Ninyo & Moore in an amount not to exceed \$436,000; and
- d. Authorize increase of \$3.6 million in O&M expenditures in fiscal year 2015/16 for environmental remediation.

**Fiscal Impact:** \$27.4 million in capital funds under Approp. 15380 and an increase of \$3.6 million in O&M funds for fiscal year 2015/16

**Business Analysis:** This option will enhance reliability of treated water deliveries from the Diemer plant and will comply with federal TSCA regulations.

**Option #2**

Do not proceed with the project at this time.

**Fiscal Impact:** None

**Business Analysis:** Under this option, staff would replace existing basin equipment as it fails. Overall refurbishment costs would increase, along with the risk of unplanned outages of the Diemer plant. In addition, Metropolitan may be subjected to penalties for non-compliance with the environmental remediation plan under the TSCA regulations.

**Staff Recommendation**

---

Option #1

  
Gordon Johnson  
Manager/Chief Engineer  
Engineering Services

6/22/2015  
Date

  
Jeffrey Kightlinger  
General Manager

6/30/2015  
Date

- Attachment 1 – Financial Statement**
- Attachment 2 – Abstract of Bids**
- Attachment 3 – Subcontractors for Low Bidder**
- Attachment 4 – Location Map**

Ref# es12637052

**Financial Statement for Diemer Improvements Appropriation**

A breakdown of Board Action No. 26 for Appropriation No. 15380 for the Diemer East Basin Rehabilitation<sup>1</sup> is as follows:

	<b>Previous Total Appropriated Amount (Aug. 2013)</b>	<b>Current Board Action No. 26 (July 2015)</b>	<b>New Total Appropriated Amount</b>
Labor			
Studies & Investigations	\$ 1,930,200	\$ -	\$ 1,930,200
Final Design	9,514,900	-	9,514,900
Owner Costs (Program mgmt., permitting)	9,237,159	852,000	10,089,159
Submittals Review & Record Drwgs.	1,343,097	1,562,000	2,905,097
Construction Inspection & Support	7,960,168	2,753,000	10,713,168
Metropolitan Force Construction	5,144,600	1,280,000	6,424,600
Materials & Supplies	939,916	210,000	1,149,916
Incidental Expenses	1,770,462	56,000	1,826,462
Professional/Technical Services	11,521,375	-	11,521,375
Equipment Use	96,608	-	96,608
Contracts	82,330,553	-	82,330,553
Environmental Construction, Inc.	-	18,524,084	18,524,084
Remaining Budget	807,562 <sup>2</sup>	2,162,916	2,970,478
<b>Total</b>	<b>\$ 132,596,600</b>	<b>\$ 27,400,000</b>	<b>\$ 159,996,600</b>

**Funding Request**

<b>Appropriation Name:</b>	Diemer Improvements Appropriation		
<b>Source of Funds:</b>	Revenue Bonds, Replacement and Refurbishment or General Funds		
<b>Appropriation No.:</b>	15380	<b>Board Action No.:</b>	26
<b>Requested Amount:</b>	\$ 27,400,000	<b>Budget Page No.:</b>	286
<b>Total Appropriated Amount:</b>	\$ 159,996,600	<b>Total Appropriation Estimate:</b>	\$ 255,800,000

<sup>1</sup> The total amount expended to date on the Diemer Basin Rehabilitation is approximately \$6.7 million. The total estimated cost to complete the basin rehabilitation, including the amount appropriated to date and current funds requested, is approximately \$34.1 million.

<sup>2</sup> Includes previous reallocation of \$1,380,295 for final payment to the Calif. Dept. of Parks and Recreation for the Diemer North Access Road project; \$305,893 for four Diemer projects constructed under the Diemer Oxidation Retrofit Project contract, but which are part of this appropriation’s scope; and \$1.16 million for design of the Diemer Basin Rehabilitation to address seismic code compliance, hazardous material regulations, and electrical reliability.

**The Metropolitan Water District of Southern California**

**Abstract of Bids Received on June 2, 2015 at 2:00 P.M.**

**Specifications No. 1800**

**Diemer East Basin Rehabilitation**

The work consists of removing and installing all equipment at the treatment basins; modifying structural supports for basin equipment; removing joint sealants and adjoining concrete; installing Metropolitan-furnished solids pumps and modifying the associated piping; and modifying the electrical and control components at the basins.

**Engineer's Estimate: \$23,700,000**

<b>Bidder and Location</b>	<b>Total</b>	<b>SBE \$</b>	<b>SBE %</b>	<b>Met SBE<sup>1</sup></b>
<b>Environmental Construction, Inc. Woodland Hills, CA</b>	<b>\$21,524,084</b>	<b>\$21,524,084</b>	<b>100%</b>	<b>Yes</b>
Steve P. Rados, Inc. Santa Ana, CA	\$22,430,758	-	-	-
J. F. Shea Construction, Inc. Walnut, CA	\$22,706,447	-	-	-
PCL Construction, Inc. Corona, CA	\$25,418,140	-	-	-
Kana Engineering Group, Inc. Rancho Cucamonga, CA	\$25,661,554	-	-	-
Kiewit Infrastructure West Co. Santa Fe Springs, CA	\$26,028,000	-	-	-
Myers and Sons Construction Sacramento, CA	\$28,343,340			
USS CAL Builders Stanton, CA	\$29,175,860			

<sup>1</sup> SBE (Small Business Enterprise) participation level established at 20 percent for this contract

**The Metropolitan Water District of Southern California**

**Subcontractors for Low Bidder**

**Specifications No. 1800**

**Diemer East Basin Rehabilitation**

**Low Bidder: Environmental Construction, Inc.**

<b>Subcontractor and Location</b>
GGG Demolition, Inc., Orange, CA
CSI Electrical, Santa Fe Springs, CA
Pacific Water Proofing and Restoration, Inc., Pomona, CA
GTE Metals, Inc., Canby, OR

# Distribution System

