

UNITED STATES DISTRICT COURT  
for the  
DISTRICT OF MASSACHUSETTS

.....

UNITED STATES OF AMERICA,

Plaintiff,

v.

METROPOLITAN DISTRICT COMMISSION,  
et al.,

Defendants.

CIVIL ACTION  
No. 85-0489-RGS

.....

CONSERVATION LAW FOUNDATION OF  
NEW ENGLAND, INC.,

Plaintiff,

v.

METROPOLITAN DISTRICT COMMISSION,

Defendants.

CIVIL ACTION  
No. 83-1614-RGS

.....

MWRA QUARTERLY COMPLIANCE AND  
PROGRESS REPORT AS OF JUNE 15, 2011

The Massachusetts Water Resources Authority (the "Authority") submits the following quarterly compliance report for the period from March 16, 2011 to June 15, 2011 and supplementary compliance information in accordance with the Court's order of December 23, 1985 and subsequent orders of the Court.

I. Schedule Seven

Schedule Seven activity for the months of March and May 2011 on the Court's Schedule Seven, certified by Frederick A. Laskey, Executive Director of the Authority, is attached hereto as Exhibit "A."

A. Activities Completed.

1. Complete Construction of North Dorchester Bay Storage Tunnel and Related Facilities.

The Authority reports compliance with this milestone because it has completed more than 99 percent of all planned construction, including all of the work necessary to bring the \$231 million North Dorchester Bay combined sewer overflow ("CSO") storage tunnel and related facilities project, the single most expensive CSO control project in Schedule Seven, into its full intended environmental function. As of May 4, 2011, the tunnel and related facilities have operated as intended to achieve the environmental benefits of the project in accordance with the Authority's \$267 million<sup>1</sup> CSO control plan for North Dorchester Bay and the beaches of South Boston. Since that time, the tunnel has captured approximately 42 million gallons of flow that would have discharged to the beaches.

The long-term CSO control plan for North Dorchester Bay and South Boston beaches includes a 10,832-foot long, 17-foot diameter CSO storage

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<sup>1</sup> Includes engineering, construction and land costs for the North Dorchester Bay storage tunnel and facilities (\$231 M), the Pleasure Bay drainage improvements (\$3.2 M), and BWSC's Morrissey Boulevard Storm Drain (\$32.9 M).

tunnel that provides nearly 19 million gallons storage capacity for CSO and separate stormwater flows; a 15-million-gallon per day tunnel dewatering pump station near the downstream end of the tunnel at Massachusetts Port Authority's ("Massport") Conley Terminal and related 24-inch diameter discharge force main; a below-ground tunnel ventilation and odor control building near the upstream end of the tunnel adjacent to the State Police Barracks on Day Boulevard; Boston Water and Sewer Commission's ("BWSC") 2,800-foot long, 12-foot by 12-foot Morrissey Boulevard storm drain and its outfall to Savin Hill Cove; and drainage improvements that redirect stormwater away from Pleasure Bay Beach to the less sensitive Reserved Channel.

To date, the Authority has finished 99.7 percent of the construction work comprising the North Dorchester Bay CSO storage tunnel and related facilities project, allowing the facilities to be brought into operation. The less than one-percent contract work that will continue through the next few months does not affect the Authority's ability to operate the project for full environmental benefit. All of the CSO and stormwater diversion structures and gates that redirect flows to the tunnel are operational, and all gates are now kept open under normal dry weather and wet weather operating conditions, as intended. The Authority is confirming and adjusting the final communications control logic and set points of the SCADA operating system and expects to continue to evaluate and adjust the operating system as it gains experience with a full range of wet weather events.

The Authority has also brought the dewatering pump station and force main and the below ground ventilation building into long-term operation. Remaining work by the contractor for the \$26.5-million pump station and force main includes resolving an electrical problem with the ventilation supply fans, making improvements to the efficiency of the wet weather pump intakes, addressing punch list items raised from Authority inspections and from recent fire code inspections by Massport (with agreement from Boston Fire Department), and completing site restoration, including paving, within the permanent pump station site and in the larger temporary construction easement that will be returned to Massport for its terminal operations.

Remaining work by the contractor for the \$5.3-million below-ground ventilation building includes installing the second activated carbon adsorption vessel, which is expected to be delivered to the site on June 17, 2011. The vessel originally installed by the contractor failed an on-site test in March, and a new vessel had to be fabricated. In the meantime, the first vessel is fully installed and operational, and the Authority has secured a means for providing temporary compensatory odor control capacity if needed in the interim. The Authority expects that the contractor will install the replacement activated carbon adsorption vessel and bring it into operation upon delivery. The ventilation building contractor is also working to complete activation of the fire alarm system in advance of Boston Fire Department inspection and is addressing punch list items from the Authority's facility inspections.

With all of the elements of the \$267 million overall plan now operational<sup>2</sup>, the Authority will significantly reduce stormwater discharges to Carson and City Point Beaches and provide a 25-year level of CSO control to North Dorchester Bay, in accordance with Schedule Seven. The Authority's CSO storage tunnel and related facilities, along with BWSC's Morrissey Boulevard storm drain, are intended to prevent combined sewer overflows to North Dorchester Bay up to the 25-year, 24-hour storm, and prevent separate stormwater discharges to North Dorchester Bay up to the 5-year, 24-hour storm. The Morrissey Boulevard storm drain and its connections to the CSO storage tunnel allow stormwater from the former "Outfall BOS087," which historically discharged to Carson Beach at Mother's Rest, to be redirected to Savin Hill Cove. For storms up to the 1-year, 24 hour storm, all stormwater from BOS087 will be captured in the North Dorchester Bay tunnel. For storms greater than the 1-year, 24 hour storms, a "first flush" of stormwater from BOS087 will be captured in the tunnel, with the remaining stormwater diverted to the Morrissey Boulevard storm drain and Savin Hill Cove. The CSO and stormwater diversion structures that direct flows into the tunnel also prevent any dry weather flows that can enter the remaining five North Dorchester Bay outfalls from draining to the beaches.

Prior to the implementation of these projects, CSO discharged to the beaches approximately 20 times per year, and separate stormwater drained to

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<sup>2</sup> The Authority completed the Pleasure Bay storm drain improvements in March 1996, and Boston Water and Sewer Commission attained substantial completion of the Morrissey Boulevard storm drain and outfall to Savin Hill Cove in July 2009.

the beaches every time it rained, nearly 100 times per year. With the implementation of these projects, the two most significant sources of contamination to the beaches – CSO and stormwater – have been virtually eliminated and will no longer be the cause of beach closures. Despite the elimination of these sources, the Authority understands that DCR will continue its routine water quality sampling program which might capture other contaminant sources (e.g., birds and dogs) that could lead to beach closures.

With the Authority's project now on-line, DCR's longstanding precautionary approach of also issuing a beach advisory following a rainfall of one-half inch or more has been changed to issuing a precautionary advisory only when the Authority reports to DCR that it has closed either a stormwater gate or a CSO gate to the tunnel, thereby allowing for a discharge to North Dorchester Bay. The Authority plans to optimize the performance of the new tunnel, assess the performance in meeting the environmental goals and track the water quality improvements in North Dorchester Bay that are the return on a major investment by the Authority's ratepayers.

2. Annual Combined Sewer Overflow Report.

The Authority submitted its 2010 annual CSO report on March 15, 2011, in compliance with Schedule Seven.

B. Progress Report.

1. Combined Sewer Overflow Program.

a. Cambridge Sewer Separation.

Since the Authority last reported, the City of Cambridge was able to secure the remaining private easements and rights of entry necessary to commence construction of the CAM004 stormwater outfall and detention basin project ("Contract 12"). The City had issued a Limited Notice to Proceed with construction of Contract 12 on April 26, 2011 that excluded the parcels at 125, 150, and 180 Cambridge Park Drive where easements and rights of entry had not yet been obtained.<sup>3</sup> It then issued a full Notice to Proceed with construction of Contract 12 on May 23, 2011 after it obtained fully executed easements and rights of entry for the parcels at 125, 150, and 180 Cambridge Park Drive on May 5, 2011. Cambridge has now obtained all of the necessary easements for the CAM004 stormwater outfall and detention basin project with the exception of the DCR easements authorized by Article 97 legislation signed by the Governor in August 2010. The lack of DCR easements has not precluded Cambridge from commencing construction. DCR plans to execute the easements once it has received comments from the City.

The City was also able to complete construction of the CAM400 Manhole Separation project on March 30, 2011, in accordance with the schedule that

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<sup>3</sup> Cambridge was able to change its construction method to reduce the amount of affected property at Cambridge Park Drive and eliminate the impact on parking that was a source of concern for the bank which now owns the Cambridge Park Drive parcels, thereby eliminating the need for parcel 180R.

the City of Cambridge developed in 2009 during preliminary design. With the completion of this project, Cambridge has completed two out of the four Alewife Brook CSO projects that it is implementing.

The \$112 million Alewife Brook long-term CSO control plan, which is designed to minimize CSO discharges to Alewife Brook and Upper Mystic River, currently consists of five projects, including CAM004 stormwater outfall and detention basin; CAM400 manhole separation; interceptor connection relief and floatables control at CAM002, CAM401B and SOM01A, and floatables control at CAM001; CAM004 sewer separation; and control gate and floatables control at outfall MWR003 and MWRA Rindge Avenue siphon relief. Cambridge is implementing (designing, constructing and ultimately owning) the first four projects with the exception of the interceptor connection relief and floatables control at SOM01A, which the Authority now plans to construct as a separate project.<sup>4</sup> With the addition of the interceptor connection relief and floatables control at SOM01A as a separate project, there are now six Alewife Brook CSO control projects.

These projects, together with improvements already completed by Cambridge,<sup>5</sup> are predicted to reduce annual CSO volume to Alewife Brook by

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<sup>4</sup> The new schedule includes the shift of the interceptor connection relief and floatables control at SOM01A (a City of Somerville outfall) from the interceptor relief and floatables controls at CAM002, CAM401B, and floatables control at CAM001 project implemented by Cambridge to a separate project managed by the Authority.

<sup>5</sup> As part of the Authority's 1997 long-term CSO control plan, the City of Cambridge completed four construction contracts in 2002 that are part of the current CAM004 sewer separation project.



85 percent in a typical year, from 50 million gallons to 7.29 million gallons. CSO activations in a typical year will drop from 63 to seven. Two CSO outfalls will be closed as a result of these projects (in addition to the several outfalls that were closed by earlier CSO projects implemented by the City of Somerville), leaving six active CSO outfalls that discharge to the Alewife Brook – four owned by the City of Cambridge, one owned by the City of Somerville and one owned by the Authority. At the recommended control levels, CSO discharges from these outfalls will comply with Class B (fishable/swimmable) water quality criteria 98.5 percent of the time.

As a result of the delays due to the appeal of the Superseding Order of Conditions for Contract 12 and the additional time needed to accommodate necessary easements and permits for construction, the construction milestones for the Alewife projects set forth in Schedule Seven cannot be achieved.<sup>6</sup> Therefore, the Authority plans to seek the Court's approval to delete the existing Alewife project milestones and replace those milestones with new milestones that are based on the Authority's and Cambridge's current project schedules and provide a timeline that is both feasible and expeditious. The Authority has drafted and circulated a motion to amend Schedule Seven by

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<sup>6</sup> See Compliance and Progress Reports dated March 15, 2011, pp.12-17; December 15, 2010, pp.2-5; September 15, 2010, pp. 5-8; December 15, 2009, pp. 6-8; September 15, 2009, pp. 4-7; June 15, 2009 pp. 4-5; March 16, 2009, pp. 3-5; December 15, 2008, pp. 6-7; September 15, 2008, pp. 5-6; June 13, 2008 pp. 6-7; March 14, 2008, pp. 4-5; December 14, 2007, pp. 5-6; December 15, 2006, pp. 9-10; September 15, 2006, pp. 6-7; December 15, 2004, pp. 10-12; and September 15, 2004, pp. 6-7; and March 2011 Annual Progress Report, pp. 44-51 for previous reports describing delays.

revising the milestones for these projects and supporting memorandum to the Court parties and plans to seek approval from its Board of Directors to file the motion with the Court on June 29.

b.) Brookline Sewer Separation.

The Town of Brookline has made substantial progress with construction of the \$25.9 million Brookline Sewer Separation project. The project involves sewer separation in a 72-acre area of Brookline where there are remaining combined sewers tributary to the Authority's Charles River Valley Sewer. The project is intended to reduce discharges to the Charles River at the Authority's Cottage Farm facility. The project includes two Town of Brookline sewer separation contracts and an Authority contract to clean and rehabilitate Outfall MWR010, which will convey the separated Brookline stormwater to the Charles River. Brookline's Contract 1 included the installation of 5,658 linear feet of storm drain in streets on the north and south sides of Beacon Street.

Brookline attained substantial completion of this \$1.4 million contract in January 2010. Brookline's \$16.6 million Contract 2 involves micro-tunneling along Beacon Street, St. Mary's and Monmouth Streets to install new sewers at significant depths, construction of several special structures that will connect the new main-line sewers with Brookline's lateral sewers and the Authority's interceptors, and conversion of Brookline's main trunk combined sewers to storm drains.

In the past quarter, the contractor has continued to coordinate with utility owners, make submissions required by the contract, conduct

preconstruction surveys and conduct traffic management, environmental monitoring and rodent control. In areas where construction activities are now underway, the contractor conducted extensive underground utilities investigations to assure clearance for micro-tunnel operations, and relocated utilities where necessary. In addition, the contractor completed the micro-tunnel boring machine ("MTBM") entry and exit shafts and a 500 linear-foot MTBM drive to install a 57-inch diameter sanitary sewer on Monmouth Street.

The contractor is now preparing to install an additional 175 feet of 57-inch diameter sanitary sewer and a special structure to connect the new sewer to the Authority's Charles River Valley Sewer interceptor at Monmouth and St. Mary's Streets, pending relocation of an NSTAR manhole. The contractor has also completed most of the necessary utility relocations and certain MTBM entry and exit shafts on St. Mary's Street in preparation for a 600-foot MTBM drive(s) to install an 18-inch sanitary sewer. On Beacon Street, the contractor has completed some of the utility relocation work, as well as MTBM entry and exit shafts at Borland Street and Kent Street, respectively, and continues excavation work for a special structure that will be built on the Authority's South Charles River Relief Sewer interceptor.

In the meantime, the Authority has issued a \$246,910 task order for final design services associated with the cleaning of sediments from the outfall MWR010 and the removal of old tide gate structures that will no longer be needed. The Authority plans to award and complete the cleaning and rehabilitation contract in 2012.

c.) Quarterly CSO Progress Report.

In accordance with Schedule Seven, the Authority submits as Exhibit "B" its Quarterly CSO Progress Report (the "quarterly report"). The quarterly report summarizes progress made in design and construction on the CSO projects during the past quarter and identifies issues that affect or may affect compliance with Schedule Seven.

Respectfully submitted,

/s/ John M. Stevens  
John M. Stevens (BBO #480140)  
Foley, Hoag LLP  
155 Seaport Boulevard  
Boston, Massachusetts 02210  
(617) 832-1000  
jstevens@foleyhoag.com

Of Counsel:

Steven A. Remsberg,  
General Counsel  
Christopher L. John,  
Senior Staff Counsel  
Massachusetts Water Resources  
Authority  
100 First Avenue  
Boston, Massachusetts 02129  
(617) 242-6000

CERTIFICATE OF SERVICE

I hereby certify that a true and accurate copy of this document, which was filed via the Court's ECF system, will be sent electronically by the ECF system to the registered participants as identified on the Notice of Electronic Filing (NEF) and paper copies will be sent to those indicated as non-registered participants on June 15, 2011.

/s/ John M. Stevens  
John M. Stevens (BBO No. 480140)  
jstevens@foleyhoag.com

Dated: June 15, 2011

**EXHIBIT A**

**SCHEDULE SEVEN**

**MWRA MONTHLY COMPLIANCE REPORT**  
March, May 2011

**EXHIBIT "A"**  
**NEW BOSTON HARBOR  
SECONDARY  
TREATMENT PLANT**

**LONG-TERM  
SLUDGE MANAGEMENT**

**MONTH/YEAR**      **CSO CONTROL**

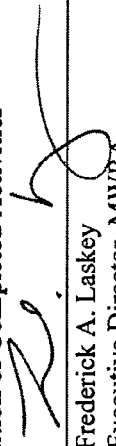
March 2011      MWRA to submit annual report which describes progress in planning, design, and construction of each CSO project, and identifies any issues which may interfere with timely completion of any project.<sup>31</sup>

(Completed – See June 15, 2011 Compliance and Progress Report.)

May 2011      MWRA to complete construction of North Dorchester Bay storage tunnel and related facilities.

(Completed – See June 15, 2011 Compliance and Progress Report.)

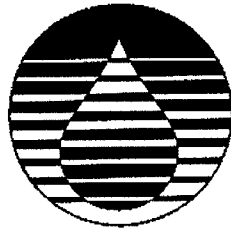
**Certification of Completed Activities**

By:   
Frederick A. Laskey  
Executive Director, MWRA

Date: June 15, 2011

**EXHIBIT B**

**Massachusetts Water Resources Authority**



**Combined Sewer Overflow  
Control Plan**

**Quarterly Progress Report  
June 15, 2011**



**TABLE OF CONTENTS**

	<u>Page</u>
1. Quarterly Progress Overview	1
2. Quarterly Progress Highlights	2
3. Project Implementation	
North Dorchester Bay Tunnel and Related Facilities	3
Reserved Channel Sewer Separation	5
Brookline Sewer Separation	6
Cambridge/Alewife Brook Sewer Separation	7

**Table 1**  
**Status of CSO Project Implementation**  
**June 15, 2011**

MWRA Contract	CSO Projects in Schedule Seven	IN DESIGN	IN CONSTRUCTION	COMPLETE
<b>MWRA Managed Projects</b>				
N. Dorchester Bay Tunnel	N. Dorchester Bay CSO Storage Tunnel and Related Facilities			X
N. Dorchester Bay Facilities				
Pleasure Bay Storm Drain Improvements				X
Hydraulic Relief Projects	CAM005 Relief			X
	BOS017 Relief			X
East Boston Branch Sewer Relief				X
BOS019 CSO Storage Conduit				X
Chelsea Relief Sewers	Chelsea Trunk Sewer Relief			X
	Chelsea Branch Sewer Relief			X
	CHE008 Outfall Repairs			X
Union Park Detention/Treatment Facility				X
CSO Facility Upgrades and MWRA Floatables	Cottage Farm Upgrade			X
	Prison Point Upgrade			X
	Commercial Point Upgrade			X
	Fox Point Upgrade			X
	Somerville-Marginal Upgrade			X
MWRA Floatables and Outfall Closings				X
Brookline Connection and Cottage Farm Overflow Interconnection and Gate				X
Optimization Study of Prison Point CSO Facility				X
<b>Community Managed Projects</b>				
South Dorchester Bay Sewer Separation				X
Stony Brook Sewer Separation				X
Neponset River Sewer Separation				X
Constitution Beach Sewer Separation				X
Fort Point Channel Sewer Separation and System Optimization				X
Morrissey Boulevard Storm Drain				X
Reserved Channel Sewer Separation		X	X	
Bulfinch Triangle Sewer Separation				X
Brookline Sewer Separation			X	
Somerville Baffle Manhole Separation				X
Cambridge/Alewife Brook Sewer Separation	CAM004 Outfall and Basin		X	
	CAM004 Sewer Separation	X	X <sup>(1)</sup>	
	CAM400 Manhole Separation			X
	Interceptor Connection Relief/Floatables at CAM001, CAM002, and CAM401B			X
	Interceptor Connection Relief/Floatables at SOM01A	Start 2012		
	MWR003 Gate and Rindge Ave. Siphon	Start 2012		

<b>Region-wide Floatables Control and Outfall Closings</b>			X
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<sup>(1)</sup> In 1997-2002, Cambridge completed design and construction of four initial contracts to separate the CAM004 tributary area.

Massachusetts Water Resources Authority  
Combined Sewer Overflow Control Plan  
Quarterly Progress Report - June 2011

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## 1. Quarterly Progress Overview

Massachusetts Water Resources Authority (MWRA) presents this quarterly progress report to comply with reporting requirements in the Federal District Court's Order in the Boston Harbor Case. For the combined sewer overflow (CSO) projects referenced in the Court's Order and its schedule of milestones (Schedule Seven) that are not yet complete, the report summarizes progress made during the period from March 16, 2011, to June 15, 2011, identifies project schedules relative to corresponding Court milestones, and describes issues that have affected or may affect compliance with Schedule Seven. Detailed descriptions of the CSO projects and identification of Court milestones for design and construction are not presented in this report but can be found in MWRA's *CSO Annual Progress Report 2010*, dated March 2011 (the "Annual Report"). The Annual Report is available for public viewing on MWRA's website, at [www.mwra.com](http://www.mwra.com).

Table 1 shows the status of implementation for each of the projects in MWRA's long-term CSO control plan referenced in Schedule Seven. On April 14, 2011, the Charles River Valley/South Charles River Relief Sewer gate controls and additional Charles River interceptor interconnections project was removed from Schedule Seven by order of the Federal Court. More recently, MWRA separated out the interconnection relief and floatables control at Outfall SOM01A project from the other Alewife Brook CSO control projects to expedite implementation of this project. With these two actions, the number of projects in MWRA's approved long-term CSO control plan remain at 35 as previously referenced.

MWRA and its CSO communities have completed 29 of the 35 projects, including two projects completed in the past quarter. MWRA placed the North Dorchester Bay CSO storage tunnel and related facilities project into full operation for its intended environmental benefit by May 31, 2011, in compliance with Schedule Seven, and the City of Cambridge attained substantial completion of the CAM400 manhole separation project on March 30, 2011, in accordance with the schedule Cambridge proposed in 2009 upon completing preliminary design.

Four of the six projects not complete are in the construction phase. Construction is well underway and progressing as scheduled on three of these projects: the Reserved Channel sewer separation project by Boston Water and Sewer Commission (BWSC)), the Brookline sewer separation project by the Town of Brookline, and the CAM004 stormwater outfall and detention basin project by the City of Cambridge. The fourth project shown in Table 1 as "in construction," as well as "in design," is CAM004 sewer separation, for which the City of Cambridge completed early construction contracts several years ago, is

Massachusetts Water Resources Authority  
Combined Sewer Overflow Control Plan  
Quarterly Progress Report - June 2011

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presently continuing with design, and plans to award additional construction contracts beginning in September 2012.

The two remaining projects of the six not yet complete are the Outfall MWR003 gate controls and Rindge Ave. siphon relief project and the interceptor connection relief and floatables control at outfall SOM01A project. MWRA proposes to commence design of both projects in April 2012.

## 2. Quarterly Progress Highlights

- Massachusetts Water Resources Authority (the "Authority") has completed the work necessary to bring the \$231 million North Dorchester Bay combined sewer overflow ("CSO") storage tunnel and related facilities project, the single most expensive CSO control project in Schedule Seven, into its full intended environmental function. Since May 4, 2011, MWRA has been operating the tunnel and facilities as intended to achieve the environmental benefits of the project in accordance with MWRA's \$267 million CSO control plan for North Dorchester Bay and the beaches of South Boston and in compliance with Schedule Seven. (See pg. 3.)
- BWSC continues to make scheduled progress with four active construction contracts associated with the \$62.3 million Reserved Channel Sewer Separation project, after completing the first construction contract in December 2010. The four active construction contracts include a \$10.9 million sewer separation contract (Contract 3B) that BWSC commenced on April 1, 2011. BWSC also continues to make progress with final design of the remaining four, of nine, planned contracts for this project. (See pg. 5.)
- The Town of Brookline has made substantial construction progress since awarding its \$16.6 million second contract in January for the \$25.9 million Brookline Sewer Separation project. The contractor has commenced micro-tunnel mining operations to install large-diameter sewers. Meanwhile, MWRA has commenced a design effort to prepare plans, specifications and permit applications for cleaning and rehabilitating Outfall MWR010, which will convey stormwater separated from the Brookline sewers to the Charles River Basin. (See pg. 6.)
- The City of Cambridge attained substantial completion of the CAM400 manhole separation project, one of six projects in the \$112 million long-term CSO control plan for Alewife Brook, on March 30, 2011, in accordance with the project schedule it proposed in 2009 when it completed preliminary design. In addition, Cambridge was able to

Massachusetts Water Resources Authority  
Combined Sewer Overflow Control Plan  
Quarterly Progress Report - June 2011

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secure all remaining necessary private property easements associated with the CAM004 stormwater outfall and wetland basin project (Contract 12), and issued the full notice to proceed with construction of Contract 12 on May 23, 2011. Meanwhile, Cambridge continues to make scheduled progress with design of the CAM400 sewer separation project and plans to issue the next construction contract for this project in September 2012. (See pg. 7.)

- BWSC continues to make progress with the \$6.0 million construction contract for relocation of CSO regulator RE-070/11-2 and sewer separation in a portion of the South Bay area associated with BWSC's Lower Dorchester Brook Sewer. The work is funded in part by MWRA and is intended to lower CSO discharges to BWSC's Dorchester Brook Conduit and help attain the level of CSO control in MWRA's long-term control plan for Fort Point Channel. BWSC's contractor has installed 340 linear feet of 15-inch and 18-inch storm drain, two major pile-supported drainage structures on Massachusetts Avenue at the entrance to NStar's property and a stormwater particle separator for pollution reduction. The contractor continues with construction of the CSO regulator that is being relocated to the Boston Main Interceptor (BMI). The contract completion date has been extended from May 2011 to August, 2011, in part because of a change order adding a structural liner for a portion of the BMI.
- As previously reported, BWSC completed the South Dorchester Bay Sewer Separation project and closed all CSO regulators tributary to South Dorchester Bay in 2007. BWSC continues to pursue additional stormwater inflow removal (i.e. downspout disconnections) from the sanitary sewer system, in order to mitigate the remaining risks of sewer system flooding in large storms in the absence of hydraulic relief that was provided by the CSO regulators. Under a design contract BWSC issued in November 2010, BWSC has completed initial field investigations and a flow metering plan and recently installed nine permanent meters and 12 temporary meters. The temporary meters will be in place through August 2011. BWSC expects to receive the results of the investigations and the consultant's recommendations in early 2012.

### **3. Project Implementation**

#### **North Dorchester Bay Tunnel and Related Facilities**

MWRA has completed the work necessary to bring the \$231 million North Dorchester Bay CSO storage tunnel and related facilities project into its full intended environmental function. As of May 4, 2011, the tunnel and related facilities have operated as intended to achieve the

Massachusetts Water Resources Authority  
Combined Sewer Overflow Control Plan  
Quarterly Progress Report - June 2011

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environmental benefits of the project in accordance with MWRA's \$267 million CSO control plan for North Dorchester Bay and the beaches of South Boston. Since that time, the tunnel has captured approximately 37 million gallons of flow that would have discharged to the beaches.

MWRA has finished 99.7 percent of the construction work for the North Dorchester Bay CSO storage tunnel and related facilities project, allowing the facilities to be brought into operation. The less than one percent contract work that will continue through the next few months does not affect MWRA's ability to operate the project for full environmental benefit. All of the CSO and stormwater diversion structures and gates that redirect flows to the tunnel are operational, and all gates are now kept open under normal dry weather and wet weather operating conditions, as intended. MWRA is confirming and adjusting the final communications control logic and set points of the SCADA operating system and expects to continue to evaluate and adjust the operating system as it gains experience with a full range of wet weather events.

MWRA has also brought the dewatering pump station and force main and the below ground ventilation building into long-term operation. Remaining work by the contractor for the \$26.5 million pump station and force main includes resolving an electrical problem with the ventilation supply fans, making improvements to the efficiency of the wet weather pump intakes, addressing punch list items raised from MWRA's inspections and from recent fire code inspections by Massport (with agreement from Boston Fire Department), and completing site restoration, including final paving, within the permanent pump station site and in the larger temporary construction easement that will soon be returned to Massport for its terminal operations.

Remaining work by the contractor for the \$5.3 million below ground ventilation building includes installing the second activated carbon adsorption vessel which is expected to be delivered to the site on June 17, 2011. The vessel originally installed by the contractor failed an on-site test in March, and a new vessel had to be fabricated. In the meantime, the first vessel is fully installed and operational, and MWRA has secured a means for providing temporary compensatory odor control capacity if needed in the interim. MWRA expects that the contractor will install the replacement activated carbon adsorption vessel and bring it into operation upon delivery. The ventilation building contractor is also working to complete activation of the fire alarm system in advance of Boston Fire Department inspection and is addressing punch list items from MWRA's facility inspections.

**Reserved Channel Sewer Separation**

The \$62.3 million Reserved Channel Sewer Separation project is intended to minimize CSO discharges and impacts to the Reserved Channel by separating combined sewer systems in a 365-acre area of South Boston tributary to CSO Outfalls BOS076, BOS078, BOS079 and BOS080. Implementation of the approved sewer separation plan will reduce the number of CSO activations to the Reserved Channel from 37 events to three events in a typical year and reduce total annual CSO volume to the Reserved Channel from 28 million gallons to 1.5 million gallons. The work includes the installation of approximately 35,000 linear feet of new storm drain, along with an additional 6,500 feet of minor drain primarily to connect catch basins to the new storm drains. The work also includes the installation or rehabilitation of 17,300 linear feet of sanitary sewer. To remove enough stormwater inflow from the sewer system and attain the long-term level of CSO control, many building downspout connections and parking lot drains will also be disconnected from the sewer and tied into the new storm drains. The project also includes rehabilitating and/or upgrading the four CSO outfalls to ensure they have the capacity to deliver the separated stormwater flows, as well as remaining, infrequent CSO flows, to the Reserved Channel for the long term.

BWSC proposes nine, phased construction contracts for this project, including four sewer separation contracts, an outfalls rehabilitation contract, a sewer rehabilitation contract, a downspout disconnection contract, and two final paving contracts. As reported last quarter, BWSC attained substantial completion of the first of nine planned construction contracts (Contract 2 - sewer separation tributary to Outfall BOS080) in December 2010 and at that time had also recently issued notices to proceed with three additional construction contracts (Contract 1 - rehabilitation of the four CSO outfalls along the Reserved Channel; Contract 3A - sewer separation tributary to Outfall BOS076 and CSO regulator RE076/2-3; and Contract 7 - final paving). More recently, BWSC issued the Notice to Proceed effective April 1, 2011, with its \$10.9 million fifth construction contract (Contract 3B - sewer separation tributary to outfalls BOS078 and BOS079). As described below, BWSC made substantial, scheduled progress with the four construction contracts now underway.

BWSC issued the Notice to Proceed with construction of Contract 1 (outfall rehab) on November 29, 2010. Since then, the contractor has installed a temporary cofferdam and commenced dredging operations at Outfall BOS078. The contractor has also completed grouting of the outfall pipe at BOS079 and has installed sheeting at Outfall BOS080 to facilitate rehabilitation work on this outfall. The contract completion date is November 30, 2011.



Massachusetts Water Resources Authority  
Combined Sewer Overflow Control Plan  
Quarterly Progress Report - June 2011

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BWSC issued the Notice to Proceed with construction of Contract 7 (paving) on November 1, 2010. Final paving continues in streets affected by the completed sewer separation work in the BOS080 tributary area. The contract completion date is April 19, 2012.

BWSC issued the Notice to Proceed with construction of Contract 3A on December 16, 2010. This sewer separation contract calls for 8,890 linear feet of storm drain, 5,300 linear feet of minor drain (mostly lateral connections), and 2,930 linear feet of sanitary sewer. The contractor has commenced the installation of pile supports for special drainage structures that will be constructed on East 1st Street. The contract completion date is July 31, 2013.

As mentioned earlier, BWSC issued the Notice to Proceed with construction of Contract 3B effective April 1, 2011. This contract calls for street-by-street sewer separation in the area tributary to Outfalls BOS078 and BOS079 that includes the installation of 10,015 linear feet of storm drain, 5,000 linear feet of minor drain (mostly lateral connections) and 3,835 linear feet of sanitary sewer. Contract 3B also includes work to permanently bulkhead and abandon Outfall BOS087, at Carson Beach, which was decommissioned when MWRA brought the North Dorchester Bay CSO storage tunnel into service on May 31, 2011. Since the Notice to Proceed, the contractor has been installing test pits and performing underground utilities investigations in areas near the Reserved Channel and has commenced excavation for new storm drain construction on I Street.

With one construction contract complete and four construction contracts underway, BWSC also continues to make progress with design of the remaining four contracts, which are scheduled to be awarded sequentially through April 2013. The contracts and the project as a whole are on schedule for completion by December 2015, in compliance with Schedule Seven.

### **Brookline Sewer Separation**

The Town of Brookline has made substantial progress with construction of the \$25.9 million Brookline Sewer Separation project since issuing the Notice to Proceed with its 24-month, \$16.6 million second contract in January. The project involves sewer separation in a 72-acre area of Brookline where there are remaining combined sewers tributary to MWRA's Charles River Valley Sewer. The project is intended to reduce discharges to the Charles River at MWRA's Cottage Farm facility. The project includes two Town of Brookline sewer separation contracts and a MWRA contract to clean and rehabilitate Outfall MWR010, which will convey the separated Brookline stormwater to the Charles River. Brookline's Contract 1 included the installation of 5,658 linear feet of storm drain in streets on the north and south sides of Beacon

Massachusetts Water Resources Authority  
Combined Sewer Overflow Control Plan  
Quarterly Progress Report - June 2011

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Street. Brookline attained substantial completion of this \$1.4 million contract in January 2010.

Brookline's Contract 2 primarily involves micro-tunneling along Beacon, St. Mary's and Monmouth streets to install new sewers at significant depths, construction of several special structures that will connect the new main-line sewers with Brookline's lateral sewers and the MWRA's interceptors, and conversion of Brookline's main trunk combined sewers to storm drains. In the past quarter, the contractor has continued to coordinate with utility owners, make submissions required by the contract, conduct preconstruction surveys and conduct traffic management, environmental monitoring and rodent control. In areas where construction activities are now underway, the contractor conducted extensive underground utilities investigations to assure clearance for micro-tunnel operations, and relocated utilities where necessary.

On Monmouth Street, the contractor completed the micro-tunnel boring machine (MTBM) entry and exit shafts and a 500 linear-foot MTBM drive to install a 57-inch diameter sanitary sewer. The contractor is preparing to install an additional 175 feet of 57-inch diameter sanitary sewer and a special structure to connect the new sewer to MWRA's Charles River Valley Sewer interceptor at Monmouth and St. Mary's streets, pending relocation of an NSTAR manhole. On St. Mary's street, the contractor has completed most of the necessary utility relocations, has completed certain MTBM entry and exit shafts and is preparing to make a 600-foot MTBM drive(s) to install an 18-inch sanitary sewer. On Beacon Street, the contractor has completed some of the utility relocation work, as well as MTBM entry and exist shafts at Borland Street and Kent Street, respectively, and continues excavation work for a special structure that will be built on MWRA's South Charles River Relief Sewer interceptor.

In the meantime, since completing internal inspections of CSO Outfall MWR010 in 2010, MWRA has issued a \$246,910 task order for final design services associated with the cleaning of sediments from the outfall and the removal of old tide gate structures that will no longer be needed. MWRA plans to award and complete the cleaning and rehabilitation contract in 2012.

All of the related Town of Brookline and MWRA work is scheduled to be complete by January 2013, ahead of the July 2013 milestone in Schedule Seven.

#### **Cambridge/Alewife Brook Sewer Separation**

The \$112 million Alewife Brook CSO control plan is intended to minimize CSO flows to Alewife Brook primarily by separating combined

Massachusetts Water Resources Authority  
Combined Sewer Overflow Control Plan  
Quarterly Progress Report - June 2011

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sewer systems in parts of Cambridge, but also by upgrading hydraulic capacities at local connections to MWRA interceptors. A new stormwater outfall and wetland basin (Cambridge's Contract 12) will be constructed to accommodate the separated stormwater flows, prevent any increase in flooding along Alewife Brook, and provide a level of stormwater treatment.

The Alewife Brook long-term CSO control plan consists of six projects: CAM004 stormwater outfall and detention basin; CAM400 manhole separation; interceptor connection relief and floatables control at CAM002 and CAM401B and floatables control at CAM001; CAM004 sewer separation; and control gate and floatables control at outfall MWR003, MWRA Rindge Avenue siphon relief, and interceptor connection relief and floatables control at SOM01A. The City of Cambridge is implementing (designing, constructing and ultimately owning) the first four projects. These projects are predicted to reduce annual CSO volume to Alewife Brook by 85 percent in a typical year, from 50 million gallons to 7.3 million gallons. CSO activations in a typical year will drop from 63 to seven. Two CSO outfalls will be closed as a result of these projects (in addition to the several outfalls that were closed with earlier CSO projects implemented by the City of Somerville), leaving six permitted CSO outfalls that will discharge to the Alewife Brook in the long-term - four owned by the City of Cambridge, one owned by the City of Somerville and one owned by MWRA. At the recommended control levels, CSO discharges from these outfalls will comply with Class B (fishable/swimmable) water quality criteria 98.5 percent of the time.

The City of Cambridge has substantially completed the single construction contract that included two of the six projects in MWRA's long-term CSO control plan for Alewife Brook: the interceptor relief and floatables control at CAM002 and 401B and floatables control at CAM001 project the contractor substantially completed on October 31, 2010, and the CAM400 manhole separation project, which the contractor substantially completed on March 30, 2011. The CAM400 manhole separation project resulted in the permanent elimination of CSO discharges at Outfall CAM400.

The City of Cambridge was able to secure the remaining private easements and rights of entry necessary for construction of the CAM004 stormwater outfall and detention basin project ("Contract 12"). The City of Cambridge issued a full Notice to Proceed with construction of Contract 12 on May 23, 2011 after it obtained fully executed easements and rights of entry for the parcels at 125, 150, and 180 Cambridge Park Drive on May 5, 2011. Cambridge has now obtained all of the necessary easements for the CAM004 stormwater outfall and detention basin project with the exception of the DCR easements authorized by Article 97 legislation signed by the Governor

Massachusetts Water Resources Authority  
Combined Sewer Overflow Control Plan  
Quarterly Progress Report - June 2011

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in August 2010. The lack of DCR easements has not precluded Cambridge from commencing construction. DCR plans to execute the easements once it has received comments from the City of Cambridge. This \$14.8 million contract has a completion date of April 25, 2013. Construction activities to date are associated with the relocation of gas, electric and communication lines that cross the Little River to make room for the construction of the new stormwater detention wetland. The entry and exit pits for the horizontal boring for the new utility alignment have been excavated on respective sides of the river.

Cambridge is also making design progress on the CAM004 Sewer Separation project, Contracts 8A, 8B and 9, and expects to award the first of these contracts in September 2012. As part of MWRA's 1997 long-term CSO control plan, the City of Cambridge completed four construction contracts in 2002 that are part of the current CAM004 sewer separation project. The CAM004 Sewer Separation project is scheduled to be complete by December 2015.