AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act, as amended, 33 U.S.C. §§1251 et seq., and the Massachusetts Clean Waters Act, as amended, Massachusetts General Laws Chapter 21, §§26-53, the

City of Cambridge
Department of Public Works
147 Hampshire Street
Cambridge, MA 02139

is authorized to discharge from:

12 Combined Sewer Overflows (CSOs) listed in Attachments A and B

to the receiving waters named **Alewife Brook and Charles River**, both Class B waters with CSO variances, in accordance with effluent limitations, monitoring requirements, and other conditions set forth herein.

This permit shall become effective on the first day of the calendar month following sixty (60) days after the date of signature.

This permit and the authorization to discharge expire at midnight, five (5) years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on March 26, 1993.

This permit consists of **8** pages, **Attachments A through E** in Part I, and 25 pages in Part II, Standard Conditions.

Signed this 30th day of SEPTEMBER, 2009

/S/ SIGNATURE ON FILE

Lynne Hamjian, Acting Director	Glenn Haas, Director
Office of Ecosystem Protection	Division of Watershed Management
Environmental Protection Agency	Department of Environmental Protection
Region I	Commonwealth of Massachusetts
Boston, MA	Boston, MA

Part I. EFFLUENT LIMITATIONS AND OTHER PERMIT CONDITIONS

A. Effluent Limitations

1. During wet weather, the permittee is authorized to discharge combined storm water and sanitary wastewater from combined sewer outfalls listed in **Attachments A and B**, subject to the following effluent limitations and requirements:

   a. The permittee must implement the Nine Minimum Controls (NMC) specified below and detailed further in Parts I.B. and I.C. of this permit by the effective date of the permit.

      (1) Proper operation and regular maintenance programs for the sewer system and the combined sewer overflows.

      (2) Maximum use of the collection system for storage.

      (3) Review and modification of the pretreatment program to assure CSO impacts are minimized.

      (4) Maximization of flow to the POTW for treatment.

      (5) Prohibition of dry weather overflows from CSOs.

      (6) Control of solid and floatable materials in CSOs.

      (7) Pollution prevention programs that focus on contaminant reduction activities.

      (8) Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts.

      (9) Monitoring to effectively characterize CSO and the efficacy of CSO controls.

   b. The authorized typical year discharge (activation) frequencies and volumes for the **Charles River** CSO discharges are limited as shown in **Attachment A.** Discharge frequencies and volumes are expected to vary from year to year as a function of rainfall. CSOs discharging to the Lower Charles River have been granted a variance under the Massachusetts water quality standards (WQS) through October 1, 2010. A copy of this determination letter for the variance extension is included as **Attachment C.** The conditions of this variance are incorporated into and are enforceable elements of this permit.

   c. The authorized typical year discharge (activation) frequencies and volumes for **Alewife Brook** CSO discharges are limited as shown in **Attachment B.** Discharge frequencies and volumes are expected to vary from year to year as a function of rainfall. CSOs discharging to Alewife Brook have been granted a

variance under the Massachusetts WQS through September 1, 2010. A copy of this determination letter for this variance extension is included as **Attachment D** and the fact sheet accompanying this variance extension is included in the fact sheet as **Attachment B**. The conditions of this variance extension are incorporated into and are enforceable elements of this permit.

d. The permit's discharges must meet Federal and State WQS subject to and consistent with any water quality standards variances or variance extensions issued by the MassDEP and approved by the EPA.

B. Nine Minimum Controls Implementation

Until the review and update described below is completed, the permittee shall implement the nine minimum controls in accordance with the documentation submitted by the City on December 31, 1996 and its response to EPA comments dated May 1, 1997, except where the minimum implementation levels described in Part I.C are more stringent.

Pursuant to the requirements of Part I.D.5., the permittee must review and update its nine minimum control program no later than April 30th of the first year of the permit. The nine minimum controls shall then be implemented in accordance with this documentation, except as updated pursuant to the annual reporting requirements in Part I.D.5.

C. Minimum Implementation Levels

1. Each CSO structure/regulator, pumping station and/or tidegate shall be routinely inspected, at a minimum of once per month, to insure that it is in good working condition and adjusted to minimize combined sewer discharges and tidal surcharging. (NMC # 1, 2 and 4). The following inspection results shall be recorded: the date and time of the inspection, the general condition of the CSO structure, and whether the structure is operating satisfactorily. If maintenance is necessary, the permittee shall record: the description of the necessary maintenance, the date the necessary maintenance was performed, and whether the observed problem was corrected. The permittee shall forward to the Massachusetts Department of Conservation and Recreation ("DCR") its description of any conditions within DCR's control that impair the operation of any CSO structure. The permittee shall maintain all records of inspections for at least eight (8) years.

2. Discharges to the combined system of septage, holding tank wastes or other material which may cause a visible oil sheen or containing floatable materials are prohibited during wet weather when CSO discharges may be active. (NMC# 3, 6, and 7).

3. Dry weather overflows (DWOs) are prohibited (NMC# 5). All dry weather sanitary and/or industrial discharges from CSOs must be reported to EPA and MassDEP within 24 hours in accordance with the reporting requirements for plant bypass (See Part 1.E. Unauthorized Discharges and Part II.D.1.e. of this permit).

4. The permittee shall quantify and record all discharges from combined sewer outfalls (NMC# 9). Quantification may be through direct measurement or estimation. When estimating, the permittee shall make reasonable efforts (i.e. gaging, measurements) to verify the validity of the estimation technique. The following information must be recorded for each combined sewer outfall for each discharge event:

    - Estimated duration (hours) of discharge;
    - Estimated volume (gallons) of discharge; and
    - National Weather Service precipitation data from the nearest gage where precipitation is available at daily (24-hour) intervals and the nearest gage where precipitation data at minimum of one-hour intervals is available to the permittee. Cumulative precipitation per discharge event shall be provided;

    The permittee shall maintain all records of discharges for at least eight (8) years after the expiration date of this permit.

5. The permittee shall maintain identification signs for all combined sewer outfall structures (NMC# 8). The signs shall be located at or near the combined sewer outfall structures and be readable by the public both from the shore and from instream locations. These signs shall be a minimum of 12 x 18 inches in size, with white lettering against a green background, and shall contain the following language, at a minimum:

    WARNING:*
    CITY OF CAMBRIDGE
    DEPARTMENT OF PUBLIC WORKS
    WET WEATHER SEWAGE DISCHARGE OUTFALL (discharge serial number)

    ***** For existing signs which otherwise meet all of the requirements of this section, the word "Warning" need not be added.

    Where easements over property not owned by the permittee must be obtained to meet this requirement, the permittee shall identify the appropriate landowners and obtain the necessary easements, to the extent practicable.

    The permittee, to the extent practicable, shall add a universal symbol to their warning signs reflecting a CSO discharge, or place additional signs in languages other than English based on notification from the EPA and the MassDEP or on the permittee's own determination that the primary language of a substantial percentage of the residents in the vicinity of a given outfall structure is not English.

6. The permittee, with the collaboration of the MWRA and the City of Somerville, shall maintain informational signs at John Wald Park and other public access locations identified by the MassDEP, including the Community Sailing Program and local boathouses, to advise the public of CSO discharges and potential public health impacts

and to provide contact information and website links. The text of the notice shall be subject to prior approval by the MassDEP. (NMC# 8)

7. The permittee, with the collaboration of the MWRA and the City of Somerville, shall issue a joint press release by April 15 of each year, which shall include (a) general information on CSOs, (b) their locations in the Alewife Brook/Upper Mystic River watershed, and (c) potential health risks posed by exposure to CSO discharges. This press release shall be distributed to the following, at a minimum: (NMC# 8)

   - watershed advocacy groups
   - local health agents
   - property owners subject to flooding in the Alewife Brook watershed {as defined by the MassDEP in consultation with the U. S. Federal Emergency Management Agency (FEMA) and the DCR)}
   - newspapers of local circulation in the Alewife Brook/Upper Mystic River watershed

8. The permittee, in collaboration with MWRA and the City of Somerville, shall provide email notice to EPA, MassDEP, local health agents, and the Mystic River Watershed Association of CSO discharge events in the Alewife Brook watershed within 24 hours of the onset of such discharges. The permittee may use the activation of outfall CAM401B as a general indicator of the onset of CSO discharge which would trigger the 24 hour notice, unless there is evidence that a different CSO activated before CAM401B. (NMC# 8)

9. The permittee shall update its website to include general information regarding CSOs, including their potential health impacts, locations of CSO discharges in the Charles River and Alewife Brook watersheds, the overall status of all CSO abatement programs, web links to CSO communities and watershed advocacy groups, and the most recent information on all CSO activations and volumes in both watersheds. (NMC# 8)

D. Annual Report

By April 30th of each year the permittee shall submit a report which includes the following information;

1. Activation frequencies and discharge volumes for each CSO listed on **Attachments A and B** during the previous calendar year. In the first annual report submitted in accordance with this permit, the permittee will include a CSO monitoring plan that describes the methods it will use to quantify CSO activations and volumes. Activation frequencies and discharge volumes shall thereafter be reported in accordance with the methods identified in the CSO monitoring plan.

2. Precipitation during the previous year for each day, including total rainfall, peak intensity, and average intensity.

3. Status of the implementation of CSO abatement work for which the permittee is directly responsible in accordance with the MWRA Final CSO Facilities Plan, the Federal Court Order (US v. MDC., et al., No. 85-0489 (D. Mass)), as amended by the Second Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflow Control (as incorporated into the Federal Court Order on April 27, 2006), and any related, subsequent documents. The "Second Stipulation" document is included as **Attachment E**.

4. For outfalls listed in **Attachments A and B,** provide the following information in the Annual Report for year 3 and every two years thereafter using the updated MWRA model (or equivalent) for comparison:

   a. A comparison between the precipitation for the previous year and the precipitation in the typical year under future planned conditions used in the MWRA Final CSO Facilities Plan or "Notice of Project Change" document, or subsequent document, whichever is appropriate. This comparison shall include the number of events and size of events (including recurrence interval).

   b. For each CSO, a comparison between the activation volume and frequency for the previous year and the volume and frequency expected during a typical year under future planned conditions.

   c. An evaluation of whether the CSO activation volumes and frequencies for the previous year are in accordance with the estimates in the MWRA Final CSO Facilities Plan or the report entitled "Notice of Project Change for the Long Term CSO Control Plan for Alewife Brook" (April 30, 2001, MWRA), given the precipitation which occurred during the year, and the CSO abatement activities which have been implemented. Where CSO discharges are determined to be greater than the activation frequency or volume in either document above, the permittee shall include their assessment of such result, a discussion of remaining CSO abatement activities and an assessment of the impact of those projects on attaining the level of CSO control identified in the relevant document, or any amendments thereto.

5. A summary of modifications to the approved NMC program which have been evaluated and a description of those which will be implemented during the upcoming year. In the first annual report submitted in accordance with this permit (April 30, 2010), the permittee shall submit an updated nine minimum control plan that reviews the current controls and updates them to enhance their effectiveness. The updated NMC plan shall include or exceed all of the minimum implementation levels described in Part I.C. The second Annual NMC Report (due April 30, 2011) shall include 1) an assessment of the potential for inflow from Alewife Brook to the enter the combined sewer system through the existing regulator structures over a range of flood conditions and corresponding Brook levels, and 2) an assessment of the cost, feasibility, and effectiveness of installing inflow controls on the remaining CSO outfalls if flow does enter the combined sewer system more frequently than the 100 year storm.

6. A certification that states that the previous calendar year's monthly inspections were conducted, their results recorded, and records maintained.

E. Unauthorized Discharges

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit from those outfalls listed in **Attachments A and B** of this permit. Discharges of wastewater from CSOs during dry weather or from any other point sources, including sanitary sewer overflows (SSOs) are not authorized by this permit and shall be reported to EPA and MassDEP in accordance with Section D.1.e.(1) of the General Requirements of this permit (Twenty-four hour reporting). [Note: SSO Reporting Form (which includes MassDEP Regional Office telephone numbers) for submittal of written report to MassDEP is available on-line at: http://www.mass.gov/dep/water/approvals/surffms.htm#sso.]

F. Notice of Elimination

The permittee shall give notice of elimination or change in status of any outfall listed in **Attachments A and B** as soon as possible and in writing to the Director of the Office of Ecosystem Protection at EPA and to the Director of the Division of Watershed Management at MassDEP.

G. Certification and Signature of Reports

All reports required by the permit and other information requested by the Director shall be signed and certified in accordance with section D.2. of Part II of this permit.

H. Report Submission

1. Signed and dated originals of all notifications and reports required herein, shall be submitted to the Director at the following address:

U.S. Environmental Protection Agency
Water Technical Unit (SEW)
P.O. Box 8127
Boston, MA 02114

2. Signed copies of all notifications and reports shall be submitted to the State at:

Massachusetts Department of Environmental Protection
Bureau of Resource Protection
205B Lowell Street
Wilmington, MA 01887

Massachusetts Department of Environmental Protection
Bureau of Resource Protection
1 Winter Street
Boston, MA 02108
Attention: Mark Casella

Massachusetts Department of Environmental Protection
Division of Watershed Management
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

I. Retention of Records

The permittee shall retain all records of all monitoring information, copies of all reports required by this permit and records of all other data required by or used to demonstrate compliance with this permit, for at least eight years. This period may be modified by alternative provisions of this permit or extended by request of the Director at any time.

J. State Permit Conditions

This discharge permit is issued jointly by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) under Federal and State law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the MassDEP pursuant to M.G.L. Chapter 21, §43.

Each Agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of this permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared, invalid, illegal or otherwise issued in violation of State law such permit shall remain in full force and effect under Federal law as an NPDES permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of Federal law, this permit shall remain in full force and effect under State law as a permit issued by the Commonwealth of Massachusetts.

ATTACHMENT B

CSO OUTFALLS AND EFFLUENT LIMITS – ALEWIFE BROOK

Receiving Water	Outfall Number	Discharge Location	Effluent Limitations	
			Annual Activation Frequency	Annual Volume (million gallons)
Alewife Brook[1]	CAM-001	Foch Street at Alewife Brook Parkway	5	0.19
	CAM-002A [2] CAM002B [2]	Alewife Brook Parkway at Massachusetts Avenue	4	0.69
	CAM-004	Concord Avenue Rotary	0 [3]	0
	CAM-400	Alewife Brook at Harrison Avenue Extension	0 [3]	0
	CAM-401A	Sherman Street and Alewife Brook at B&M Railroad	5	1.61
	CAM-401B	Alewife Brook Parkway at Massachusetts Avenue	7	2.15

1. These discharges shall be limited in accordance with the performance of the Revised Recommended Plan, as characterized in the "Final Variance Report for Alewife Brook and the Upper Mystic River", July, 2003, MWRA and supplemental letter report (Metcalf & Eddy, Inc.), July 8, 2003.

2. These two CSOs are at the same location and are associated with a single CSO regulator.

3. These CSO are scheduled to be closed.

Note : CSO outfalls MWR003 and SOM001A, both located in Cambridge, are maintained by the MWRA and the City of Somerville respectively and are authorized by NPDES permits MA0103284 and MA0101982. Two CSO treatment facilities, at Cottage Farm and Prison Point, also located in Cambridge, are operated by the MWRA and authorized by permit #MA0103284.

ATTACHMENT A

CSO OUTFALLS AND EFFLUENT LIMITS – CHARLES RIVER

Receiving Water	Outfall Number	Discharge Location	Effluent Limitations	
			Annual Activation Frequency	**Annual Volume (million gallons)**
Charles River[1]	CAM-005	Lowell Street at Mount Auburn	3	0.84
	CAM-007	Memorial Drive at Hawthorne Street	1	0.03
	CAM-009	Memorial Drive at Old Murray Road	2 [2]	0.01
	CAM-011	Plympton Street	0 [2]	0
	CAM-017	Binney Street at Edwin Land Boulevard	1	0.45

1. These discharges shall be consistent with the performance of the Long Term Control Plan (LTCP), as defined in Exhibit B of the Second Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflow Control as incorporated into the Federal Court Order on April 27, 2006.

2. Outfalls CAM009 and CAM011 have been temporarily sealed. They may be reopened during the permit term depending upon the results of the monitoring of hydraulic effects which are experienced upstream.

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

DEVAL L. PATRICK
Governor

TIMOTHY P. MURRAY
Lieutenant Governor

IAN A. BOWLES
Secretary

ARLEEN O'DONNELL
Commissioner

FINAL DETERMINATION TO EXTEND VARIANCE FOR COMBINED SEWER OVERFLOW DISCHARGES TO LOWER CHARLES RIVER/CHARLES BASIN

The Department of Environmental Protection (the "Department") hereby extends the Variance for CSO Discharges to the Lower Charles River/Charles Basin from October 1, 2007 for a period not to exceed three years (to October 1, 2010). This action, which authorizes limited CSO discharges, is taken in connection with NPDES permit Nos. MA0103284, MA0101982, and MA 0101192 issued to the Massachusetts Water Resources Authority ("MWRA"), the City of Cambridge, and the Boston Water & Sewer Commission, respectively. This Variance extension is issued pursuant to the Massachusetts Surface Water Quality Standards at 314 CMR 4.00, and subject to the specific conditions, which follow. This Variance is intended to provide for the completion of design, construction, and subsequent monitoring of CSO controls proposed in the revised Long-Term Control Plan (the "LTCP") mandated in the relevant orders of the United States District Court for the District of Massachusetts, Civil Action Nos. 85-0489-MA and 83-1614-MA, including amended Schedule Six, dated April 27, 2006 (the "Federal Court Order").[1]

Based on a review of the extensive planning documents and reports conducted by the MWRA, the City of Cambridge, and the Boston Water and Sewer Commission and moreover based upon the status of the implementation of the LTCP, the Department has determined that it is not feasible at this time for the MWRA, the City of Cambridge, and the Boston Water & Sewer Commission to fully attain the Class B uses and associated water quality criteria for bacteria for the Lower Charles River/Charles Basin as implementation of more stringent controls at this time beyond those included in the LTCP would result in substantial and widespread economic and social impact.

Issuance of this Variance for CSO discharges to the Lower Charles River/Charles Basin is consistent with EPA Guidance: *Coordinating CSO Long-Term Planning with Water Quality Standard Reviews (July 31, 2001)*, which states that longer term variances and renewal of

[1] The documents that comprise MWRA's LTCP are identified in the Second Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflow Control dated March 15, 2006.

variances are warranted given the extended duration necessary for implementation of the Long Term CSO Control Plan.

The components of the LTCP for the Lower Charles River/Charles Basin include the recommendations of the *January 2004, Cottage Farm CSO Facility Assessment Report,* with additional wastewater improvements which will further reduce CSO activations and volume at the Cottage Farm facility. Additionally, an abandoned 54-inch sewer crossing beneath the Charles River will be activated in order to convey flow to the Ward Street Headworks and the Deer Island Wastewater Treatment Plant. System optimization, outfall closures, and separation in Brookline and the Bulfinch Triangle area of Boston are also elements of the LTCP's proposed improvements for the Lower Charles River/Charles Basin.

MWRA, in cooperation with the City of Cambridge, and the Boston Water & Sewer Commission, shall implement the LTCP. The Department notes that portions of the work included in the LTCP, specifically the sewer separation work in Boston, Cambridge and Brookline are critical to achieving a high level of CSO control in the Charles River watershed, and at the same time addressing public health risks associated with sewer backups and flooding.

It is anticipated that this Variance will be incorporated into the NPDES permits for the MWRA, the City of Cambridge, and the Boston Water & Sewer Commission. Failure by the MWRA, the City of Cambridge, or the Boston Water & Sewer Commission to comply with the conditions of this Variance following its effective date and prior to or following permit modification or re-issuance will constitute a violation of the permit as in effect on the date of such violation, as well as the Massachusetts Surface Water Quality Standards and Permit Regulations, 314 CMR 3.00.

In consideration of the following conditions, the Department has determined that the extension of the Variance to the Massachusetts Water Resources Authority ("MWRA"), the City of Cambridge, and the Boston Water & Sewer Commission for their CSO discharges to the Lower Charles River/Charles Basin are warranted so that based on information collected and analyses performed in conjunction with the implementation of the LTCP, it ultimately can be determined whether the Class B uses for the Lower Charles River/Charles Basin can be attained.

VARIANCE CONDITIONS

The CSO Variance is conditioned upon MWRA, the City of Cambridge, and the Boston Water & Sewer Commission complying with the following requirements:

A. Implementation of the LTCP

MWRA, the City of Cambridge, and the Boston Water & Sewer Commission shall implement the LTCP for the Lower Charles River/Charles Basin, specified in the 1997 MWRA Final Environmental Impact Report and CSO Facilities Plan and modified by the recommendations for additional work included in the January, 2004 Cottage Farm CSO Facility Assessment Report; the August 2, 2005 Recommendations and Proposed Schedule for Long-Term CSO Control for the Charles River, Alewife Brook, and East Boston; and other planning documents specified in the Federal Court Order. The implementation

schedule for the proposed work shall conform to the requirements of the Federal Court Order, as modified. CSO discharges shall be consistent with the performance of the LTCP, as defined in Exhibit B of the Second CSO Stipulation incorporated into the Federal Court Order on April 27, 2006.

B. Other Actions to Minimize CSO/Sanitary Discharges

i. MWRA, the City of Cambridge, and the Boston Water & Sewer Commission shall continue to implement the Nine Minimum Controls ("NMC"), and monitor CSO activations and volumes. The City of Cambridge and the Boston Water & Sewer Commission each shall submit a report to the Department on an annual basis, beginning on April 30, 2008, presenting estimated CSO activations and volumes in the Lower Charles River/Charles Basin for the previous calendar year. On or before April 30 of each year, MWRA shall submit to the Department estimated CSO activations and volumes for all CSO outfalls for the previous calendar year in the Lower Charles River/Charles Basin, using the MWRA sewer system model.

ii. MWRA shall continue to provide technical assistance related to the identification and removal of I/I to member communities.

iii. The City of Cambridge and the Boston Water & Sewer Commission shall respond to any DEP comments on the Infrastructure Studies submitted pursuant to the 2004 Variance Extension, or any other DEP information requests to clarify the conditions of the combined sewer system, including the frequency and volume of CSO discharges, within 90 days of receiving such comments.

C. Notification to the Public of CSO Discharges and Impacts:

i. MWRA, the City of Cambridge, and the Boston Water & Sewer Commission shall maintain outfall signs for each permitted CSO outfall which are visible both from the shore and from instream locations for their permitted CSO discharges. Pursuant to the NPDES permits, the following language, at a minimum, shall be included:

WARNING:
WET WEATHER
SEWAGE DISCHARGE
OUTFALL (discharge serial number)

ii. MWRA, the City of Cambridge, and the Boston Water & Sewer Commission shall collaborate to provide informational notices to boathouses in the areas affected by the CSO discharges and the Community Sailing program to advise the public of CSO discharges and potential public health impacts and to provide contact information and website links. The text of the notice shall be subject to prior approval by the Department.

iii. Between March 1 and December 1 of each year, the MWRA shall provide email notice to EPA, the Department, local heath agents in the communities affected by the

CSO discharges, and the Charles River Watershed Association of CSO discharge events at Cottage Farm within 24 hours of the discharge.

iv. MWRA, the City of Cambridge, and the Boston Water & Sewer Commission shall maintain their respective websites to include general information regarding CSOs, including potential public health impacts, locations of CSO discharges in the Charles River watershed, tables listing CSO activations and volumes identified pursuant to the reporting requirements included in Section B(i), and the overall status of the CSO abatement program.

D. Receiving Water Monitoring

The MWRA shall continue to perform water quality monitoring in the Lower Charles River/Charles Basin to assess the impacts of CSO discharges.

Each year, on or before July 15 for the duration of this Variance, MWRA shall submit to the Department and EPA a report on the previous year's sampling program. The report shall include:

i. A summary of the receiving water sampling data collected over the past calendar year, including sampling locations and parameters and comparisons between results in wet and dry weather.

ii. MWRA has a sampling plan for the Charles River on its website at http://www.mwra.state.ma.us/harbor/enquad/pdf/2005-13.pdf. Changes in schedule, sampling sites, parameters will be provided to the Department for review and approval in advance of the implementation of the sampling plan for each year of the variance.

Subject to the conditions included in this Variance, MWRA, and the City of Cambridge and Boston Water and Sewer, shall be authorized to have CSO discharges during wet weather events to the Charles River. CSO discharges shall be consistent with the performance of the Revised Recommended LTCP after implementation of the Revised Recommended Plan and upon completion of subsequent monitoring to verify that the Long-Term CSO control goals are achieved.

8/30/07
Date Issued

Glenn S. Haas
Acting Assistant Commissioner
Bureau of Resource Protection

10/1/07
Effective Date

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

DEVAL L. PATRICK
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Secretary

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Commissioner

FINAL DETERMINATION TO EXTEND VARIANCE FOR COMBINED SEWER OVERFLOW DISCHARGES TO ALEWIFE BROOK/UPPER MYSTIC RIVER

The Department of Environmental Protection (the "Department") hereby extends the Variance for CSO Discharges to the Alewife Brook/Upper Mystic River from September 1, 2007 for a period of three years (to September 1, 2010). This action, which authorizes limited CSO discharges, is taken in connection with NPDES permit Nos. MA0103284, MA0101974, and MA0101982, issued to the Massachusetts Water Resources Authority (MWRA), the City of Somerville, and the City of Cambridge, respectively. The Variance extension is issued pursuant to the Massachusetts Surface Water Quality Standards at 314 CMR 4.00, and subject to the specific conditions which follow. The Variance is intended to provide a timeframe to implement the revised recommended CSO control plan for the Alewife Brook/Upper Mystic River watersheds.

The Department grants this Variance based on the technical and cost information in the 1997 MWRA CSO Facilities Plan, the July 1, 2003 MWRA Final Variance Report, and affordability analyses demonstrating that implementation of more stringent CSO controls at this time would result in substantial and widespread social and economic impact as specified in 314 CMR 4.03(4). Issuance of this Variance for CSO discharges to the Alewife Brook/Upper Mystic River is consistent with EPA Guidance: *Coordinating CSO Long-Term Planning with Water Quality Standard Reviews (July 31, 2001)*, which states that longer term variances and renewal of variances are warranted given the extended duration necessary for implementation of Long-Term Control Plan(s).

MWRA and the Cities of Cambridge and Somerville shall implement the revised recommended plan included in the July 1, 2003 MWRA Final Variance Report for the Alewife Brook/Upper Mystic River. The implementation schedule will be as set forth in modifications to the Federal Court Order.

It is anticipated that this Variance will be incorporated into NPDES permits for the MWRA and the Cities of Cambridge and Somerville. Failure by the MWRA and/or the Cities of Cambridge or Somerville to comply with the conditions of this Variance following its effective date and prior to and following permit modification or reissuance will constitute a violation of

the permit as in effect on the date of such violation, as well as the Massachusetts Surface Water Quality Standards and Permit Regulations, 314 CMR 3.00.

VARIANCE CONDITIONS

The CSO Variance is conditioned upon MWRA and the Cities of Cambridge and Somerville complying with the following requirements:

A. Implementation of the Revised Recommended Plan

MWRA and the Cities of Cambridge and Somerville shall implement the $100 million Revised Recommended Plan in the Alewife Brook/Upper Mystic River watershed to abate CSO discharges. The implementation schedule shall conform to the requirements of the federal court order, as modified. CSO discharges shall be limited in accordance with the performance of the Revised Recommended Plan, as characterized in the July 1, 2003 MWRA Final Variance Report after implementation of the Revised Recommended Plan and upon completion of subsequent monitoring to verify that the Long-Term CSO control goals are achieved.

B. Other Actions to Minimize CSO/Sanitary Discharges

i. MWRA and the Cities of Cambridge and Somerville shall continue to implement the Nine Minimum Controls (NMC), and monitor CSO activations and volumes. Cambridge and Somerville each shall submit a report to the Department on an annual basis that contains estimates of CSO activations and volumes in the Alewife Brook/Upper Mystic River. The first report shall be submitted by April 30, 2008 for the preceding calendar year. On or before April 30 of each year, MWRA shall submit to the Department the estimated CSO activations and volumes for all CSO outfalls for the previous calendar year in the Alewife Brook/Upper Mystic River using the MWRA sewer system model.

ii. MWRA shall continue to provide technical assistance related to the identification and removal of I/I to member communities.

iii. The Cities of Cambridge and Somerville shall respond to any DEP comments on the Infrastructure Studies submitted pursuant to the 2004 Variance Extension, or any other DEP information requests to clarify the conditions of the combined sewer system, including the frequency and volume of CSO discharges, within 90 days of receiving such comments.

C. Notification to the Public of CSO Discharges and Impacts:

i. MWRA and the cities of Cambridge and Somerville shall maintain outfall signs which are visible both from the shore and from in stream locations for their permitted

CSO discharges. Pursuant to the NPDES permit, the following language, at a minimum, shall be included:

WARNING:
WET WEATHER
SEWAGE DISCHARGE
OUTFALL (discharge serial number)

ii. MWRA and the Cities of Cambridge and Somerville shall maintain informational signs at John Wald Park and other public access locations identified by the Department to advise the public of CSO discharges and potential public health impacts and to provide contact information and website links. The text of the notice shall be subject to prior approval by the Department.

iii. MWRA and the Cities of Cambridge and Somerville shall issue a joint press release by April 15 of each year to watershed advocacy groups, local health agents, property owners subject to flooding in the Alewife Brook watershed (as defined by the Department in consultation with FEMA and DCR), and newspapers of local circulation in the Alewife Brook/Upper Mystic River watershed, which shall include general information on CSOs, their locations in the Alewife Brook/Upper Mystic River watershed, and potential health risks posed by exposure to CSO events.

iv. The City of Cambridge, in collaboration with MWRA and Somerville, shall provide email notice to EPA, the Department, local health agents, and the Mystic River Watershed Association of CSO discharge events in the Alewife Brook watershed within 24 hours of the onset of the discharge.

v. MWRA and Cities of Cambridge and Somerville shall update and maintain their respective websites to include general information regarding CSOs, potential health impacts, locations of CSO discharges, the status of the CSO abatement program, web links to CSO communities and watershed advocacy groups, and information from the most recent information on CSO activations and volumes in the Alewife Brook/Upper Mystic River watershed.

D. Receiving Water Monitoring

The MWRA shall continue to perform water quality monitoring in the Alewife Brook/Upper Mystic River to assess the impacts of CSO discharges.

Each year, on or before July 15 for the duration of this Variance, MWRA shall submit to the Department and EPA a report on the previous year's sampling program. The report shall include:

i. A summary of the receiving water sampling data collected over the past calendar year, including sampling locations and parameters, and comparisons between results during wet and dry weather.

ii. MWRA has a sampling plan for the Alewife Brook/Upper Mystic River on its website at http://www.mwra.state.ma.us/harbor/enquad/pdf/2005-12.pdf. Changes in schedule, sampling sites, and/or parameters will be provided to the Department for review and approval in advance of implementation of the sampling plan, for each year of this variance.

Subject to the conditions included in this Variance, MWRA, and the Cities of Cambridge and Somerville shall be authorized to have CSO discharges during wet weather events to the Alewife Brook/Upper Mystic River, CSO discharges shall be consistent with the performance of the Revised Recommended Plan, as characterized in the July 1, 2003 MWRA Final Variance Report, upon implementation of the Revised Recommended Plan and after completion of subsequent monitoring to verify that the Long-Term CSO control goals are achieved.

8/30/07
Date Issued

Glenn S. Haas
Acting Assistant Commissioner
Bureau of Resource Protection

9/4/07
Effective Date

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

SECOND STIPULATION OF THE UNITED STATES
AND THE MASSACHUSETTS WATER RESOURCES AUTHORITY
ON RESPONSIBILITY AND LEGAL LIABILITY FOR
COMBINED SEWER OVERFLOW CONTROL

The Massachusetts Water Resources Authority ("Authority") and the United States, on behalf of the Environmental Protection Agency ("EPA"), hereby agree and stipulate as follows:

1. The purpose of this Second Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflow Control ("Second Stipulation") is to terminate the February 27, 1987, Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflows (the "1987 Stipulation") and replace it with this Second Stipulation that reflects developments and progress in the control of combined sewer overflow ("CSO") discharges to Boston Harbor and its tributaries that have taken place since 1987. The 1987 Stipulation shall remain in effect until this Second Stipulation goes into effect. This Second Stipulation shall take effect, and the 1987 Stipulation shall terminate, upon approval by the Court in the above-captioned action of the Joint Motion of the United States and the Massachusetts Water Resources Authority To Amend Schedule Six with Respect to The Charles River, Alewife Brook and East Boston.

2. The Authority's Long-Term Combined Sewer Overflow ("CSO") Control Plan ("LTCP") presently consists of the Authority's July 31, 1997, Final Combined Sewer Overflow Facilities Plan and Environmental Impact Report (the "1997 Facilities Plan"), as modified by the planning documents identified in the attached Exhibit "A," entitled, MWRA Long-Term CSO Control Plan Facilities Planning Documentation.

3. The CSO outfalls that are the subject of the Authority's LTCP include the outfalls listed in Exhibit "B" hereto, entitled, "Summary of Typical

Year CSO Activation Frequency and Volume." The CSO outfalls identified with the prefix "MWR" are owned or operated by the Authority. The CSO outfalls identified with a prefix "BOS," "CAM," "CHE," or "SOM," are owned and operated by member municipalities (Boston, Cambridge, Chelsea, or Somerville, respectively), except that the Union Park Pump Station ("UPPS") is jointly operated by the Authority and the City of Boston.

4. With respect to all of the CSO outfalls within or hydraulically connected to the Authority's sewer system, including the outfalls identified in Exhibit "B" hereto, the Authority accepts legal liability to undertake such corrective action as may be necessary to implement the CSO control requirements set forth in Schedule Six and related orders of the Court in the above-captioned action, and to meet the levels of CSO control (including as to frequency of CSO activation and as to volume of CSO discharge) described in the Authority's Long-Term CSO Control Plan. Whether the Authority has met the levels of CSO control in its Long-Term CSO Control Plan shall be determined by the EPA and the Massachusetts Department of Environmental Protection. With respect to all CSO outfalls owned or operated by the Authority, including the CSO outfalls identified in Exhibit "B" identified with the prefix "MWR," and including the Union Park Pump Station, the Authority also accepts legal liability to undertake such future corrective action as may be necessary to meet the CSO control requirements of the Clean Water Act, 33 U.S.C. § 1251 et seq. The Authority does not accept liability for alleged past

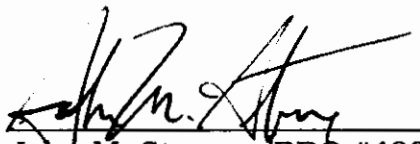
violations of the CSO provisions of NPDES Permit No. MA0102351 (issued in 1976 and transferred to the Authority in 1985) prior to February 27, 1987.

5. This stipulation is not intended to and does not limit the Court's power to find, or any party's right to seek, liability for past or continuing violations of federal law or to enforce compliance with that law.

By its attorneys,

Massachusetts Water Resources Authority

By its attorneys,



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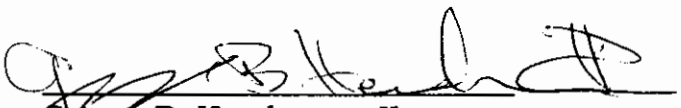

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Dated: March 15, 2006

B3131253.1

Exhibit A
to
Second Stipulation

MWRA Long-Term CSO Control Plan - Facilities Planning Documentation

Planning Document	Project	Receiving Water
Final Combined Sewer Overflow Facilities Plan and Environmental Impact Report, July 31, 1997	Hydraulic Relief for CAM005	Upper and Lower Charles River Basin
	Stony Brook Sewer Separation	
	Floatables Control at CAM007, CAM009, CAM011 and CAM017	
	Baffle Manhole Separation at SOM 001 and SOM 006-007	Alewife Brook/Upper Mystic River
	Hydraulic Relief for BOS 017[1]	Mystic/Chelsea Confluence
	Chelsea Branch Relief Sewer	
Minor modifications were addressed in Notice of Project Change, March 1999	Trunk Sewer Relief for CHE 002-004	
	Outfall Repairs and Floatables Control at CHE 008	
	Storage Conduit for BOS 019	Upper Inner Harbor
	Detention/Treatment Facility at Union Park Pump Station	Fort Point Channel
	South Dorchester Bay Sewer Separation	South Dorchester Bay
	Constitution Beach Sewer Separation	Constitution Beach
	Neponset River Sewer Separation	Neponset River
The following reports <u>supplement</u> information in the Final CSO Facilities Plan and Environmental Impact Report, July 31, 1997		
Upgrades to Existing CSO Facilities, Supplemental Environmental Impact Report, September 30, 1998	Cottage Farm Facility Upgrade	Upper Charles River Basin
	Prison Point Facility Upgrade[2]	Upper Inner Harbor
	Somerville Marginal Facility Upgrade	Upper Mystic River; Mystic/Chelsea Confluence
	Commercial Point Facility Upgrade	South Dorchester Bay
Upgrades to the Fox Point CSO Treatment Facility, Supplemental Environmental Impact Report, December 31, 1998	Fox Point Facility Upgrade	South Dorchester Bay
Fort Point Channel CSO Storage Conduit Notice of Project Change, June 2003, and MWRA Long Term CSO Control Plan, Fort Point Channel Sewer Separation and System Optimization Project, Level of Control at CSO Outfalls BOS072 and BOS073, letter dated June 7, 2004.	Sewer Separation for BOS072 and BOS073	Fort Point Channel

Exhibit A
to
Second Stipulation

MWRA Long-Term CSO Control Plan - Facilities Planning Documentation

Planning Document	Project	Receiving Water
Re-Assessing Long Term Floatables Control for Outfalls MWR018, 019 and 020, February 2001 Report on Re-Assessment of CSO Activation Frequency and Volume for Outfall MWR010, April 2001, and supplemental letter report (Metcalf & Eddy, Inc.), May 31, 2001	Regionwide Floatables Controls and Outfall Closing Projects	Regionwide
Final Variance Report for Alewife Brook and the Upper Mystic River, July 2003, and supplemental letter report (Metcalf & Eddy, Inc.), July 8, 2003	Sewer Separation at CAM004 and CAM400	Alewife Brook
	Interceptor Connection Relief and Floatables Control at CAM002, CAM401B and SOM01A, and Floatables Control at CAM001 and CAM401A	
	Control Gate/Floatables Control at Outfall MWR003 and MWRA Rindge Avenue Siphon Relief	
East Boston Branch Sewer Relief Project Reevaluation Report, February 2004 Recommendations and Proposed Schedule for Long-Term CSO Control for the Charles River, Alewife Brook and East Boston, August 2, 2005	Interceptor Relief For BOS003-014	Mystic/Chelsea Confluence; Upper and Lower Inner Harbor
Supplemental Facilities Plan and Environmental Impact Report on the Long-term CSO Control Plan for North Dorchester Bay and Reserved Channel, April 27, 2004	North Dorchester Bay Storage Tunnel and Related Facilities	North Dorchester Bay
	Pleasure Bay Storm Drain Improvements	
	Morrissey Boulevard Storm Drain	
	Reserved Channel Sewer Separation	Reserved Channel
Recommendations and Proposed Schedule for Long-Term CSO Control for the Charles River, Alewife Brook and East Boston, August 2, 2005, and MWRA Revised Recommended CSO Control Plan for the Charles River, Typical Year CSO Discharge Activations and Volumes, November 15, 2005.	Brookline Connection, Cottage Farm Overflow Chamber Interconnection and Cottage Farm Gate Control	Upper and Lower Charles River Basin
	Brookline Sewer Separation	
	Bulfinch Triangle Sewer Separation	
	Charles River Valley/South Charles Relief Sewer Gate Controls	
	Evaluation of Additional Charles River Interceptor Interconnection Alternatives	

(1) Also "MWRA Long-Term CSO Control Plan Target CSO Activation Frequency and Volume by Outfall," letter dated December 9, 2005; "MWRA Long-Term CSO Control Plan Response to Additional EPA Questions Regarding Prison Point Discharges," letter dated January 9, 2005 (2006).

(2) Also "MWRA Long-Term CSO Control Plan Target CSO Activation Frequency and Volume by Outfall," letter dated December 9, 2005.

Exhibit B
to
Second Stipulation

SUMMARY OF TYPICAL YEAR CSO ACTIVATION FREQUENCY AND VOLUME

OUTFALL	TYPICAL YEAR		REFERENCE (*)
	LONG TERM CONTROL PLAN 2005 (*)		
	Activation Frequency	Volume (MG)	
ALEWIFE BROOK[1]			
CAM001	5	0.19	5
CAM002	4	0.69	5
MWR003	5	0.98	5
CAM004	To be closed	N/A	5
CAM400	To be closed	N/A	5
CAM401A	5	1.61	5
CAM401B	7	2.15	5
SOM001A	3	1.67	5
SOM001	Closed	N/A	
SOM002A	Closed	N/A	
SOM003	Closed	N/A	
SOM004	Closed	N/A	
TOTAL		**7.29**	
UPPER MYSTIC RIVER			
SOM007A/MWR205A (Somerville Marginal)	3	3.48	
SOM007	Closed	N/A	
TOTAL		**3.48**	
MYSTIC / CHELSEA CONFLUENCE			
MWR205 (Somerville Marginal)	39	60.58	
BOS013	4	0.54	6
BOS014	0	0.00	6
BOS015	Closed	N/A	6
BOS017	1	0.02	9
CHE002	4	0.22	
CHE003	3	0.04	
CHE004	3	0.32	
CHE008	0	0.00	
TOTAL		**61.72**	
UPPER INNER HARBOR			
BOS009	5	0.59	6
BOS010	4	0.72	6
BOS012	5	0.72	6
BOS019	2	0.58	
BOS050	Closed	N/A	
BOS052	Closed	N/A	
BOS057	1	0.43	
BOS058	Closed	N/A	
BOS060	0	0.00	
MWR203 (Prison Point)	30	335.00	1, 9
TOTAL		**338.04**	
LOWER INNER HARBOR			
BOS003	4	2.87	6
BOS004	5	1.84	6
BOS005	1	0.01	6
BOS006	4	0.24	6
BOS007	6	1.05	6
TOTAL		**6.01**	

Exhibit B
to
Second Stipulation

SUMMARY OF TYPICAL YEAR CSO ACTIVATION FREQUENCY AND VOLUME

OUTFALL	TYPICAL YEAR		REFERENCE (*)
	LONG TERM CONTROL PLAN 2005 (*)		
	Activation Frequency	Volume (MG)	
CONSTITUTION BEACH			
MWR207	Closed	N/A	
TOTAL		**0.00**	
FORT POINT CHANNEL			
BOS062	1	0.01	
BOS064	0	0.00	
BOS065	1	0.06	
BOS068	0	0.00	
BOS070			
BOS070/DBC	3	2.19	3
UPPS	17	71.37	
BOS070/RCC	2	0.26	
BOS072	0	0.00	4
BOS073	0	0.00	4
TOTAL		**73.89**	
RESERVED CHANNEL			
BOS076	3	0.91	7
BOS078	3	0.28	7
BOS079	1	0.04	7
BOS080	3	0.25	7
TOTAL		**1.48**	
NORTHERN DORCHESTER BAY			
BOS081	0 / 25 year	N/A	
BOS082	0 / 25 year	N/A	
BOS083	0 / 25 year	N/A	
BOS084	0 / 25 year	N/A	
BOS085	0 / 25 year	N/A	
BOS086	0 / 25 year	N/A	
BOS087	0 / 25 year	N/A	
TOTAL		**0.00**	
SOUTHERN DORCHESTER BAY			
BOS088	To be closed	N/A	
BOS089 (Fox Point)	To be closed	N/A	
BOS090 (Commercial Point)	To be closed	N/A	
TOTAL		**0.00**	
UPPER CHARLES			
BOS032	Closed	N/A	
BOS033	Closed	N/A	
CAM005	3	0.84	8
CAM007	1	0.03	8
CAM009	2	0.01	8
CAM011	0	0.00	8
TOTAL		**0.88**	

Exhibit B
to
Second Stipulation

SUMMARY OF TYPICAL YEAR CSO ACTIVATION FREQUENCY AND VOLUME

OUTFALL	TYPICAL YEAR		REFERENCE (*)
	LONG TERM CONTROL PLAN 2005 (*)		
	Activation Frequency	Volume (MG)	
LOWER CHARLES			
BOS028	Closed	N/A	
BOS042	Closed	N/A	
BOS049	To be closed	N/A	
CAM017	1	0.45	8
MWR010	0	0.00	2
MWR018	0	0.00	1
MWR019	0	0.00	1
MWR020	0	0.00	1
MWR021	Closed	N/A	
MWR022	Closed	N/A	
MWR201 (Cottage Farm)	2	6.30	8
MWR023	2	0.13	
SOM010	Closed	N/A	
TOTAL		**6.88**	
NEPONSET RIVER			
BOS093	Closed	N/A	
BOS095	Closed	N/A	
TOTAL		**0.00**	
BACK BAY FENS			
BOS046	2	5.38	
TOTAL		**5.38**	

(*) Long-term Control Plan activation frequency and volumes were established in the 1997 CSO Facilities Plan and Enviromental Impact Report or as noted in the "Reference" column.

1- Re-assessing Long Term Floatables Control for Outfalls MWR018, 019 and 020, February 2001.

2- Report on Re-Assessment of CSO Activation Frequency and Volume for Outfall MWR010, April 2001, and supplemental letter report (Metcalf & Eddy, Inc.), May 31, 2001.

3- Report on Re-Assessment of CSO Activation Frequency and Volume to Dorchester Brook Conduit and Outfall BOS086, January 2001 and supplemental letter report (Metcalf & Eddy, Inc.), June 28, 2001.

4- MWRA Long Term CSO Control Plan, Fort Point Channel Sewer Separation and System Optimization Project, Level of Control at CSO Outfalls BOS072 and BOS073, June 7, 2004.

5- Final Variance Report for Alewife Brook and the Upper Mystic River, July 2003, and supplemental letter report (Metcalf &Eddy, Inc.), July 8, 2003.

6- East Boston Branch Sewer Relief Project Reevaluation Report, February 2004.

7- Supplemental Facilities Plan and Environmental Impact Report on the Long-term CSO Control Plan for North Dorchester Bay and Reserved Channel, April 27, 2004.

8- Recommendations and Proposed Schedule for Long-Term CSO Control for the Charles River, Alewife Brook and East Boston, August 2, 2005; MWRA Revised Recommended CSO Control Plan for the Charles River, Typical Year CSO Discharge Activations and Volumes, November 15, 2005; MWRA Long-Term CSO Control Plan, Response to Additional EPA Questions Reagarding Prison Point Discharges, January 9, 2005 (2006).

9- MWRA Long Term CSO Control Plan Target CSO Activation Frequency and Volume by Outfall, December 9, 2005.

Response to Public Comments

From July 24, 2009 to August 22, 2009, the United States Environmental Protection Agency ("EPA") and the Massachusetts Department of Environmental Protection ("MassDEP") (together, the "Agencies") solicited public comments on a draft NPDES permit developed pursuant to a permit renewal application from the City of Cambridge Department of Public Works ("Permittee") for the reissuance of a National Pollutant Discharge Elimination System ("NPDES") permit to discharge sanitary wastewater and storm water from various outfalls to Alewife Brook and the Charles River in Cambridge, Massachusetts.

After a review of the comments received, EPA and MassDEP have made a final decision to issue this permit authorizing these discharges. The final permit is mostly identical to the draft permit that was available for public comment, with the exception of the following changes which also list the corresponding response where applicable:

1. The date required for submittal of the first annual report in Part I.D.5 was changed from April 15th to April 30th .(Comment A1)

2. The date required for the submittal of the review and update of the Nine Minimum Control (NMC) program in Part I.B was changed from April 15th to April 30th . (Comment A2)

3. Permit Attachment B has been revised to reflect that the combined sewer overflow (CSO) listed as CAM002 has been changed to reflect that there are two CSOs associated with one CSO regulator. These CSOs have been designated CAM002A and CAM002B. (Comment A4)

4. The wording "issued by the MassDEP" has been added to Part I.A.1.d to reiterate that MassDEP issues water quality standards variances. (Comment A5)

5. Part I.C.3 has been revised to correctly refer to the unauthorized discharges section of the permit as Part I.E., not I.F. (Comment A6)

6. Part I.C.7 of the final permit has been revised to remove the word "Cambridge", in order that property owners in Arlington and other surrounding communities subject to flooding also receive press releases regarding CSOs. (Comment E4)

7. The final permit has been revised at Part I.D.5 to require the permittee to assess the potential for river inflow into the Cambridge combined sewer system in the Alewife Brook watershed and if such potential exists, an assessment of the cost, feasibility, and effectiveness of installing inflow controls. (Comment C3)

8. Footnote 1 on permit Attachments A and B have been revised to note that the CSO activation frequency and annual volume limits are based on a typical year as defined in the Facilities Plan. (Comment A9)

9. Attachment E to the final permit which is the "Second Stipulation document" now includes revised Exhibits A and B.. (Comment A10)

Copies of the final permit may be obtained by writing or calling EPA's NPDES Industrial Permits Branch (CIP), Office of Ecosystem Protection, 1 Congress Street, Suite 1100, Boston, MA 02114-2023; Telephone: (617) 918-1579.

Comments submitted by the Cambridge DPW, the permittee:

Comment A1: **Deadline for First Annual Report**
The Draft Permit lists the deadline for the submission for Annual Reports as "**By April 30th of each year**" (§ I.D, emphasis original) but lists the initial annual report as due on April 15, 2010 (§ I.D.5.). As a matter of consistency and for ease of tracking deadlines, the City respectfully requests that all annual reports, including the first annual report, utilize an April 30 submission deadline.

Response to Comment A1: The commenter correctly notes this discrepancy. As intended, the initial annual report due date has been changed to April 30, 2010, to be consistent with the reporting date noted earlier in this section.

Comment A2: **Deadline for Review and Update of Nine Minimum Control Program**

The Draft Permit lists the deadline for the review and update of the nine minimum control program as no later than April 15th of the first year of the permit (§ I.B.). The City requests that the deadline for the review and update of the nine minimum controls be changed to April 30th of the first year of the permit to coincide with the deadline for the annual reports.

Response to Comment A2: In order to be consistent with the date required for the Annual Report submittal, the due date for the NMC program has been changed from April 15th to April 30th .

Comment A3: **Notification and Reporting Requirements**

Certain requirements set forth by the Draft Permit place notification and reporting responsibility largely on the City of Cambridge, whereas the Variances require joint action among Cambridge,

the Massachusetts Water Resource Authority ("MWRA"), the Boston Water and Sewer Commission ("BWSC"), and/or the City of Somerville.

Specifically, Draft Permit section I.C.6 states that "the permittee, with the collaboration of the MWRA and the City of Somerville, shall maintain informational signs at John Wald Park and other public access locations identified by the MassDEP, including the Community Sailing Program and local boathouses…" This requirement places the primary onus on the City of Cambridge to maintain the informational signs. However, the Variance for the Alewife Brook/Upper Mystic River states in section C.ii. that "MWRA and the Cities of Cambridge and Somerville shall maintain informational signs at John Wald Park and other public access locations identified by the Department…"and the Variance for the Lower Charles River/Charles Basin states in section C.ii that "MWRA, the City of Cambridge, and the Boston Water and Sewer Commission shall collaborate to provide informational notices to boathouses in the areas affected by the CSO discharges and the Community Sailing program…" Therefore, Cambridge requests that the language in the Draft Permit more closely track the collaborative process under the Variances by which the parties coordinate to ensure that the applicable requirements are met.

Section I.C.7 should be clarified at the outset that the press release only concerns outfalls located in the Alewife Brook/Upper Mystic River watershed. In addition, Draft Permit section I.C.7 states that "the permittee, with the collaboration of the MWRA and the City of Somerville, shall issue a joint press release by April 15 of each year," which places the burden on the City to issue the joint press release. However, the Variance for the Alewife Brook/Upper Mystic River states that "MWRA and the Cities of Cambridge and Somerville shall issue a joint press release by April 15 of each year," which distributes the responsibility of the press release more equally among the parties. Currently, MWRA takes the lead on such press releases and the City provides any comments on the press releases before they are issued. The City requests that the Draft Permit language be changed to more closely track the collaborative process under the Variance by which the parties coordinate to ensure that the applicable requirements are met.

Response to Comment A3: EPA agrees that the permit language should be consistent with the currently approved water quality standards variances to the extent possible. However, since this permit is only issued to the City of Cambridge, it can only direct the City of Cambridge and not the City of Somerville or the MWRA, to fulfill the permit requirements. In consideration of the variance language, the wording "in collaboration with the City of Somerville and the MWRA" was added for both requirements to reflect the fact that this is required to be a joint effort and that it is understood that the City of Cambridge does not bear the sole responsibility for either requirement. Therefore, the final permit has not been changed in this regard.

Comment A4: **Replace all references to "CAM-002" with "CAM-002A & B."**

Outfall CAM-002, located proximate to the intersection of Alewife Brook Parkway and Massachusetts Avenue, is comprised of two pipes, which are labeled CAM-002A and CAM-002B.[1] The City requests the proposed change to the draft permit language to ensure that

[1] The 1993 Permit lists CAM-002A and CAM-002B as separate outfalls.

reference to CAM-002 contemplates the combined discharge from CAM-002A & B. During the course of floatable control design work and analysis at CAM002 the City proposed a revised design of the CAM002 regulator structure. In consultation with the MWRA, the City intends to implement an improvement to the CSO Control Plan that will slightly reduce the total volume of discharges from Outfall CAM-002 and significantly reduce the associated cost and impact of the construction work at the intersection of Massachusetts Avenue and the Alewife Brook Parkway. Currently, Outfall CAM-002B is blocked; however, to implement this improvement, it is necessary to unblock CAM-002B, thereby allowing use of both CAM-002A & B together to handle the flow from the regulator. The combined discharges from CAM-002A & B will not exceed the effluent limitations referenced for Outfall CAM-002 in Attachment B of the Draft Permit.

Response to Comment A4: To allow outfall CAM002B to be reopened in the future, it has been added to the permit as an authorized discharge. The discharge volume and activation frequency limits that apply to outfall CAM002 will now apply to the combined discharge from CAM002A and CAM002B. As described by the commenter, the addition of outfall CAM002B will not require a change in flow meter location because both outfalls receive flow from a single regulator and the installed flow meter measures the flow from the regulator before it is split between the two outfalls. Therefore, in permit Attachment A, Outfall CAM002 has been changed to CAM002A, and Outfall CAM002B has been added.

Comment A5: Section I.A.1.d of the Draft Permit should be corrected to state that the "permit discharges must meet Federal and State WQS subject to and consistent with any water quality standards variances or variance extensions issued by MassDEP and approved by the EPA." The reasons for this change are that DEP issues the variance in the first instance, and compliance with the WQS is obviously subject to the provisions of the Variance.

Response to Comment A5: EPA has revised the final permit to reflect these language changes. Although it is redundant to add "issued by the MassDEP" regarding variances since only the MassDEP can issue variances in the state, this wording has been added for clarification.

Comment A6: Section I.C.3 of the Draft Permit, incorrectly refers to "Part 1.F. Unauthorized Discharges." This reference should be edited to "Part 1.E. Unauthorized Discharges."

Response to Comment A6: This discrepancy is acknowledged and the correction has been made to the final permit.

Comment A7: Attachment A to the Draft Permit that was mailed to the City of Cambridge is different than the Attachment A to the Draft Permit that is available online at EPA's website. The Attachment A that was mailed to Cambridge is the correct version. The version that is posted on the website states in footnote # 3 that CAM-011 is scheduled to be closed, which is incorrect. Therefore, footnote # 3 should be removed. That same version also incorrectly

indicates in the chart that footnote # 2 refers to CAM-007 and CAM-009. It should tag CAM-009 and CAM-011 instead.

Response to Comment A7: EPA acknowledges that an incorrect version of Attachment A was originally posted on EPA's website at the start of the public comment period. Upon receiving this comment, the correct version of this permit Attachment was posted on EPA's website, replacing the incorrect version.

The following comments were submitted by the permittee on September 18, 2009, after the close of the comment period. EPA has determined that these issues should be addressed and has responded to them as follows:

Comment A8: In Part I.C. 4 of the permit, the City requests removing the bullet point requiring "a description of whether the discharge activation and volume for each CSO are in accordance with the MWRA Final CSO Facilities Plan or the "Notice of Project Change" document or updates to these documents. This section contains some ambiguity and may be interpreted to require the City to record the requested description for each discharge, as opposed to recording such information on an annual basis. From a technical standpoint, this requirement is more appropriately placed in the Annual Report section because requiring the requested description after each storm event is contrary to the regulatory basis for the numerical discharge limits in the permit and because the levels of control in MWRA's Final CSO Facilities plan are based on annual performance in a typical rainfall year. In addition, in practice, the MWRA and CSO communities have only been recording the requested information on an annual basis. Therefore, the requirement should remain in the Annual Report section of the permit, but should be removed from Part I.C.4.

Response to Comment A8: The intent of the requirements in Part I.C.4 is to have the City closely track the ongoing response of CSOs to storm events, both for the identification of any immediate operation and maintenance problems and to provide information for the annual report. The Agencies agree that the cited bullet point is ambiguous and replicates requirements for the annual report. Accordingly, we have removed the bullet point. We do encourage the City to closely review all ongoing CSO flow measurements to ensure that any increases in discharge activation frequency or volume due to operation and maintenance problems are quickly detected and corrected.

Comment A9: The City requests that a footnote be added to Attachments A and B to the column heading of "Efflunent Limitations" stating that they are "Based on a Typical Year". Actual annual discharges from permitted CSO outfalls can vary from the Typical Year performance measures depending on the characteristics of storms in the Typical Year. Therefore, the proposed footnote would clarify the rainfall distribution used for the calculation of Effluent Limitations.

Response to Comment A9: Although Page 2 of the draft permit noted that the limits in permit Attachments A and B were based on the "typical year", this has also been noted in footnote 1 to both of these attachments in the final permit.

Comment A10: Exhibits A and B to the March 15, 2006 Second Stipulation document (Attachment E in the draft permit) were amended on May 7, 2008. The amended versions of these Exhibits should be attached to the Stipulation and the Permit.

Response to Comment A10: Since the Second Stipulation document is a part of this permit on which some permit conditions are based, the Agencies have included the Stipulation with the revised versions of these exhibits in the final permit.

Comment A11: With respect to Part I.C.5, it is sufficient to solely list the City of Cambridge on the signs because adding the Department of Public Works (DPW) to the sign would make the text smaller and would not add any additional value to the sign. The existing warning signs posted by the City list the City's name, but do not list the "DPW". Therefore, the City should not be required to create new signs that include the "DPW".

Response to Comment A11: The Agencies would accept signs that used the abbreviation DPW provided all other signage requirements were met.

Comments submitted by Michael A. Fager, on behalf of the Mystic River Watershed Association:

Comment B1: The permit acknowledges EPA's statutory role in the review and approval of water quality standards variances. Part 1, A (1)(d). This is a change from the previous draft permit and the procedure adopted in 2006 in which EPA shifted review and approval functions to DEP for fifteen (15) years. MyRWA believes that federal review of state water quality variances is an important practical and legal element in achieving water quality gain in Alewife Brook. We assume this is EPA's acknowledgement that the agency will review the DEP variances on a three year cycle.

Response to Comment B1: Although the previous draft permit may not have stated this, the EPA is obligated to and has routinely reviewed and approved MassDEP water quality variances, including the ones for the lower Charles River and Alewife Brook. As noted on page 10 of the fact sheet, EPA approved both of these variance extensions on July 29, 2008, as well as all prior variances for these waterbodies.

Comment B2: Information concerning physical conditions in the sewer system and water quality data about existing conditions and the impacts of CSO discharges into Alewife Brook is relevant to determining the appropriate level of CSO control. Cambridge is now responsible for

any additional CSO controls (see "Second Stipulation" document, 2006) should the water quality data support their implementation.

The Mystic River Watershed Association believes that Low Impact Development (LID) techniques and "green infrastructure" elements are practical alternatives for additional CSO control in the CAM 401B catchment area. Cambridge has already identified feasible LID techniques for the Alewife basin (see Proposed Concord Alewife Stormwater Guidelines, June 2006). Moreover, both §303 of the Clean Water Act and 40 CFR 131.11(d) (sic) require implementation of cost effective non-point source controls prior to the removal of a designated use.

Response to Comment B2: As noted in Part I.D.3 of the draft permit, the permittee is subject to the conditions of the 1997 Facilities Plan as well as the Second Stipulation, which updated the original court order regarding CSO discharge frequency and volume estimates among other items. The Second Stipulation requires that the MWRA must ensure that the abatement work is consistent with the "Facilities Plan", but any future abatement will be the responsibility of the member communities.

Forty C.F.R. §131.10(d) provides that "{a}t as minimum, uses are deemed attainable if they can be achieved by the imposition of effluent limits required under sections 301(b) and 306 of the Act and cost-effective and reasonable best management practices for nonpoint source control." This regulation does not require implementation of cost effective nonpoint controls before uses are removed, but rather precludes use removal if designated uses can be attained by achieving applicable technological limits and cost-effective and reasonable nonpoint source controls.

The MWRA has explored a number of alternatives and estimated that elimination of overflows would cost more than $10 billion. The Commonwealth and EPA have concluded that an expenditure of this amount, and therefore elimination of overflows, is not feasible at this time. Thus full attainment of Class B uses is not currently achievable and the water quality standards have been adjusted temporarily via variances.

In any event, we would expect and encourage the City to consider LID and other techniques to the extent they could benefit the City, State, and the ratepayers by meeting the goals of CSO abatement work at lower cost, particularly if higher levels of CSO control are required in the future.

We also note that the City of Cambridge is authorized to discharge stormwater pursuant to EPA's municipal separate storm sewer (MS4) general permit This permit includes best management practices (BMPs) which the City must implement to control stormwater discharges to waters of the State. EPA is currently developing a draft renewal of the MS4 permit, and it will likely result in communities increasing their use of LID techniques.

Comment B3: Part 1, C (6) states in pertinent part "The permittee, . . . shall maintain informational signs at John Wald Park and other public access locations . . . to advise the public of CSO discharges and potential public health impacts and provide contact information and website links." The Department of Conservation and Recreation (DCR) is developing a new bike/pedestrian path along the Alewife Brook from the Minute Man Bike Path to the Mystic Valley Parkway. This path, for all areas relevant to this permit, will be in the town of Arlington, just across the brook from the CSOs. The permittee should be required to work with Arlington to install and maintain informational signs at appropriate locations along this path, at sites that should be stipulated in the permit.

Response to Comment B3: Regarding the placement of informational signs related to CSO discharges, Part I.C.6 of the permit reads "and other public access locations identified by the MassDEP." Since the proposed bike path was not considered in the 2007 variance extension, it was not included as a specific area requiring CSO signage. MassDEP is committed to ensuring that signs are located at appropriate locations. The intention is to ensure that information is provided where the public has reasonable and legal access to areas potentially affected by CSO discharges. As submitted, however, the comment does not include sufficient detail with regard to the location where the commenter wishes to locate additional signs. MassDEP encourages the commenter to submit a detailed request with documentation to ensure that the MassDEP can identify the locations where commenter wishes to see signs located.

Comments submitted by Stephen Kaiser, Ph.D.:

Background to comments: Cambridge has complicated the sewer separation problem by its introduction of drainage improvements as a designed-in element of the total CSO program. Moreover, complete CSO separation along Alewife Brook has been dropped as an ultimate objective. Attachment B for the draft permit lists six existing CSO pipes under the jurisdiction of the City of Cambridge, and only two of these are proposed for closure as part of any near or long-term plan. It is fair to say that separation of additional Cambridge CSOs has been precluded for budgetary reasons, because of the considerable expense involved in the drainage program advocated by the City of Cambridge, called Contract 12.

One result of Contract 12 is to increase flooding in Alewife Brook, and with the increased flooding comes greater amounts of inflow into the local and MWRA sewer systems during high water conditions. In effect, there is reverse flow from the brook into the CSO chambers and thence into the MWRA interceptors. The CSO problem at Alewife is two-way. First there are the flows of combined sewage from the Cambridge system discharged into Alewife Brook. Second, there is the reverse flow or inflow of floodwaters from the brook passing into the Alewife interceptors and overloading the MWRA system downstream, causing the sanitary sewer overflow (SSO) near Dilboy Field. During both the October 2005 and March 2006 floods (ten year events) I observed overland SSO flows coming from the rear of the MWRA Alewife Brook Pump Station near Dilboy Field. I saw significant deposition of solid fecal matter on the ground. My measurements of Alewife Brook flood elevations during those storms showed that

flood crests were well above the weir elevations within Cambridge's CSO structures. I concluded that brook inflow into those CSO facilities was a significant contributing factor to the SSO overflows experiences at MWRA near Dilboy Field.

One consequence of Cambridge's Contract 12 drainage work is heightened flood elevations in Alewife Brook. The City's own flood studies for the 2001 NPC and 2003 Variance Request show identical analyzes of increased flood elevations along Alewife Brook, with elevations in a 10-year storm being 1.5 inches higher near the MWR003 outfall on Little River (Table ES-4 on page ES-12). No 100-year flood impact was calculated by Cambridge or MWRA.

This increased flooding along Alewife Brook caused by Cambridge's drainage project will increase the physical extent of the flooding as well as the water depth for those properties within the flood plain. More importantly for water quality, it allows even more inflow of brook water through the CSO system and into the MWRA interceptors, triggering even larger SSO discharges near Dilboy Field. MWRA has proposed and supported the concept of installing flap gates on all remaining CSO pipes from Cambridge. Cambridge has indicated its preference for funding the drainage project rather than inflow controls.

Other elements of the CSO separation in Cambridge work both ways as well. The plans shown in the NPC indicate larger connection pipes between Cambridge's CSO system and the MWRA interceptor. This provision allows for less CSO overflow during shorter, more intense flows, but also produces larger volumes of inflow from the brook into the MWRA system. Again, flap gates would reduce this problem, but they are not an approved element in the current CSO plan.

Finally, there is a scarcity of quality measurements of flood elevations along Alewife Brook. No government entity has reported any flood data since 1996. Water quality sampling and modeling have also been deficient in either frequency or accuracy or both.

From the problem assessment above for Alewife Brook, there are four basic elements in the current plan that need to be addressed by planners, engineering designers and permitting agencies:

Comment C1: There is no plan at any time in the future for the full separation of combined sewers in Cambridge.

Response to Comment C1: As part of the ongoing enforcement action to restore Boston Harbor, the MWRA has been required to implement a CSO mitigation plan that weighed numerous alternatives. For various reasons, including concerns about flooding and cost, the alternative selected for Alewife Brook does not require full sewer separation. This permit requires the continued implementation of the NMCs and the conditions also reflect the ongoing separation and abatement work as required by the Court Order and the variance.

Affordability has been an important consideration in evaluation of CSO control alternatives, as is the cost-effectiveness of any control plan. However, as documented in past Assessment Reports,

elimination of all CSO discharges through sewer separation has serious technical feasibility challenges in addition to affordability concerns. Although full separation is not a current requirement, the frequency and volume of CSO discharges to Alewife Brook are expected to decrease significantly upon completion of CSO abatement and related work. Also see the response to Comment B2.

Comment C2: The drainage plan proposed by Cambridge will worsen flooding conditions generally in Alewife Brook, and will increase brook inflow into MWRA interceptor sewers during major storms, with SSO problems worsened downstream. Cambridge has adopted no mitigation plan.

Response to Comment C2: The selected alternative for CSO control attempted to strike a cost-effective balance between increased flooding and additional separation. As noted in the permit, SSOs are prohibited. Any discharge of SSOs shall be reported as required in Part I.E of the permit.

The Cambridge CSO permit does not address flood management issues in the watershed. It limits and establishes conditions for allowable CSOs. Commenters concerned about flooding should refer inquiries to the Federal Emergency Management Agency (FEMA) and the DCR Flood Hazard Mitigation Program.

FEMA has recently evaluated the flood plain mapping in the area and determined that flood plain elevation should be reduced from 8.2 feet to 7.6 feet based on data showing that the extent of flooding is greater than previously thought. The new study modeled the Alewife Brook as part of the larger Mystic River system and used an unsteady flow analysis, taking into account the timing of when the various tributaries discharge to the Mystic, which captured backwater flooding on the tributaries to a greater degree than an older study conducted in 1982. There are plans to adopt these revised flood maps in June 2010.

As to flood impacts, the City has indicated in its planning document that the drainage project will not result in any increase in flooding in the watershed, and that peak pre- and post- construction runoff rates will be the same. The project has been duly permitted by MassDEP under the Wetlands Protection Act.

Comment C3: The failure to install flap gates on all remaining CSO pipes in Cambridge will result in no reduction in the brook flood inflow through CSO structures into MWRA interceptor sewers. Such flap gates are needed.

Response to Comment C3: The permit requires the City to annually report on measures that it is taking to comply with the continued implementation of the NMCs, which are subject to approval by MassDEP and EPA. In response to this comment, and following review of the MWRA CSO planning documents supporting the recommended plan, Part I.D.5 of the final

permit has been modified to incorporate a requirement to assess the potential for river inflow into the Cambridge combined sewer system in the Alewife Brook watershed and to assess the cost, feasibility, and effectiveness of installing inflow controls on the remaining CSO facilities. This information will be required in the second annual NMC report and could establish a solid basis for requiring inflow controls in the future.

Comment C4: There is inadequate data and circulated information on the interaction between flooding and sewer overflows (both CSO and SSO). More measurements with greater accuracy need to be made.

Response to Comment C4: As discussed above, the permit has been amended to require the City of Cambridge to assess the cost, feasibility, and effectiveness of installing inflow controls on the remaining CSO facilities. This analysis will require additional monitoring to evaluate the relationship between flooding and downstream overflows.

Comment C5: The proposed permit provides a sound structure for which to build an effective permit. Among the nine Minimum controls, the permit emphasizes five : #1,5, 6, 8, and 9. I would urge that EPA add #2 and #4 :

"(2) Maximum use of the collection system for storage. ....
(4) Maximization of flow to the POTW for treatment."

Both of these are related to the use of flap gates on all remaining CSOs to reduce the amount of brook inflow into the MWRA system. The goal would be to maximize both the storage of existing system as well as maximizing the available capacity in the MWRA system to allow for sewage flow to the Deer Island treatment plant.

Response to Comment 5: See response to Comment C3.

Comment C6: "(9) Monitoring to effectively characterize CSO and the efficacy of CSO controls." Proper monitoring should include information both on flooding/rainfall and CSO activity (both discharge and inflow). Cambridge must calibrate and report regularly on data from their two existing stream monitors. The USGS at Broadway gage has been down for over two years, with no data on stream elevation. Cambridge has simply not been reporting their flood data publicly.

Response to Comment C6: The reporting requirements contained in the draft permit contain sufficient detail to determine compliance with the permit and progress on implementing CSO controls. Additional monitoring can be required through future mechanisms if additional data is needed for future decisions.

The permit requires Cambridge to quantify the frequency and volume of all CSO events, as well as to provide information on precipitation. The Agencies are not aware that Cambridge operates and maintains any "stream monitors." USGS continues to operate and maintain a stream gauge

on Alewife Brook near Arlington, data from which is available in real-time on line. The Mystic River Watershed Association appears to operate a seasonal instream monitor on Alewife Brook.

Comment C7: Other problems arise from the peculiar nature of the permit, which establishes limits on the amount of storm discharge, but has no penalty structure and no method of enforcement. There does not appear to be any opportunity for peer review of any measurements, modeling or calculations to be performed by the City of Cambridge. My concerns about this element of the permit are probably not peculiar to this permit, but are related to all NPDES permits. However, I would be most interested in seeing how Cambridge measures and evaluates flood events.

Response to Comment C7 All of the permit requirements are fully enforceable elements of this permit. If EPA and/or MassDEP determine that the City is not meeting any of these permit requirements, a variety of enforcement actions, including monetary penalties, may be commenced. The permit's terms and conditions are also enforceable by citizens pursuant to the Clean Water Act's citizen suit provision at § 505, 33 U.S.C. § 1365. All information relative to CSO volume and activation frequency as well as CSO inspection reports are public records and available for viewing at any time during normal business hours. . Full public review of the MWRA CSO control plan, including data developed during modeling of alternatives, was conducted as an element of the MEPA process.

Comment C8: With respect to "effluent limitations and requirements," there should be greater clarity as to how the limitations affect actual water quality. The lack of opportunity for enforcement action needs to be explained.

Response to Comment C8: This section of the permit outlines the NMCs and references the documents which set limits for CSO activation frequency and volume for all remaining CSO discharges. Non-compliance with any of these conditions or limitations could be subject to enforcement. The permit's effluent limitations are consistent with the variance, which requires reductions in CSO volumes discharged which will lead to improved water quality.

There is a great deal of variability in storm events and their impacts on water quality. Clearly overflows degrade water quality, and larger volumes tend to have a greater impact. The permit's effluent limitations protect water quality by limiting the volume and frequency of overflows.

Comment C9: The interactions between rainfall, stormwater, flooding and sewage overflows can be quite complicated. Unfortunately, those who deal with flooding (FEMA) are separate agencies from those that deal with water quality (EPA). Closer coordination is needed. For example, a storm should be evaluated for some reasonable period after the end of rainfall, at least as long as inflow through CSOs remains a problem. During the March 21 to April 2, 2004 flood (a ten-year event), Alewife Brook crested at elevation 5.6 NGVD -- two feet higher then the lowest CSO invert. The brook level did not drop below the CSO invert level for 36 hours. Thus the definition of wet weather as contained in the permit :

"1. During wet weather, the permittee is authorized to discharge combined storm water and sanitary wastewater from combined sewer outfalls"

should be modified to cover this additional inflow period.

Response to Comment C9: Section 402(q) of the Clean Water Act, 33 U.S.C. § 1342(q), requires permits to conform to the CSO policy. The Region interprets the CSO policy as allowing CSO discharges that result from stormwater inflow that combined collection systems are designed to receive. CSO discharges that result from excessive infiltration or inflow from ground water or surface waters are not authorized by the permit and it would be inconsistent with the CSO policy to authorize such overflows.

The "invert" of the CSO outfall will not dictate whether an inflow from the Brook occurs; rather it is the height of the upstream CSO weir or regulator, which is always significantly higher than the invert. Flap gates may be warranted if Brook elevations become higher than the weir elevation. Even under this condition, however, whether inflow occurs will depend on the hydraulic grade line in the sewer versus the river elevation.

Comment C10: In terms of submitting valid data, the following is acceptable:

" 4. .... When estimating, the permittee shall make reasonable efforts (i.e. gaging, measurements) to verify the validity of the estimation technique. " ..... except that the term "calibration" should be used to validate any measurements or estimation methods. In terms of actual measurements for flood elevation, it is my understanding that Cambridge maintains two in-stream meters from which elevation data can be utilized. Calibration of the base or reference elevation of the gage should be included in any report to EPA.

Response to Comment C10: EPA agrees that acceptable calibration measures should be taken regarding the measurement of flow and this wording has been added to the final permit.

Comment C11: Reports on precipitation should include peak hourly precipitation as well as total storm precipitation (with times for storm beginning and end). Notation should be made of recent rains in the week prior to the flood crest and the presence of surface snow or ice. Such conditions represent the classic winter freshet situation of rains striking melting snow or frozen ground conditions. Historically, Boston's worst winter freshet occurred in 1886 Stony Brook Flood, while a significant 25-year flood in March 2001 was created by a one-year rainfall striking snow and frozen ground.

Response to Comment C11: The Agencies believe the permit language is satisfactory in that it requires cumulative data for each day, and hourly data (presumably peak hour intensity) where such information is available from the national weather service. In addition, annual reporting for

years 3 and 5 on system performance must describe any features of discrete storm events which caused atypical CSO discharges. Also see Response to Comment C6.

Comment C12: The draft permit stipulates that if CSO discharges are significantly higher than expected, Cambridge shall include a discussion of possible abatement activities and their possible impact:

"Where CSO discharges are determined to be greater than the activation frequency or volume in either document above, the permittee shall include their assessment of such result, a discussion of remaining CSO abatement activities and an assessment of the impact of those projects on attaining the level of CSO control identified ....."

One key mitigation element which should be considered is the dredging of Alewife Brook. Existing sediments are about four feet deep, with 18 inches of water depth in the brook itself. Removal of these sediments would result in better stream flow and hence a flooding benefit, while also removing pollutant-laden materials within the brook. The flooding benefit can be utilized as mitigation for the worsened flooding attributed to Contract 12, as well as any needed flooding mitigation due to flap gates. The flap gates would have the effect of reducing flood water in the MWRA interceptors, but with an increment of increased flooding in the brook itself. In this scenario, flap gates can be used to reduce inflow, and full flood mitigation is provided by the dredging. I have made this proposal and submitted it twice to MWRA.

Response to Comment C12: The Region agrees that if further mitigation efforts are required, it would make sense to consider all reasonable alternatives. There is no reason that dredging should not be among alternatives considered. Also, See Response to Comment C3.

Comment C13: I believe that it should be possible to utilize the NPDES permit to encourage the various parties concerned with water quality and flooding issues along Alewife Brook to reach a reasonable resolution with mitigation. I welcome any effort that EPA can give to this effort.

Response to Comment C13: The Permit itself is not a vehicle to address flooding mitigation. Our regulatory authority for this permit is limited to the impact that flooding has on the discharge of pollutants or to the inflow of flood waters into the sewer system. However, the Agencies would be willing to participate in a discussion regarding all aspects of flooding.

Comment C14: While I did request the opportunity for a public hearing and extension of the comment period, I believe that with the upcoming NPDES review of MWRA permits in the Alewife Brook/Mystic River area will include a public hearing. By completing these comments, I have no further need for time to respond to the draft permit for Cambridge. Therefore, I withdraw my request for a hearing and extended public comment period for Cambridge permit MA0101074.

Response to Comment C14: EPA acknowledges the withdrawal of your hearing request and no hearing regarding this draft permit will be conducted.

Comments submitted by Roger Frymire:

Comment D1: **Part I. A. 9**
CSO monitoring guidelines call for characterization as well as flow monitoring. MWRA issued the 1993 Interim CSO Report for the CSO plan FEIR. This characterized only 10 CSOs in the entire MWRA area from 4 samples at each CSO in two rain events. I believe none of those characterized were in Cambridge. Half the CSOs were quite dirty with Fecal Coliform concentrations well over 500,000 CFU/100ml. But half the CSOs were unexpectedly clean - for example SOM003 had only one sample from each storm over 10,000 CFU/100ml, with medians of 4,500 and 8,000 for the two storms (means were 37,000 and 22,000). Once the LTCP is completed in Cambridge, good data from the remaining CSOs will be needed to decide if and where any further CSO separation will be required in Cambridge.

I request that in Year one of this permit Cambridge be required to develop a sampling plan to characterize flows for E. coli and phosphorous from each CSO listed in Attachments A and B as having over 400,000 gallons/year typical flow or more than two activations expected in a typical year. These would be CSOs numbered 001, 002, 005, 017, 401A, and 401B. I don't expect all outfalls to be characterized each year, and a pace of one outfall well-characterized each year would soon generate meaningful data.

I stress that I do not expect a plan involving construction of specialized chambers near each overflow and installation of complex automated sampling gear at great cost. Rather a minimal plan for grabbing an occasional sample by pole either at the overflow weir, CSO outfall, or even a manhole slightly upstream of a weir at a point in a storm where modeling and experience has shown CSO activations to be likely. The MWRA Report actually failed to collect a large number of its samples when the CSO was actually activated, and relied on many samples taken from the upstream side of a CSO weir when it wasn't even overflowing! I'm sure Cambridge can do better than that! I also accept that there may be one or two CSOs which for various reasons cannot be feasibly characterized at a reasonable level of expenditure.

Response to Comment D1: The Agencies have found that CSO quality has varied dramatically in sampling programs (even multiple samples at the same CSO), and the litany of factors affecting CSO quality makes it difficult to draw conclusions on which factors bear more impact. Therefore, most of our CSO decisions have been based on quantity/frequency and receiving water uses, which we believe are better criteria. The Agencies are not opposed to requiring more characterization sampling in the Upper Mystic/Alewife basin, but feel it should be done in successive issuances of the Variance once the recommended plan is in place. It will be challenging to determine how the sampling data will and should influence decisions to move forward with further separation work.

Comment D2: **Part I. C. 5**
Though black on white instead of white on green, current CSO signage installed under the Variance requirements should be acceptable until they wear out.

Response to Comment D2: The Agencies agree that current signage that otherwise meets the signage requirements is acceptable and would expect that signs with the required green and white color scheme would be installed when the current signs need to be replaced.

Comment D3: **Part I. C. 6**
With a new pedestrian path and Bikeway connector between the Minuteman and Mystic River paths being installed alongside Alewife Brook, there is need for additional informational signpoints to inform the increased public being brought into close proximity to the Brook. The Mouth of the Brook near each end of the Mystic Valley Parkway bridge is one good site. The other good site is near the Mass Ave Bridge over Alewife Brook. Both these are major pedestrian and bicycle connections to the new public pathways. Of course, DCR approval as property owner for siting such signage would be needed.

Response to Comment D3: See response to Comment B3.

Comment D4: **Part I. C. 8**
In the Alewife area, public notification of CSO events via e-mail is working well and is much appreciated. A similar notification seems appropriate for the Charles even if also triggered by the CAM401B activations on Alewife. CAM005 is permitted to activate three times annually, but the Cottage Farm facility is only supposed to activate twice a year so the notifications based there will miss a third of all untreated CSO activations. It may be that a BWSC Charles River CSO activates more frequently and would be an even more appropriate notification trigger, but that is not covered under this permit.

Response to Comment D4: MWRA is required to provide such notice upon activation of Cottage Farm. Once the MWRA Charles River CSO plan is implemented (in July 2013), CAM 005 will be the most active overflow predicted, but until then, Cottage Farm will remain the most active overflow point, and suitable for the real-time notice. For the next permit issuance, EPA and MassDEP may require that Cambridge report activations for Outfall CAM 005.

Comment D5: **Part I. C. 9**
Cambridge DPW website updates of CSO activation information were neglected for the last 5 years. Though webpage updates should not be expected instantaneously, I would like to see a 45-day deadline after each CSO event for updates to become publicly available via web.

Response to Comment D5: The Region agrees that regular website postings of CSO activations would be valuable and encourages the City to provide up-to-date information on its web-site as soon as it is practicable to do so.

Comment D6: **Part I. D. 4**
This report should be required in year three and EVERY 2 years thereafter, with no lapse if permit renewal goes beyond 5 years. I especially like the 'recurrence interval' reporting for each storm with an activation. This will lead to a much greater understanding of the CSO dynamics with varying storm size.

Response to Comment D6: EPA agrees with the comment and has changed the permit accordingly.

Comment D7: **Attachment A**
CAM011 needs footnote 2 added to annual activation frequency.
CAM007 does NOT need footnote 2.

Response to Comment D7: See response to Comment A7.

Comment D8: **Attachment B**
CAM002 has a second outlet point currently bricked closed (CAM002B). Cambridge may request to re-open this outlet as their modeling shows this would result in LESS effluent in a typical year as well as providing hydraulic relief from basement and street backups to residential neighborhoods in extreme (>1yr) storms. This likelihood should be noted for the final permit, and I fully support it.

Response to Comment D8: See response to Comment A4.

Comment D9: CAM401A has an innovative rotating brush/weir for floatables control which makes metering flows here exceptionally tricky. Cambridge should be allowed to use innovative substitutes for direct metering including detailed modeling linked to a local rain gauge and well-calibrated to available metering data.

Response to Comment D9: To the extent that the City can show that innovative metering techniques are adequate alternatives that meet the permit requirement, they can certainly do so. In Part I.C.4 of the permit, the permittee is allowed to use estimation as a method of CSO discharge volume quantification and is required to "make all reasonable efforts to verify the validity of the estimation technique".

Comment D10: **Reporting**
Wherever possible I would like to relieve the city of multiple reporting requirements by fully integrating report schedules required by this permit, two Variances, and DEPs ACOP and NON requirements. Integration of reporting also assists in understanding the interplay between scheduling these multiple complex projects.

Response to Comment D10: To the extent that any of EPA or MassDEP's reporting requirements are duplicative, we would encourage the City to request that the submittal of reports or monitoring data or their incorporation by reference from other programs or requirements be used in satisfying the conditions of this permit.

Comment D11: **Low Impact Development, Green Roofs**
Cambridge has made a good start by writing LID into zoning for one part of the city. I would like to see LID and green roofs required or at least encouraged citywide. In combined sewer areas, this could help reduce flows and eventually allow closure of more CSOs. In separated areas, this will help meet phosphorous TMDL stormwater regulations.

Response to Comment D11: See response to Comment B2.

Comments submitted by David Stoff:

Comment E1: I am pleased to see that the permit acknowledges EPA's statutory role in the review and approval of water quality standards variances (Part I (A)(d)). In a permit where the effluent limitation is effectively determined by the water quality standard, more-not less-scrutiny of state water quality standards is warranted. Hopefully, the new permit is a change from the draft permit issued in 2005, and from EPA's approval of a multi-year water quality variance in 2006, which purported to shift regulatory responsibility to MassDEP for 15 years.

Response to Comment E1: See response to Comment B1.

Comment E2: Low Impact Development techniques and "green infrastructure" elements are practical alternatives for additional CSO control, particularly in the CAM 401B catchment area. Cambridge has already identified feasible LID techniques for the Alewife basin (See, *Proposed Concord Alewife Stormwater Guidelines*, June 2006); moreover both CWA sec. 303 and 40CFR 131.11(d) require implementation of cost effective non-point source controls prior to the removal of a designated use. I see no reason why the Annual Report, Part I (D)(4)(c), should not include a requirement for an analysis of LID techniques in addition to designs identified in the NPC, where "… CSO discharges are determined to be greater than the activation frequency [in the NPC]" and the permittee is required to make "an assessment of the impact of those projects on attaining the level of CSO control."

Response to Comment E2: See response to Comment B2.

Comment E3: Part I(C)(6) of the permit states that the permittee shall "maintain informational signs at John Wald Park and other public access locations." Since the Massachusetts Department of Conservation and Recreation ("DCR") Alewife-Mystic Bicycle path will provide additional

public access points along the Alewife Brook during the term of the permit the signage requirement should be altered accordingly. Language such as "…John Wald Park and DCR access points" should be adopted to offer meaningful notification to the public as required by NMC8.

Response to Comment E3: See response to Comment B3.

Comment E4: Part I(C)(6) of the permit states a press release shall be provided to " … property owners in Cambridge subject to flooding in the Alewife Brook watershed." Attachment D, Part C, iii [the MADEP Variance] states that the press release shall be provided to "property owners subject to flooding in the Alewife Brook watershed"(emphasis added). Effective public notice of CSO impacts and locations must be provided to ALL persons in the Alewife sub-watershed regardless of what community they reside in. The permit should adopt the MADEP condition, which is legally enforceable according to the permit, and drop the word "Cambridge."

Response to Comment E4: EPA agrees that this permit should be consistent with the current variance in this regard. Therefore, Part I.C.7 (not I.C.6) of the final permit has been revised to remove the word Cambridge, which would require the distribution of such press release to all property owners that are subject to flooding, including those in Arlington and other communities.

Comment E5: DCR has completed a comprehensive clean-up of the Alewife Brook channel. This has resulted in the elimination of the debris which formerly trapped sewage related floatables. Part I(C)(1)[routine maintenance and inspection] should include language such as "where an outfall is blocked by debris the permittee shall report the location and extent of the blockage to the Department of Conservation and Recreation' to avoid a re-occurrence of the unsanitary conditions that formerly existed in the Alewife Brook channel.

Response to Comment E5: EPA agrees that debris in and around a CSO outfall structure could affect its operation and we are pleased to see that DCR has cleaned up such debris. It is not burdensome for the City to forward to DCR any report that identifies conditions within the control of DCR that could affect its operation. Therefore, the permit has been changed accordingly.

Comment E6: The following comment incorporates by reference arguments presented by the commenter to EPA in the May 15, 2008, *Notice of Intent to Sue*, on file.

Section 402(q) of the Clean Water Act requires that "each permit, order, or decree" for CSO discharges "shall conform" to the *Combined Sewer Overflow Control Policy* ("*CSO Policy*") signed by the Administrator [of EPA] on April 11, 1994. The Draft Permit is a "permit" as that term is used in CWA sec. 402(q).

The *CSO Policy* contains duties that are enforceable pursuant to CWA sec. 402(q). For example the requirement for a long-term control plan. (See, *CSO Policy*, Part II(C). The *CSO Policy*

stipulates that where the CSO discharges remaining after the implementation of the long-term control plan cannot meet water quality standards due to non-CSO pollution sources [the situation detailed in the Notice of Project Change for the Alewife Brook] a "total maximum daily load" should be used to "apportion" pollutant loads. (See, *CSO Policy*, Part II(C)(4)(b)(ii)).

Because a long-term CSO control plan is a non-discretionary requirement of the *CSO Policy* and the LTCP "must comply with sections 301(b)(1)(c) and 402(a) of the CWA," in a situation where the LTCP relies on a modification of a state water quality standard, the establishment of a TMDL must coincide with the implementation of the LTCP. Were it otherwise, the NPDES permit to violate CWA sec. 402(a)(1) which conditions authorization of the permit on compliance with CWA sec. 301.[2] Since Massachusetts has failed to implement a TMDL for pollutants identified the LTCP and subsequent documents, EPA has a duty to act to establish daily loads pursuant to CWA 303(c).

Response to Comment E6: Part II(C)(4)(b)(ii) of EPA's April 19, 1994 *Combined Sewer Overflow Control Policy* ("*CSO Policy*") includes a statement that refers to the development of total maximum daily loads ("TMDL") where water quality standards and uses are not met due in part to natural conditions or sources other than CSOs. In such a circumstance, "a total maximum daily load, including a wasteload allocation and a load allocation, or other means should be used to apportion pollutant loads." 59 Fed. Reg. 18688, 18693 (April 19, 1994). It is unambiguously clear from reading the entire CSO policy, as well as several EPA CSO guidance documents, that this language merely encourages, but does not require, the development of a TMDL where it appears that WQS will not be attained once the LTCP is implemented due in part to other sources. See, e.g., *Combined Sewer Overflows Guidance For Permit Writers* **(**EPA 832-B-95-008) (August 1995), at pp. 3-24, 3-26, 5-3, 5-4; *Combined Sewer Overflows: Guidance for Long Term Control Plans* (EPA 83-B-95-002) (September 1995) at 1-15, 1-17, 1-19, 3-6; *Guidance: Coordinating Combined Sewer Overflow (CSO) Long-Term Planning with Water Quality Standards Reviews* (EPA-833-R-01-002)(July 2001) at pp. 51-55. States are responsible for the development of TMDLs, and they have the authority to establish priorities for TMDL development for the waters they have identified as impaired by pollutants. See CWA §303(d) and 40 C.F.R. §130.7. Nothing in EPA's CSO policy or CWA § 402(q) supplants the states' discretion in establishing priorities for TMDL development, nor do they preclude EPA from issuing a permit for CSO discharges in the absence of a TMDL. Because the final permit contains conditions necessary to achieve water quality standards, as modified by applicable variances, the permit complies with the statute.

Alewife Brook has been identified by the State as a receiving water which is not achieving water quality criteria for pathogens (among other pollutants), and is among over 1000 water body

[2] *See*, 40 C.F.R. § 122.44(d)(1)(vii)(B) (requiring permitting authority to set effluent limits "consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA…"). *See also, Friends of Earth, Inc. v. E.P.A.*, 446 F.3d 140,144 (D.C. Cir., 2006)(Holding that "the word 'daily' means daily" in a TMDL; and describing how such daily loads must be incorporated into permits pursuant to CWA 301(b)(1)(C)).

segments in Massachusetts for which TMDLs must be produced. According to the State's most recent water priorities report, MassDEP hopes to complete pathogen TMDLs for the Boston Harbor watershed (which includes Alewife Brook) in 2010. See The Environmental Progress Report FY 2010: Surface & Groundwater, pp. 77-78, 81, at http://www.mass.gov/dep/water/priorities/sw2010.doc. The water quality information developed for the CSO planning effort, and the continuing sampling programs by the MWRA and the Mystic River Watershed Association, will be helpful in identifying and confirming pollutant sources and pollutant loads in the watershed, and will be important in developing a TMDL. Clearly, control of both CSO and non-CSO sources will be critical to achieving improved water quality in the Alewife Brook watershed. Future permits will be consistent with any applicable TMDL that is developed and approved.

September 30, 2009

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
ONE CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES PURSUANT TO THE CLEAN WATER ACT (CWA)

NPDES PERMIT NUMBER: MA0101974

NAME AND MAILING ADDRESS OF APPLICANT:

City of Cambridge
Department of Public Works
147 Hampshire Street
Cambridge, Massachusetts 02139

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

11 Combined Sewer Overflows (See Figure 1 and permit Attachments A and B)

RECEIVING WATER(S): Charles River and Alewife Brook
USGS Hydrologic Code #01090001, Charles River Watershed and Mystic River Watershed

RECEIVING WATER CLASSIFICATION(S): Class B - Warm water fishery,
CSO Variance

I. Proposed Action, Type of Facility, and Discharge Locations

The above named applicant has applied to the U.S. Environmental Protection Agency ("EPA") for the reissuance of its NPDES permit to discharge from 11 combined sewer overflows (CSOs) into the designated receiving waters. The current CSO discharge locations are shown on **Figure 1.** A list of the CSOs may be found in **Attachments A and B** of the draft permit**.**

The City's current permit was issued on March 26, 1993. The permit was reissued on September 23, 2005 but was appealed, and subsequently withdrawn by EPA on January 30, 2006. As a result, the City of Cambridge remains subject to the 1993 permit until the permit is reissued.

II. Description of Discharges

The City of Cambridge owns and operates a combined sewer system that serves a portion of the City. The wastewater collected in this system is transported to the Massachusetts Water Resources Authority's Deer Island Wastewater Treatment Plant. The City owns and operates 11 combined sewer overflows that discharge from the combined sewer system under certain wet weather conditions.

A combined sewer system is a wastewater collection system owned by a State or municipality (as defined by Section 502(4) of the CWA) which conveys sanitary wastewaters (domestic, commercial and industrial wastewaters) and storm water through a single-pipe system to a publicly owned treatment works (POTW) treatment plant (as defined in 40 CFR 403.3(p)).

A combined sewer overflow (CSO) is the discharge from a combined sewer system at a point prior to the POTW treatment plant. CSOs are point sources subject to NPDES permit requirements including both technology-based and water quality-based requirements of the CWA. CSOs occur during wet weather[1] when the flow in the combined sewer system exceeds the system's capacity. CSOs are distinguished from bypasses which are "intentional diversions of waste streams from any portion of a treatment facility" (40 CFR §122.41(m)).

The City began separating its combined collection system (building separate sanitary sewage and storm water systems) in the early 1970s. Work to further abate CSOs has continued according to a schedule in a federal court order (Federal court order (U.S. v. M.D.C., et al., No. 85-0489 (D. Mass)), and includes further sewer separation, hydraulic relief projects, and floatables control structures. The frequency and volume of CSO discharges have been reduced as CSO abatement projects have been completed. However, as will be discussed further in Section IV, the required projects are not expected to eliminate CSO discharges entirely.

[1] Flows in combined sewers can be classified into two categories: dry weather flow and wet weather flow. Dry weather flow is the flow that results from domestic sewage, groundwater infiltration, commercial and industrial wastewaters, and any other non-precipitation related flows (e.g. tidal infiltration). Wet weather flow includes all of the dry weather flow components plus storm water flow, including snow melt runoff (see 40 CFR 122.26(b)(13). The draft permit prohibits dry weather discharges from the City's CSOs.

Modeled estimates of the number of CSO activations and volumes currently discharged in a typical year and in those actually discharged in 2008 based on actual rainfall data are shown on fact sheet **Attachments A and B.** The actual monitoring reports submitted by the City for these outfalls, which include a daily summary of precipitation and estimated or measured flows at each CSO may be found in the permit file. The CSO discharges owned and operated by the City of Cambridge are currently untreated except for floatable controls (baffles) in CAM005, CAM007 and CAM 017, which discharge to the Charles River. Outfall CAM002 is comprised of one regulator structure which is associated with two (2) separate outfalls, which were previously designated as Outfalls CAM002A and CAM002B. Outfalls CAM009 and CAM011 have been temporarily sealed and the City of Cambridge is evaluating any upstream effects related this action. After this period, it will be determined whether these outfalls may remain sealed or whether they should be reopened.

There are other CSOs and CSO treatment facilities located in Cambridge that are included in other NPDES permits. The Massachusetts Water Resources Authority (MWRA) is authorized to discharge combined sewage from outfall MWR003, (previously CAM003) which discharges to the Little River, and also from the Cottage Farm and Prison Point CSO treatment facilities (MWR 201 and 203 respectively) which discharge to the Charles River. The City of Somerville is authorized to discharge combined sewage from Outfall SOM001A, which is located in Cambridge.

III. Receiving Water Description

Lower Charles River and Alewife Brook

The Massachusetts Surface Water Quality Standards, found at 314CMR4.00, designate the segment of the Charles River that runs from the Watertown Dam to the Science Museum in Boston (Segment MA72-08), and Alewife Brook (Segment MA71-04), as Class B waters, with variances for CSO discharges (A more detailed discussion of the CSO variances may be found in Section IV.) All of the Cambridge CSOs authorized by this permit discharge to one of these receiving waters.

Class B waters are designated as a habitat for fish, other aquatic life, and wildlife and for primary and secondary contact recreation. These waters are to be suitable for public water supply following appropriate treatment, irrigation and other agricultural uses, and compatible industrial cooling and process uses. The waters shall have consistently good aesthetic value.
These segments do not always meet the state water quality standards prescribed for Class B waters, especially after wet weather.

This affected segment of the Charles River is on the MassDEP's 2006 303(d) list of impaired waters for unknown toxicity, priority organics, metals, nutrients, organic enrichment/low dissolved oxygen, pathogens, oil and grease, taste, odor and color, noxious aquatic plants and turbidity.

Alewife Brook is on the MassDEP's 2006 303(d) list of impaired waters for metals, nutrients, organic enrichment/low dissolved oxygen, pathogens, oil and grease, taste, odor and color, and objectionable deposits.

IV. Permit Basis and Explanation of Effluent Limitation Derivation

Regulatory Background

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality-based effluent limitations and other requirements including monitoring and reporting. The draft NPDES permit was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA and applicable State regulations. The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136. In this permit EPA considered (a) technology-based requirements, (b) water quality-based requirements, and (c) all limitations and requirements in the current/existing permit, when developing the permit limits.

CSOs are point source discharges subject to NPDES permit requirements, including technology-based and water quality-based requirements of the Clean Water Act. Pursuant to a federal court decision, (Montgomery Environmental Coalition vs. Costle (646F.2d 568 (D.C. Cir 1980)) CSOs are not subject to secondary treatment standards found in Section 301(b)(1)(B) of the CWA. Rather, CSO are subject to technology- based requirements applicable to discharges other than publicly owned treatment works, found in Sections 301(b)(1)(B), 301(b)(2)(A) and 301(b)(2)(D). Pursuant to Section 301(b)(1)(C) of the Clean Water Act, CSOs are also subject to effluent limitations based on water quality standards.

On April 19, 1994 EPA published the National CSO Control Policy (59 FR 18688). The purpose of the National CSO Control Policy (the CSO Policy) was to establish a consistent national approach for controlling discharges from CSOs to the Nation's waters. The CSO Policy reiterates the goals of the 1989 National Combined Sewer Overflow (CSO) Control Strategy, which were:

- To ensure that if the CSO discharges occur, they are only as a result of wet weather;
- To bring all wet weather CSO discharge points into compliance with the technology based requirements of the CWA and applicable federal and state water quality standards; and
- To minimize water quality, aquatic biota, and human health impacts from wet weather flows.

To achieve these goals, the Policy recommended technology–based limits developed using best professional judgment[2] (BPJ) and also recommended that each combined sewer system develop

[2] Section 402(a)(1)(B) of the CWA provides the authority to establish case-by case technology –based limitations. 40 CFR 125.3 establishes requirements and factors to be considered in establishing case-by case technology–based limits using best professional judgment (BPJ). See specifically 125.3 (c)(2) and 125.3(d).

and implement a long-term CSO control plan (LTCP) that will ultimately result in compliance with the requirements of the Clean Water Act.

In 2001, Congress added Section 402(q) to the CWA to specifically address CSOs by stating that "Each permit, order, or decree issued pursuant to this Act after the date of enactment of this subsection for a discharge from a municipal combined storm and sanitary sewer shall conform to the Combined Sewer Overflow Control Policy signed by the Administrator on April 11, 1994."

The CSO conditions in the draft permit are consistent with the National CSO Control Policy.

Technology-based requirements

As discussed above, EPA's CSO Policy recommended technology-based effluent limitations for CSOs using best professional judgment. The policy establishes the minimum technology-based requirements as implementation of nine minimum controls (NMCs). The NMCs are:

1. Proper operation and regular maintenance programs for the sewer system and the CSOs;
2. Maximize use of the collection system for storage;
3. Review and modification of pretreatment requirements to assure CSO impacts are minimized;
4. Maximization of the flow to the POTW for treatment;
5. Prohibition of CSOs during dry weather;
6. Control of solid and floatable material in CSOs;
7. Pollution prevention;
8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts; and
9. Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

The CSO Policy required CSO communities to submit documentation of their implementation of the nine minimum controls by January 1, 1997. The City of Cambridge submitted its documentation on January 30, 1997. The draft permit requires continued implementation of the nine minimum control program, but also requires that the City review and update its program no later than April 15th of the first year of the permit. The permit also authorizes modifications to the nine minimum controls program during the term of the permit to enhance its effectiveness, but it requires that certain minimum controls be maintained in any modification to the NMCs (see the minimum implementation levels Part I.C. of the draft permit).

Water Quality Based Requirements

Water quality-based limitations are required in NPDES permits when EPA and the State determine that effluent limits more stringent than technology-based limits are necessary to maintain or achieve state or federal water quality standards (WQS). See Section 301(b)(1)(C) of the CWA.

Receiving water requirements are established according to numerical and narrative standards adopted under state law for each water quality classification. When using chemical-specific numeric criteria to develop permit limits, both the acute and chronic aquatic-life criteria, expressed in terms of maximum allowable in-stream pollutant concentration, are used. Acute aquatic-life criteria are considered applicable to daily time periods (maximum daily limit) and chronic aquatic-life criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific limits are allowed under 40 CFR § 122.44(d)(1) and are implemented under 40 CFR § 122.45(d).

Narrative criteria from the state's water quality standards are often used to limit toxicity in discharges where (a) a specific pollutant can be identified as causing or contributing to the toxicity but the state has no numeric standard; or (b) toxicity cannot be traced to a specific pollutant.

EPA regulations require NPDES permits to contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve state or federal WQS. The permit must address any pollutant or pollutant parameter (conventional, non-conventional, toxic and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water quality criterion. See 40 CFR Section 122.44(d)(1). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion. In determining reasonable potential, EPA considers (a) existing controls on point and non-point sources of pollution; (b) pollutant concentration and variability in the effluent and receiving water as determined from the permit application, Monthly Discharge Monitoring Reports (DMRs), and State and Federal Water Quality Reports; (c) sensitivity of the species to toxicity testing; (d) known water quality impacts of processes on wastewater; and, where appropriate, (e) dilution of the effluent in the receiving water.

WQS consist of three parts: (a) beneficial designated uses for a water body or a segment of a water body; (b) numeric and/or narrative water quality criteria sufficient to protect the assigned designated use(s); and (c) antidegradation requirements to ensure that once a use is attained it will not be degraded. The Massachusetts Surface Water Quality Standards (MA SWQS), found at 314 CMR 4.00, include these elements. The state will limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained or attained. These standards also include requirements for the regulation and control of toxic constituents and require that EPA criteria, established pursuant to Section 304(a) of the CWA, shall be used unless a site-specific criterion is established. The conditions of the permit reflect the goal of the CWA and EPA to achieve and then to maintain WQS.

The WQS may also assign restrictions to receiving waters, which establish a subcategory of use assigned to a receiving water segment. One of the subcategories which may be established is for CSO-impacted segments. The permitting authority may allow overflow events to waters identified as impacted by CSOs provided that:

The permitting authority may allow overflows to waters identified as impacted by CSOs provided that;

(1) an approved Final CSO Facilities Plan under 310 CMR 41.00 provides justification for the overflows (note – in this case the CSO Facilities Plan as defined by MassDEP and an LTCP, as defined by EPA, are the same document) ;

(2) the MassDEP finds through a use attainability analysis (UAA), and EPA concurs, that achieving a greater level of CSO control is not feasible for one of the reasons specified at 314 CMR 4.03(4);

(3) existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected; and

(4) public notice is provided through procedures for permit reissuance or facility planning under M.G.L.c.21 §§ 26 through 53 and regulations promulgated pursuant to M.G.L.c. 30A.

Conversely, if a Final CSO Facilities Plan shows that elimination of CSO discharges is feasible, through relocation or sewer separation, no CSO discharges are authorized into that receiving water and the CSO- impacted subcategory is removed.

The state may also, with EPA concurrence, establish a water quality standards variance. A variance is a short-term modification of the standards, designed to obtain the information necessary to determine the appropriate water quality standard and level of CSO control for the segment. Variances are discharger and pollutant specific, are time-limited, and do not forego the currently designed use. At the end of the variance, a final Administrative Determination is made regarding the appropriate level of CSO control and final water quality determinations, in accordance with National and State CSO Policy.

Antibacksliding

A permit may not be renewed, reissued or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the anti-backsliding requirements of the CWA [see Sections 402(o) and 303(d)(4) of the CWA and 40 CFR §122.44(l)(1 and 2)]. EPA's antibacksliding provisions prohibit the relaxation of permit limits, standards, and conditions except under certain circumstances. Effluent limits based on BPJ, water quality, and state certification requirements must also meet the antibacksliding provisions found at Section 402(o) and 303(d)(4) of the CWA.

Antidegradation

Federal regulations found at 40 CFR Section 131.12 require states to develop and adopt a statewide antidegradation policy which maintains and protects existing instream water uses and the level of water quality necessary to protect the existing uses, and maintains the quality of waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and

to support recreation in and on the water. The Massachusetts Antidegradation Regulations are found at Title 314 CMR 4.04. There are no new or increased discharges being proposed with this reissuance.

MWRA CSO Facilities Plan/Water Quality Standards

The CSO Policy recommended that each combined sewer system prepare and implement an LTCP that would result in attainment of CWA requirements. In 1987, MWRA stipulated to responsibility and legal liability for all combined sewer overflows hydraulically connected to its collection system[3], which in addition to discharges owned and operated by MWRA includes CSOs owned and operated by the communities of Boston, Cambridge, Chelsea, and Somerville. The CSO planning conducted by MWRA subsequent to 1987 addressed all of these CSOs, in accordance with the stipulation, and MWRA has funded the planning, design, and construction of the recommended CSO control facilities.

In 1994, MWRA completed a Conceptual CSO Control Plan that formed the basis of its final Combined Sewer Overflow Plan and Environmental Impact Report ("Facilities Plan"), completed in July 1997. The recommended CSO control projects for Cambridge CSOs included sewer separation, hydraulic relief and floatables control projects. The following table shows the estimated activation frequency and volume for each of the Cambridge CSOs under baseline (1992) conditions and after completion of the projects recommended by the Facilities Plan:

	Typical Year			
Outfall	**Baseline (1992)**		**Recommended Plan**	
	Activation Frequency	**Volume (MG)**	**Activation Frequency**	**Volume (MG)**
Alewife Brook				
CAM001	5	0.15	3	0.64
CAM002	11	2.73	NA	Plugged
CAM003 *	6	0.67	3	0.62
CAM004	20	8.19	3	0.42
CAM400	13	0.93	3	0.19
CAM401	18	2.12	4	1.16
Total		**14.79**		**2.39**
Charles River				
CAM005	6	41.56	2	0.78
CAM007	1	0.81	1	0.03
CAM009	19	0.19	1	0.08
CAM011	1	0.07	0	0
CAM017	6	4.72	2	1.23
		47.35		**2.12**

* – relocated as part of Alewife MBTA construction and now included in MWRA's NPDES permit as MWRA CSO outfall 003

[3] Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflows

For those CSOs that MWRA believed could not be eliminated, the plan included information to support a UAA pursuant to 40 CFR Section 131.10 (g). A UAA is an evaluation conducted by the state which supports removal of a National Goal Use based on criteria such as costs and impacts associated with attaining that use. The state submitted its final administrative determinations, including a UAA, to EPA for approval on December 31, 1997. On February 27, 1998, EPA approved the state's changes to water quality standards, which included removal of CSO-impacted designations for the Neponset River, North Dorchester Bay, South Dorchester Bay, and Constitution Beach; a SB-CSO designation for Boston Inner Harbor; a B-CSO designation for the Muddy River; and a tentative determination for the issuance of WQS variances for the Lower Charles River, the Alewife Brook, and the Upper Mystic River due to CSO discharges. Variance conditions for CSOs discharging to the Lower Charles River were issued on September 2, 1998 and variance conditions for CSOs discharging to the Alewife/Upper Mystic sub-basin were issued on March 5, 1999.

In accordance with the requirements of the variances, MWRA collected information that lead to several changes in the recommended CSO plan and the associated level of CSO control for Cambridge CSOs. These changes are discussed in detail in the attached Variance fact sheets (fact sheet **Attachments C and D**). The major change was in the Alewife/Mystic basin, and resulted from a variance-required reassessment that is documented in the April 30, 2001 MWRA report titled "Notice of Project Change for the Long Term CSO Control Plan for Alewife Brook". The project change resulted from extensive field investigations in 1997 through 1999 by the City of Cambridge that revealed that in certain areas the combined sewer systems in Cambridge were very different than the record plans used to develop the 1997 plan, including the discovery of a previously unknown CSO discharge (CAM401B). When the sewer system model was updated to reflect the new system information it estimated baseline CSO discharges much higher than those in the 1997 CSO Plan previously estimated. The field work done by Cambridge also indicated that previous work had underestimated the hydraulic capacity required in the Cambridge storm drain system to provide an appropriate level of storm drainage service. This discovery significantly raised the estimated cost of combined sewer separation. As a result of the project change, the costs for CSO controls and associated construction for CSO controls on discharges to the Alewife Brook (including both Cambridge and Somerville CSOs) rose from $12.1 million to $ 74 million. The revised control plan, and the estimated performance is documented in the MWRA report "Final Variance Report for Alewife Brook and the Upper Mystic River", July, 2003 and in a supplemental letter report by Metcalf & Eddy, Inc., dated July 8, 2003.

The most current estimates of CSO discharge frequency and volume expected after full implementation of the CSO abatement projects required by the court order are documented in Exhibit B of the "Second Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflow Control" and are presented below:

Outfall	Typical Year	
	Activation Frequency	**Volume (MG)**
Alewife Brook		
CAM001	5	0.19
CAM002	4	0.69
CAM004	To be closed	0
CAM400	To be closed	0
CAM401A	5	1.61
CAM401B	7	2.15
Total		**4.64**
Charles River		
CAM005	3	0.84
CAM007	1	0.03
CAM009	2	0.01
CAM011	0	0.00
CAM017	1	0.45
Total		**0.88**

Variance conditions for the Lower Charles River have been in effect continuously since first issued on September 2, 1998. The variance was most recently extended by letter of August 30, 2007, was approved by EPA on July 29, 2008, and is effective through October 1, 2010. EPA expects that the MassDEP will renew this variance in 2010.

Variance conditions for the Alewife/Upper Mystic sub-basin have been in effect continuously since first issued on March 5**,** 1999. This variance was most recently extended by letter of August 30, 2007, was approved by EPA on July 29, 2008, and is effective through September 1, 2010. EPA expects that the MassDEP will renew this variance in 2010.

A copy of the variance conditions for the Lower Charles River Basin may be found as permit **Attachment C** and the variance conditions for Alewife/Upper Mystic sub-basin permit may be found in permit **Attachment D**. The Fact Sheets accompanying these variances are included in this fact sheet as **Attachments C and D**.

Water Quality-Based Effluent Limitations

Charles River discharges

The discharge from the Cambridge CSOs into the Charles River have been limited in accordance with the conditions of the current water quality variance. As required by the variance, the typical year activation frequency and volume for each discharge shall be in accordance with the performance of the CSO Long term Control Plan, as defined in Exhibit B of the Second CSO Stipulation incorporated into the Federal Court Order on April 27, 2006. These limits can be seen in **Attachment A** of the draft permit.

The variance includes other conditions, all of which have been incorporated into the permit. Variance conditions B.i. (implementation of the nine minimum controls) and C.i. (public notification) have been specifically incorporated into the draft permit. The other requirements of the variance not specifically incorporated into the permit are incorporated by reference, and are equally enforceable conditions of the permit.

The current variance extends to October 1, 2010. At the end of the variance term, it may be extended, or MassDEP may make a final determination regarding water quality standards. If MassDEP should modify the variance or make a final determination regarding water quality standards during the term of this permit, this would be considered new information pursuant to 40 CFR part 122.62(a)(2) and would be cause for modification of the permit.

Alewife Brook discharges

The discharges from the Cambridge CSOs into Alewife Brook have been limited in accordance with the conditions of the current water quality variance. As required by the variance, the typical year activation frequency and volume for each discharge shall be in accordance with the performance of the Revised Recommended Plan as characterized in the July, 1, 2003 MWRA Final variance Report (these are the same activation frequency and discharge volume estimetes that are presented in Exhibit B of the Second CSO Stipulation incorporated into the Federal Court Order on April 27, 2006.) These limits can be seen in **Attachment B** of the draft permit.

The variance includes other conditions, all of which have been incorporated into the permit. Variance conditions B.i. (implementation of the nine minimum controls) and C.i. (public notification) have been incorporated into the draft permit (see Section I.C of the draft permit) because they require specific practices to meet technology-based nine minimum control requirements, and implementation of the nine minimum controls is a standards requirement of all NPDES permits for CSOs. The other requirements of the variance not specifically incorporated into the permit are incorporated by reference, and are equally enforceable conditions of the permit.

The current variance extends to September 1, 2010. At the end of the variance term, it may be extended, or MassDEP may make a final determination regarding water quality standards. If MassDEP should modify the variance or make a final determination regarding water quality standards during the term of this permit, this would be considered new information pursuant to 40 CFR part 122.62(a)(2) and would be cause for modification of the permit.

VI. State Certification Requirements

EPA may not issue a permit unless the MassDEP certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of the MassDEP has reviewed the draft permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State pursuant to 40 CFR 124.53 and expects that the draft permit will be certified.

VII. Public Comment Period, Public Hearing, and Procedures for Final Decision

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the U.S. EPA, Massachusetts Office of Ecosystem Protection (CMP), 1 Congress Street, Suite 1100, Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision, any interested party with standing may contest the final decision. Appeals must satisfy the requirements of 40 CFR 124.19.

VIII. EPA and MassDEP Contacts

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays, from the EPA and MassDEP contacts below:

George Papadopoulos, Industrial Permits Branch
One Congress Street - Suite 1100 - Mailcode CIP
Boston, MA 02114-2023
Telephone: (617) 918-1579 FAX: (617) 918-1505

Paul Hogan, Massachusetts Department of Environmental Protection
Division of Watershed Management, Surface Water Discharge Permit Program
627 Main Street, 2nd Floor, Worcester, Massachusetts 01608
Telephone: (508) 767-2796 FAX: (508) 791-4131

July 20, 2009
Date

Ken Moraff, Acting Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

Attachment A

Summary of 2008 and Typical Year Model Simulation Results

Discharges to Charles River : Class B – Variance

	2008 Rainfall Under 2008 System Conditions [1]			Typical Year Rainfall Under 2008 System Conditions[2]	
Outfall	**Activation Frequency[4]**	**Duration (hours)**	**Volume (MG)[5]**	**Activation Frequency**	**Volume (MG)**
CAM005	7	10.38	3.55	4	1.73
CAM007	4	7.13	3.80	3	0.91
CAM009	Closed [3]	NA	NA	Closed	NA
CAM011	Closed [3]	NA	NA	Closed	NA
CAM017	1	0.75	1.75	1	0.51

1. These values are modeled estimates made by the MWRA and are based on actual 2008 rainfall data from CSO treatment facilities. From April 30, 2009 letter of M. Hornbrook (MWRA) to T. Borci (EPA) and K. Brander (MassDEP).

2. These values are based on MWRA modeled estimates and historical storm data with the current CSO configuration.

3. These outfalls are temporarily sealed.

Attachment B

Summary of 2008 and Typical Year Model Simulation Results

Discharges to Alewife Brook : Class B - Variance

	2008 Rainfall Under 2008 System Conditions [1]			Typical Year Rainfall Under 2008 System Conditions[2]	
Outfall	**Activation Frequency[4]**	**Duration (hours)**	**Volume (MG)[5]**	**Activation Frequency**	**Volume (MG)**
CAM001	4	4.62	0.11	1	0.01
CAM002	12	33.68	5.04	9	2.39
CAM004	20	66.35	25.08	10	11.66
CAM400	16	43.44	2.81	9	1.22
CAM401A	11	16.20	5.98	6	2.21
CAM401B	23	134.23	18.04	22	10.83

1. These values are modeled estimates made by the MWRA and are based on actual 2008 rainfall data from CSO treatment facilities. From April 30, 2009 letter of M. Hornbrook (MWRA) to T. Borci (EPA) and K. Brander (MassDEP).

2. These values are based on MWRA modeled estimates and historical storm data with the current CSO configuration.

June 13, 2007

FACT SHEET
ATTACHMENT C

EXTENSION TO VARIANCE FOR COMBINED SEWER OVERFLOW DISCHARGES LOWER CHARLES RIVER BASIN FACT SHEET

This document is intended to provide a summary of CSO abatement activities in the Lower Charles River Basin and a frame of reference and justification for the decision of the Massachusetts Department of Environmental Protection ("DEP") to extend the CSO Variance for a period not to exceed three years.

I. Present Status of CSO Abatement Work

Massachusetts Water Resources Authority ("MWRA") produced its Final CSO Facilities Plan and Environmental Impact Report ("FEIR") in July 1997. The FEIR was the result of several years of CSO planning and underwent extensive public, regulatory, and MEPA review as part of the process. Early in the planning process, MWRA characterized the baseline conditions throughout the regional planning area, including the Charles River Basin, through an extensive metering, sampling and modeling program. In accordance with national and Massachusetts CSO control policies, the FEIR evaluated the costs and benefits of a range of CSO alternatives in the Charles River Basin to address these discharges. Based on these evaluations and with public input, the FEIR recommended a long-term CSO control plan for the Charles River that included the following elements, nearly all of which are now complete (see Figure 1):

- A $45 million sewer separation program in the Stony Brook subwatershed, which Boston Water and Sewer Commission completed in September, 2006, with MWRA funding.
- A $4.5 million upgrade to the existing Cottage Farm CSO Treatment Facility, which MWRA completed in 2002.
- A $1 million project to improve hydraulic capacity in the Cambridge and MWRA collection systems at outfall CAM005, which MWRA completed in 2000.
- Region wide floatables controls at remaining CSO outfalls, implemented by the respective permittees (MWRA, BWSC and Cambridge) with MWRA funding, which will be fully implemented by December 2007.

Prior to issuing the FEIR, MWRA had already greatly reduced CSO discharges system wide, and especially in the Charles River Basin, by implementing major improvements that significantly increased conveyance, pumping and treatment capacity at and upstream of the Deer Island Wastewater Treatment Plant. Key beneficiaries of these conveyance improvements were the Cottage Farm CSO treatment facility and other wet weather relief points on the Charles River. These major early improvements, together with the FEIR recommended projects that are already completed, have contributed to the closing of seven outfalls (see Figure 1) and have reduced average annual CSO volume to the Charles River by 96% from the level in 1988 (see Figure 2).

Figure 1: Charles River Basin CSO Locations and Projects

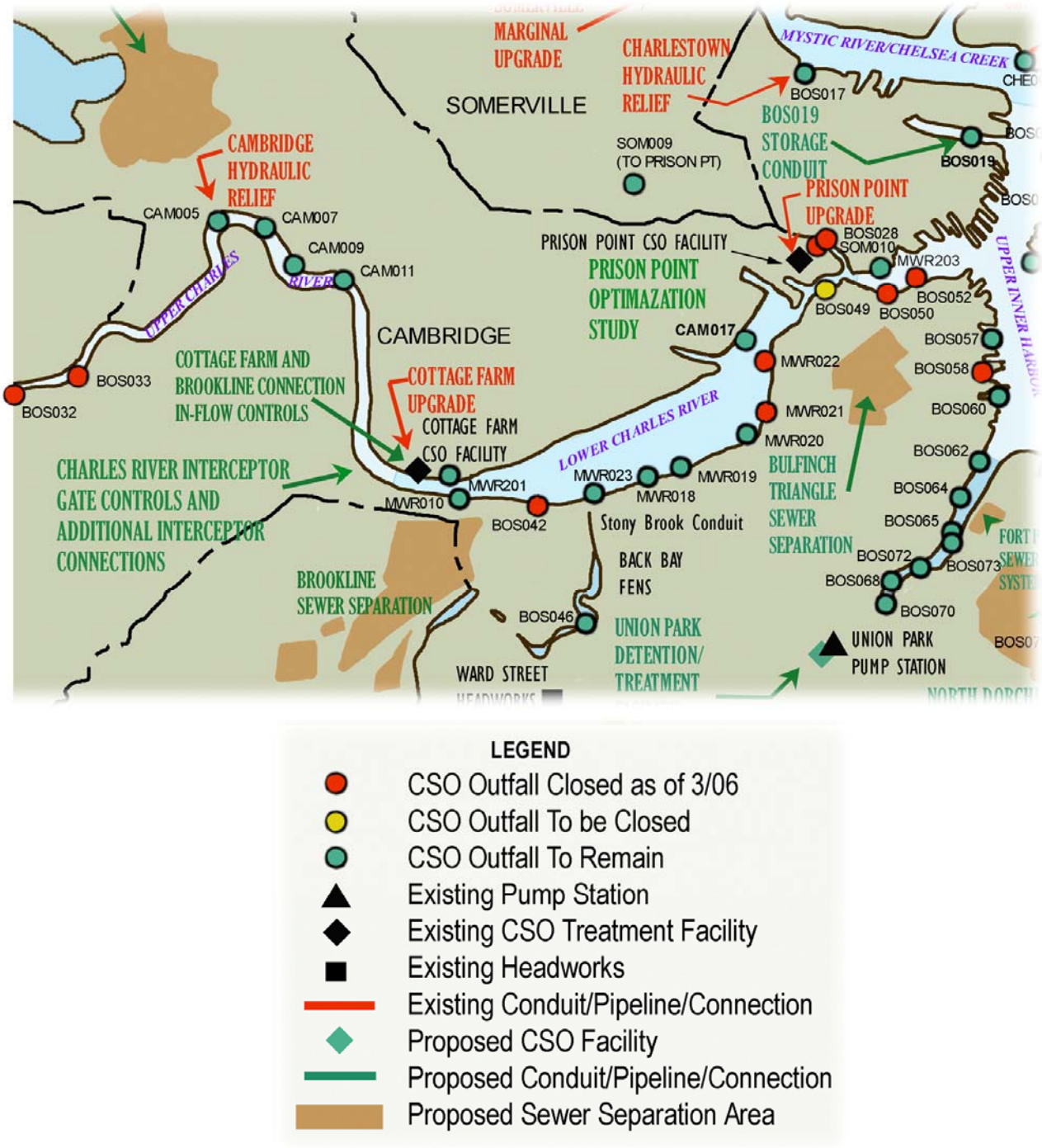
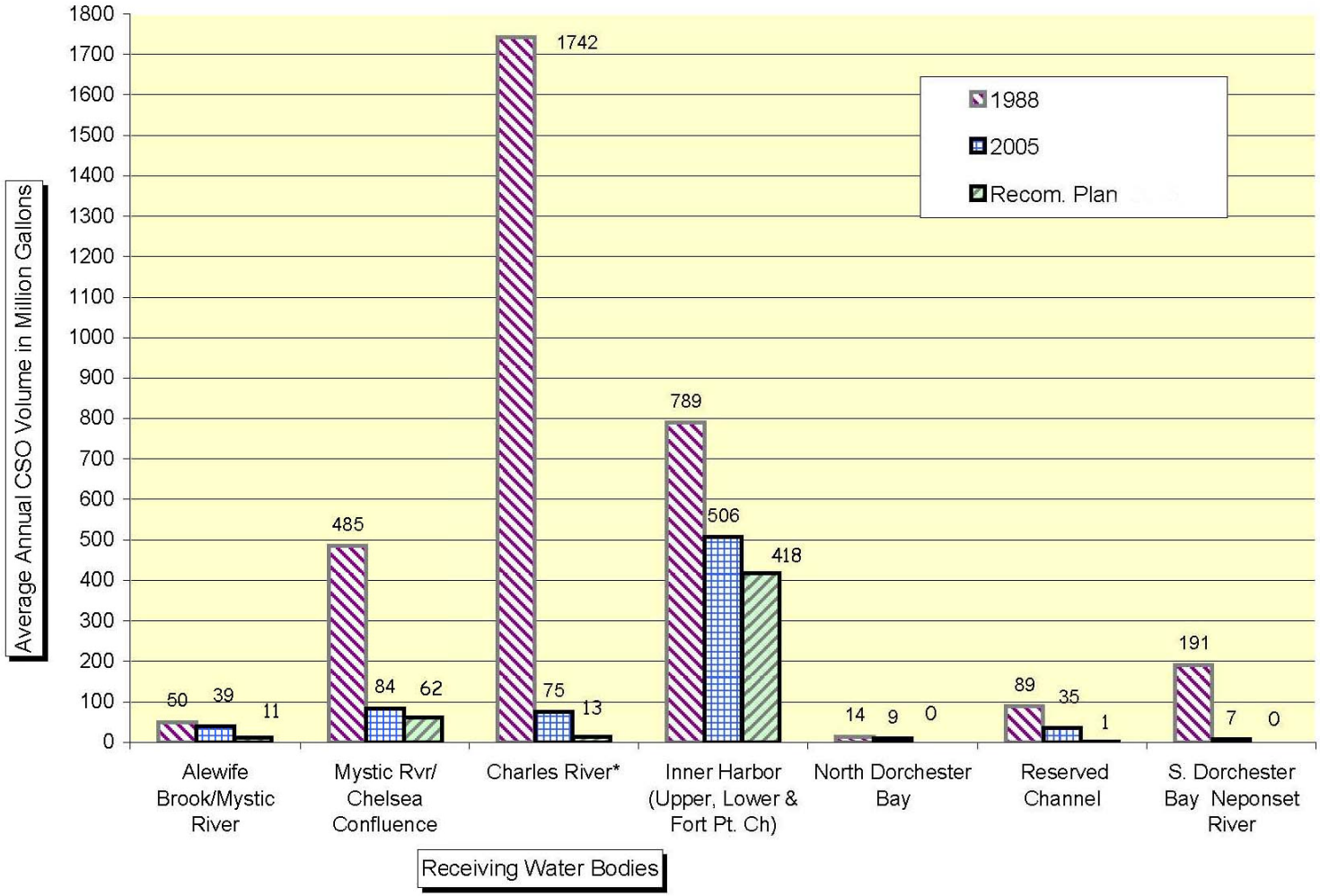


Figure 2 CSO Discharge Volumes are Diminishing



* Includes dicharges from outfall BOS046 to the Back Bay Fens

DEP and the U.S. Environmental Protection Agency's Region 1 Office ("EPA") reviewed the information in the FEIR and in early 1998 concurred that the recommended plan for the Charles River Basin should move forward without delay. However, at that time, DEP and EPA decided to defer a final determination on the water quality standard and associated level of CSO control in the Charles River Basin until additional information on CSO and non-CSO pollutant loads could be developed. Accordingly, DEP, with the support of EPA, issued the Variance for CSO discharges to the Charles River on October 1, 1998. DEP has since extended the Variance several times, to October 1, 2007.

The previous Variance and its extensions required MWRA to implement the recommended CSO plan for the Charles River Basin and provide further technical analyses of water quality conditions, water quality impacts, and the cost-effectiveness of additional CSO controls, especially higher levels of control at the Cottage Farm facility. Since October 1998, MWRA has participated in the collection and analysis of water quality data for the Charles River Basin, updated the water quality impacts of CSO and non-CSO discharge sources, and evaluated higher levels of CSO control, including additional storage and treatment enhancements at Cottage Farm, inflow removal, and system optimization measures. In response to the goals of the Variance and its conditions, MWRA has recommended, and DEP and EPA have approved, additional CSO control projects and system optimization measures that will achieve a higher level of CSO control than the level recommended in the 1997 FEIR, especially at the Cottage Farm facility. These variance related efforts and results are documented below.

II. Variance Efforts, Data and Results

The previous CSO Variance required MWRA to carry out additional CSO system and water quality analyses and to contribute funds toward a large-scale stormwater study in the Lower Charles River Basin. These efforts were intended to provide a more complete understanding of the pollutant loads from both stormwater and CSO discharges, so that a more accurate and complete review of the cost-effectiveness of CSO abatement strategies could be conducted.

Stormwater

The pollutant loads attributed to stormwater in the 1997 CSO Plan were based on limited sampling data, much of which was gathered outside of the Charles River Basin. A major focus of the Variance-related work, therefore, was to more accurately identify actual stormwater pollutant loads by gathering data in the watershed. The United States Geological Survey ("USGS"), with funding from MWRA, EPA, and DEP, undertook an extensive and detailed stormwater study in the Lower Charles Basin, from the Watertown Dam to the Science Park Dam at the mouth of the river.

The major conclusions of the USGS work were:

- Stormwater quality in the Lower Charles River Basin is generally similar to or slightly better than that reported in other urban areas of the country.
- Event-Mean Concentrations of fecal coliform in stormwater and tributary streams ranged from 2,000 to 70,000 colonies/100ml.

- The length of the dry period antecedent to a rainfall event is a critical factor in affecting stormwater quality. The longer the antecedent dry period, the larger the stormwater pollutant loads.
- The largest single source of fecal coliform to the Lower Charles Basin is Stony Brook, where fecal coliform loads are very large during storm events. (The measured loads included CSO discharges that have since been reduced significantly. The recently completed sewer separation project and ongoing illicit connection removal programs are expected to significantly reduce this loading.)
- Full implementation of structural BMPs and street sweeping in the watershed would result in an estimated 14% reduction in the fecal coliform load from stormwater.

It is also important to note that due to the commitment of substantial resources by EPA, DEP, Charles River Watershed Association (CRWA), and the communities in the Charles River Basin, there has been substantial progress in eliminating illegal wastewater connections to storm drains and developing "state of the art" stormwater management plans. There has been a resulting significant and measurable improvement in water quality in the River over the past five years, with MWRA sampling showing the River meeting the swimming standard for *E. coli* indicator bacteria approximately 80% of the time compared with only 19% (for fecal coliform) back in 1995. While water quality during dry weather conditions is generally good, water quality continues to be impaired during wet weather conditions. Additional resource commitments toward stormwater management and illegal connection removal will continue to be a key element of work needed for further improvements to water quality in the Charles River watershed.

Cottage Farm CSO Facility Assessment Report

An early condition of the Charles River CSO Variance issued to MWRA required preparation and submission of the Cottage Farm CSO Facility Assessment Report (the "Cottage Farm report" or "report"). The report was submitted in January 2004 and underwent a lengthy public review and comment period, extending to May 2004.

The Cottage Farm report verified that the CSO facility provides significant treatment in compliance with the NPDES permit, and that additional storage at the facility would have great cost and significant adverse impact to the recreational facilities at Magazine Park, with negligible water quality benefit. The Cottage Farm report instead recommended specific system optimization measures to maximize the conveyance of wet weather flows to the Deer Island Wastewater Treatment Plant, minimize overflows into the Cottage Farm facility and maximize the benefit of the facility's existing storage basins. The report also demonstrated the value of ongoing sewer separation work (i.e. removal of storm inflow from the combined sewer system) by the City of Cambridge and the Town of Brookline in reducing CSO discharges to the Charles River.

On October 1, 2004, after reviewing the Cottage Farm report and related public comments, DEP issued an additional three-year extension to the Charles River variance, to October 1, 2007. Conditions in the current variance that expires on October 1, 2007 require MWRA, the City of Cambridge and BWSC to implement all elements of the recommended CSO control plan for the Charles River, including the additional controls recommended by MWRA in the Cottage Farm report. The variance also requires MWRA to continue to implement the Nine Minimum Controls, perform CSO discharge monitoring, provide public notice of CSO discharges, and conduct

Charles River water quality monitoring. In addition, the variances issued to MWRA, Cambridge and BWSC required these permittees to report on improvements to their sewer systems and storm drain systems that may affect sanitary sewer overflows ("SSOs") and combined sewer overflows to the Charles River; report on the operational performance of facilities related to the collection and transport of combined sewage flows; and evaluate the feasibility of additional infiltration/inflow (I/I) removal and stormwater controls to further reduce SSO and CSO discharges.

Improving on CSO Control with System Optimization and Inflow Removal

In August 2005, MWRA recommended adding a set of optimization measures and targeted sewer separation projects to its plan to increase the level of CSO control at Cottage Farm and at other Charles River outfalls by improving hydraulic conditions and reducing stormwater inflow. The projects included:

- Brookline Connection/Cottage Farm Overflow Chamber Interconnection and Gate Control
- Charles River Valley/South Charles Relief Sewer Gates Controls and Additional Interceptor Connections
- Bulfinch Triangle Sewer Separation
- Brookline Sewer Separation

These projects add approximately $20 million to MWRA's cost for the Charles River CSO plan (which now totals $73.3 million). The projects were incorporated into the revised Long-Term Control Plan ("LTCP") approved by EPA and DEP in March 2006 and incorporated into Schedule Seven by the Federal District Court in the Boston Harbor Case (D. Mass. C.A. No. 85-0489) in April 2006. Together with projects in the original plan, they are predicted to reduce treated CSO discharges at the Cottage Farm facility to 2 activations and 6.3 million gallons in a typical year, compared to the 1997 goals of 7 activations and 23 million gallons. Most of the benefit comes from optimization improvements that direct more wet weather flow to MWRA's Ward St. Headworks and reduce overflows into the Cottage farm facility. The targeted sewer separation projects will lower wet weather flows to the conveyance system, offsetting any hydraulic impacts of directing more flow to the Headworks. These projects, described in more detail below, are now being implemented by MWRA, BWSC and the Town of Brookline subject to design and construction milestones in Schedule Seven.

Brookline Connection/Cottage Farm Overflow Chamber Interconnection and Gate Control

The additional CSO optimization improvements include measures to minimize treated discharges at the Cottage Farm CSO facility by 1) controlling overflows into the facility, 2) increasing flow conveyance to the Ward St. Headworks, and 3) taking advantage of upstream storage capacity in the MWRA North Charles Metropolitan and Metropolitan Relief Sewers in Cambridge.

These measures, shown in Figure 3, include: bringing into operation the historically un-utilized 54-inch "Brookline Connection" that crosses beneath the Charles River from the Cottage Farm influent chamber (on the Cambridge side of the Charles River) to an improved connection

with the South Charles Relief Sewer (on the Boston side of the river); developing gate controls and a control system to optimize and potentially automate the operation of the existing Cottage Farm influent gates; providing a piped interconnection between the two overflow chambers outside the Cottage Farm facility; and optimizing the overflow weir settings within the chambers.

The 54-inch Brookline Connection was one of three pipes constructed in 1970 across the Charles River as part of the original construction of the Cottage Farm facility. It was intended to carry excess flows from Brookline to Cottage Farm during large storms, but became unnecessary before being brought on line because sewer separation programs in Brookline had reduced flows to a greater extent than earlier predicted. In 2005, MWRA inspected the 54-inch diameter pipe for the first time since it was constructed and found it to be in excellent condition. The current project calls for utilizing the pipe in reverse direction, carrying wet weather flows away from Cottage Farm toward the Ward St. Headworks and Deer Island treatment plant.

MWRA issued the Notice to Proceed with the design contract for these improvements in September 2006, in compliance with Schedule Seven. Schedule Seven also requires MWRA to commence construction of these improvements by June 2008 and complete construction by June 2009.

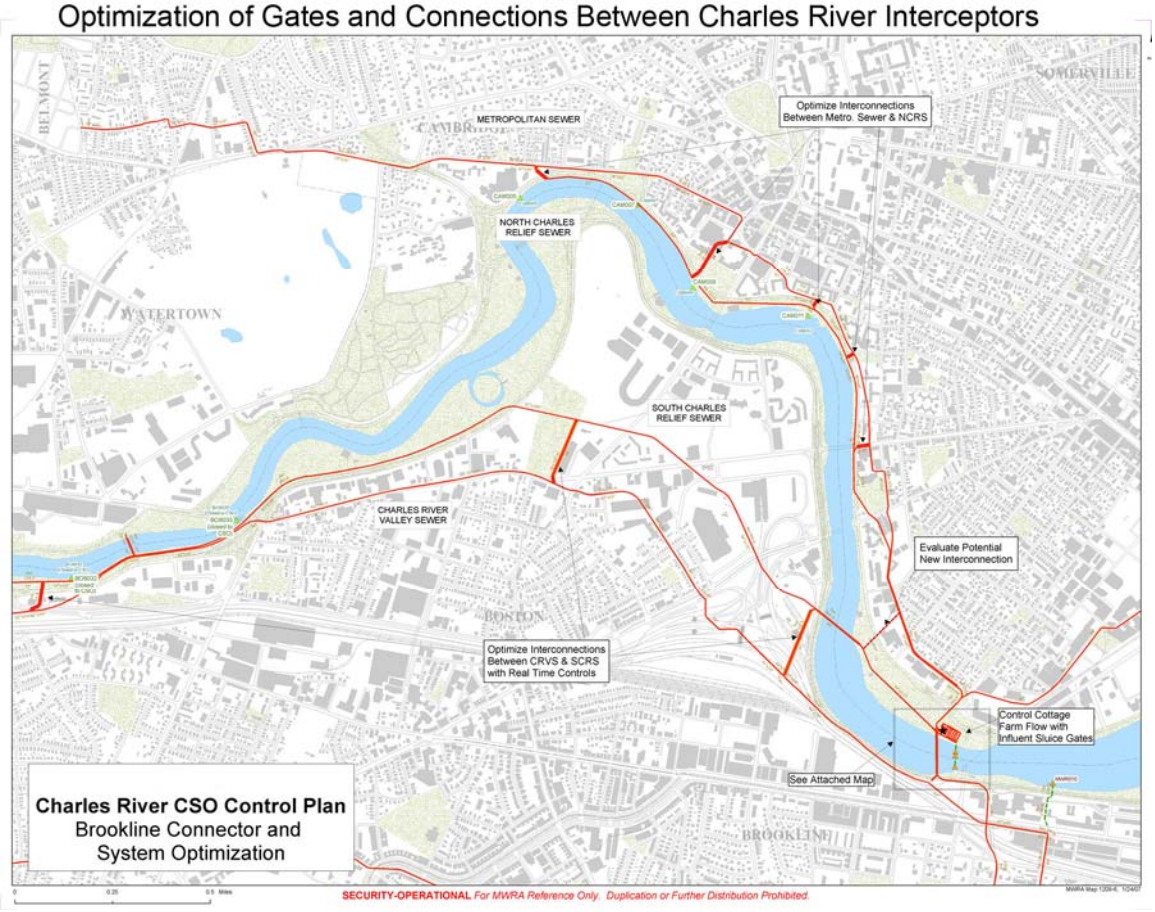
Figure 3
Cottage Farm Brookline Connection and Inflow Controls

Charles River Valley/South Charles Relief Sewer Gates Controls and Additional Interceptor Connections

This set of improvements to reduce Charles River CSOs includes measures to optimize flows among the four interceptors that convey flow to the Ward St. Headworks and can overflow to the Cottage Farm facility. The measures include developing an operational strategy for optimizing the transfer and allocation of flows between the Charles River Valley Sewer and the South Charles Relief Sewer using existing gates located at three connections between these interceptors, (see Figure 4). MWRA will also evaluate the feasibility of improving hydraulic performance along the North Charles Metropolitan Sewer and the North Charles Relief Sewer with new connections or modified existing connections between these interceptors and by adjusting overflow regulators along the interceptors, if beneficial.

MWRA plans to commence the design of the gate controls and the evaluation of additional interceptor connections under one contract in January 2008, in compliance with Schedule Seven. Schedule Seven also requires MWRA to submit a report on the evaluation of additional connections by January 2009, commence construction of the interceptor gate controls by January 2010, and complete construction of the gate controls by January 2011.

Figure 4
Optimization of Gates and Connections Between Charles River Interceptors



Bulfinch Triangle Sewer Separation

The goal of the $4.4 million Bulfinch Triangle sewer separation project is to minimize CSO discharges to the Charles River by separating combined sewer systems in the area of Boston roughly bounded by North Station, Haymarket Station, North Washington St., and Cambridge St. and immediate environs (see Figure 5). Implementation of the recommended sewer separation plan will reduce the number of overflows to the Charles River, reduce overflows to the Prison Point CSO facility, and allow BWSC to close outfall BOS049.

MWRA and BWSC added this project to their CSO Memorandum of Understanding and Financial Assistance Agreement in October 2006. BWSC will be responsible for managing design and construction, and MWRA will fund the design and construction costs.

BWSC issued the notice to proceed with design services in August 2006, in compliance with Schedule Seven. Schedule Seven also requires MWRA and BWSC to commence construction of Bulfinch Triangle sewer separation by November 2008 and complete construction by July 2013.

Brookline Sewer Separation

The $9.0 million Brookline sewer separation project is intended to separate remaining areas of Brookline, totaling 71.2 acres, that have combined sewers tributary to MWRA's Charles River Valley Sewer (see Figure 6). The project is intended to reduce discharges to the Charles River at the Cottage Farm facility.

MWRA and the Town of Brookline executed a CSO Memorandum of Understanding and Financial Assistance Agreement in July 2006. Brookline will be responsible for managing design and construction of the project, and MWRA will fund the design and construction costs. Brookline issued the notice to proceed with design services in November 2006, in compliance with Schedule Seven. Schedule Seven also requires MWRA and the Town of Brookline to commence construction by November 2008 and complete construction by July 2013.

Figure 5

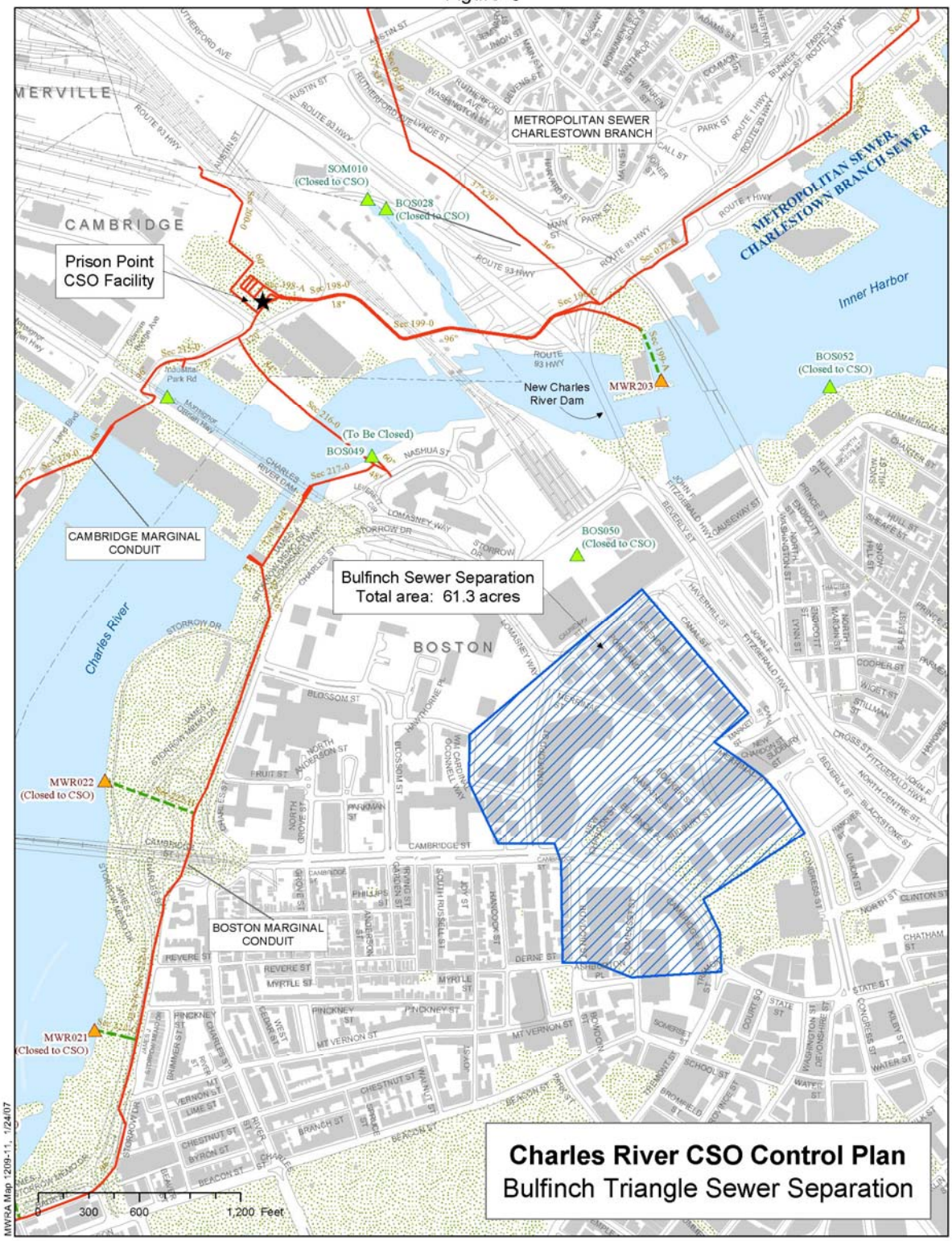
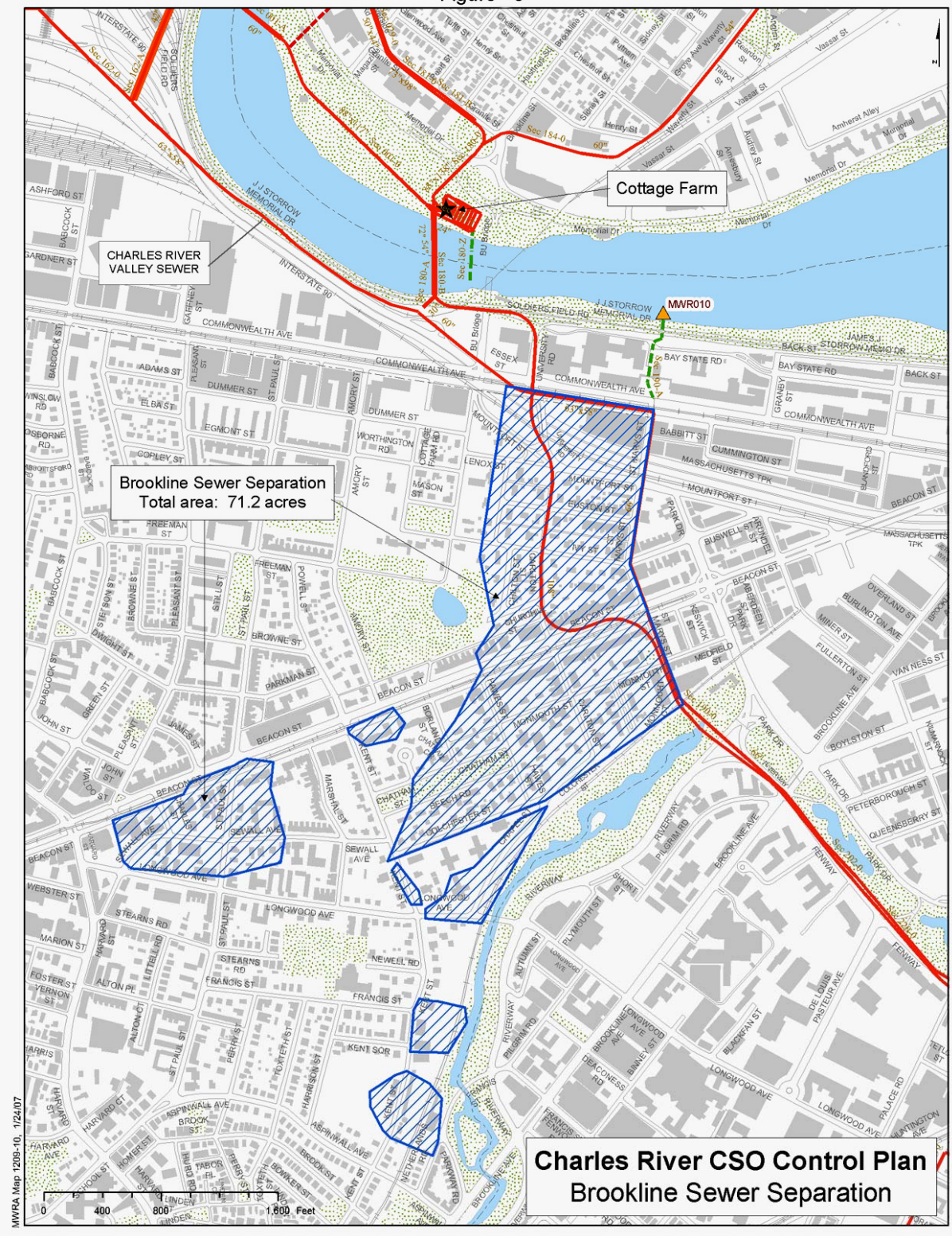

CAMBRIDGE
Prison Point
CSO Facility
METROPOLITAN SEWER
CHARLESTOWN BRANCH
METROPOLITAN SEWER
CHARLESTOWN BRANCH SEWER
Inner Harbor
SOM010
(Closed to CSO)
BOS028
(Closed to CSO)
BOS052
(Closed to CSO)
MWR203
New Charles
River Dam
(To Be Closed)
BOS049
BOS050
(Closed to CSO)
CAMBRIDGE MARGINAL
CONDUIT
Bulfinch Sewer Separation
Total area: 61.3 acres
Charles River
BOSTON
MWR022
(Closed to CSO)
BOSTON MARGINAL
CONDUIT
MWR021
(Closed to CSO)
Charles River CSO Control Plan
Bulfinch Triangle Sewer Separation
0
300
600
1,200 Feet
MWRA Map 1209-11, 1/24/07

Figure 6


Cottage Farm
CHARLES RIVER VALLEY SEWER
MWR010
Brookline Sewer Separation
Total area: 71.2 acres
Charles River CSO Control Plan
Brookline Sewer Separation
MWRA Map 1209-10, 1/24/07
0
400
800
1,600 Feet

Actual and Anticipated CSO Reductions in the Charles River Basin

MWRA, with the cooperation of BWSC, Cambridge and Brookline, has made significant investments since the late 1980's to improve the wastewater collection and transport systems and complete the implementation of the CSO control projects recommended in the 1997 FEIR. These investments have dramatically reduced CSO discharges to the Charles River (a 96% reduction in average annual volume since 1988) and have allowed many CSO outfalls to be permanently closed. With new information collected since the Variance was first issued in 1998, MWRA has improved upon the long-term plan and predicted CSO control benefits by recommending additional long-term controls that primarily involve optimization of sewer system performance and reduction of stormwater inflow. MWRA predicts that these improvements will reduce the current (2006) level of CSO discharge by 89%, for an overall reduction in average annual CSO volume to the Charles River Basin of 99.5% since MWRA began its CSO control efforts in the late 1980's.

The CSO abatement resulting from MWRA's LTCP is summarized in the following table:

Annual CSO Discharge Frequency and Volume to the Charles River (for typical year rainfall)						
Outfall	Baseline Conditions (1988)		Current Conditions[2]		Plan Implementation[3]	
	Activations	Volume (MG)	Activations	Volume (MG)	Activations	Volume (MG)
BOS032	4	3.17	N/A	Eliminated	N/A	Eliminated
BOS033	7	0.26	N/A	Eliminated	N/A	Eliminated
CAM005	6	9.17	4	1.60	3	0.84
CAM007	1	0.81	3	0.79	1	0.03
CAM009	19	0.19	2	0.06	2	0.01
CAM011	1	0.07	0	0.00	0	0.0
BOS028	4	0.02	N/A	Eliminated	N/A	Eliminated
BOS042	0	0.00	N/A	Eliminated	N/A	Eliminated
BOS049	1	0.01	0	0.00	N/A	Eliminated
CAM017	6	4.72	2	1.07	1	0.45
MWR010	16	0.08	0	0.00	0	0.0
MWR018	2	3.18	0	0.00	0	0.0
MWR019	2	1.32	0	0.00	0	0.0
MWR020	2	0.64	0	0.00	0	0.0
MWR021	2	0.5	N/A	Eliminated	N/A	Eliminated
MWR022	2	0.43	N/A	Eliminated	N/A	Eliminated
MWR201[3]	18+	1,547	11	61.95	2	6.3
MWR023	39	115	7	0.45	2	0.13
SOM010	18	3.38	N/A	Eliminated	N/A	Eliminated
Total		1,690 MG		68.00 MG		7.76 MG

(1) Includes major improvements to Deer Island transport and treatment system and implementation of system optimization measures (SOPs) recommended by MWRA in 1993 and 1994.

(2) From MWRA modeling of 2006 system conditions.

(3) Construction of the long-term CSO control plan for Boston Harbor and its tributaries is scheduled to be complete by December 2015, which will be followed by a period of post construction monitoring in accordance with Schedule Seven of the Boston Harbor Case.

(4) MWR201 is the effluent discharge for the Cottage Farm CSO Facility. Flows are screened, disinfected and dechlorinated prior to discharge.

Results of MWRA's Water Quality Monitoring in the Charles River

MWRA has been monitoring water quality in the Charles River since 1989. Studies include measurements of sewage indicator bacteria, nutrients, and viral pathogens. MWRA has submitted reports annually during the timeframe of the variance. The reports (e.g. Coughlin K. 2006. Summary of CSO Receiving Water Quality Monitoring in Upper Mystic River/Alewife Brook and Charles River, 2005. Boston: Massachusetts Water Resources Authority. Report 2006-07. 38 p.) are available at: http://www.mwra.state.ma.us/harbor/enquad/trlist.html.

There have been noticeable improvements in the level of fecal coliform bacteria in the Charles River since MWRA began implementation of the long-term CSO control plan. Average bacteria counts during heavy rain, when the river is affected by contaminated stormwater and CSO, have decreased substantially. There have also been noticeable decreases during dry weather and light rain, when illicit connections and contaminated storm water have the largest effects, because the CSOs typically only discharge in heavy rain (Figure 7).

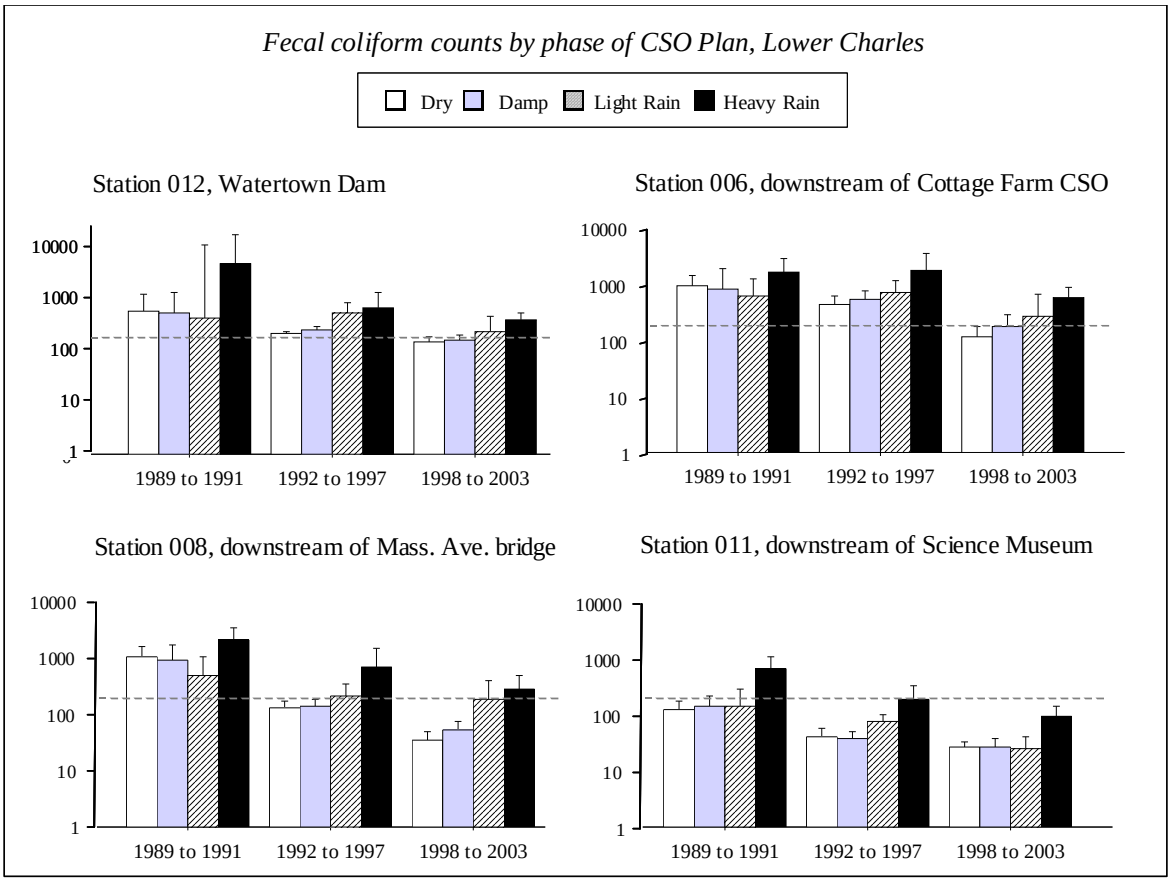


Figure 7: Average fecal coliform counts in different weather conditions and during phases of MWRA's CSO control plan at four locations in the lower Charles River. Dotted line indicates 200 fecal coliform/100 ml, the swimming standard. (Note log scale.)

III. DEP Determinations and Next Steps

Charles River CSO Plan and Related Water Quality Improvement

Water quality in the Lower Charles River Basin has improved tremendously over the last decade, in part due to significant reductions in CSO discharges at the Cottage Farm facility and several other outfalls. Greatly improved pumping capacity at the Deer Island Wastewater Treatment Plant, improved sewer system operation and maintenance, and the implementation of projects under the long-term CSO control plan have contributed to the CSO reductions. The completed CSO work includes Stony Brook sewer separation; hydraulic relief at outfall CAM005; upgrade of the Cottage Farm facility; the closing of several outfalls by MWRA and BWSC; and floatables control. In addition, MWRA, with the cooperation of BWSC and the Town of Brookline, is now moving forward with additional projects that are intended to further reduce CSO discharges by optimizing the existing sewer system and reducing stormwater inflows. In addition, the City of Cambridge continues to implement its long-term plans for separation of its combined sewer systems in the Charles River watershed.

DEP noted in its comments on MWRA's Cottage Farm Facility Assessment Report (2004) that construction of CSO storage facilities at Cottage Farm was not a cost-effective measure for CSO control, and that MWRA should rather "*commit resources toward cost-effective projects which will further eliminate stormwater from the combined sewer system, and which will be consistent with community efforts in managing broader wet weather impacts. This approach will be important to optimizing use of the Cottage Farm CSO Treatment Facility and improving water quality in the lower Charles River Basin.*" DEP has concluded that the revised plan for the Charles River and specifically the system optimization and sewer separation projects added to the plan in 2006 are consistent with this approach and maximize CSO benefits.

Other Priorities to Ensure Continued Progress

. Further water quality improvements in the Charles River watershed will rely largely on endeavors to address illegal discharges to storm drains, storm water Best Management Practices and other storm water impacts as they contribute to wet weather issues affecting the Charles River and its tributaries. DEP recognizes that progress is continuing to be made in these areas. Through the Charles River Basin CSO variance, the public, regulatory agencies and permittees have gained the benefit of information provided by the efforts of USGS, the Charles River Watershed Association, MWRA, BWSC, the City of Cambridge, and others to make sound decisions for continued, significant improvement in the water quality of the Charles River Basin.

DEP also acknowledges the importance of proper operation, maintenance, and rehabilitation of both the MWRA and community sewer and storm water systems to assure optimized conditions for conveying wastewater flows through the system for treatment and discharge at Deer Island and improving storm water quality. Sewer system repairs and cleaning have resulted in improved conveyance capacities in a number of locations and have also contributed to mitigating CSO discharges by addressing localized system flow constraints.

MWRA Long-Term CSO Control Plan

The $73.3 million recommended plan to control CSO discharges to the Charles River is part of MWRA's region-wide LTCP that addresses 84 CSO outfalls discharging to Boston Harbor and its tributaries. MWRA's capital budget for the LTCP has risen from $487 million in 1997, when MWRA issued the FEIR which was the basis for DEP's determination to issue the original CSO variance for the Charles River on October 1, 1998, to $804 million in MWRA's current Capital Improvement Program. Much of the additional cost is due to enhancements to the plan that increase the level of CSO control or overcome site-specific hurdles to maintain the recommended levels of control. Following issuance of the FEIR, site specific issues led MWRA to conduct reassessments of several of the recommended projects in order to ensure that CSO goals would be met. MWRA also conducted investigations to improve upon the level of CSO control for the Charles River.

In August 2005, MWRA recommended a revised LTCP that included $20 million of additional projects and associated higher level of control for the Charles River Basin. In March 2006, MWRA reached agreement with EPA, DEP and the U.S. Department of Justice DOJ on the plan and a new schedule. The agreement was filed with the Court as part of a joint motion to amend the court schedule.

In April 2006, the Court allowed the joint motion and issued an Order with a new schedule. Under the Order, MWRA has until the year 2020 to complete the remaining CSO work and subsequent monitoring to verify that the long-term CSO control goals are achieved. In addition, the United States and MWRA agreed to withdraw the February 27, 1987 Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflows and replace it with a Second Stipulation that requires MWRA to implement the CSO requirements set forth in the court schedule and to meet the levels of control described in MWRA's LTCP. In July 2006, the Court accepted revisions to Schedule Six incorporating a new Schedule Seven. The revisions include modified or additional milestones for projects in the Alewife Brook, Charles River and East Boston CSO plans.

Substantial and Widespread Social and Economic Impact

DEP has emphasized cost-effectiveness for CSO long-term control plans, to ensure that financial resources for pollution abatement actually provide improvements in water quality. The principles of cost-effectiveness and water quality benefits have been a major factor used by MWRA in the development of its present $803 million CSO abatement plan. MWRA will spend more than $400 million on CSO projects over the next eight years (2007-2015), which is 29% of all planned capital spending and 53% of wastewater capital spending in the same period. MWRA sewer rates are among the highest in the nation and are projected to increase significantly over the next eight years.

Implementation of the revised recommended plan will reduce the untreated CSO discharges to the Charles River to three or fewer per year on average, and will reduce the number of treated CSOs discharged at Cottage Farm to two activations per year. In accordance with DEP's CSO Guidance, cost-effectiveness, protection of sensitive uses, and the financial capability of CSO permittees are all important factors in making determinations on the appropriate level of CSO control.

MWRA submitted data related to DEP's finding of "substantial and widespread economic and social impact," the basis for its issuance of a Variance in 1997 (See 314 CMR 4.03(4)(f)). DEP documented for the current Variance ending October 1, 2007, its review of a report by Robert N. Stavins, Assessment of the Economic Impact of Additional Combined Sewer Overflow Controls on Households and Communities in the Massachusetts Water Resources Service Area, dated March 17, 2004. DEP also reviewed the Affordability Analysis Worksheets included in Appendix H of the Cottage Farm Report dated January 2004, which are based on EPA's Interim Economic Guidance for Water Quality Standards.

DEP's conclusions from its review of the documents submitted by MWRA and determination in support of the current Variance ending October 1, 2007 have not changed. Continued extension of the Variance is warranted on the basis of substantial and widespread economic and social impact. When it issued the current variance in 2004, DEP indicated that it would evaluate the information required by the variance to determine whether there are additional cost-effective CSO controls. DEP has reviewed the new information regarding revisions to the Charles River CSO plan, as well as other revisions and cost changes in MWRA's LTCP and has determined that additional controls beyond those recommended by MWRA would not be affordable.

IV. CSO Variance Extension

As part of the agreement on the LTCP reached in March 2006 among EPA, DEP, DOJ and MWRA, MWRA requested that the Variance for the Lower Charles River Basin be reissued through 2020 when MWRA must complete the region-wide LTCP and subsequent monitoring to verify that the long-term CSO control goals are achieved. MWRA bases this request on the significance of the CSO control and related water quality improvement it has achieved to date, the expectation for additional CSO control and water quality improvement with the projects it added to the Charles River plan as part of the 2006 decision, and the desire to provide a level of financial certainty and stability for its ratepayers.

Determination to Extend Variance

DEP makes the following determinations:

- The revisions MWRA has made to its long-term CSO control plan for the Charles River, by adding projects to optimize sewer system performance and remove stormwater inflow through sewer separation, are responsive to the conditions and intent of the Variance and will maximize CSO control benefits.

- All of the CSO discharges in the Lower Charles River Basin cannot be feasibly eliminated. MWRA has completed numerous analyses since the late 1980s evaluating alternatives for eliminating CSOs from the collection system tributary to the Deer Island Wastewater Treatment Plant. Among these are the 1997 FEIR, the 2004 Cottage Farm Facility Assessment Report, and the additional alternatives analyses and recommendations MWRA submitted to EPA and DEP in late 2005 and early 2006 that lead to the 2006 agreement. MWRA's revised LTCP incorporates all cost-effective and feasible CSO abatement projects for this watershed. At this point in time, it does

not appear technically feasible to eliminate all CSO outfalls to this watershed given the engineering and infrastructure constraints in the MWRA interceptor system, headworks, conveyance tunnels, the Deer Island wastewater treatment plant, and the ocean outfall.

- It remains unclear whether the Class B water quality standards for the Basin can ultimately be achieved or the extent (percent of time) the standards can be met. Analyses completed by the MWRA and others indicate that substantial stormwater pollutant loadings remain in the Charles River watershed. Actions are underway in this watershed to remediate stormwater discharges, including aggressive measures to identify and remove illegal sewer connections. However, it remains unclear at this time whether stormwater discharges to the Basin can meet the Class B water quality standard through the implementation of these controls. Therefore, additional time is needed before DEP can make a definitive determination as to the efficacy of the CSO and stormwater controls now planned or underway in bringing these discharges into compliance with the Class B standards.

- Proceeding at this time with controls beyond those presently included in the revised LTCP would result in substantial and widespread social and economic impact as specified in 314 CMR 4.03(4). The cost of MWRA's CSO control program is substantial, at present included in MWRA's capital budget at $804 million and estimated by MWRA to ultimately cost $864 million to complete the plan on schedule, including escalation to the mid-point of construction and contingency. MWRA's detailed financial impact assessment considered the effect of expected sewer rate increases, and, appropriately, median household income as adjusted by the relatively high cost of housing in the Boston area. The MWRA adequately demonstrated that proceeding at this time with CSO controls necessary for full attainment of Class B water quality standards in the Lower Charles River Basin would result in substantial and widespread economic and social impact.

DEP concludes that extension to the CSO Variance for the Lower Charles River Basin is appropriate at this time. DEP has also determined that it will reissue the variance in the future for three-year periods through 2020, when the CSO control plan and benefits will be completed and verified. Issuing of the CSO Variance Extension in the Charles watershed is consistent with EPA Guidance: *Coordinating CSO Long-Term Planning with Water Quality Standard Reviews (July 31, 2001)*, which asserts that longer term variances and renewal of variances are warranted given the extended duration necessary for implementation of LTCPs.

A determination on the highest feasible level of CSO control and associated water quality standard should be deferred until the LTCP is implemented and the associated benefits are verified in 2020, in compliance with Schedule Seven. During this same period, community programs to control illicit discharges, remove infiltration and inflow from sewer systems, and separate combined sewer systems are expected to continue and will result in additional water quality improvement for the Lower Charles River Basin.

Future Actions

(1) The Variance for CSO discharges to the Lower Charles River Basin will be extended by a period not to exceed 3 years (October 1, 2010).

(2) MWRA, the City of Cambridge, and the Boston Water & Sewer Commission shall implement all elements of the LTCP as defined in the Second CSO Stipulation and in accordance with Schedule Seven.

(3) MWRA, the City of Cambridge, and the Boston Water & Sewer Commission shall continue to implement the Nine Minimum Controls and report on CSO activations and volumes.

(4) MWRA shall continue to implement its receiving water monitoring in the Lower Charles River watershed and submit an annual summary report on or before July 1 of each year.

FACT SHEET
Attachment D

TENTATIVE DETERMINATION TO EXTEND VARIANCE FOR COMBINED SEWER OVERFLOW DISCHARGES TO ALEWIFE BROOK/UPPER MYSTIC RIVER BASIN

FACT SHEET

This document is intended to provide a summary of the activities that have taken place since the Mass. Department of Environmental Protection's ("DEP") issuance of the CSO Variance for the Alewife Brook/Upper Mystic River Basin, and to provide a frame of reference for DEP's decision to extend the Variance for a period not to exceed three years, to September 1, 2010.

I. Background on CSO Control and Variances

Original CSO Variance and Conditions

A three-year Variance for CSO discharges to the Alewife Brook/Upper Mystic River Basin was issued by DEP on March 5, 1999. The Variance is a short-term modification of the Water Quality Standards issued by DEP subject to approval by the U.S. Environmental Protection Agency ("EPA"). The Variance allows limited CSO discharges from the outfalls along the Alewife Brook/Upper Mystic River permitted to the Massachusetts Water Resource Authority ("MWRA") and the cities of Cambridge and Somerville, subject to specific conditions. Other standards and criteria of the receiving waters' Class B designation are unaffected and remain in force.

The CSO Variance was issued in 1999 to allow time for DEP to obtain the information necessary to determine the appropriate long-term water quality standard and level of CSO control for the Basin, while ensuring that recommended CSO controls approved by DEP would be implemented. The Variance required the implementation of the cost-effective CSO control actions included in MWRA's Final CSO Facilities Plan and Environmental Impact Report, July 31, 1997 (the "FEIR") and also required other actions necessary to properly assess pollutant loads in the Basin and minimize the impact of CSO discharges.

The March 5, 1999 Alewife Brook/Upper Mystic River Basin Variance included specific conditions on activities of the MWRA and the cities of Cambridge and Somerville. These included requirements to implement the CSO control plan in the 1997 FEIR in the Alewife Brook/Upper Mystic River Basin; monitor and estimate CSO activations and volumes; prepare and submit a report on the CSO abatement benefit of infiltration and inflow (I/I) reduction programs; implement and report on water quality sampling programs in the Alewife Brook/Upper River Mystic Basin, including in-stream and stormwater sampling; and submit a Reassessment Report summarizing information gathered during the Variance process and reassessing the costs and benefits of additional CSO controls in the Alewife Brook/Upper Mystic River Basin, up to and including elimination of CSOs.

The required Reassessment Report was intended to provide the basis for a final determination on the appropriate long-term level of CSO control. On December 14, 2001, MWRA submitted a request to DEP to extend the Alewife Brook/Upper Mystic River Basin Variance for 18 months and defer the requirement for the CSO Reassessment Report until July 1, 2003. After review of public comments on the MWRA request, DEP agreed that an extension was reasonable and necessary to complete the data collection and technical reports required under the Variance and on May 5, 2002, extended the Variance to September 5, 2003.

CSO Control Plan Reassessment

During early design efforts to implement the 1997 CSO control program, the City of Cambridge and MWRA collected new information that showed the extent of Cambridge's combined sewer system in the Alewife Brook watershed exceeded what was documented in the 1997 FEIR. A previously unknown CSO outfall, CAM401B, was also discovered. The MWRA subsequently determined that the CSO activations and volumes in this basin greatly exceeded the estimates in the 1997 FEIR, and that the 1997 recommended plan, at an estimated total cost of about $14 million, could not achieve the recommended level of control.

To address this new information, MWRA and Cambridge completed a reevaluation of the original CSO control plan for Alewife Brook and on April 30, 2001, filed a Notice of Project Change ("NPC") with MEPA. While the level of CSO control for the revised plan is comparable to the original 1997 plan and remains essentially one of targeted sewer separation, certain elements of the original plan, including areas slated for separation, were substantially modified, resulting in a change in expected impacts and mitigation measures, including measures to mitigate the effects of higher stormwater discharges on flooding of Alewife Brook. The projected cost of the project also increased significantly, from $14 million in the 1997 plan to approximately $100 million, based on most recent estimates. Notably, sewer separation associated with the CAM004 outfall will require construction of a new stormwater outfall to convey flows to a new wetland detention basin proposed within the MDC Alewife Reservation.

The revised Alewife Brook CSO control project is predicted to have the following benefits:

- 85 percent reduction in annual CSO volume discharged in a typical year;
- compliance of CSO discharges with Class B water quality standards 98.5% of the time;
- improved stormwater quality resulting in a reduction in stormwater pollutant loads; and
- creation of additional wetlands and enhancement of walking trails in the Alewife Reservation.

In the September 15, 2001 Certification on the NPC, MEPA required that MWRA and Cambridge prepare and file with MEPA a comprehensive Response to Comments document (the "RTC"). On May 30, 2003 MWRA and Cambridge filed the RTC. The recommended plan now includes a larger stormwater detention basin in the Alewife Reservation (including on-site wetland replication and Compensatory Flood Storage) that has additional benefits related to

habitat, public access, recreation, and public education. The work in the Alewife Reservation has been coordinated with staff from the MA Department of Conservation and Recreation (DCR).

The reassessment of predicted peak separate stormwater flows from the separation project indicates that there will be a "slight decrease to the flows to Alewife Brook after project implementation." DEP concurred with the revised CSO abatement plan as a suitable substitute for the original plan, given the changed conditions. However, DEP reserved judgment on the final level of CSO control and water quality standard until sufficient information was compiled during the course of the CSO Variance.

Final Variance Report (CSO Reassessment) and Further Variance Extension

On July 1, 2003, in accordance with Section C. (1) of Alewife/Upper Mystic CSO Variance, MWRA submitted to DEP and EPA the Final Variance Report for the Alewife Brook and Upper Mystic River. This report provided detailed technical and financial information to support the long-term CSO abatement plan in the Alewife/Upper Mystic watershed. In the Final Variance Report, MWRA reported that additional CSO controls beyond those included in their revised CSO plan would not be cost-effective and would not provide meaningful water quality improvement, primarily due to the predominance of non-CSO pollution sources. Based on the technical and financial analyses included in the Final Variance Report, MWRA contended that the criteria needed to support a $B_{(cso)}$ classification was met, and MWRA requested that DEP take such administrative action.

During public review of the Final Variance Report, several advocacy groups and other stakeholders requested that DEP allow additional time for review and comment on this critical document. It also became apparent that there would be insufficient time to provide for this extended public review, to resolve outstanding technical issues relating to public and agency review, and to make administrative water quality standard determinations in this watershed within the time frame required under the first Variance extension. Due to these factors, and with public support, DEP again formally extended the CSO Variance, from October 1, 2003 to September 1, 2004. EPA issued written comments indicating that it was not in opposition to the second Variance extension.

This second Variance extension maintained most of the conditions included in the previous CSO Variance, and MWRA, Cambridge, and Somerville remained responsible for implementing the Nine Minimum Controls, monitoring CSO discharges, implementing the cost-effective CSO measures included in the recommended plan from the NPC, and implementing a receiving water monitoring program.

After the Final Variance Report was issued MWRA presented additional information on its financial capability analysis, incorporating into the analysis the costs of housing in the Boston metropolitan area.

II. Level of CSO Control

Following issuance of the last variance extension, local system evaluations were conducted by Cambridge and Somerville, working cooperatively with MWRA. Updated information on each community follows.

Cambridge:

The City of Cambridge has for several years been collecting detailed information on the configuration and performance of its sewer and storm drain systems, which are mostly combined. Cambridge has used this information to develop a detailed Hydroworks model of its sewer system, which includes conditions in MWRA's downstream interceptor system, as well as portions of the Somerville system that are hydraulically related to the performance of Cambridge's system. With the new information and detailed model, Cambridge has been able to assess the performance of its systems and update and confirm the frequency and volume of CSO discharges for a range of wet weather conditions. Cambridge has also used the information to support the implementation and verification of the extensive sewer separation work it is pursuing. In addition to the implementation of the MWRA's CSO control plan, the City is moving forward with actions to aggressively address private inflow removal in the CAM400 and CAM004 areas, which is necessary to fully eliminate these CSO discharges. The City is also eliminating common manholes in the Alewife watershed, which will eliminate another potential source of cross connections between the sewer and drain systems.

Cambridge's modeling results support the assessments and recommended plan predictions in MWRA's CSO control plan. The City's July 2006 Alewife Sewer System Assessment concludes that the MWRA plan, along with the private inflow and common manhole work, comprise the most cost effective and efficient CSO abatement program.

Somerville:

Somerville has completed a number of studies of their sewer system, including the two phase Tannery Brook Drain Evaluation (CSO SOM001A) and these reports provided a more detailed characterization of the Somerville combined sewer system, and evaluated the potential for additional CSO controls beyond those included in the MWRA CSO Control Plan. The reports also assess excessive I/I in areas within the City. These reports did reinforce the benefit of enlarging the connection between the City's Tannery Brook Drain and MWRA's Alewife Brook Interceptor, a component of MWRA's Long Term Control Plan.

DEP is continuing to review the information in both the Cambridge and Somerville Infrastructure Reports, other related sewer and drainage plans, and progress of the CSO abatement work. This information will be considered during the course of the CSO Variance to determine if higher levels of CSO control are feasible.

MWRA Long-Term CSO Control Plan

The recommended plan to control CSO discharges to the Alewife Brook and the Upper Mystic River is part of MWRA's region-wide Long-term CSO Control Plan ("LTCP") that addresses 84 CSO outfalls discharging to Boston Harbor and its tributaries. MWRA's capital budget for the LTCP has risen from $487 million in 1997, when MWRA issued the FEIR which

was the basis for DEP's determination to issue the original CSO variance for the Alewife Brook/Upper Mystic River on March 1, 1999, to $811 million in MWRA's current Capital Improvement Program. Much of the additional cost is due to enhancements to the plan that increase the level of CSO control or overcome site-specific hurdles to maintain the recommended levels of control. Following issuance of the FEIR, site-specific issues led MWRA to conduct reassessments of several of the recommended projects in order to ensure that CSO goals would be met. As mentioned above, the plan's cost significantly increased with the revised recommended plan for the Alewife Brook.

In August 2005, MWRA recommended a revised region-wide LTCP that included a schedule for implementing the revised plan for Alewife Brook. In March 2006, MWRA reached agreement with EPA, DEP and the U.S. Department of Justice ("DOJ") on the plan and a new schedule. The agreement was filed with the Federal District Court as part of a joint motion to amend the court schedule in the Boston Harbor Case (D. Mass. C.A. No. 85-0489).

In April 2006, the Court allowed the joint motion and issued an Order with a new schedule. Under the Order, MWRA has until the year 2020 to complete the remaining CSO work and subsequent monitoring to verify that the long-term CSO control goals are achieved. In addition, the United States and MWRA agreed to withdraw the February 27, 1987 Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflows and replace it with a Second Stipulation that requires MWRA to implement the CSO requirements set forth in the court schedule and to meet the levels of control described in MWRA's LTCP. In July 2006, the Court accepted revisions to Schedule Six incorporating a new Schedule Seven. The revisions include modified or additional milestones for projects in the Alewife Brook, Charles River and East Boston CSO plans.

The recommended CSO control plan for Alewife Brook/Upper Mystic River includes the following projects, shown in Figures 1 and 2:

Completed Improvements

- Upgrades to the Somerville Marginal CSO Treatment Facility (affecting the infrequent discharges at outfall SOM007A/MWR205A), which MWRA completed in 2001 at a cost of $4.0 million;
- Somerville manhole separation and closing of outfalls SOM001, SOM002A, SOM003, SOM004, SOM006 and SOM007, which City of Somerville completed in 1997 at a cost of $500,000 funded by MWRA;

Scheduled Improvements

- Separation of common manholes in the CAM400 tributary area and closure of the outfall to CSO discharges;
- Construction of a new stormwater outfall and vegetated stormwater detention basin to ensure that the separated stormwater flows from the CAM004 area will not worsen flooding along Alewife Brook;

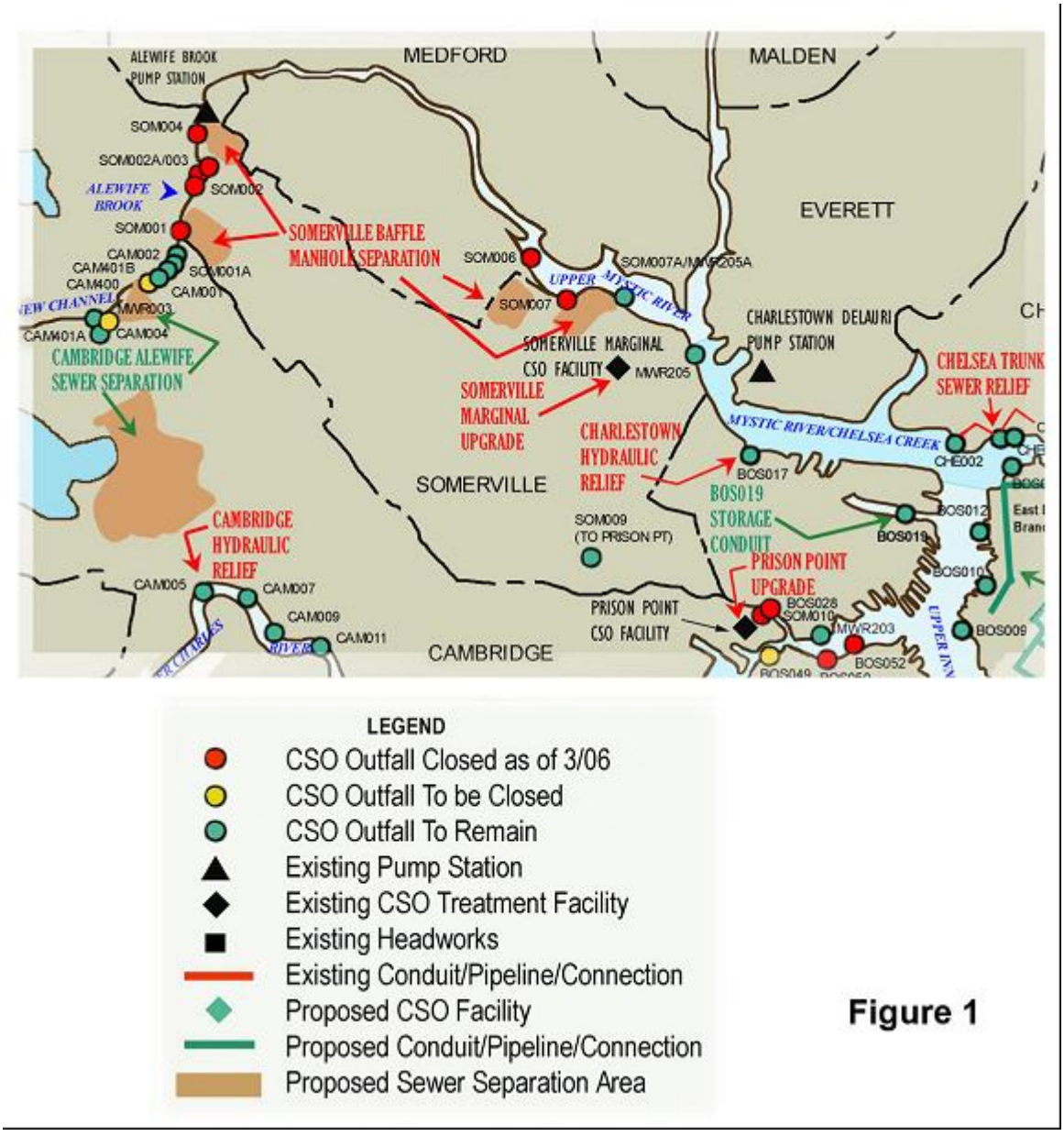


Figure 1

- Sewer separation in the CAM004 area and closure of this outfall to CSO discharges. Initial phases of this work have been completed by the City of Cambridge with MWRA funding and have significantly lowered CSO discharges to Alewife Brook
- Relief of interceptor connections at regulators associated with outfalls CAM002, CAM401B and SOM01A and floatables controls at these outfalls;
- Floatables control at outfalls CAM001 and CAM401A; and
- Construction of an overflow control gate and floatables control at outfall MWR003 and relief of MWRA's Rindge Ave. Siphon.

These scheduled improvements are estimated to cost approximately $100 million, which would be funded by the MWRA and the City of Cambridge. The MWRA's budget for these remaining improvements is $54 million.

Actual and Anticipated CSO Reductions

MWRA, with the cooperation of the cities of Cambridge and Somerville, has reduced CSO discharges and impacts to the Alewife Brook and Upper Mystic River through efforts that have begun to implement the long-term CSO control plan. These completed efforts include upgrade of MWRA's Somerville-Marginal CSO treatment facility; separation of common sewer and storm drain manholes to eliminate CSOs at several outfalls permitted to the City of Somerville; and construction of storm drain and sewer trunk lines downstream of the CAM004 sewer separation areas, along Fresh Pond Parkway.

Somerville's work to separate common manholes has resulted in the elimination of untreated discharges at outfalls along the Upper Mystic River and the closing of several CSO outfalls along the Alewife Brook. The only remaining CSO outfall along the Upper Mystic River is outfall MWR205A/SOM007A, which discharges CSO flows treated during a limited number of wet weather events at the Somerville Marginal Facility at a point upstream of Amelia Earhart Dam during high tide. At lower tides, the treated flows are discharged to tidal waters below the dam, at outfall MWR205. MWRA reported that outfall MWR205A/SOM007A discharged six times during 2006, which had above average rainfall. The long-term control plan goal is 2 activations in an average rainfall year.

Construction completed to date has already reduced CSO activations and discharges along the Alewife Brook. Activation frequency has decreased from 63 to 25 in a typical rain year and discharge volume has decreased from 50 million to 34 million gallons.

Long-term Performance

MWRA's recommended plan is predicted to reduce annual CSO volume to Alewife Brook/Upper Mystic River by 85% in a typical year, from 50 million gallons to 7.3 million gallons. CSO activations in a typical year will be reduced from 63 to 7. At the recommended control levels, CSO discharges will comply with Class B water quality criteria 98.5 percent of the time. Levels of CSO control at outfalls on the Alewife Brook for baseline (1997), current (2006) and revised recommend plan conditions are shown in the table below.

Cost of the Long-term CSO Control Plan

The cost of the Alewife Brook/Mystic River CSO control plan has grown from $13.8 million when incorporated into Schedule Six to approximately $100 million for the current recommended plan. The seven-fold increase in cost is due to engineering investigation of the Cambridge sewer system revealing the extent of required sewer separation was substantially greater than originally assumed, higher unit costs for installation of new storm drain and other elements of the work, and the need for a new outfall and stormwater detention basin required to manage the increase in separate stormwater volumes that were not included in the original plan. While the revised plan will control a greater quantity of CSO flow than the 1997 plan, no

Table 1: CSO Discharges at Alewife Brook Outfalls in a Typical Year

Outfall	Baseline Condition[1]		Current Conditions[2]		Long-term CSO Control Plan[3]	
	Activations	Volume	Activations	Volume	Activations	Volume
CAM001	1	0.01	1	0.01	5	0.19
CAM002	7	1.57	9	2.39	4	0.69
MWR003	1	0.06	2	0.08	5	0.98
CAM004	63	24.10	10	11.66	Closed	-
CAM400	10	0.80	9	1.22	Closed	-
CAM401A	7	2.74	6	2.21	5	1.61
CAM401B	25	10.50	22	10.85	7	2.15
SOM001A	10	9.89	9	10.00	3	1.67
SOM001	Closed		Closed		Closed	
SOM002A	Closed		Closed		Closed	
SOM003	Closed		Closed		Closed	
SOM004	Closed		Closed		Closed	
Total Alewife	63	49.70	22	38.42	7	7.29
SOM007A/MWR205A	11	6.72	2	0.06	3	3.48
SOM007	2	0.04	Closed		Closed	
Total Upper Mystic	11	6.76	2	0.06	3	3.48

(1) Updated estimates from the April 2001 Notice of Project Change (NPC).

(2) From MWRA modeling of 2006 system conditions.

(3) From model predictions in Final Variance Report (Alewife) and 1997 FEIR (Upper Mystic). Construction of the long-term CSO control plan for Boston Harbor and its tributaries is scheduled to be complete by December 2015, which will be followed by a period of post construction monitoring in accordance with Schedule Seven of the Boston Harbor Case.

increase in water quality benefits compared to the 1997 plan will be realized from this massive increase in cost.

Implementation Schedule

All projects included in the MWRA CSO Control Plan for the Alewife Brook/Upper Mystic watershed have been included in the implementation schedule for the federal court order, known as "Schedule Seven." However, delays associated with wetlands permitting for the Cambridge Park Drive Drainage Project (Contract 12) have ensued which have affected the project schedule.

The Authority currently estimates that the five projects constituting the long-term CSO control plan for Alewife Brook, including CAM004 stormwater outfall and detention basin (Contract 12), CAM400 manhole separation, interceptor connection relief and floatables control at CAM002, CAM401B, SOM01A and CAM001, CAM004 sewer separation, and MWR003 control gate/floatables control and MWRA Rindge Avenue siphon relief have to date experienced delay of at least 15 months beyond the Schedule Seven milestones due to the wetlands permit appeal.

Other Priorities to Ensure Continued Progress

Further water quality improvements in the Alewife Brook/Upper Mystic River watershed will rely largely on municipal efforts to address illegal discharges to storm drains, storm water

Best Management Practices and other storm water impacts as they contribute to wet weather issues affecting these watersheds. DEP recognizes that progress is continuing to be made in these areas.

DEP also acknowledges the importance of proper operation, maintenance, and rehabilitation of both the MWRA and community sewer and storm water systems to assure optimized conditions for conveying wastewater flows through the system for treatment and discharge at Deer Island and improving storm water quality. Sewer system repairs and cleaning have resulted in improved conveyance capacities in a number of locations and have also contributed to mitigating CSO discharges by addressing localized system flow constraints.

III. Proposed Variance Extension and Next Steps

As part of the agreement on the LTCP reached in March 2006 among EPA, DEP, DOJ and MWRA, MWRA requested that the Variance for the Alewife Brook/Upper Mystic River Basin be reissued through 2020 when MWRA must complete the region-wide LTCP and subsequent monitoring to verify that the long-term CSO control goals are achieved. MWRA bases this request on the work completed to date to achieve a high level of CSO control at certain outfalls, the expectation for significant CSO control and water quality improvement with the remaining CSO projects in the Alewife Brook CSO control plan, and the desire to provide a level of financial certainty and stability for its ratepayers.

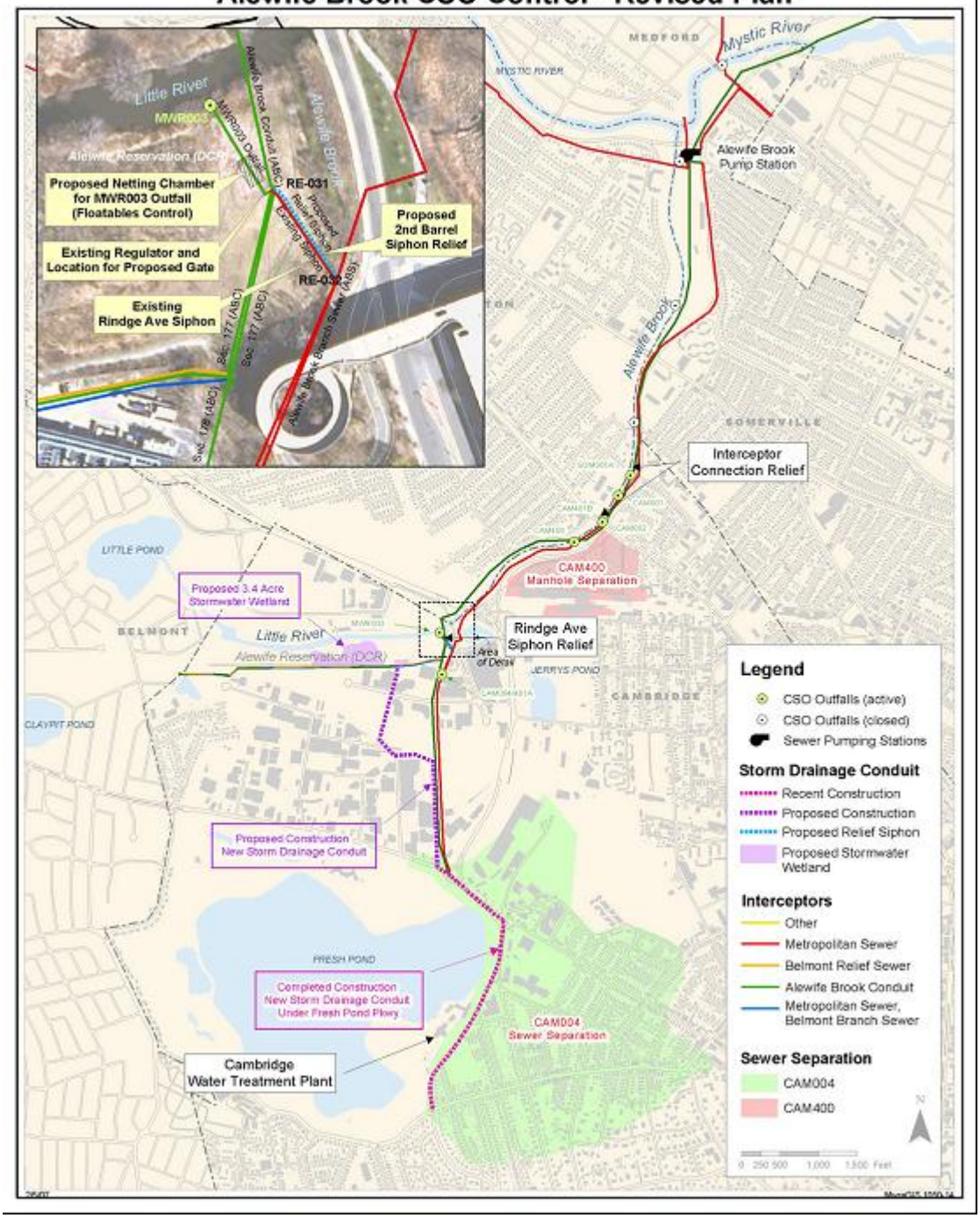
Substantial and Widespread Social and Economic Impact

DEP has emphasized cost-effectiveness for CSO long-term control plans, to ensure that financial resources for pollution abatement actually provide improvements in water quality. The principles of cost-effectiveness and water quality benefits have been a major factor used by MWRA in the development of its present $811 million CSO abatement plan. MWRA will spend more than $400 million on CSO projects over the next eight years (2007-2015), which is 29% of all planned capital spending and 53% of wastewater capital spending in the same period. MWRA sewer rates are among the highest in the nation and are projected to increase significantly over the next eight years.

Implementation of the revised recommended plan will reduce CSO discharges to the Alewife Brook to a level that will allow attainment of Class B water quality standards 98.5% of the time. In accordance with DEP's CSO Guidance, cost-effectiveness, protection of sensitive uses, and the financial capability of CSO permittees are all important factors in making determinations on the appropriate level of CSO control.

MWRA submitted data related to DEP's finding of "substantial and widespread economic and social impact," the basis for its issuance of a Variance in 1997 (See 314 CMR 4.03(4)(f)). DEP documented for the current Variance ending October 1, 2007, its review of a report by Robert N. Stavins, Assessment of the Economic Impact of Additional Combined Sewer Overflow Controls on Households and Communities in the Massachusetts Water Resources Service Area, dated March 17, 2004. DEP also reviewed the Affordability Analysis Worksheets included in Appendix H of the Cottage Farm Report dated January 2004, which are based on EPA's Interim Economic Guidance for Water Quality Standards.

Figure 2
Alewife Brook CSO Control - Revised Plan



DEP's conclusions from its review of the documents submitted by MWRA and determination in support of the Variance Extension request have not changed. DEP, upon issuance of the 2004 Variance Extension, indicated that it would evaluate the information required by the Variance to determine whether there are additional cost-effective CSO controls. DEP has reviewed the new information regarding revisions to the Alewife Brook/Upper Mystic

River CSO plan, as well as other revisions and cost changes in MWRA's LTCP, and has determined that additional controls beyond those recommended in the MWRA CSO Plan would not be cost-effective or affordable.

Based on these important considerations, DEP has determined that proceeding at this time with controls beyond those included in the MWRA Long-Term CSO Control Plan would result in substantial and widespread social and economic impact as specified in 314 CMR 4.03(4), and that an extension to the CSO Variance is appropriate at this time. Issuing of the CSO Variance Extension in the Alewife Brook/Upper Mystic River watershed is consistent with EPA Guidance: *Coordinating CSO Long-Term Planning with Water Quality Standard Reviews (July 31, 2001)*, which asserts that longer term variances and renewal of variances are warranted given the extended duration necessary for implementation of LTCPs.

Determination to Extend Variance

DEP makes the following determinations:

- The MWRA CSO control plan for the Alewife Brook/Upper Mystic River, which includes projects to optimize sewer system performance and remove stormwater inflow through sewer separation, are responsive to the conditions and intent of the Variance and will achieve substantial CSO control benefits.

- MWRA has completed numerous analyses since the late 1980s evaluating alternatives for eliminating CSOs from the collection system tributary to the Deer Island Wastewater Treatment Plant. Among these are the 1997 FEIR, the April 30, 2001 Notice of Project Change, and the July 2003 Final Variance Report. MWRA's revised LTCP incorporates all cost-effective and feasible CSO abatement projects for this watershed. At this point in time, it does not appear technically feasible to eliminate all CSO outfalls to this watershed given the engineering and infrastructure constraints in the MWRA interceptor system, headworks, conveyance tunnels, the Deer Island wastewater treatment plant, and the ocean outfall.

- Proceeding at this time with controls beyond those presently included in the revised LTCP would result in substantial and widespread social and economic impact as specified in 314 CMR 4.03(4). The cost of MWRA's CSO control program is substantial, at present included in MWRA's capital budget at $804 million and estimated by MWRA to ultimately cost $864 million to complete the plan on schedule, including escalation to the mid-point of construction and contingency. MWRA's detailed financial impact assessment considered the effect of expected sewer rate increases, and, appropriately, median household income as adjusted by the relatively high cost of housing in the Boston area. The MWRA adequately demonstrated that proceeding at this time with CSO controls necessary for full attainment of Class B water quality standards in the Alewife Brook/Upper Mystic River watershed would result in substantial and widespread economic and social impact.

DEP concludes that extension to the CSO Variance for the Alewife Brook/Upper Mystic River watershed is appropriate at this time, and extends the CSO Variance for MWRA, and the cities of Cambridge and Somerville to September 1, 2010. A determination on the highest feasible level of CSO control and associated water quality standard is deferred until the LTCP is implemented and the associated benefits are verified in 2020, in compliance with Schedule Seven.

Response to Public Comments

From July 24, 2009 to August 22, 2009, the United States Environmental Protection Agency ("EPA") and the Massachusetts Department of Environmental Protection ("MassDEP") (together, the "Agencies") solicited public comments on a draft NPDES permit developed pursuant to a permit renewal application from the City of Cambridge Department of Public Works ("Permittee") for the reissuance of a National Pollutant Discharge Elimination System ("NPDES") permit to discharge sanitary wastewater and storm water from various outfalls to Alewife Brook and the Charles River in Cambridge, Massachusetts.

After a review of the comments received, EPA and MassDEP have made a final decision to issue this permit authorizing these discharges. The final permit is mostly identical to the draft permit that was available for public comment, with the exception of the following changes which also list the corresponding response where applicable:

1. The date required for submittal of the first annual report in Part I.D.5 was changed from April 15th to April 30th .(Comment A1)

2. The date required for the submittal of the review and update of the Nine Minimum Control (NMC) program in Part I.B was changed from April 15th to April 30th . (Comment A2)

3. Permit Attachment B has been revised to reflect that the combined sewer overflow (CSO) listed as CAM002 has been changed to reflect that there are two CSOs associated with one CSO regulator. These CSOs have been designated CAM002A and CAM002B. (Comment A4)

4. The wording "issued by the MassDEP" has been added to Part I.A.1.d to reiterate that MassDEP issues water quality standards variances. (Comment A5)

5. Part I.C.3 has been revised to correctly refer to the unauthorized discharges section of the permit as Part I.E., not I.F. (Comment A6)

6. Part I.C.7 of the final permit has been revised to remove the word "Cambridge", in order that property owners in Arlington and other surrounding communities subject to flooding also receive press releases regarding CSOs. (Comment E4)

7. The final permit has been revised at Part I.D.5 to require the permittee to assess the potential for river inflow into the Cambridge combined sewer system in the Alewife Brook watershed and if such potential exists, an assessment of the cost, feasibility, and effectiveness of installing inflow controls. (Comment C3)

8. Footnote 1 on permit Attachments A and B have been revised to note that the CSO activation frequency and annual volume limits are based on a typical year as defined in the Facilities Plan. (Comment A9)

9. Attachment E to the final permit which is the "Second Stipulation document" now includes revised Exhibits A and B.. (Comment A10)

Copies of the final permit may be obtained by writing or calling EPA's NPDES Industrial Permits Branch (CIP), Office of Ecosystem Protection, 1 Congress Street, Suite 1100, Boston, MA 02114-2023; Telephone: (617) 918-1579.

Comments submitted by the Cambridge DPW, the permittee:

Comment A1: **Deadline for First Annual Report**
The Draft Permit lists the deadline for the submission for Annual Reports as "**By April 30th of each year**" (§ I.D, emphasis original) but lists the initial annual report as due on April 15, 2010 (§ I.D.5.). As a matter of consistency and for ease of tracking deadlines, the City respectfully requests that all annual reports, including the first annual report, utilize an April 30 submission deadline.

Response to Comment A1: The commenter correctly notes this discrepancy. As intended, the initial annual report due date has been changed to April 30, 2010, to be consistent with the reporting date noted earlier in this section.

Comment A2: **Deadline for Review and Update of Nine Minimum Control Program**

The Draft Permit lists the deadline for the review and update of the nine minimum control program as no later than April 15th of the first year of the permit (§ I.B.). The City requests that the deadline for the review and update of the nine minimum controls be changed to April 30th of the first year of the permit to coincide with the deadline for the annual reports.

Response to Comment A2: In order to be consistent with the date required for the Annual Report submittal, the due date for the NMC program has been changed from April 15th to April 30th .

Comment A3: **Notification and Reporting Requirements**

Certain requirements set forth by the Draft Permit place notification and reporting responsibility largely on the City of Cambridge, whereas the Variances require joint action among Cambridge,

the Massachusetts Water Resource Authority ("MWRA"), the Boston Water and Sewer Commission ("BWSC"), and/or the City of Somerville.

Specifically, Draft Permit section I.C.6 states that "the permittee, with the collaboration of the MWRA and the City of Somerville, shall maintain informational signs at John Wald Park and other public access locations identified by the MassDEP, including the Community Sailing Program and local boathouses…" This requirement places the primary onus on the City of Cambridge to maintain the informational signs. However, the Variance for the Alewife Brook/Upper Mystic River states in section C.ii. that "MWRA and the Cities of Cambridge and Somerville shall maintain informational signs at John Wald Park and other public access locations identified by the Department…"and the Variance for the Lower Charles River/Charles Basin states in section C.ii that "MWRA, the City of Cambridge, and the Boston Water and Sewer Commission shall collaborate to provide informational notices to boathouses in the areas affected by the CSO discharges and the Community Sailing program…" Therefore, Cambridge requests that the language in the Draft Permit more closely track the collaborative process under the Variances by which the parties coordinate to ensure that the applicable requirements are met.

Section I.C.7 should be clarified at the outset that the press release only concerns outfalls located in the Alewife Brook/Upper Mystic River watershed. In addition, Draft Permit section I.C.7 states that "the permittee, with the collaboration of the MWRA and the City of Somerville, shall issue a joint press release by April 15 of each year," which places the burden on the City to issue the joint press release. However, the Variance for the Alewife Brook/Upper Mystic River states that "MWRA and the Cities of Cambridge and Somerville shall issue a joint press release by April 15 of each year," which distributes the responsibility of the press release more equally among the parties. Currently, MWRA takes the lead on such press releases and the City provides any comments on the press releases before they are issued. The City requests that the Draft Permit language be changed to more closely track the collaborative process under the Variance by which the parties coordinate to ensure that the applicable requirements are met.

Response to Comment A3: EPA agrees that the permit language should be consistent with the currently approved water quality standards variances to the extent possible. However, since this permit is only issued to the City of Cambridge, it can only direct the City of Cambridge and not the City of Somerville or the MWRA, to fulfill the permit requirements. In consideration of the variance language, the wording "in collaboration with the City of Somerville and the MWRA" was added for both requirements to reflect the fact that this is required to be a joint effort and that it is understood that the City of Cambridge does not bear the sole responsibility for either requirement. Therefore, the final permit has not been changed in this regard.

Comment A4: **Replace all references to "CAM-002" with "CAM-002A & B."**

Outfall CAM-002, located proximate to the intersection of Alewife Brook Parkway and Massachusetts Avenue, is comprised of two pipes, which are labeled CAM-002A and CAM-002B.[1] The City requests the proposed change to the draft permit language to ensure that

[1] The 1993 Permit lists CAM-002A and CAM-002B as separate outfalls.

reference to CAM-002 contemplates the combined discharge from CAM-002A & B. During the course of floatable control design work and analysis at CAM002 the City proposed a revised design of the CAM002 regulator structure. In consultation with the MWRA, the City intends to implement an improvement to the CSO Control Plan that will slightly reduce the total volume of discharges from Outfall CAM-002 and significantly reduce the associated cost and impact of the construction work at the intersection of Massachusetts Avenue and the Alewife Brook Parkway. Currently, Outfall CAM-002B is blocked; however, to implement this improvement, it is necessary to unblock CAM-002B, thereby allowing use of both CAM-002A & B together to handle the flow from the regulator. The combined discharges from CAM-002A & B will not exceed the effluent limitations referenced for Outfall CAM-002 in Attachment B of the Draft Permit.

Response to Comment A4: To allow outfall CAM002B to be reopened in the future, it has been added to the permit as an authorized discharge. The discharge volume and activation frequency limits that apply to outfall CAM002 will now apply to the combined discharge from CAM002A and CAM002B. As described by the commenter, the addition of outfall CAM002B will not require a change in flow meter location because both outfalls receive flow from a single regulator and the installed flow meter measures the flow from the regulator before it is split between the two outfalls. Therefore, in permit Attachment A, Outfall CAM002 has been changed to CAM002A, and Outfall CAM002B has been added.

Comment A5: Section I.A.1.d of the Draft Permit should be corrected to state that the "permit discharges must meet Federal and State WQS subject to and consistent with any water quality standards variances or variance extensions issued by MassDEP and approved by the EPA." The reasons for this change are that DEP issues the variance in the first instance, and compliance with the WQS is obviously subject to the provisions of the Variance.

Response to Comment A5: EPA has revised the final permit to reflect these language changes. Although it is redundant to add "issued by the MassDEP" regarding variances since only the MassDEP can issue variances in the state, this wording has been added for clarification.

Comment A6: Section I.C.3 of the Draft Permit, incorrectly refers to "Part 1.F. Unauthorized Discharges." This reference should be edited to "Part 1.E. Unauthorized Discharges."

Response to Comment A6: This discrepancy is acknowledged and the correction has been made to the final permit.

Comment A7: Attachment A to the Draft Permit that was mailed to the City of Cambridge is different than the Attachment A to the Draft Permit that is available online at EPA's website. The Attachment A that was mailed to Cambridge is the correct version. The version that is posted on the website states in footnote # 3 that CAM-011 is scheduled to be closed, which is incorrect. Therefore, footnote # 3 should be removed. That same version also incorrectly

indicates in the chart that footnote # 2 refers to CAM-007 and CAM-009. It should tag CAM-009 and CAM-011 instead.

Response to Comment A7: EPA acknowledges that an incorrect version of Attachment A was originally posted on EPA's website at the start of the public comment period. Upon receiving this comment, the correct version of this permit Attachment was posted on EPA's website, replacing the incorrect version.

The following comments were submitted by the permittee on September 18, 2009, after the close of the comment period. EPA has determined that these issues should be addressed and has responded to them as follows:

Comment A8: In Part I.C. 4 of the permit, the City requests removing the bullet point requiring "a description of whether the discharge activation and volume for each CSO are in accordance with the MWRA Final CSO Facilities Plan or the "Notice of Project Change" document or updates to these documents. This section contains some ambiguity and may be interpreted to require the City to record the requested description for each discharge, as opposed to recording such information on an annual basis. From a technical standpoint, this requirement is more appropriately placed in the Annual Report section because requiring the requested description after each storm event is contrary to the regulatory basis for the numerical discharge limits in the permit and because the levels of control in MWRA's Final CSO Facilities plan are based on annual performance in a typical rainfall year. In addition, in practice, the MWRA and CSO communities have only been recording the requested information on an annual basis. Therefore, the requirement should remain in the Annual Report section of the permit, but should be removed from Part I.C.4.

Response to Comment A8: The intent of the requirements in Part I.C.4 is to have the City closely track the ongoing response of CSOs to storm events, both for the identification of any immediate operation and maintenance problems and to provide information for the annual report. The Agencies agree that the cited bullet point is ambiguous and replicates requirements for the annual report. Accordingly, we have removed the bullet point. We do encourage the City to closely review all ongoing CSO flow measurements to ensure that any increases in discharge activation frequency or volume due to operation and maintenance problems are quickly detected and corrected.

Comment A9: The City requests that a footnote be added to Attachments A and B to the column heading of "Efflunent Limitations" stating that they are "Based on a Typical Year". Actual annual discharges from permitted CSO outfalls can vary from the Typical Year performance measures depending on the characteristics of storms in the Typical Year. Therefore, the proposed footnote would clarify the rainfall distribution used for the calculation of Effluent Limitations.

Response to Comment A9: Although Page 2 of the draft permit noted that the limits in permit Attachments A and B were based on the "typical year", this has also been noted in footnote 1 to both of these attachments in the final permit.

Comment A10: Exhibits A and B to the March 15, 2006 Second Stipulation document (Attachment E in the draft permit) were amended on May 7, 2008. The amended versions of these Exhibits should be attached to the Stipulation and the Permit.

Response to Comment A10: Since the Second Stipulation document is a part of this permit on which some permit conditions are based, the Agencies have included the Stipulation with the revised versions of these exhibits in the final permit.

Comment A11: With respect to Part I.C.5, it is sufficient to solely list the City of Cambridge on the signs because adding the Department of Public Works (DPW) to the sign would make the text smaller and would not add any additional value to the sign. The existing warning signs posted by the City list the City's name, but do not list the "DPW". Therefore, the City should not be required to create new signs that include the "DPW".

Response to Comment A11: The Agencies would accept signs that used the abbreviation DPW provided all other signage requirements were met.

Comments submitted by Michael A. Fager, on behalf of the Mystic River Watershed Association:

Comment B1: The permit acknowledges EPA's statutory role in the review and approval of water quality standards variances. Part 1, A (1)(d). This is a change from the previous draft permit and the procedure adopted in 2006 in which EPA shifted review and approval functions to DEP for fifteen (15) years. MyRWA believes that federal review of state water quality variances is an important practical and legal element in achieving water quality gain in Alewife Brook. We assume this is EPA's acknowledgement that the agency will review the DEP variances on a three year cycle.

Response to Comment B1: Although the previous draft permit may not have stated this, the EPA is obligated to and has routinely reviewed and approved MassDEP water quality variances, including the ones for the lower Charles River and Alewife Brook. As noted on page 10 of the fact sheet, EPA approved both of these variance extensions on July 29, 2008, as well as all prior variances for these waterbodies.

Comment B2: Information concerning physical conditions in the sewer system and water quality data about existing conditions and the impacts of CSO discharges into Alewife Brook is relevant to determining the appropriate level of CSO control. Cambridge is now responsible for

any additional CSO controls (see "Second Stipulation" document, 2006) should the water quality data support their implementation.

The Mystic River Watershed Association believes that Low Impact Development (LID) techniques and "green infrastructure" elements are practical alternatives for additional CSO control in the CAM 401B catchment area. Cambridge has already identified feasible LID techniques for the Alewife basin (see Proposed Concord Alewife Stormwater Guidelines, June 2006). Moreover, both §303 of the Clean Water Act and 40 CFR 131.11(d) (sic) require implementation of cost effective non-point source controls prior to the removal of a designated use.

Response to Comment B2: As noted in Part I.D.3 of the draft permit, the permittee is subject to the conditions of the 1997 Facilities Plan as well as the Second Stipulation, which updated the original court order regarding CSO discharge frequency and volume estimates among other items. The Second Stipulation requires that the MWRA must ensure that the abatement work is consistent with the "Facilities Plan", but any future abatement will be the responsibility of the member communities.

Forty C.F.R. §131.10(d) provides that "{a}t as minimum, uses are deemed attainable if they can be achieved by the imposition of effluent limits required under sections 301(b) and 306 of the Act and cost-effective and reasonable best management practices for nonpoint source control." This regulation does not require implementation of cost effective nonpoint controls before uses are removed, but rather precludes use removal if designated uses can be attained by achieving applicable technological limits and cost-effective and reasonable nonpoint source controls.

The MWRA has explored a number of alternatives and estimated that elimination of overflows would cost more than $10 billion. The Commonwealth and EPA have concluded that an expenditure of this amount, and therefore elimination of overflows, is not feasible at this time. Thus full attainment of Class B uses is not currently achievable and the water quality standards have been adjusted temporarily via variances.

In any event, we would expect and encourage the City to consider LID and other techniques to the extent they could benefit the City, State, and the ratepayers by meeting the goals of CSO abatement work at lower cost, particularly if higher levels of CSO control are required in the future.

We also note that the City of Cambridge is authorized to discharge stormwater pursuant to EPA's municipal separate storm sewer (MS4) general permit This permit includes best management practices (BMPs) which the City must implement to control stormwater discharges to waters of the State. EPA is currently developing a draft renewal of the MS4 permit, and it will likely result in communities increasing their use of LID techniques.

Comment B3: Part 1, C (6) states in pertinent part "The permittee, . . . shall maintain informational signs at John Wald Park and other public access locations . . . to advise the public of CSO discharges and potential public health impacts and provide contact information and website links." The Department of Conservation and Recreation (DCR) is developing a new bike/pedestrian path along the Alewife Brook from the Minute Man Bike Path to the Mystic Valley Parkway. This path, for all areas relevant to this permit, will be in the town of Arlington, just across the brook from the CSOs. The permittee should be required to work with Arlington to install and maintain informational signs at appropriate locations along this path, at sites that should be stipulated in the permit.

Response to Comment B3: Regarding the placement of informational signs related to CSO discharges, Part I.C.6 of the permit reads "and other public access locations identified by the MassDEP." Since the proposed bike path was not considered in the 2007 variance extension, it was not included as a specific area requiring CSO signage. MassDEP is committed to ensuring that signs are located at appropriate locations. The intention is to ensure that information is provided where the public has reasonable and legal access to areas potentially affected by CSO discharges. As submitted, however, the comment does not include sufficient detail with regard to the location where the commenter wishes to locate additional signs. MassDEP encourages the commenter to submit a detailed request with documentation to ensure that the MassDEP can identify the locations where commenter wishes to see signs located.

Comments submitted by Stephen Kaiser, Ph.D.:

Background to comments: Cambridge has complicated the sewer separation problem by its introduction of drainage improvements as a designed-in element of the total CSO program. Moreover, complete CSO separation along Alewife Brook has been dropped as an ultimate objective. Attachment B for the draft permit lists six existing CSO pipes under the jurisdiction of the City of Cambridge, and only two of these are proposed for closure as part of any near or long-term plan. It is fair to say that separation of additional Cambridge CSOs has been precluded for budgetary reasons, because of the considerable expense involved in the drainage program advocated by the City of Cambridge, called Contract 12.

One result of Contract 12 is to increase flooding in Alewife Brook, and with the increased flooding comes greater amounts of inflow into the local and MWRA sewer systems during high water conditions. In effect, there is reverse flow from the brook into the CSO chambers and thence into the MWRA interceptors. The CSO problem at Alewife is two-way. First there are the flows of combined sewage from the Cambridge system discharged into Alewife Brook. Second, there is the reverse flow or inflow of floodwaters from the brook passing into the Alewife interceptors and overloading the MWRA system downstream, causing the sanitary sewer overflow (SSO) near Dilboy Field. During both the October 2005 and March 2006 floods (ten year events) I observed overland SSO flows coming from the rear of the MWRA Alewife Brook Pump Station near Dilboy Field. I saw significant deposition of solid fecal matter on the ground. My measurements of Alewife Brook flood elevations during those storms showed that

flood crests were well above the weir elevations within Cambridge's CSO structures. I concluded that brook inflow into those CSO facilities was a significant contributing factor to the SSO overflows experiences at MWRA near Dilboy Field.

One consequence of Cambridge's Contract 12 drainage work is heightened flood elevations in Alewife Brook. The City's own flood studies for the 2001 NPC and 2003 Variance Request show identical analyzes of increased flood elevations along Alewife Brook, with elevations in a 10-year storm being 1.5 inches higher near the MWR003 outfall on Little River (Table ES-4 on page ES-12). No 100-year flood impact was calculated by Cambridge or MWRA.

This increased flooding along Alewife Brook caused by Cambridge's drainage project will increase the physical extent of the flooding as well as the water depth for those properties within the flood plain. More importantly for water quality, it allows even more inflow of brook water through the CSO system and into the MWRA interceptors, triggering even larger SSO discharges near Dilboy Field. MWRA has proposed and supported the concept of installing flap gates on all remaining CSO pipes from Cambridge. Cambridge has indicated its preference for funding the drainage project rather than inflow controls.

Other elements of the CSO separation in Cambridge work both ways as well. The plans shown in the NPC indicate larger connection pipes between Cambridge's CSO system and the MWRA interceptor. This provision allows for less CSO overflow during shorter, more intense flows, but also produces larger volumes of inflow from the brook into the MWRA system. Again, flap gates would reduce this problem, but they are not an approved element in the current CSO plan.

Finally, there is a scarcity of quality measurements of flood elevations along Alewife Brook. No government entity has reported any flood data since 1996. Water quality sampling and modeling have also been deficient in either frequency or accuracy or both.

From the problem assessment above for Alewife Brook, there are four basic elements in the current plan that need to be addressed by planners, engineering designers and permitting agencies:

Comment C1: There is no plan at any time in the future for the full separation of combined sewers in Cambridge.

Response to Comment C1: As part of the ongoing enforcement action to restore Boston Harbor, the MWRA has been required to implement a CSO mitigation plan that weighed numerous alternatives. For various reasons, including concerns about flooding and cost, the alternative selected for Alewife Brook does not require full sewer separation. This permit requires the continued implementation of the NMCs and the conditions also reflect the ongoing separation and abatement work as required by the Court Order and the variance.

Affordability has been an important consideration in evaluation of CSO control alternatives, as is the cost-effectiveness of any control plan. However, as documented in past Assessment Reports,

elimination of all CSO discharges through sewer separation has serious technical feasibility challenges in addition to affordability concerns. Although full separation is not a current requirement, the frequency and volume of CSO discharges to Alewife Brook are expected to decrease significantly upon completion of CSO abatement and related work. Also see the response to Comment B2.

Comment C2: The drainage plan proposed by Cambridge will worsen flooding conditions generally in Alewife Brook, and will increase brook inflow into MWRA interceptor sewers during major storms, with SSO problems worsened downstream. Cambridge has adopted no mitigation plan.

Response to Comment C2: The selected alternative for CSO control attempted to strike a cost-effective balance between increased flooding and additional separation. As noted in the permit, SSOs are prohibited. Any discharge of SSOs shall be reported as required in Part I.E of the permit.

The Cambridge CSO permit does not address flood management issues in the watershed. It limits and establishes conditions for allowable CSOs. Commenters concerned about flooding should refer inquiries to the Federal Emergency Management Agency (FEMA) and the DCR Flood Hazard Mitigation Program.

FEMA has recently evaluated the flood plain mapping in the area and determined that flood plain elevation should be reduced from 8.2 feet to 7.6 feet based on data showing that the extent of flooding is greater than previously thought. The new study modeled the Alewife Brook as part of the larger Mystic River system and used an unsteady flow analysis, taking into account the timing of when the various tributaries discharge to the Mystic, which captured backwater flooding on the tributaries to a greater degree than an older study conducted in 1982. There are plans to adopt these revised flood maps in June 2010.

As to flood impacts, the City has indicated in its planning document that the drainage project will not result in any increase in flooding in the watershed, and that peak pre- and post- construction runoff rates will be the same. The project has been duly permitted by MassDEP under the Wetlands Protection Act.

Comment C3: The failure to install flap gates on all remaining CSO pipes in Cambridge will result in no reduction in the brook flood inflow through CSO structures into MWRA interceptor sewers. Such flap gates are needed.

Response to Comment C3: The permit requires the City to annually report on measures that it is taking to comply with the continued implementation of the NMCs, which are subject to approval by MassDEP and EPA. In response to this comment, and following review of the MWRA CSO planning documents supporting the recommended plan, Part I.D.5 of the final

permit has been modified to incorporate a requirement to assess the potential for river inflow into the Cambridge combined sewer system in the Alewife Brook watershed and to assess the cost, feasibility, and effectiveness of installing inflow controls on the remaining CSO facilities. This information will be required in the second annual NMC report and could establish a solid basis for requiring inflow controls in the future.

Comment C4: There is inadequate data and circulated information on the interaction between flooding and sewer overflows (both CSO and SSO). More measurements with greater accuracy need to be made.

Response to Comment C4: As discussed above, the permit has been amended to require the City of Cambridge to assess the cost, feasibility, and effectiveness of installing inflow controls on the remaining CSO facilities. This analysis will require additional monitoring to evaluate the relationship between flooding and downstream overflows.

Comment C5: The proposed permit provides a sound structure for which to build an effective permit. Among the nine Minimum controls, the permit emphasizes five : #1,5, 6, 8, and 9. I would urge that EPA add #2 and #4 :

"(2) Maximum use of the collection system for storage. ....
(4) Maximization of flow to the POTW for treatment."

Both of these are related to the use of flap gates on all remaining CSOs to reduce the amount of brook inflow into the MWRA system. The goal would be to maximize both the storage of existing system as well as maximizing the available capacity in the MWRA system to allow for sewage flow to the Deer Island treatment plant.

Response to Comment 5: See response to Comment C3.

Comment C6: "(9) Monitoring to effectively characterize CSO and the efficacy of CSO controls." Proper monitoring should include information both on flooding/rainfall and CSO activity (both discharge and inflow). Cambridge must calibrate and report regularly on data from their two existing stream monitors. The USGS at Broadway gage has been down for over two years, with no data on stream elevation. Cambridge has simply not been reporting their flood data publicly.

Response to Comment C6: The reporting requirements contained in the draft permit contain sufficient detail to determine compliance with the permit and progress on implementing CSO controls. Additional monitoring can be required through future mechanisms if additional data is needed for future decisions.

The permit requires Cambridge to quantify the frequency and volume of all CSO events, as well as to provide information on precipitation. The Agencies are not aware that Cambridge operates and maintains any "stream monitors." USGS continues to operate and maintain a stream gauge

on Alewife Brook near Arlington, data from which is available in real-time on line. The Mystic River Watershed Association appears to operate a seasonal instream monitor on Alewife Brook.

Comment C7: Other problems arise from the peculiar nature of the permit, which establishes limits on the amount of storm discharge, but has no penalty structure and no method of enforcement. There does not appear to be any opportunity for peer review of any measurements, modeling or calculations to be performed by the City of Cambridge. My concerns about this element of the permit are probably not peculiar to this permit, but are related to all NPDES permits. However, I would be most interested in seeing how Cambridge measures and evaluates flood events.

Response to Comment C7 All of the permit requirements are fully enforceable elements of this permit. If EPA and/or MassDEP determine that the City is not meeting any of these permit requirements, a variety of enforcement actions, including monetary penalties, may be commenced. The permit's terms and conditions are also enforceable by citizens pursuant to the Clean Water Act's citizen suit provision at § 505, 33 U.S.C. § 1365. All information relative to CSO volume and activation frequency as well as CSO inspection reports are public records and available for viewing at any time during normal business hours. . Full public review of the MWRA CSO control plan, including data developed during modeling of alternatives, was conducted as an element of the MEPA process.

Comment C8: With respect to "effluent limitations and requirements," there should be greater clarity as to how the limitations affect actual water quality. The lack of opportunity for enforcement action needs to be explained.

Response to Comment C8: This section of the permit outlines the NMCs and references the documents which set limits for CSO activation frequency and volume for all remaining CSO discharges. Non-compliance with any of these conditions or limitations could be subject to enforcement. The permit's effluent limitations are consistent with the variance, which requires reductions in CSO volumes discharged which will lead to improved water quality.

There is a great deal of variability in storm events and their impacts on water quality. Clearly overflows degrade water quality, and larger volumes tend to have a greater impact. The permit's effluent limitations protect water quality by limiting the volume and frequency of overflows.

Comment C9: The interactions between rainfall, stormwater, flooding and sewage overflows can be quite complicated. Unfortunately, those who deal with flooding (FEMA) are separate agencies from those that deal with water quality (EPA). Closer coordination is needed. For example, a storm should be evaluated for some reasonable period after the end of rainfall, at least as long as inflow through CSOs remains a problem. During the March 21 to April 2, 2004 flood (a ten-year event), Alewife Brook crested at elevation 5.6 NGVD -- two feet higher then the lowest CSO invert. The brook level did not drop below the CSO invert level for 36 hours. Thus the definition of wet weather as contained in the permit :

"1. During wet weather, the permittee is authorized to discharge combined storm water and sanitary wastewater from combined sewer outfalls"

should be modified to cover this additional inflow period.

Response to Comment C9: Section 402(q) of the Clean Water Act, 33 U.S.C. § 1342(q), requires permits to conform to the CSO policy. The Region interprets the CSO policy as allowing CSO discharges that result from stormwater inflow that combined collection systems are designed to receive. CSO discharges that result from excessive infiltration or inflow from ground water or surface waters are not authorized by the permit and it would be inconsistent with the CSO policy to authorize such overflows.

The "invert" of the CSO outfall will not dictate whether an inflow from the Brook occurs; rather it is the height of the upstream CSO weir or regulator, which is always significantly higher than the invert. Flap gates may be warranted if Brook elevations become higher than the weir elevation. Even under this condition, however, whether inflow occurs will depend on the hydraulic grade line in the sewer versus the river elevation.

Comment C10: In terms of submitting valid data, the following is acceptable:

" 4. .... When estimating, the permittee shall make reasonable efforts (i.e. gaging, measurements) to verify the validity of the estimation technique. " ..... except that the term "calibration" should be used to validate any measurements or estimation methods. In terms of actual measurements for flood elevation, it is my understanding that Cambridge maintains two in-stream meters from which elevation data can be utilized. Calibration of the base or reference elevation of the gage should be included in any report to EPA.

Response to Comment C10: EPA agrees that acceptable calibration measures should be taken regarding the measurement of flow and this wording has been added to the final permit.

Comment C11: Reports on precipitation should include peak hourly precipitation as well as total storm precipitation (with times for storm beginning and end). Notation should be made of recent rains in the week prior to the flood crest and the presence of surface snow or ice. Such conditions represent the classic winter freshet situation of rains striking melting snow or frozen ground conditions. Historically, Boston's worst winter freshet occurred in 1886 Stony Brook Flood, while a significant 25-year flood in March 2001 was created by a one-year rainfall striking snow and frozen ground.

Response to Comment C11: The Agencies believe the permit language is satisfactory in that it requires cumulative data for each day, and hourly data (presumably peak hour intensity) where such information is available from the national weather service. In addition, annual reporting for

years 3 and 5 on system performance must describe any features of discrete storm events which caused atypical CSO discharges. Also see Response to Comment C6.

Comment C12: The draft permit stipulates that if CSO discharges are significantly higher than expected, Cambridge shall include a discussion of possible abatement activities and their possible impact:

"Where CSO discharges are determined to be greater than the activation frequency or volume in either document above, the permittee shall include their assessment of such result, a discussion of remaining CSO abatement activities and an assessment of the impact of those projects on attaining the level of CSO control identified ....."

One key mitigation element which should be considered is the dredging of Alewife Brook. Existing sediments are about four feet deep, with 18 inches of water depth in the brook itself. Removal of these sediments would result in better stream flow and hence a flooding benefit, while also removing pollutant-laden materials within the brook. The flooding benefit can be utilized as mitigation for the worsened flooding attributed to Contract 12, as well as any needed flooding mitigation due to flap gates. The flap gates would have the effect of reducing flood water in the MWRA interceptors, but with an increment of increased flooding in the brook itself. In this scenario, flap gates can be used to reduce inflow, and full flood mitigation is provided by the dredging. I have made this proposal and submitted it twice to MWRA.

Response to Comment C12: The Region agrees that if further mitigation efforts are required, it would make sense to consider all reasonable alternatives. There is no reason that dredging should not be among alternatives considered. Also, See Response to Comment C3.

Comment C13: I believe that it should be possible to utilize the NPDES permit to encourage the various parties concerned with water quality and flooding issues along Alewife Brook to reach a reasonable resolution with mitigation. I welcome any effort that EPA can give to this effort.

Response to Comment C13: The Permit itself is not a vehicle to address flooding mitigation. Our regulatory authority for this permit is limited to the impact that flooding has on the discharge of pollutants or to the inflow of flood waters into the sewer system. However, the Agencies would be willing to participate in a discussion regarding all aspects of flooding.

Comment C14: While I did request the opportunity for a public hearing and extension of the comment period, I believe that with the upcoming NPDES review of MWRA permits in the Alewife Brook/Mystic River area will include a public hearing. By completing these comments, I have no further need for time to respond to the draft permit for Cambridge. Therefore, I withdraw my request for a hearing and extended public comment period for Cambridge permit MA0101074.

Response to Comment C14: EPA acknowledges the withdrawal of your hearing request and no hearing regarding this draft permit will be conducted.

Comments submitted by Roger Frymire:

Comment D1: **Part I. A. 9**
CSO monitoring guidelines call for characterization as well as flow monitoring. MWRA issued the 1993 Interim CSO Report for the CSO plan FEIR. This characterized only 10 CSOs in the entire MWRA area from 4 samples at each CSO in two rain events. I believe none of those characterized were in Cambridge. Half the CSOs were quite dirty with Fecal Coliform concentrations well over 500,000 CFU/100ml. But half the CSOs were unexpectedly clean - for example SOM003 had only one sample from each storm over 10,000 CFU/100ml, with medians of 4,500 and 8,000 for the two storms (means were 37,000 and 22,000). Once the LTCP is completed in Cambridge, good data from the remaining CSOs will be needed to decide if and where any further CSO separation will be required in Cambridge.

I request that in Year one of this permit Cambridge be required to develop a sampling plan to characterize flows for E. coli and phosphorous from each CSO listed in Attachments A and B as having over 400,000 gallons/year typical flow or more than two activations expected in a typical year. These would be CSOs numbered 001, 002, 005, 017, 401A, and 401B. I don't expect all outfalls to be characterized each year, and a pace of one outfall well-characterized each year would soon generate meaningful data.

I stress that I do not expect a plan involving construction of specialized chambers near each overflow and installation of complex automated sampling gear at great cost. Rather a minimal plan for grabbing an occasional sample by pole either at the overflow weir, CSO outfall, or even a manhole slightly upstream of a weir at a point in a storm where modeling and experience has shown CSO activations to be likely. The MWRA Report actually failed to collect a large number of its samples when the CSO was actually activated, and relied on many samples taken from the upstream side of a CSO weir when it wasn't even overflowing! I'm sure Cambridge can do better than that! I also accept that there may be one or two CSOs which for various reasons cannot be feasibly characterized at a reasonable level of expenditure.

Response to Comment D1: The Agencies have found that CSO quality has varied dramatically in sampling programs (even multiple samples at the same CSO), and the litany of factors affecting CSO quality makes it difficult to draw conclusions on which factors bear more impact. Therefore, most of our CSO decisions have been based on quantity/frequency and receiving water uses, which we believe are better criteria. The Agencies are not opposed to requiring more characterization sampling in the Upper Mystic/Alewife basin, but feel it should be done in successive issuances of the Variance once the recommended plan is in place. It will be challenging to determine how the sampling data will and should influence decisions to move forward with further separation work.

Comment D2: **Part I. C. 5**
Though black on white instead of white on green, current CSO signage installed under the Variance requirements should be acceptable until they wear out.

Response to Comment D2: The Agencies agree that current signage that otherwise meets the signage requirements is acceptable and would expect that signs with the required green and white color scheme would be installed when the current signs need to be replaced.

Comment D3: **Part I. C. 6**
With a new pedestrian path and Bikeway connector between the Minuteman and Mystic River paths being installed alongside Alewife Brook, there is need for additional informational signpoints to inform the increased public being brought into close proximity to the Brook. The Mouth of the Brook near each end of the Mystic Valley Parkway bridge is one good site. The other good site is near the Mass Ave Bridge over Alewife Brook. Both these are major pedestrian and bicycle connections to the new public pathways. Of course, DCR approval as property owner for siting such signage would be needed.

Response to Comment D3: See response to Comment B3.

Comment D4: **Part I. C. 8**
In the Alewife area, public notification of CSO events via e-mail is working well and is much appreciated. A similar notification seems appropriate for the Charles even if also triggered by the CAM401B activations on Alewife. CAM005 is permitted to activate three times annually, but the Cottage Farm facility is only supposed to activate twice a year so the notifications based there will miss a third of all untreated CSO activations. It may be that a BWSC Charles River CSO activates more frequently and would be an even more appropriate notification trigger, but that is not covered under this permit.

Response to Comment D4: MWRA is required to provide such notice upon activation of Cottage Farm. Once the MWRA Charles River CSO plan is implemented (in July 2013), CAM 005 will be the most active overflow predicted, but until then, Cottage Farm will remain the most active overflow point, and suitable for the real-time notice. For the next permit issuance, EPA and MassDEP may require that Cambridge report activations for Outfall CAM 005.

Comment D5: **Part I. C. 9**
Cambridge DPW website updates of CSO activation information were neglected for the last 5 years. Though webpage updates should not be expected instantaneously, I would like to see a 45-day deadline after each CSO event for updates to become publicly available via web.

Response to Comment D5: The Region agrees that regular website postings of CSO activations would be valuable and encourages the City to provide up-to-date information on its web-site as soon as it is practicable to do so.

Comment D6: **Part I. D. 4**
This report should be required in year three and EVERY 2 years thereafter, with no lapse if permit renewal goes beyond 5 years. I especially like the 'recurrence interval' reporting for each storm with an activation. This will lead to a much greater understanding of the CSO dynamics with varying storm size.

Response to Comment D6: EPA agrees with the comment and has changed the permit accordingly.

Comment D7: **Attachment A**
CAM011 needs footnote 2 added to annual activation frequency.
CAM007 does NOT need footnote 2.

Response to Comment D7: See response to Comment A7.

Comment D8: **Attachment B**
CAM002 has a second outlet point currently bricked closed (CAM002B). Cambridge may request to re-open this outlet as their modeling shows this would result in LESS effluent in a typical year as well as providing hydraulic relief from basement and street backups to residential neighborhoods in extreme (>1yr) storms. This likelihood should be noted for the final permit, and I fully support it.

Response to Comment D8: See response to Comment A4.

Comment D9: CAM401A has an innovative rotating brush/weir for floatables control which makes metering flows here exceptionally tricky. Cambridge should be allowed to use innovative substitutes for direct metering including detailed modeling linked to a local rain gauge and well-calibrated to available metering data.

Response to Comment D9: To the extent that the City can show that innovative metering techniques are adequate alternatives that meet the permit requirement, they can certainly do so. In Part I.C.4 of the permit, the permittee is allowed to use estimation as a method of CSO discharge volume quantification and is required to "make all reasonable efforts to verify the validity of the estimation technique".

Comment D10: **Reporting**
Wherever possible I would like to relieve the city of multiple reporting requirements by fully integrating report schedules required by this permit, two Variances, and DEPs ACOP and NON requirements. Integration of reporting also assists in understanding the interplay between scheduling these multiple complex projects.

Response to Comment D10: To the extent that any of EPA or MassDEP's reporting requirements are duplicative, we would encourage the City to request that the submittal of reports or monitoring data or their incorporation by reference from other programs or requirements be used in satisfying the conditions of this permit.

Comment D11: **Low Impact Development, Green Roofs**
Cambridge has made a good start by writing LID into zoning for one part of the city. I would like to see LID and green roofs required or at least encouraged citywide. In combined sewer areas, this could help reduce flows and eventually allow closure of more CSOs. In separated areas, this will help meet phosphorous TMDL stormwater regulations.

Response to Comment D11: See response to Comment B2.

Comments submitted by David Stoff:

Comment E1: I am pleased to see that the permit acknowledges EPA's statutory role in the review and approval of water quality standards variances (Part I (A)(d)). In a permit where the effluent limitation is effectively determined by the water quality standard, more-not less-scrutiny of state water quality standards is warranted. Hopefully, the new permit is a change from the draft permit issued in 2005, and from EPA's approval of a multi-year water quality variance in 2006, which purported to shift regulatory responsibility to MassDEP for 15 years.

Response to Comment E1: See response to Comment B1.

Comment E2: Low Impact Development techniques and "green infrastructure" elements are practical alternatives for additional CSO control, particularly in the CAM 401B catchment area. Cambridge has already identified feasible LID techniques for the Alewife basin (See, *Proposed Concord Alewife Stormwater Guidelines*, June 2006); moreover both CWA sec. 303 and 40CFR 131.11(d) require implementation of cost effective non-point source controls prior to the removal of a designated use. I see no reason why the Annual Report, Part I (D)(4)(c), should not include a requirement for an analysis of LID techniques in addition to designs identified in the NPC, where "… CSO discharges are determined to be greater than the activation frequency [in the NPC]" and the permittee is required to make "an assessment of the impact of those projects on attaining the level of CSO control."

Response to Comment E2: See response to Comment B2.

Comment E3: Part I(C)(6) of the permit states that the permittee shall "maintain informational signs at John Wald Park and other public access locations." Since the Massachusetts Department of Conservation and Recreation ("DCR") Alewife-Mystic Bicycle path will provide additional

public access points along the Alewife Brook during the term of the permit the signage requirement should be altered accordingly. Language such as "…John Wald Park and DCR access points" should be adopted to offer meaningful notification to the public as required by NMC8.

Response to Comment E3: See response to Comment B3.

Comment E4: Part I(C)(6) of the permit states a press release shall be provided to " … property owners in Cambridge subject to flooding in the Alewife Brook watershed." Attachment D, Part C, iii [the MADEP Variance] states that the press release shall be provided to "property owners subject to flooding in the Alewife Brook watershed"(emphasis added). Effective public notice of CSO impacts and locations must be provided to ALL persons in the Alewife sub-watershed regardless of what community they reside in. The permit should adopt the MADEP condition, which is legally enforceable according to the permit, and drop the word "Cambridge."

Response to Comment E4: EPA agrees that this permit should be consistent with the current variance in this regard. Therefore, Part I.C.7 (not I.C.6) of the final permit has been revised to remove the word Cambridge, which would require the distribution of such press release to all property owners that are subject to flooding, including those in Arlington and other communities.

Comment E5: DCR has completed a comprehensive clean-up of the Alewife Brook channel. This has resulted in the elimination of the debris which formerly trapped sewage related floatables. Part I(C)(1)[routine maintenance and inspection] should include language such as "where an outfall is blocked by debris the permittee shall report the location and extent of the blockage to the Department of Conservation and Recreation' to avoid a re-occurrence of the unsanitary conditions that formerly existed in the Alewife Brook channel.

Response to Comment E5: EPA agrees that debris in and around a CSO outfall structure could affect its operation and we are pleased to see that DCR has cleaned up such debris. It is not burdensome for the City to forward to DCR any report that identifies conditions within the control of DCR that could affect its operation. Therefore, the permit has been changed accordingly.

Comment E6: The following comment incorporates by reference arguments presented by the commenter to EPA in the May 15, 2008, *Notice of Intent to Sue*, on file.

Section 402(q) of the Clean Water Act requires that "each permit, order, or decree" for CSO discharges "shall conform" to the *Combined Sewer Overflow Control Policy* ("*CSO Policy*") signed by the Administrator [of EPA] on April 11, 1994. The Draft Permit is a "permit" as that term is used in CWA sec. 402(q).

The *CSO Policy* contains duties that are enforceable pursuant to CWA sec. 402(q). For example the requirement for a long-term control plan. (See, *CSO Policy*, Part II(C). The *CSO Policy*

stipulates that where the CSO discharges remaining after the implementation of the long-term control plan cannot meet water quality standards due to non-CSO pollution sources [the situation detailed in the Notice of Project Change for the Alewife Brook] a "total maximum daily load" should be used to "apportion" pollutant loads. (See, *CSO Policy*, Part II(C)(4)(b)(ii)).

Because a long-term CSO control plan is a non-discretionary requirement of the *CSO Policy* and the LTCP "must comply with sections 301(b)(1)(c) and 402(a) of the CWA," in a situation where the LTCP relies on a modification of a state water quality standard, the establishment of a TMDL must coincide with the implementation of the LTCP. Were it otherwise, the NPDES permit to violate CWA sec. 402(a)(1) which conditions authorization of the permit on compliance with CWA sec. 301.[2] Since Massachusetts has failed to implement a TMDL for pollutants identified the LTCP and subsequent documents, EPA has a duty to act to establish daily loads pursuant to CWA 303(c).

Response to Comment E6: Part II(C)(4)(b)(ii) of EPA's April 19, 1994 *Combined Sewer Overflow Control Policy* ("*CSO Policy*") includes a statement that refers to the development of total maximum daily loads ("TMDL") where water quality standards and uses are not met due in part to natural conditions or sources other than CSOs. In such a circumstance, "a total maximum daily load, including a wasteload allocation and a load allocation, or other means should be used to apportion pollutant loads." 59 Fed. Reg. 18688, 18693 (April 19, 1994). It is unambiguously clear from reading the entire CSO policy, as well as several EPA CSO guidance documents, that this language merely encourages, but does not require, the development of a TMDL where it appears that WQS will not be attained once the LTCP is implemented due in part to other sources. See, e.g., *Combined Sewer Overflows Guidance For Permit Writers* **(**EPA 832-B-95-008) (August 1995), at pp. 3-24, 3-26, 5-3, 5-4; *Combined Sewer Overflows: Guidance for Long Term Control Plans* (EPA 83-B-95-002) (September 1995) at 1-15, 1-17, 1-19, 3-6; *Guidance: Coordinating Combined Sewer Overflow (CSO) Long-Term Planning with Water Quality Standards Reviews* (EPA-833-R-01-002)(July 2001) at pp. 51-55. States are responsible for the development of TMDLs, and they have the authority to establish priorities for TMDL development for the waters they have identified as impaired by pollutants. See CWA §303(d) and 40 C.F.R. §130.7. Nothing in EPA's CSO policy or CWA § 402(q) supplants the states' discretion in establishing priorities for TMDL development, nor do they preclude EPA from issuing a permit for CSO discharges in the absence of a TMDL. Because the final permit contains conditions necessary to achieve water quality standards, as modified by applicable variances, the permit complies with the statute.

Alewife Brook has been identified by the State as a receiving water which is not achieving water quality criteria for pathogens (among other pollutants), and is among over 1000 water body

[2] *See*, 40 C.F.R. § 122.44(d)(1)(vii)(B) (requiring permitting authority to set effluent limits "consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA…"). *See also, Friends of Earth, Inc. v. E.P.A.*, 446 F.3d 140,144 (D.C. Cir., 2006)(Holding that "the word 'daily' means daily" in a TMDL; and describing how such daily loads must be incorporated into permits pursuant to CWA 301(b)(1)(C)).

segments in Massachusetts for which TMDLs must be produced. According to the State's most recent water priorities report, MassDEP hopes to complete pathogen TMDLs for the Boston Harbor watershed (which includes Alewife Brook) in 2010. See The Environmental Progress Report FY 2010: Surface & Groundwater, pp. 77-78, 81, at http://www.mass.gov/dep/water/priorities/sw2010.doc. The water quality information developed for the CSO planning effort, and the continuing sampling programs by the MWRA and the Mystic River Watershed Association, will be helpful in identifying and confirming pollutant sources and pollutant loads in the watershed, and will be important in developing a TMDL. Clearly, control of both CSO and non-CSO sources will be critical to achieving improved water quality in the Alewife Brook watershed. Future permits will be consistent with any applicable TMDL that is developed and approved.

September 30, 2009