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**TOWN OF DUXBURY**  
DEPARTMENT OF PUBLIC WORKS  
TOWN OFFICES  
878 TREMONT STREET  
DUXBURY, MASSACHUSETTS 02332

United States Environmental Protection Agency  
New England Region  
Office of Environmental Stewardship  
5 Post Office Square  
Boston, MA 02109-3912  
Attention: Denny Dart(OES 04-4)

MAR 21 2011

April 15, 2011  
Year 8 Annual Report  
May 1, 2010-April 30, 2011

Mr. Fred Civian  
Massachusetts Dept. of Environmental Protection  
One Winter Street – 5<sup>th</sup> Floor  
Boston, MA 02108

Re: Annual NPDES General Permit for MS4's Report  
Permit Number: MA041034/MaDEP Transmittal Number: W114295

To Whom It May Concern:

I hereby am filing the above referenced report on behalf of the Town of Duxbury, MA. This report is structured per the General Permit requirement, Part II F. (Attachment A)

- a) The following is a self-assessment review of compliance with the permit conditions. To assist, I have attached the Town of Duxbury's Program Summary (Attachment B) and our Implementation Schedule (Attachment C).

**1. Public Education**

- 1A. Drainage Posters in Schools and Public Buildings  
Completed in April of 2004 (4/28/04 report).

- 1B. Stencil Catch Basins  
Completed summer of 2006 (4/25/07 report)
- 1C. Pamphlets in Water Bills  
Completed in October of 2005 (4/27/06 report).
- 1D. Educational Material on Web-Site  
Completed. (4/27/06 report).  
Distribution of pamphlets will resume by inclusion in water bills annually in the fall of 2011.
- 1E. Educate Community Groups  
The Town of Duxbury Conservation Agent, Joe Grady has participated in and is on the steering committee for the Watershed Action Plan for the south coastal watershed, being funded by the EOEA. Process of education through this forum is ongoing. Harbormaster/shellfish warden also takes school classes for tour of estuary and teaches ecology of this resource. Duxbury Bay Maritime School also teaches maritime ecology to the classes each summer. Montessori School students take water samples at the Bluefish River and identify pathogens. In addition the Duxbury Bay Commission and Duxbury Beach Reservation conduct interactive programs that involve many volunteers and users of these resources.

## **2. Public Participation**

- 2A. Stencil Catch Basins  
See 1B. above.
- 2B. Planning Board and Planning Director work on water quality goals  
Every year the Planning Director and Planning Board meet to review the Subdivision Rules & Regulations including stormwater quality issues.
- 2C. Paint Day Collections  
The D.P.W. hosted Paint Day Collections on every 3<sup>rd</sup> Saturday of the month from April to October each year.
- 2D. Open Space & Rec. Committee  
The Open Space & Rec. Committee meet regularly and have currently been working on maintaining open space areas which preserves water quality, maintains watersheds and promotes interest in preserving Duxbury's open space areas. The committee sponsors Earth Day, trail days and other pertinent events The Duxbury Open Space And Recreation Plan was approved by The Commonwealth of Massachusetts in January of 2009 and will qualify Duxbury to participate in DCS grant rounds through 2013. A 2 year extension was approved in 2010 which now allows Grant participation to 2015.

2E Community Preservation Committee

The CPC meets regularly and received approval from 2008 Town Meeting to purchase two large land parcels totaling 146.5 acres. One of the parcels contains 106 acres and borders the South River and is referred to as Camp Wing (part of South River Watershed). The other parcel is called Berrybrook and consists of 40 acres. Both parcels have a permanent Conservation Restriction place on the Deeds.

In addition, Town Meeting March 2011 has approved the purchase of a 5 acre parcel for 3.5 million dollars. This is property that is on Duxbury Bay. Also 60 acres of Green Harbor River watershed for open space. The Town Meeting has also authorized the purchase of restrictions on cranberry bog property (60 acres) under wetlands restoration WRS program. This is the Crowell wetlands.

**2. Public Participation Extras**

2F. Duxbury Bay Management Commission

The Duxbury Bay Management Commission developed the "Duxbury Aquaculture Management Plan" which was adopted by the Board of Selectmen 1/12/2009. This group is the "Keepers of the Bay" and are involved in many issues that affect the Bays including water quality. 82 acres of Duxbury Bay is leased for aquaculture-specifically the propagation of oysters which are commercially harvested and coveted worldwide for quality.

2G. Fish Ladder Restoration

As noted in a prior report, in 2006 the Island Creek Herring run restoration project was completed with the involvement of many townspeople, Boards and Committees. A monitoring and management program was established. The statewide moratorium on herring stocking was lifted and Island Creek was stocked the last four years by the State Division of Marine Fisheries (2008-2011)

2H. Duxbury Beach Reservation

The Duxbury Beach Reservation is a private organization dedicated to the preservation of Duxbury Beach. Each year hundreds of thousands of dollars are spent to plant beach grass and beach nourishment, dune restoration, and fencing to capture sand to build dunes. The beach is a



barrier beach and is about 6 miles long. Volunteers participate in the beach planting each spring and a beach cleanup is conducted with volunteers.

2I. Engineering Study of Seawall and Beach.

Duxbury has been awarded \$110,000 for a study and remediation design of the 4,600 foot seawall from the Marshfield Town Line to Gurnet Light. This study will include a nourishment program for the entire beach. The study will be completed by June 30, 2011.

3. **Illicit Discharge Detection and Elimination**

3A. Map Drainage System

The Town is continuing its efforts toward creation of a drainage map layer for our GIS system. The GPS unit has been purchased and mapping of manholes, catch basins and outfalls are being done. Remediation drainage projects to reduce pollutants at their outfall are surveyed and contributing drainage systems are mapped. This has focused on Crescent Street and Bay Road primarily to improve water quality in the "Nook" area of Duxbury Bay.

3B. Coord. with the Div. of Marine Fisheries on Testing Bay Outfalls

The Conservation Agent continues to coordinate with the Div. of Marine Fisheries to perform annual water quality testing in the Duxbury and Kingston Bays.

3C. Investigate Pollution Hot Spots as needed via Test Results

The Div. of Marine Fisheries notifies the Board of Health about any potential locations of illicit discharges. Also, Board of Health conducts weekly bacteria testing at 7 beach locations. (Summer months). See Appendix D.

3D. Stencil Catch Basins

See 1B. above.

3E. Paint Day Collections

The D.P.W. hosted Paint Day Collections on every 3<sup>rd</sup> Saturday of the month from April to October. Used motor oil is also collected year-round along with a comprehensive recycling program. (Pay As You Throw).

- 3F. **Additional** - Pet control bylaw adopted to control dogs at the beach and require droppings to be picked up by owners. Also, permits are required to walk dogs on the beach.
- 3G. Assessment of Pollution sources MDEP has awarded the Conservation Commission \$58,000 to further assess pollution sources from roadway sources along Kingston Bay.
- 3H. Jones River Estuary and Kingston Bay Stormwater Assessment Project Partnering between the Conservation Commissions of Duxbury and Kingston for baseline water quality data and preliminary design plans for future stormwater mitigation projects. (See attachment E)
- 3I. Stony Brook and Tussock Brook Marsh Restoration Plan  
Project shared between Kingston and Duxbury Conservation to protect and enhance local coastal habitats by identifying and addressing primary anthropogenic stressors to estuarine habitat and water quality (See Attachment E)
- 3J. Ongoing 604B Grant for Stormwater mitigation at Bay Road started Nov. 2009 and carries for 19 months. This program identifies and samples 10 additional outfalls and prioritizes pollution impact. With a preliminary outcome this investigation leads to another grant for construction at Bayview Rd. and Bay Rd. Focus is to improve water quality at the Nook area.
- 4. **Construction Site Runoff Control**
- 4A. Proposed Zoning Changes re: drainage quality to Town Mtg.  
Completed in March of 2003 (4/28/04 report).
- 4B. Proposed Conservation Commission Bylaw Changes to Town Mtg.  
Completed in March of 2003 (4/28/04 report). See Appendix E.
- 4C. Projects Reviewed by Development Review Team (DRT)  
The DRT meets very regularly and stormwater issues are a top priority. The DRT includes representatives from each Town Department.
- 4D. Review and Update Subdivision Rules & Reg.'s re: drainage BMP's.  
Completed in November of 2004 (4/27/05 report).
- 4E. Enforce Approvals by Regulatory Authorities  
Enforcement is an on-going process by all permitting authorities. Checks and balances are in the system such as construction inspection, as-built plans, certificates of compliance, occupancy permits, bonds, etc.

- 4F. Spring Town Meeting will consider additional development regulations for parking to capture runoff and keep it from migrating from the property.

**5. Post Construction Runoff Control**

5A. Review BMP Operation Manuals

It is standard operating procedure for the Conservation Agent and Commission to review Stormwater Operation and Maintenance Plans for all applicable projects.

5B. DRT review of BMP Operation Manuals

It is standard operating procedure for the DRT (Development Review Team) to require and review Stormwater Operation and Maintenance Plans for all applicable projects.

5C. Maintain BMP's of Projects Accepted by the Town

Upon acceptance by the Town, each street is added to the street sweeping, catch basin cleaning, and BMP monitoring (typically detention ponds) lists. Drainage systems constructed to improve stormwater outfall quality are routinely checked and maintained.

5D. Require Annual Maintenance / Inspection reports for regulated projects

It is standard operating procedure for all regulatory authorities to request Maintenance / Inspection reports for regulated projects.

5E. Bylaw to Town Meeting

The Planning Director, Conservation Agent, Health Agent and DPW Director are working on a bylaw to submit for Town Meeting action.

**5. Post Construction Runoff Control Extras**

5G. Revised Conservation Rules and Regulations

Completed in March of 2006 (4/27/06 report)

5H. Estuaries Project

Our Conservation Commission with the Mass. DEP and UMASS Dartmouth are exploring the development of Total Maximum Daily Loads (TMDL's) for nitrogen loadings for the Duxbury, Plymouth and Kingston Bays. During the summer of 2007 water samples were taken with the help of Conservation staff.

5I. Penalty for Conservation Violations



Voted March 15, 2010. Non-criminal disposition of General By-Laws, Chapter 9.1.10 to penalty of \$300 per offence and adds Conservation Commission members and Administrator for enforcement.

**6. Municipal Good Housekeeping**

6A.& 6B. Snug Harbor Drainage

Completed. (4/27/06 report).

6C Projects of the Town are periodically inspected and cleaned on a regular basis

6D. Sweep Streets

There is an ongoing, as needed sweeping process throughout the year. Winter sand is removed throughout the Town starting early March each year and after the spring cleanup. Sweeping continues until November.

6E. Clean Catch basins

Catch basins are cleaned on a regular basis. This past year 1046 basins were cleaned.

6F. Staff Training

Completed. (4/27/06 report)

**6. Municipal Good Housekeeping Extras**

6G. Halls Corner Bay Rd. Drainage Project

The Town previously had received a grant from Coastal Zone Management to study outfalls coming from the Bay Rd. area and flowing into the Kingston Bay. The Town contracted with a consultant to track down all of the outfalls and connecting watersheds. As part of this work a drainage map of this area was created.

Also as part of this project an assessment of each outfall was done, the outfalls were prioritized from a polluting standpoint, The Conservation Agent obtained a grant from Coastal Zone Management (\$125,000). The first phase (Depot and Chestnut Streets) of this BMP installation project in the Halls Corner / Bay Road area was completed in July 2007. Design consisted of multiple leaching structures tied to deep sump catch basins with first flush retention and absorption. Design of the second phase (Bay Road) has been completed and funded through a second CPR Grant. Construction and restoration was completed in 2009. Both phases should significantly help the receiving waters of the Kingston Bay.

- 6H. Rte 3A Drainage  
Completed 2006. (4/27/07 report)
- 6I. Elm St. Drainage  
  
The DPW has finished installing a number of leaching catch basins which have virtually eliminated direct discharge of street runoff into Island Creek (2009)
- 6J. Senior Center Parking Lot Upgrade  
The parking lot at the Duxbury Senior Center was enlarged and stormwater BMP's were installed as part of the project. The BMP's include catch basins with deep sumps and hoods, oil / water separator, sediment forebay, energy dissipation bowl and vegetated detention basin. Runoff from the existing parking lot was also directed through the BMP's.
- 6K. Union Bridge Road Drainage  
To correct flooding problems in the area the DPW designed and installed three leaching pits to collect, clean and recharge stormwater.
- 6L. Partridge Road Drainage  
During 2007 the DPW constructed a grass-lined swale and installed a leaching pit to treat and infiltrate runoff. The work eliminated a direct discharge into Blue Fish River.
- 6M. Bay Road Swale  
The DPW has constructed a grass swale and drainage ditch along Bay Road between Bay View Road and Bay Ridge Lane. The swale and ditch treat stormwater runoff which currently discharges directly into Kingston Bay.
- 6N. Bay Road/Crescent Street Drainage Project  
The third phase of the Bay Road Project has been constructed utilizing CPR funds and Chapter 90 state funds. Both phases of the Crescent Street drainage have been completed in 2010.
- 6O. Powder Point Bridge West Drainage  
The DPW installed a leaching pit in the Town parking area at the west end of Powder Point Bridge. Before, stormwater runoff from the parking area and adjacent roads flowed through a riprap channel into Duxbury Bay. Over time the runoff has eroded the riprap and underlying soil, washing it into the bay. The leaching pit intercepts a portion of this runoff thereby



minimizing erosion. The riprap channel was also reconstructed as part of this project. The shellfish beds in the immediate vicinity are better protected with the installation of this leaching system.

6P. Beach bacteria monitoring/Board of Health  
5 beaches are sampled weekly from early June through mid September for Enterococci bacteria. Several beach closings occurred, primarily attributable to stormwater runoff during heavy rain conditions.

6Q. The harbormaster manages 2 pumpout facilities for boats. One is a boat and the other is a shore facility. This is provided annually, in season.

b) BMP Appropriateness Assessment

We are pleased with the BMP's selected and their results. Street sweeping and catch basin cleaning are a staple of a good program. Duxbury has had and continues to improve our regulatory authority to ensure no adverse affects on the environment. Duxbury has adopted the CPA and is very proactive at buying and maintaining open space. The Town currently has a total of 2,543.45 acres of land under Conservation control. Duxbury has a very involved and interested group of volunteers on its committees. We also have close relationships with the relevant state authorities. Duxbury has very successful Paint Day, Hazardous Material and Recycling Programs. Pay-as-you-throw and Single Stream Recycling Programs are proving effective to reduce waste stream and cost and promote the environment. The public is well educated and open to new ideas. Our increased public education efforts have received positive comments.

c) Progress Towards Measurable Goals Assessment

We are making progress. We continue to put out public awareness messages. Our Paint Day and Hazardous Waste Day Collections are a continued success. The Division of Marine Fisheries continues to test Duxbury Bay. Our DRT continues to support the Local Boards with the regulation of proposed projects. Our efforts to continually improve water quality throughout the community are highlighted in the projects listed under "Municipal Good Housekeeping Extras" above. These projects set an example for private entities within town. They show that not only does Duxbury enforce stormwater regulations but also adheres to them.

d) Test Results

None available at the time of this writing.