

Summary of the Cohasset Stormwater Management Bylaw and Rules and Regulations (effective 7/10/2008)

What is Stormwater Management?

Stormwater management involves carefully considered site design to help ensure that stormwater runoff does not cause flooding, erosion, water quality degradation, and contamination of drinking water supplies. Good stormwater management helps to correct for the adverse effects of land use changes.

Why does the Town of Cohasset need Stormwater Management?

The Town of Cohasset faces many stormwater challenges, which include flooding, pollution prevention, and maintaining compliance with Federal regulatory requirements under the Clean Water Act. The Town has serious, recurrent, flooding problems which threaten public health, public safety, and the use and enjoyment of property. Every surface water body in the Town, including Cohasset Harbor, Little Harbor, Straits Pond and Lily Pond, is contaminated from stormwater runoff with bacteria, heavy metals, excessive nutrients, contaminated sediment, and other pollutants which threaten public health, safety, and the environment. In addition, Federal regulations under the Clean Water Act require the Town to conduct the following six minimum program measures: (1) public education and outreach, (2) public participation and involvement, (3) illicit discharge detection and elimination, (4) construction site runoff control, (5) post-construction runoff control, and (6) pollution prevention.

What is the purpose of the Stormwater Management Bylaw?

The purpose of the Stormwater Management Bylaw (the Bylaw) is to prevent and reduce flooding, protect water quality, increase groundwater recharge, reduce erosion and sedimentation, promote environmentally sensitive site design practices, ensure long-term maintenance of stormwater controls, and help the Town meet Federal requirements under Phase II of the National Pollutant Discharge Elimination System (Clean Water Act). Because of Cohasset's unique setting, flood prevention and environmental protection are key purposes of the Bylaw. The Bylaw and the associated Stormwater Management Rules & Regulations (the Regulations) establish minimum requirements and procedures to control the adverse effects of increased stormwater runoff, decreased groundwater recharge, and non-point source pollution associated with new development and redevelopment.

Who does the Bylaw and Regulations affect?

The Bylaw requires the issuance of a permit by the Cohasset Conservation Commission prior to certain land alteration activities. The Bylaw establishes two types of permits for stormwater management: (1) Administrative Approval (for smaller, simpler projects) and (2) Stormwater Permit (for larger projects requiring a public hearing). Regulated activities that require the site owner to file for Administrative Approval with the Conservation Commission are:

1. Any activity that will result in a net increase in impervious surface area of more than 500 square feet of land, but which will alter less than 5,000 square feet of land.
2. Any replacement of an existing building with a new building of more than 500 square feet.

Regulated activities that require the site owner to file for a Stormwater Permit with the Conservation Commission are:

1. Any activity that will alter 5,000 square feet or more of land.
2. Any construction or development activity on an undeveloped parcel of any size that will increase the impervious surface area, or increases the amount or rate of runoff from the parcel.
3. Any development or redevelopment of Land Uses with Higher Potential Pollutant Loads, (see Section 4.A.3 of the Bylaw).

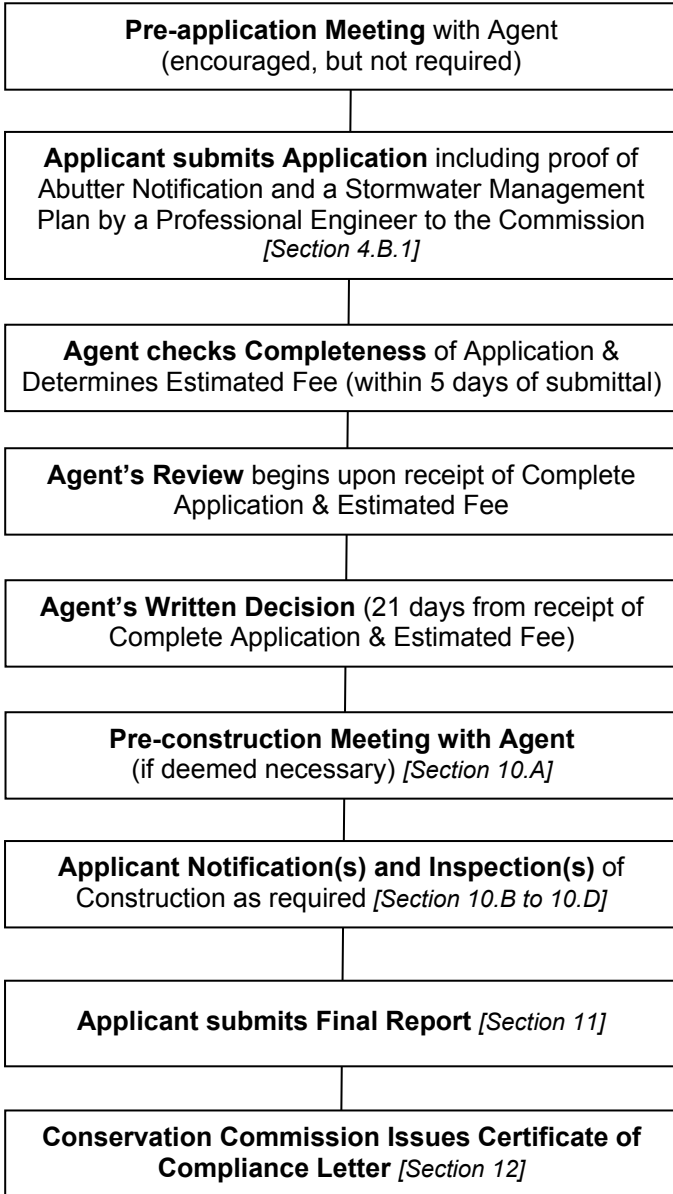
Applicants are *strongly* encouraged to schedule a pre-application meeting with the Conservation Commission's Stormwater Agent at the earliest feasible time. Any work or project for which all necessary approvals and permits have been issued before the effective date of the Bylaw (7/10/2008) is exempt from the Bylaw. Refer to the Bylaw and the Regulations for further details.

What are some examples of sound stormwater management strategies?

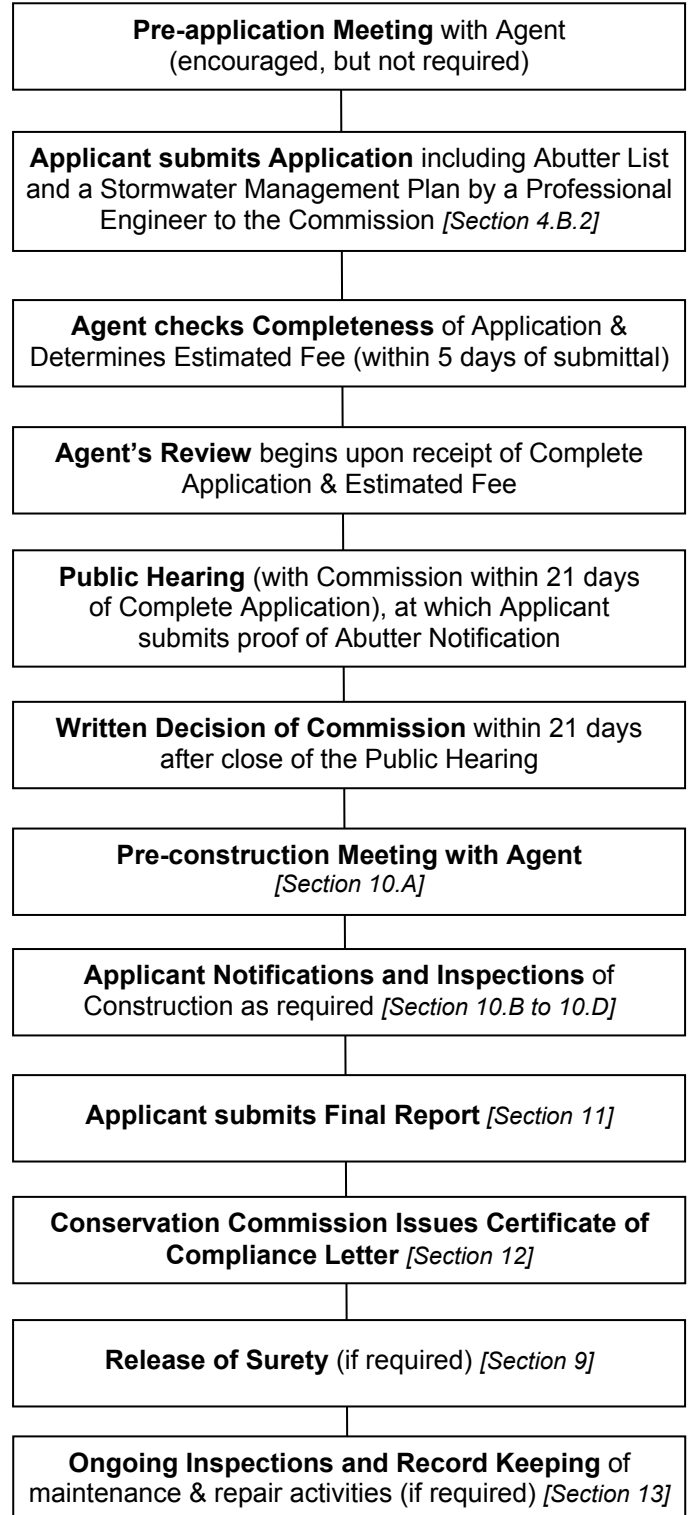
Good stormwater management utilizes environmentally sensitive site design and low impact development (LID) techniques that focus on preventing the generation and/or concentration of stormwater and non-point source pollution. Prevention strategies for development and redevelopment include: (1) minimize land disturbance, (2) preserve open space, (3) protect natural features that help control stormwater, (4) minimize or reduce impervious surfaces, (5) disconnect stormwater flow paths (i.e. don't concentrate storm flows), and (6) manage or treat stormwater at its source. Some examples of LID stormwater practices are illustrated on the attached sheet.

How does the permitting process work? Please refer to the Bylaw and Regulations for more detailed information. References to applicable sections of the Regulations are noted in [brackets] below. Applicants should communicate with the Conservation Commission (the Commission) and the Stormwater Agent (the Agent). Conservation Commission is located at Town Hall, Room 2B, 41 Highland Avenue, Cohasset, MA 02025, 781-383-4119. The Stormwater Agent is Norfolk Ram Group, LLC, 1 Roberts Road, Plymouth, MA 02360 (contact Katy Konary, P.E. at 508-747-7900 x137 or John McAllister at x117 or Mark Bartlett, P.E. at x131).

Typical Administrative Approval Process



Typical Stormwater Permit Process



Some Examples of Good Stormwater Management Practices and Low Impact Development (LID) Techniques

Illustrated below are several examples of stormwater management techniques that should be considered for sites that are being developed or redeveloped to help compensate for increases in impervious areas.

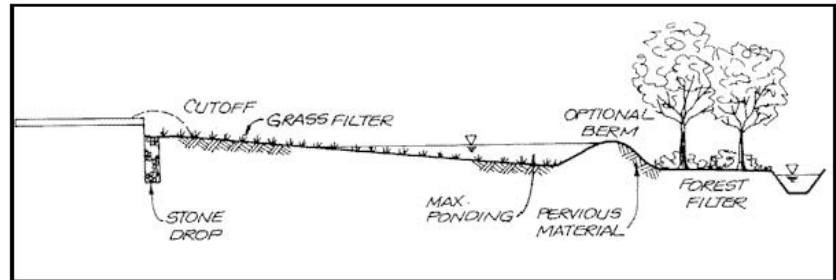
Bioretention Rain Garden Areas

Bioretention is a technique that uses soils, plants, and microbes to treat stormwater before it is infiltrated and/or discharged. Bioretention rain gardens are shallow depressions filled with sandy soil topped with a layer of mulch and planted with dense native vegetation. Stormwater runoff is directed from streets or paved areas into a rain garden containing an engineered soil mix (composed of shredded hardwood bark mulch, coarse sand, and topsoil) and selected plantings. As water filters through the rain garden soils, mineral sediments and contaminants are filtered out. The filtered runoff contains fewer contaminants, thus reducing the impact upon receiving waters. Natural depressions or low-lying areas are excellent locations for rain gardens.



Vegetated Filter Strips

Vegetated filter strips (a.k.a. grass buffer strips) are uniformly graded vegetated surfaces that receive stormwater runoff from adjacent impervious areas. Filter strips typically treat sheet flow or small concentrated flows that can be distributed along the width of the strip using a level spreader. Vegetated filter strips are designed to slow runoff velocities, trap sediment, and promote infiltration, thereby reducing runoff volumes.



Permeable Pavement

The use of permeable pavement is an excellent example of one strategy to help compensate for increased impervious surfaces, such as driveways or patios. Permeable pavement replaces traditional pavement, allowing parking lot, driveway, and roadway runoff to infiltrate directly into the underlying soil and receive water quality treatment. Permeable paving techniques include porous asphalt, pervious concrete, paving stones, and permeable pavers.

Permeable Pavers



Constructed Wetlands

Constructed stormwater wetlands maximize the removal of pollutants from stormwater runoff through wetland vegetation uptake, retention, and settling. Constructed wetlands temporarily store runoff in shallow pools that support conditions suitable for the growth of wetland plants. Constructed wetlands may be used in conjunction with other stormwater treatment practices, such as sediment forebays. Excellent locations for constructed wetlands are natural depressions or low-lying areas.



These are just a few examples; there are many ways to manage stormwater. Please refer to the Massachusetts Stormwater Policy Handbook and the Center for Watershed Protection (www.cwp.com).

Sources: Massachusetts Department of Environmental Protection and the *2008 Massachusetts Stormwater Policy Manual*, University of New Hampshire, University of Connecticut, Minnesota Metropolitan Council, Maryland Department of the Environment

Biofilter Swales, Water Quality Swales, and Drainage Channels

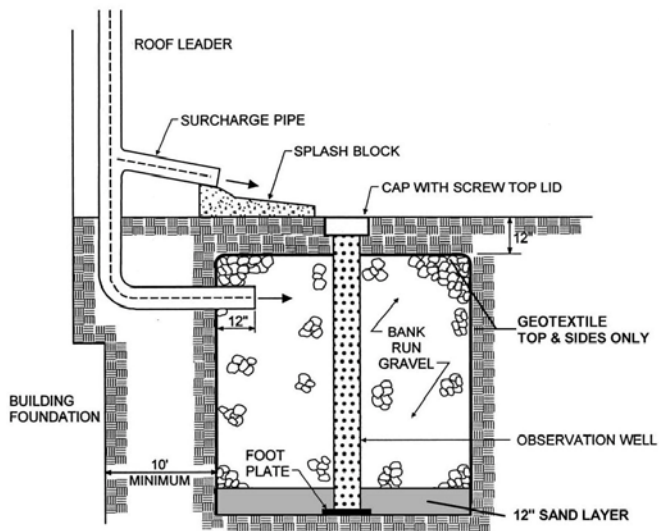
Biofilter swales convey and treat stormwater, and are ideal when used adjacent to roadways, parking lots, or long driveways. Runoff can be directed to the channel via sheet flow or piped to the channel. If piped, a sediment forebay and check dam is sometimes recommended. Dry water quality swales contain a specific soil media mix and underdrain pipe, providing greater treatment than grass channels. Wet water quality swales are constructed directly within existing soils, and are designed to store the water quality volume within a series of cells within the channel, which may be formed by berms or check dams. In contrast, drainage channels are not engineered to provide infiltration and primarily serve to convey water.



Water Quality Swale

Dry Wells

Dry wells are small excavated pits, backfilled with aggregate and used to infiltrate uncontaminated runoff from mostly non-metal roofs. Dry wells are feasible for new development and retrofit areas, where there is suitable depth of permeable soil. Dry wells can reduce the size and cost of downstream BMPs and storm drains by infiltrating roof runoff near the source. Long shallow trench drains are an alternative to the type of dry well shown here.



Rain Barrels

Rain barrels and cisterns store rooftop runoff. This stored stormwater can then be reused for irrigation of landscaping, gardening, and other non-potable uses.



Fertilizer Use

Fertilizers applied to lawns are potential pollutants. If applied improperly or in excess, fertilizers can be washed off the lawn or garden into storm drains and then flow into water bodies. This causes algae to grow. Excess algae and aquatic plant growth impairs water quality, and as algae decays, it uses up oxygen in the water that fish and other wildlife need to survive. **Tip 1** – Use fertilizer sparingly. **Tip 2** – Don't fertilize before a rain storm. **Tip 3** – Consider using organic fertilizer; they release nutrients more slowly.

These are just a few examples; there are many ways to manage stormwater. Please refer to the Massachusetts Stormwater Policy Handbook and the Center for Watershed Protection (www.cwp.com).

Sources: Massachusetts Department of Environmental Protection and the 2008 Massachusetts Stormwater Policy Manual, University of New Hampshire, University of Connecticut, Minnesota Metropolitan Council, Maryland Department of the Environment