

Town of Hamilton

Stormwater Management Permit Rules & Regulations August 2010

1. INTRODUCTION

The Stormwater Management Permit Rules and Regulations are promulgated under the Authority of Town of Hamilton General Bylaw Ch. XXIX, Stormwater Management (the “Bylaw”). These Rules and Regulations shall be adopted by the Planning Board following a duly posted and noticed Public Hearing, vote of the Board, and filing of final document with the Town Clerk. The Rules and Regulations may be amended by following the same procedure.

2. DEFINITIONS

All definitions in the Bylaw apply to this section as well

CONSTRUCTION AND WASTE MATERIALS: Excess or discarded building or site materials, including but not limited to concrete truck washout, chemicals, litter and sanitary waste at a construction site that may adversely impact water quality.

DISTURBANCE OF LAND: Any action that causes a change in the position, location, or arrangement of soil, sand rock, gravel of similar earth material.

EROSION: The wearing away of the land surface by natural or artificial forces such as wind, water, ice, gravity, or vehicle traffic and the subsequent detachment and transportation of soil particles.

ESTIMATED HABITAT OF RARE WILDLIFE AND CERTIFIED VERNAL POOLS: Habitats delineated for state-protected rare wildlife and certified vernal pools for use with the Wetlands Protection Act Regulations (310 CMR 10.00) and the Forest Cutting Practices Act Regulations (304 CMR 11.00).

MASSACHUSETTS ENDANGERED SPECIES ACT: (G.L. c. 131A) and its implementing regulations at (321 CMR 10.00) which prohibit the “taking” of any rare plant or animal species listed as Endangered, Threatened, or of Special Concern.

LOW IMPACT DEVELOPMENT: A set of strategies that seek to maintain natural systems during the development process. The idea is to create homes and businesses that are integrated into the landscape, not imposed on it. Natural areas and important features are protected, and stormwater is managed with a distributed network of swales and rain gardens, rather than a centralized system of pipes and ponds.

OUTSTANDING RESOURCE WATERS (ORWs): Waters designated by Massachusetts Department of Environmental Protection as ORWs. These waters have exceptional sociologic,

recreational, ecological and/or aesthetic values and are subject to more stringent requirements under both the Massachusetts Surface Water Quality Standards (314 CMR 4.00) and the Massachusetts Stormwater Management Standards as set forth in the Massachusetts Stormwater Management Policy. ORWs include vernal pools certified by the Natural Heritage Program of the Massachusetts Department of Fisheries and Wildlife and Environmental Law Enforcement, all Class A designated public water supplies with their bordering vegetated wetlands, and other waters specifically designated.

PERMIT AUTHORITY: Shall be the Planning Board or Zoning Board of Appeals.

PRIORITY HABITAT OF RARE SPECIES: Habitats delineated for rare plant and animal populations protected pursuant to the Massachusetts Endangered Species Act and its regulations.

STABILIZATION: The use, singly or in combination, of mechanical, structural, or vegetative methods, to prevent or retard erosion.

STRIP: Any activity which removes the vegetative ground surface cover, including tree removal, clearing, grubbing, and storage or removal of topsoil.

VERNAL POOLS: Temporary bodies of freshwater which provide critical habitat for a number of vertebrate and invertebrate wildlife species.

WATERCOURSE: A natural or man-made channel through which water flows or a stream of water, including a river, brook, or underground stream.

WETLAND RESOURCE AREA: Areas specified in the Massachusetts Wetlands Protection Act G.L. c. 131, § 40 and in the Town of Hamilton Wetland Bylaw.

3A. APPLICABILITY – SMALLER PROJECTS

A. Applications:

Applications for Smaller Projects:

An abbreviated application for a Stormwater Management Permit (SMP) may be filed with the Permit Authority for any construction activity including clearing, grading and excavation that results in a land disturbance equal to or greater than one acre of land, but less than two acres of land for a single family residential construction or residential addition of less than 1,000 square feet (sf) of foundation to an existing dwelling provided construction will occur on:

1. an Approval Not Required lot that is not adjacent to another lot which is currently under construction and/or the adjacent lot has not been issued an occupancy permit,
2. a lot created by a previously approved subdivision plan dated 1990 or later which has access and frontage on a roadway that has an approved drainage system in place,
3. a lot that has less than 10,000 sf with a slope of 15% or greater,
4. a lot that has less than 20,000 sf with a slope of 10% or greater,
5. a lot that has less than 30,000 sf with a slope of 5% or greater,
6. a lot in which the area of work is determined to be under the jurisdiction of the Conservation Commission,
7. a lot that does not currently or propose to create a roof top greater than 1,000 sf with runoff from one discharge point,
8. a lot that does not have roof top runoff which commingles with paved surface Runoff or,
9. a lot that is not located in the Groundwater Protection Overlay District.

4A. PERMIT PROCEDURES AND REQUIREMENTS – SMALLER PROJECTS

Abbreviated Stormwater Management Permit (ASMP) Application package shall include:

1. Completed Application Form, signed by all Owners and Applicants

Distribution of Plans:

If the Permit Authority is the:

- Zoning Board of Appeals: 11 copies
- Planning Board: 13 copies

The Permit Authority shall distribute via e-file a copy to each of the following: Board of Health, Building Inspector, Department of Public Works, Conservation Commission, the Planning Board and/or Zoning Board of Appeals as appropriate.

A. The Permit Authority shall examine the Application package for compliance with the Bylaw and these regulations. Incomplete applications will be returned to the Applicant with a list of missing information which must be supplied before a public meeting may be scheduled.

B. Entry. The filing of an application grants the Permitting Authority permission to enter the site to verify the information in the application and to inspect for compliance with permit conditions.

2. A copy of the recorded deed to the property.

3. Fees per the following Fee Schedule:

A. Filing Fee:

Single Dwelling Application: \$100.00 plus \$10.00 per each 1,000 square foot of land disturbance in excess of one acre, to a maximum of \$500.00

Re-submittal or Modification Fee: Single Dwelling Application: \$100.00

B. Technical Review may take place in conjunction with outside technical review of the accompanying plan filed under M.G.L. Chapter 44, Section 81, M.G.L. Chapter 40A, and M.G.L. Chapter 40B. Employment of Outside Consultants under the terms of M.G.L. Chapter 44, Section 53G, is authorized for review under these chapters and Section 8 of these Rules and Regulations.

4. The name and address of the property owner and the Applicant, if different from the property owner; a narrative describing the nature and location of the project and the site, complete dimensions and area; the zoning classification(s) that apply to the property; Assessor's Map and lot numbers; the proposed building or

addition size with a breakdown of proposed uses; and projected parking spaces required for the development.

5. A list of requested Waivers.
6. A full electronic copy submitted by e-mail or on a CD to the Permit Authority.
7. One (1) complete copy shall be filed by the Applicant with the Town Clerk. The date of receipt by the Town Clerk shall be the official filing date.
8. Stormwater Management Plan and project description.
 - A. The Stormwater Management Plan shall contain sufficient information to describe the nature and purpose of the proposed development, pertinent conditions of the site and the adjacent areas, and proposed erosion and sedimentation controls. The Applicant shall submit such material as is necessary to show that the proposed development will comply with the design requirements.
 - B. The design requirements of the Stormwater Management Plan shall include at a minimum but not be limited to the following:
 1. Minimize total area of disturbance;
 2. Sequence activities to minimize simultaneous areas of disturbance;
 3. Minimize peak rate of runoff in accordance with the Massachusetts Stormwater Policy;
 4. Minimize soil erosion and control sedimentation during construction, provided that prevention of erosion is preferred over sedimentation control;
 5. Divert uncontaminated water around disturbed areas;
 6. Maximize groundwater recharge;
 7. Install and maintain all Erosion and Sediment Control measures in accordance with the manufacturer's specifications and good engineering practices;
 8. Prevent off-site transport of sediment;
 9. Protect and manage on and off-site material storage areas (overburden and stockpiles of dirt, borrow areas, or other areas used solely by the permitted project are considered a part of the project);

10. Comply with applicable Federal, State and local laws and regulations including waste disposal, sanitary sewer or septic system regulations, and air quality requirements, including dust control;
11. Prevent significant alteration of habitats mapped by the Massachusetts Natural Heritage & Endangered Species Program as Endangered, Threatened or Of Special Concern, Estimated Habitats of Rare Wildlife and Certified Vernal Pools, and Priority Habitats of Rare Species from the proposed activities;
12. Institute interim and permanent stabilization measures, which shall be instituted on a disturbed area as soon as practicable but no more than 14 days after construction activity has temporarily or permanently ceased on that portion of the site;
13. Properly manage on-site construction and waste materials; and
14. Prevent off-site vehicle tracking of sediments.

C. Standards:

Projects shall meet the Standards of the Massachusetts Stormwater Management Policy which are as follows:

1. No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or water of the Commonwealth.
2. Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.
3. Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to the maximum extent practicable. The annual recharge from the post-development site should approximate the annual recharge rate from the pre-development or existing site conditions, based on soil types.
4. For new development, stormwater management systems must be designed to remove 80% of the average annual load (post development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when:
 - a. Suitable nonstructural practices for source control and pollution prevention and implemented;

- b. Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and
 - c. Stormwater management BMPs are maintained as designed.
5. Stormwater discharges from areas with higher potential pollutant loads require the use of specific stormwater management BMPs (see Stormwater Management Volume I: Stormwater Policy Handbook). The use of infiltration practices without pretreatment is prohibited.
 6. Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas (see Stormwater Management Volume I: Stormwater Policy Handbook). Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold water fisheries and recharge areas for public water supplies.
 7. Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. However, if it is not practicable to meet all the Standards, new (retrofitted or expanded) stormwater management systems must be designed to improve existing conditions.
 8. Erosion and sediment controls must be implemented to prevent impacts during disturbance and construction activities.
- D. The Stormwater Management Plan Content. This Stormwater Management Plan shall contain sufficient information for the Permit Authority to evaluate the environmental impact, effectiveness, and acceptability of the measures proposed by the Applicant for reducing adverse impacts from stormwater. The Plan shall be designed to meet the Massachusetts Stormwater Management Standards as set forth in Part B of this section and DEP Stormwater Management Handbook Volumes I and II, or more recent editions. The Stormwater Management Plan shall fully describe the project in drawings, and narrative. All plan sheets shall be 24" x 36" in size. The Plan shall include at a minimum but not be limited to the following information:
1. Names, addresses, and telephone numbers of the owner, Applicant, and person(s) or firm(s) preparing the plan;
 2. A Locus map with title, date, north arrow, names of abutters, existing zoning and land uses, scale, and legend;
 3. Existing and proposed zoning and land use;
 4. Location of existing and proposed utilities;

5. Location and description of natural features including;
 - (a) Watercourses and water bodies, wetland resource areas and all floodplain information, including the 100-year flood elevation based upon the most recent Flood Insurance Rate Map, or as calculated by a professional engineer for areas not assessed on these maps;
 - (b) Existing vegetation including tree lines, canopy layer, shrub layer, and ground cover, and trees with a caliper twelve (12) inches or larger, noting specimen trees and forest communities; and
 - (c) Habitats mapped by the Massachusetts Natural Heritage & Endangered Species Program as Endangered, Threatened or of Special Concern, Estimated Habitats of Rare Wildlife and Certified Vernal Pools, and Priority Habitats of Rare Species within one hundred (100') feet of any construction activity.
6. Lines of existing abutting streets showing drainage and driveway locations and curb cuts;
7. Existing soils, volume and nature of imported soil materials;
8. The site's existing & proposed topography with contours at 2 foot intervals;
9. Surveyed property lines showing distances and monument locations, all existing and proposed easements, rights-of-way, and other encumbrances, the size of the entire parcel, and the delineation and number of square feet of the land area to be disturbed;
10. A description & delineation of existing stormwater conveyances, impoundments, and wetlands on or adjacent to the site or into which stormwater flows;
11. A delineation of 100-year flood plains, if applicable;
12. Estimated seasonal high groundwater elevation (November to April) in areas to be used for stormwater retention, detention, or infiltration;
13. The existing and proposed vegetation and ground surfaces with runoff coefficient for each;
14. A drainage area map showing pre and post construction watershed boundaries, drainage area and stormwater flow paths;

15. Location and details of proposed erosion and sediment control measures with a narrative of the construction sequence/phasing of the project, including both operation and maintenance for structural and non-structural measures, interim grading, and material stockpiling areas;
16. Drainage patterns and approximate slopes anticipated after major grading activities (Construction Phase Grading Plans);
17. A description and drawings of all components of the proposed drainage system including:
 - a. locations, cross sections, and profiles of all brooks, streams, drainage swales and their method of stabilization,
 - b. all measures for the detention, retention or infiltration of water,
 - c. all measures for the protection of water quality,
 - d. the structural details for all components of the proposed drainage systems and stormwater management facilities,
 - e. notes on drawings specifying materials to be used, construction specifications, and typicals,
 - f. expected hydrology with supporting calculations.
18. Path and mechanism to divert uncontaminated water around disturbed areas, to the maximum extent practicable;
19. Stormwater runoff calculations in accordance with the Department of Environmental Protection's Stormwater Management Policy Include Hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in this Regulation. Such calculations shall include:
 - a. Description of the design storm frequency, intensity and duration; time of concentration;
 - b. Soil Runoff Curve Number (RCN) based on land use and soil hydrologic group;
 - c. Peak runoff rates and total runoff volumes for each watershed area;
 - d. Information on construction measures used to maintain the infiltration capacity of the soil where any kind of infiltration is proposed;

- e. Infiltration rates, where applicable;
 - f. Culvert capacities;
 - g. Flow velocities;
 - h. Data on the increase in rate and volume of runoff for the specified design storms, and
 - i. Documentation of sources for all computation methods and field test results.
20. Timing, schedules, and sequence of development including clearing, stripping, rough grading, construction, final grading, vegetative controls, and other stabilization measures;
 21. A description of construction and waste materials expected to be stored on-site. The Plan shall include a description of controls to reduce pollutants from these materials, including storage practices to minimize exposure of the materials to stormwater, and spill prevention and response;
 22. A maintenance schedule for the period of construction,
 23. A description of provisions for phasing the project where one acre of area or greater is to be altered or disturbed;
 24. Plans must be stamped and certified by a qualified Professional Engineer registered in Massachusetts;
 25. Such other information as is required by the Permit Authority.

E. Low Impact Development Techniques:

The use of low-impact development techniques is required, where applicable. The Applicant shall employ meaningful low impact techniques which will result in less impervious area, direction of roof runoff toward rain gardens and swales, and plantings indigenous to the area. The use of recycled or recaptured rainwater is encouraged. (A Low Impact Development Handbook and other references are available from the Planning Board Office.)

F. Project Changes:

The Applicant, or their agent, shall notify the Permit Authority in writing of any change or alteration of a land-disturbing activity authorized in a Stormwater

Management Permit before any change or alteration occurs. If the Permit Authority determines that the change or alteration is significant, based on the design requirements and accepted construction practices, the Permit Authority may require that a Stormwater Management Permit application be filed and a public hearing held. If any change or deviation from the Abbreviated Stormwater Management Permit occurs during a project, the Permit Authority may require the installation of interim measures before approving the change.

3B. APPLICABILITY – LARGER PROJECTS

Application for Larger Projects:

A completed application for a Stormwater Management Permit (SMP) shall be filed with the Permit Authority for any construction activity including clearing, grading and excavation, that results in a land disturbance equal to or greater than one acre of land, or will disturb less than one acre of land but which is part of a larger common plan of development or sale which will ultimately disturb equal to or greater than one acre of land and does qualify for the Small Project Approval, draining to the Town’s Municipal Separate Storm Sewer System.

4.B PERMIT PROCEDURES AND REQUIREMENTS – LARGER PROJECTS

The Stormwater Management Permit (SMP) Application package shall include:

1. Completed Application Form, signed by all Owners and Applicants

Distribution of Plans:

If the Permit Authority is the:

- Zoning Board of Appeals: 11 copies
- Planning Board: 13 copies

The Permit Authority shall distribute via e-file a copy to each of the following: Board of Health, Building Inspector, Department of Public Works, Conservation Commission, the Planning Board and/or Zoning Board of Appeals as appropriate.

A. The Permit Authority shall examine the Application package for compliance with the Bylaw and these regulations. Incomplete applications will be returned to the Applicant with a list of missing information which must be supplied before a public meeting may be scheduled.

B. Entry. The filing of an application grants the Permitting Authority permission to enter the site to verify the information in the application and to inspect for compliance with permit conditions.

2. A copy of the recorded deed to the property;

3. A list of abutters, certified by the Assessors Office (abutters at their mailing addresses shown on the most recent applicable tax list of the assessors, including owners of land directly opposite on any public or private street or way, and abutters to the abutters within 300 feet of the property line of the Applicant, including any in another municipality or across a body of water) (“Abutters”);

4) Notice of Public Hearing shall be given by the Permit Authority in an official

publication of, or in a newspaper of general circulation in the Town, once in each of two successive weeks, the first publication being not less than fourteen days before the date of such public hearing. A copy of said notice shall be sent (Certified Mail with Return Receipt) by the Applicant to Abutters at least fourteen days prior to the date of the hearing. The Applicant shall bring the Certified Mail receipt cards, received from the Abutters, with him to the Public Hearing. All expenses incurred in advertising the hearing and mailing the notices shall be paid by the Applicant

5. Fees per the following Fee Schedule:

A. Filing Fee:

Single Dwelling Application: \$100.00 plus \$10.00 per each 1,000 square foot of land disturbance in excess of one acre, to a maximum of \$1,000.00

All Other Applications: \$200.00 plus \$10.00 per each 1,000 square foot of land disturbance in excess of one acre, to a maximum of \$1,000.00

Resubmittal or Modification Fee:

Single Dwelling Application: \$100.00

All Other Applications: \$400.00

B. Technical Review may take place in conjunction with outside technical review of the accompanying plan filed under M.G.L. Chapter 44, Section 81, M.G.L. Chapter 40A, and M.G.L. Chapter 40B. Employment of Outside Consultants under the terms of M.G.L. Chapter 44, Section 53G, is authorized for review under these chapters and Section 8 of these Rules and Regulations.

6. The name and address of the property owner and the Applicant, if different from the property owner; a narrative describing the nature and location of the project and the site, complete dimensions and area; the zoning classification(s) that apply to the property; Assessor's Map and lot numbers; the proposed building or addition size with a breakdown of proposed uses; and projected parking spaces required for the development.
7. Stormwater Management Plan and project description. (detailed later)
8. Operations and Maintenance Plan (detailed later)
9. A list of requested Waivers.
10. A full electronic copy submitted by e-mail or on a CD to the Permit Authority.
11. One (1) complete copy shall be filed by the Applicant with the Town Clerk. The date of receipt by the Town Clerk shall be the official filing date.

Stormwater Management Plan

- A. The Stormwater Management Plan shall contain sufficient information to describe the nature and purpose of the proposed development, pertinent conditions of the site and the adjacent areas, and proposed erosion and sedimentation controls. The Applicant shall submit such material as is necessary to show that the proposed development will comply with the design requirements.

- B. The design requirements of the Stormwater Management Plan shall include at a minimum but not be limited to the following:
 - 1. Minimize total area of disturbance;
 - 2. Sequence activities to minimize simultaneous areas of disturbance;
 - 3. Minimize peak rate of runoff in accordance with the Massachusetts Stormwater Policy;
 - 4. Minimize soil erosion and control sedimentation during construction, provided that prevention of erosion is preferred over sedimentation control;
 - 5. Divert uncontaminated water around disturbed areas;
 - 6. Maximize groundwater recharge;
 - 7. Install and maintain all Erosion and Sediment Control measures in accordance with the manufacturer's specifications and good engineering practices;
 - 8. Prevent off-site transport of sediment;
 - 9. Protect and manage on and off-site material storage areas (overburden and stockpiles of dirt, borrow areas, or other areas used solely by the permitted project are considered a part of the project);
 - 10. Comply with applicable Federal, State and local laws and regulations including waste disposal, sanitary sewer or septic system regulations, and air quality requirements, including dust control;
 - 11. Prevent significant alteration of habitats mapped by the Massachusetts Natural Heritage & Endangered Species Program as Endangered, Threatened or Of Special Concern, Estimated Habitats of Rare Wildlife and Certified Vernal Pools, and Priority Habitats of Rare Species from the proposed activities;
 - 12. Institute interim and permanent stabilization measures, which shall be instituted on a disturbed area as soon as practicable but no more than 14

days after construction activity has temporarily or permanently ceased on that portion of the site;

13. Properly manage on-site construction and waste materials; and
14. Prevent off-site vehicle tracking of sediments.

C. Standards:

Projects shall meet the Standards of the Massachusetts Stormwater Management Policy, which are as follows:

1. No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or water of the Commonwealth.
2. Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.
3. Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to the maximum extent practicable. The annual recharge from the post-development site should approximate the annual recharge rate from the pre-development or existing site conditions, based on soil types.
4. For new development, stormwater management systems must be designed to remove 80% of the average annual load (post development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when:
 - a. Suitable nonstructural practices for source control and pollution prevention and implemented;
 - b. Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and
 - c. Stormwater management BMPs are maintained as designed.
5. Stormwater discharges from areas with higher potential pollutant loads require the use of specific stormwater management BMPs (see Stormwater Management Volume I: Stormwater Policy Handbook). The use of infiltration practices without pretreatment is prohibited.
6. Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas (see Stormwater

Management Volume I: Stormwater Policy Handbook). Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold water fisheries and recharge areas for public water supplies.

7. Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. However, if it is not practicable to meet all the Standards, new (retrofitted or expanded) stormwater management systems must be designed to improve existing conditions.
 8. Erosion and sediment controls must be implemented to prevent impacts during disturbance and construction activities.
 9. All stormwater management systems must have an operation and maintenance plan to ensure that systems function as designed. When one or more of the Standards cannot be met, an Applicant may demonstrate that an equivalent level of environmental protection will be provided.
- D. The Stormwater Management Plan Content. This Stormwater Management Plan shall contain sufficient information for the Permit Authority to evaluate the environmental impact, effectiveness, and acceptability of the measures proposed by the Applicant for reducing adverse impacts from stormwater. The Plan shall be designed to meet the Massachusetts Stormwater Management Standards as set forth in Part B of this section and DEP Stormwater Management Handbook Volumes I and II, or more recent editions. The Stormwater Management Plan shall fully describe the project in drawings, and narrative. All plan sheets shall be 24" x 36" in size. The Plan shall include at a minimum but not be limited to the following information:
1. Names, addresses, and telephone numbers of the owner, Applicant, and person(s) or firm(s) preparing the plan;
 2. A Locus map with title, date, north arrow, names of abutters, existing zoning and land uses, scale, and legend;
 3. Existing and proposed zoning and land use;
 4. Location of existing and proposed utilities;
 5. Location and description of natural features including:
 - (a) Watercourses and water bodies, wetland resource areas and all floodplain information, including the 100-year flood elevation based upon the most recent Flood Insurance Rate Map, or as calculated by a professional engineer for areas not assessed on these maps;

- (b) Existing vegetation including tree lines, canopy layer, shrub layer, and ground cover, and trees with a caliper twelve (12) inches or larger, noting specimen trees and forest communities; and
 - (c) Habitats mapped by the Massachusetts Natural Heritage & Endangered Species Program as Endangered, Threatened or of Special Concern, Estimated Habitats of Rare Wildlife and Certified Vernal Pools, and Priority Habitats of Rare Species within one hundred (100') feet of any construction activity.
6. Lines of existing abutting streets showing drainage and driveway locations and curb cuts;
 7. Existing soils, volume and nature of imported soil materials;
 8. The site's existing & proposed topography with contours at 2 foot intervals;
 9. Surveyed property lines showing distances and monument locations, all existing and proposed easements, rights-of-way, and other encumbrances, the size of the entire parcel, and the delineation and number of square feet of the land area to be disturbed;
 10. A description & delineation of existing stormwater conveyances, impoundments, and wetlands on or adjacent to the site or into which stormwater flows;
 11. A delineation of 100-year flood plains, if applicable;
 12. Estimated seasonal high groundwater elevation (November to April) in areas to be used for stormwater retention, detention, or infiltration;
 13. The existing and proposed vegetation and ground surfaces with runoff coefficient for each;
 14. A drainage area map showing pre and post construction watershed boundaries, drainage area and stormwater flow paths;
 15. Location and details of proposed erosion and sediment control measures with a narrative of the construction sequence/phasing of the project, including both operation and maintenance for structural and non-structural measures, interim grading, and material stockpiling areas;
 16. Drainage patterns and approximate slopes anticipated after major grading activities (Construction Phase Grading Plans);

17. A description and drawings of all components of the proposed drainage system including:
 - a. locations, cross sections, and profiles of all brooks, streams, drainage swales and their method of stabilization,
 - b. all measures for the detention, retention or infiltration of water,
 - c. all measures for the protection of water quality,
 - d. the structural details for all components of the proposed drainage systems and stormwater management facilities,
 - e. notes on drawings specifying materials to be used, construction specifications, and typicals, and
 - f. expected hydrology with supporting calculations.
18. Path and mechanism to divert uncontaminated water around disturbed areas, to the maximum extent practicable;
19. Location and description of industrial discharges
20. Stormwater runoff calculations in accordance with the Department of Environmental Protection's Stormwater Management Policy Include Hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in this Regulation. Such calculations shall include:
 - a. Description of the design storm frequency, intensity and duration; time of concentration;
 - b. Soil Runoff Curve Number (RCN) based on land use and soil hydrologic group;
 - c. Peak runoff rates and total runoff volumes for each watershed area;
 - d. Information on construction measures used to maintain the infiltration capacity of the soil where any kind of infiltration is proposed;
 - e. Infiltration rates, where applicable;
 - f. Culvert capacities;

- g. Flow velocities;
 - h. Data on the increase in rate and volume of runoff for the specified design storms, and
 - i. Documentation of sources for all computation methods and field test results.
21. Timing, schedules, and sequence of development including clearing, stripping, rough grading, construction, final grading, vegetative controls, and other stabilization measures;
 22. A description of construction and waste materials expected to be stored on-site. The Plan shall include a description of controls to reduce pollutants from these materials, including storage practices to minimize exposure of the materials to stormwater, and spill prevention and response;
 23. A maintenance schedule for the period of construction,
 24. A description of provisions for phasing the project where one acre of area or greater is to be altered or disturbed;
 25. Plans must be stamped and certified by a qualified Professional Engineer registered in Massachusetts; and
 26. Such other information as is required by the Permit Authority.

E. Low Impact Development Techniques:

The use of low-impact development techniques is required, where applicable. The Applicant shall employ meaningful low impact techniques which will result in less impervious area, direction of roof runoff toward rain gardens and swales, and plantings indigenous to the area. The use of recycled or recaptured rainwater is encouraged. (A Low Impact Development Handbook and other references are available from the Planning Board Office.)

F. Project Changes:

The Applicant, or their agent, shall notify the Permit Authority in writing of any change or alteration of a land-disturbing activity authorized in a Stormwater Management Permit before any change or alteration occurs. If the Permit Authority determines that the change or alteration is significant, based on the design requirements and accepted construction practices, the Permit Authority may require that an amended Stormwater Management Permit application be filed and a public hearing held. If any change or deviation from the Stormwater

Management Permit occurs during a project, the Permit Authority may require the installation of interim measures before approving the change.

Operation and Maintenance Plan

- A. An Operation and Maintenance plan (“O&M Plan”) is required at the time of application for all larger projects. The maintenance plan shall be designed to ensure compliance with the Permit, this Bylaw and that the Massachusetts Surface Water Quality Standards, 314, CMR 4.00 are met in all seasons and throughout the life of the system. The Permit Authority shall make the final decision of what maintenance option is appropriate in a given situation. The Permit Authority will consider natural features, proximity of site to water bodies and wetlands, extent of impervious surfaces, size of the site, the types of stormwater management structures, and potential need for ongoing maintenance activities when making this decision. The O&M Plan shall remain on file with the Permit Authority and shall be an ongoing requirement.

The O&M Plan shall include:

1. The name(s) of the owner(s) for all components of the system;
2. Maintenance agreements that specify:
 - a. The names and addresses of the person(s) responsible for operation and maintenance,
 - b. The person(s) responsible for financing maintenance and emergency repairs.
 - c. A Maintenance Schedule for all drainage structures, including swales and ponds.
 - d. A list of easements with the purpose and location of each.
 - e. The signature(s) of the owner(s).
3. Stormwater Management Easement(s). Stormwater management easements shall be provided by the property owner(s) as necessary for:
 - a. access for facility inspections and maintenance,
 - b. preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100-year storm event.

- c. direct maintenance access by heavy equipment to structures requiring regular cleanout.
 4. The purpose of each easement shall be specified in the maintenance agreement signed by the property owner.
 5. Stormwater management easements are required for all areas used for off-site stormwater control, unless a waiver is granted by the Permit Authority.
 6. Easements shall be recorded with the Essex County Registry of Deeds prior to issuance of a Certificate of Completion by the Permit Authority.
- B. Changes to Operation and Maintenance Plan:
1. The owner(s) of the stormwater management system must notify the Permit Authority of changes in ownership or assignment of financial responsibility.
 2. The maintenance schedule in the Maintenance Agreement may be amended to achieve the purposes of this by-law by mutual agreement of the Permit Authority and the Responsible Parties. Amendments must be in writing and signed by all Responsible Parties. Responsible Parties shall include owner(s), persons with financial responsibility, and persons with operational responsibility.

5.0 INSPECTION AND SITE SUPERVISION

- A. Pre-construction Meeting. Prior to starting clearing, excavation, construction, or land disturbing activity the Applicant, the Applicant's technical representative, the general contractor or any other person with authority to make changes to the project, shall meet with the Permit Authority designee(s), Technical Review Agent or Inspecting Agent, and any other person designated by the Permit Authority, to review the permitted plans and their implementation.
- B. Board Inspection. The Permit Authority or its designated agent shall make inspections as hereinafter required and shall either approve that portion of the work completed or shall notify the permittee wherein the work fails to comply with the Stormwater Management Permit as approved. The Permit and associated plans for grading, stripping, excavating, and filling work, approved by the Permit Authority, shall be maintained at the site during the progress of the work. In order to obtain inspections, the permittee shall notify the Permit Authority or its designee at least two (2) working days before each of the following events:
 1. Erosion and sediment control measures are in place and stabilized;

2. Site Clearing has been substantially completed;
 3. Rough Grading has been substantially completed;
 4. Final Grading has been substantially completed;
 5. Close of the Construction Season; and
 6. Final Landscaping (permanent stabilization) and project final completion.
- C. Applicant Inspections. The Applicant or his/her agent shall conduct and document inspections of all control measures no less than weekly or as specified in the permit, and prior to and following anticipated storm events. The purpose of such inspections is to determine the overall effectiveness of the control plan, and the need for maintenance or additional control measures. The Applicant or his/her agent shall submit monthly reports to the Permit Authority or designated agent in a format approved by the Permit Authority.
- D. Access Permission. To the extent permitted by state law, or if authorized by the owner or other party in control of the property, the Permit Authority and its agents, officers, and employees may enter upon privately owned property for the purpose of performing their duties under this by-law and may make or cause to be made such examinations, surveys or sampling as the Permit Authority deems reasonably necessary to determine compliance with the permit.

5.0 PERFORMANCE GUARANTEE

A reasonable performance guarantee, commensurate to the estimated duration and size of the project, shall be assessed by the Permit Authority and held in an escrow account pending completion of the project. The guarantee shall be calculated upon the cost of the stormwater management portion of the project.

6.0 OUTSIDE CONSULTANTS TO ASSIST PERMIT AUTHORITY

- A. When reviewing an application for (permit/approval), the Board may determine that the assistance of outside consultants is warranted due to the size, scale or complexity of a proposed project or because of a project's potential impacts. The Board may require that applicants pay a "review fee" consisting of the reasonable costs incurred by the Board for the employment of outside consultants engaged by the Board to assist in the review of an application.
- B. To the extent that most of the filings before the Permit Authority will be submitted concurrently and in conjunction with drainage, site design, and other technical elements of a plan, the Stormwater Management Plan and requirements outlined above shall be reviewed concurrently with these other elements. The technical review fee for stormwater management elements shall be assessed along with the fee for review of the project submitted, which falls under the purview of the Planning Board for Subdivision Plans under M.G.L. Chapter 44, Section 81 and Special Permits under M.G.L. Chapter 40A; and the Zoning Board of Appeals

for Variances, Special Permits, under M.G.L. Chapter 40A, and Site Plan Review under the Zoning Bylaw, and Comprehensive Permits under M.G.L. Chapter 40B. The Fee shall be deposited in the Town Treasury in compliance with the terms of M.G.L. Ch. 44, §53G.

- C. For applications which are not submitted concurrently with another application, a fee shall be assessed in conformity with M.G.L. Ch. 44, §53G, and Planning Board Regulations.

7.0 CERTIFICATE OF COMPLETION

At completion of the project, the permittee shall submit an as-built stamped by a registered engineer for all structural stormwater controls and treatment best management practices required for the site. The as-built will indicate all deviations from the plan. A letter certifying the completion will be issued before an occupancy permit is issued by the Building Inspector.