

# **Town of Cheshire Conservation Commission**

## **Stormwater Management Regulations**

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## **Section 1. Purpose**

The purpose of these Stormwater Regulations is to protect, maintain and enhance public health, safety, environment, and general welfare by establishing minimum requirements and procedures to control the adverse effects of increased runoff, decreased ground water recharge, erosion and sedimentation, and nonpoint source pollution associated with new development and redevelopment of land, pursuant to the **Town of Cheshire Stormwater Management Bylaw**.

Development of land including loss of vegetative cover to create impervious surfaces, regrading, and other land use changes, permanently alter the hydrologic system of local watersheds by decreasing transpiration and infiltration, and increasing stormwater runoff rates and volumes, causing an increase in flooding, stream channel erosion, and sediment transport and deposition, and water quality degradation. This additional runoff contributes to increased nonpoint source pollution and degradation of receiving waters.

Stormwater management systems that are properly designed utilizing low impact design (LID) and green infrastructure (GI) techniques and appropriate best management practices (BMPs) can better simulate the natural hydrologic condition and reduce adverse impacts.

During the construction process, soil is often exposed for periods of time and most vulnerable to erosion by wind and water. The eroded soil endangers water resources by reducing water quality, and causing the siltation of valuable wetland resources including swamps, streams, rivers, lakes and aquatic habitat for fish and other desirable species.

The impacts of construction and post-development stormwater runoff quantity and quality can adversely affect public safety, public and private property, surface water drinking water supplies, groundwater resources including drinking water supplies, recreation, aquatic habitats, fish and other aquatic life, property values and other uses of lands and waters.

These Stormwater Regulations (Regulations) have been developed to provide reasonable guidance for the regulation of project design, construction and post-development stormwater runoff for the purpose of protecting local water resources from degradation within the MS4 Area. It is in the public interest to regulate construction and post-development stormwater runoff discharges in order to control and minimize increases in stormwater runoff rates and volumes, soil erosion and sedimentation, stream channel erosion, and nonpoint source pollution associated with construction site and post-development stormwater runoff.

## **Section 2. Definitions**

**ABUTTER:** The owner(s) of land adjacent to regulated activity.

**ADMINISTRATIVE LAND DISTURBANCE REVIEW:** Approval by the Conservation Commission of a land disturbance activity that does not require a Land Disturbance Permit because of its size and/or scope.

**ALTERATION OF DRAINAGE CHARACTERISTICS:** Any activity on an area of land that changes the water quality, force, direction, timing or location of runoff flowing from the area. Such changes include: change from distributed runoff to confined or discrete discharge, change in the volume of runoff from the area; change in the peak rate of runoff from the area; and change in the recharge to groundwater on the area.

**APPLICANT:** Any person, individual, partnership, association, firm, company, corporation, trust, authority, agency, department, or political subdivision, of the Commonwealth or the Federal government, to the extent permitted by law, requesting a soil erosion and sediment control permit for proposed land-disturbance activity.

**AS-BUILT DRAWING:** Drawings that completely record and document applicable aspects and features of conditions of a project following construction using Stormwater Management Plans derived from a Land Disturbance Permit.

**BEST MANAGEMENT PRACTICE (BMP):** An activity, procedure, restraint, or structural improvement that helps to reduce the quantity or improve the quality of stormwater runoff.

**CERTIFICATE OF COMPLETION (COC):** A document issued by the Conservation Commission after all construction activities have been completed, which states that all conditions of an issued Land Disturbance Permit have been met and that a project has been completed in compliance with the conditions set forth in the permit.

**CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC):** A certified specialist in soil erosion and sediment control. This certification program, sponsored by the Soil and Water Conservation Society in cooperation with the American Society of Agronomy, provides the public with evidence of professional qualifications.

**CLEARING:** Any activity that removes the vegetative surface cover.

**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.

**DEVELOPMENT:** The modification of land to accommodate a new use or expansion of use, usually involving construction.

**DISCHARGE OF POLLUTANTS:** The addition from any source of any pollutant or combination of pollutants into the municipal storm drain system or into the waters of the United States or Commonwealth from any source.

**DISTURBANCE OF LAND:** Any action that causes a change in the position, location, or arrangement of soil, sand rock, gravel or similar earth material; results in an increased amount of runoff or pollutants; measurably changes the ability of a ground surface to absorb waters; involves clearing and grading; or results in an alteration of drainage characteristics.

**DRAINAGE EASEMENT:** A legal right granted by a landowner to a grantee allowing the use of private land for stormwater management purposes.

**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.

**EROSION AND SEDIMENTATION CONTROL PLAN:** A document containing narrative, drawings and details developed by a qualified professional engineer (PE) or a Certified Professional in Erosion and Sedimentation Control (CPESC), which includes best management practices, or equivalent measures designed to control surface runoff, erosion and sedimentation during pre-construction and construction related land disturbing activities.

**EROSION CONTROL:** The prevention or reduction of the movement of soil particles or rock fragments due to stormwater runoff.

**ESTIMATED HABITAT OF RARE WILDLIFE AND CERTIFIED VERNAL POOLS:** Habitats delineated for state-protected rare wildlife and certified vernal pools under the Wetlands

Protection Act Regulations (310 CMR 10.00) and the Forest Cutting Practices Act Regulations (304 CMR 11.00).

**GRADING:** Changing the level or shape of the ground surface.

**GROUNDWATER:** Water beneath the surface of the ground.

**GRUBBING:** The act of clearing land surface by digging up roots and stumps.

**HAZARDOUS MATERIAL:** Any material which, because of its quantity, concentration, chemical, corrosive, flammable, reactive, toxic, infectious or radioactive characteristics, either separately or in combination with any substance or substances, constitutes a present or potential threat to human health, safety, welfare, or to the environment. Toxic or hazardous materials include any synthetic organic chemical, petroleum product, heavy metal, radioactive or infectious waste, acid and alkali, and any substance defined as "toxic" or "hazardous" under MGL c. 21C and c. 21E, and the regulations at 310 CMR 30.000 and 310 CMR 40.0000.

**ILLICIT DISCHARGE:** Direct or indirect discharge to the municipal storm drain system or into a watercourse or the waters of the Commonwealth that is not composed entirely of stormwater, except as exempted in Section 2, § B of the Cheshire Stormwater Management Bylaw. The term does not include a discharge in compliance with an NPDES stormwater discharge permit or resulting from fire-fighting activities exempted pursuant to Section 2, § B of the Cheshire Stormwater Management Bylaw.

**IMPERVIOUS SURFACE:** Any material or structure on or above the ground that prevents water infiltrating the underlying soil. Impervious Surface includes without limitation roads, paved parking lots, sidewalks, and rooftops.

**IMPOUNDMENT:** A stormwater pond created by either constructing an embankment or excavating a pit which retains a permanent pool of water.

**INFILTRATION:** The act of conveying surface water into the ground to permit groundwater recharge and the reduction of stormwater runoff from a project site.

**LAND DISTURBANCE PERMIT:** A permit issued by the Conservation Commission pursuant to the Cheshire Stormwater Management Bylaw prior to commencement of Land Disturbing Activity or Redevelopment.

**LAND-DISTURBING ACTIVITY:** Any activity that causes a change in the position or location of soil, sand, rock, gravel, or similar earth material; results in an increased amount of runoff or pollutants; measurably changes the ability of a ground surface to absorb waters; involves clearing and grading; or results in an Alteration of Drainage Characteristics.

**LAND USE WITH HIGHER POTENTIAL POLLUTANT LOAD (LUHPPL):** Land uses such as auto salvage yards, auto fueling facilities, exterior fleet storage yards, vehicle service and equipment cleaning areas, commercial parking lots with high intensity use, road salt storage areas, outdoor storage and loading areas of hazardous substances, confined disposal facilities and disposal sites, marinas, boat yards or other uses as identified by the Massachusetts Stormwater Handbook.

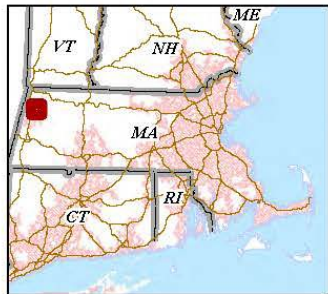
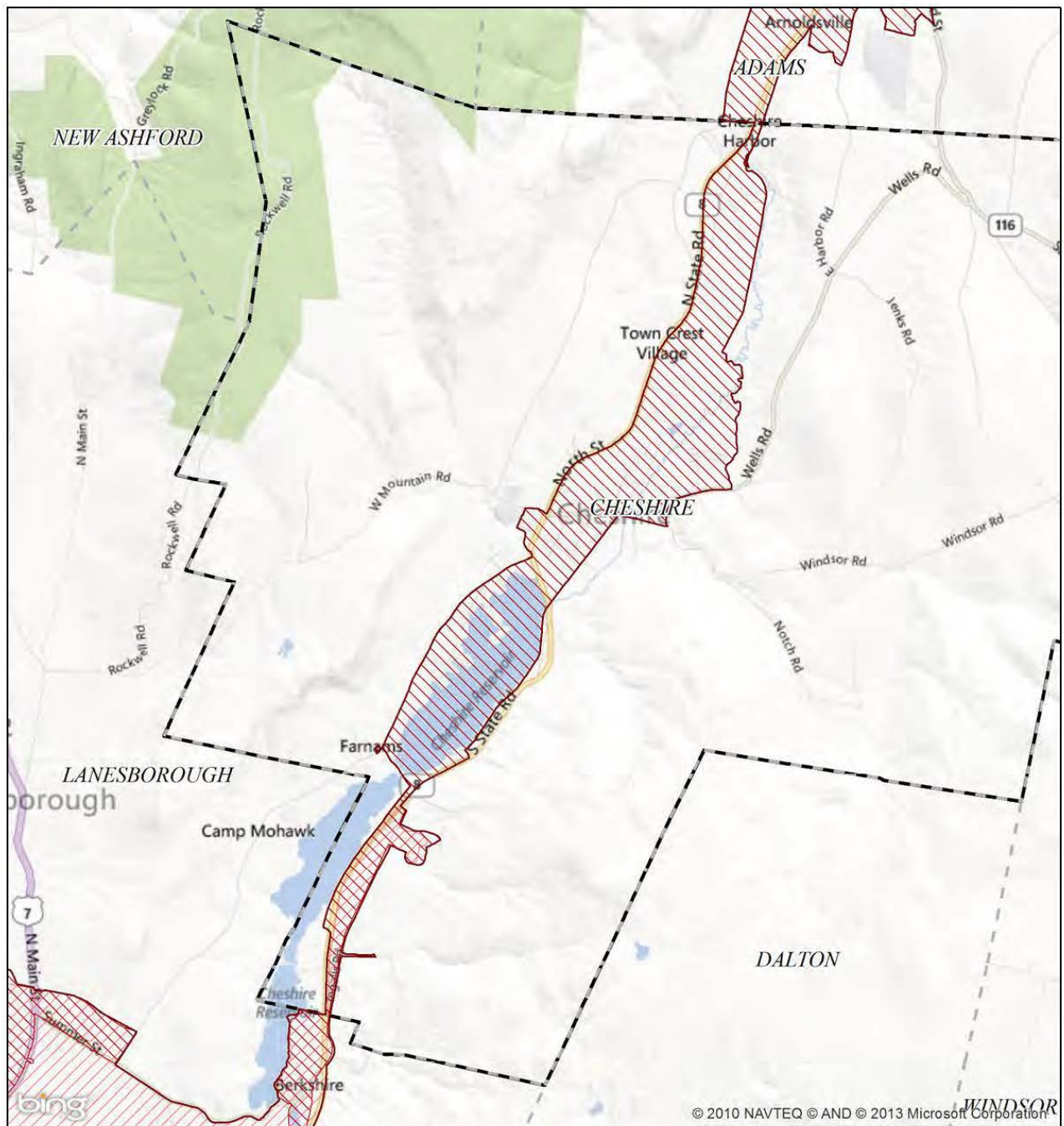
**LOT:** An individual tract of land as shown on the current Assessor's Map for which an individual tax assessment is made. For the purposes of these regulations, a lot also refers to an area of a leasehold on a larger parcel of land, as defined in the lease agreement and shown by approximation on the Assessor's Map.

**MASSACHUSETTS STORMWATER MANAGEMENT STANDARDS:** The performance standards as further defined by the Massachusetts Stormwater Handbook, issued by the Department of Environmental Protection, and as amended, that coordinate the requirements

prescribed by state regulations promulgated under the authority of the Massachusetts Wetlands Protection Act G.L. c. 131 §. 40 and Massachusetts Clean Waters Act G.L. c. 21, §. 23-56 to prevent or reduce pollutants from reaching water bodies and control the quantity of runoff from a site.

**MUNICIPAL STORM DRAIN SYSTEM:** The system of conveyances designed or used for collecting or conveying stormwater, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town of Cheshire.

**MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) AREA:** The geographic area covered by the EPA NPDES Phase II MS4 General Permit includes all municipally-owned storm drain system infrastructure within that geographic area. See Map below:



# NPDES Phase II Stormwater Program Automatically Designated MS4 Areas **Cheshire MA**

Regulated Area:



Town Population: **3235**  
Regulated Population: **1689**  
(Populations estimated from 2010 Census)



Urbanized Areas, Town Boundaries:  
US Census (2000, 2010)  
Base map © 2013 Microsoft Corporation  
and its data suppliers

US EPA Region 1 GIS Center Map #8624, 8/9/2013

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER DISCHARGE PERMIT:** A permit issued by United States Environmental Protection Agency or jointly with the Commonwealth of Massachusetts that authorizes the discharge of pollutants to waters of the United States.

**NONPOINT SOURCE POLLUTION:** Pollution from many diffuse sources caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and man-made pollutants finally depositing them into a water resource area.

**OPERATION AND MAINTENANCE PLAN:** A plan setting up the functional, financial and organizational mechanisms for the ongoing operation and maintenance of a stormwater management system to insure that it continues to function as designed.

**OUTFALL:** The point at which stormwater flows out from a point source discernible, confined and discrete conveyance into Waters of the Commonwealth.

**OWNER:** A person with a legal or equitable interest in property.

**PERSON:** An individual, partnership, association, firm, company, trust, corporation, agency, authority, department or political subdivision of the Commonwealth or the federal government, to the extent permitted by law, and any officer, employee, or agent of such person.

**POINT SOURCE:** Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, or container from which pollutants are or may be discharged.

**PRE-CONSTRUCTION:** All activity in preparation for construction.

**POLLUTANT:** Any element or property of sewage, agricultural, industrial or commercial waste, runoff, leachate, heated effluent, or other matter, whether originating at a point or nonpoint source, that is or may be introduced into any sewage treatment works, watercourse or Waters of the Commonwealth. Pollutants include, but are not limited to:

- (1) Paints, varnishes, and solvents;
- (2) Oil and other automotive fluids;
- (3) Nonhazardous liquid and solid wastes and yard wastes;
- (4) Refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordnance, accumulations and floatables;
- (5) Pesticides, herbicides, and fertilizers;
- (6) Hazardous materials and wastes;
- (7) Sewage, fecal coliform and pathogens;
- (8) Dissolved and particulate metals;
- (9) Animal wastes;
- (10) Rock, sand, salt, soils;
- (11) Construction wastes and residues; and
- (12) Noxious or offensive matter of any kind.

**PRIORITY HABITAT OF RARE SPECIES:** Habitats delineated for rare plant and animal populations protected pursuant to the Massachusetts Endangered Species Act (M.G.L. c. 131A) and its regulations.

**RECHARGE:** The process by which groundwater is replenished by precipitation through the percolation of runoff and surface water through the soil.

**REDEVELOPMENT:** Development, rehabilitation, expansion, demolition, construction, land alteration, or phased projects that disturb the ground surface, including impervious surfaces, on previously developed sites. The creation of new areas of impervious surface or new areas of land disturbance on a site constitutes development, not redevelopment, even where such activities are part of a common plan which also involves redevelopment.

**RUNOFF:** Rainfall, snowmelt, or irrigation water flowing over the ground surface.

**SEDIMENT:** Mineral or organic soil material that is transported by wind or water, from its origin to another location; the product of erosion processes.

**SEDIMENTATION:** The process or act of deposition of sediment.

**SITE:** Any lot or parcel of land or area of property where land-disturbing activities are, were, or will be performed.

**SLOPE:** The incline of a ground surface expressed as a ratio of horizontal distance to vertical distance.

**SOIL:** Any earth, sand, rock, gravel, or similar material.

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

**STORMWATER:** Runoff from precipitation or snow melt and surface water runoff and drainage.

**STORMWATER MANAGEMENT PLAN:** A document containing narrative, drawings, details and reporting requirements developed by a qualified professional engineer (PE), which describes structural and non-structural best management practices designed to control the discharge of pollutants from impervious surfaces and onsite activities as well as the volume and peak rate of surface runoff from a site on an ongoing basis after construction has been completed.

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

**TOTAL SUSPENDED SOLIDS or TSS:** Undissolved organic or inorganic particles in water.

**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.

**WATERS OF THE COMMONWEALTH:** All waters within the jurisdiction of the Commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters, and groundwater and Waters of the United States as defined under the Federal Clean Water Act (33 U.S.C. § 1251, et seq.) as hereafter amended.

**WETLAND RESOURCE AREA:** Areas specified in the Massachusetts Wetlands Protection Act G.L. c. 131, § 40.

**WETLANDS:** Tidal and non-tidal areas characterized by saturated or nearly saturated soils most of the year that are located between terrestrial (land-based) and aquatic (water-based) environments, including freshwater marshes around ponds and channels (rivers and streams), brackish and salt marshes; common names include marshes, swamps and bogs.



### **Section 3. Authority**

- A. The Stormwater Regulations have been adopted by the Conservation Commission in accordance with the Cheshire Stormwater Management Bylaw.
- B. The Conservation Commission may periodically amend these regulations pursuant to Section 1 § F of the Stormwater bylaw and other relevant provisions of the General bylaws of Cheshire.
- C. Nothing in these Regulations is intended to replace or be in derogation of the requirements of the relevant local law, such as Zoning Bylaw, Wetlands Protection bylaw, or any other Regulations adopted thereunder.

### **Section 4. Administration**

- A. The Conservation Commission is designated as the Conservation Commission under the Cheshire Stormwater Management Bylaw and shall administer, implement and enforce these regulations. Any powers granted to or duties imposed upon the Conservation Commission may be delegated in writing by the Conservation Commission or its agents.
- B. Waiver. Following a public hearing on a written waiver request, the Conservation Commission may waive strict compliance with any requirement of these regulations, where such action is:
  - (1) allowed by federal, state and local statutes and/or regulations;
  - (2) in the public interest; and
  - (3) not inconsistent with the purpose and intent of the Stormwater Management bylaw.
- C. The Conservation Commission may amend rules and regulations after holding a public hearing. Notice of the time, place and subject matter shall be published in a newspaper of general circulation in Cheshire once, before the day of such a hearing.

### **Section 5. Applicability**

- A. These regulations shall apply to all activities that individually or as part of a common plan of Development resulting in disturbance of land in excess of the thresholds below and which drain to the municipal separate storm sewer system (MS4) area or, directly or indirectly, into a Watercourse or Waters of the Commonwealth.
  - (1) A Land Disturbance Permit is required for disturbance of one (1) acre (43,560 square feet) or more of land, or for the disturbance of any amount of land where the proposed use is a land use of higher potential pollutant loads pursuant to the Massachusetts Stormwater Management Standards.
  - (2) The Conservation Commission may require a permit for a project of any size which has caused or can reasonably be expected to cause or contribute to a violation of State Water Quality Standards.
- B. The following activities are exempt from the provisions of Section 5(A):

- (1) Maintenance of existing landscaping, gardens or lawn areas associated with a single family dwelling conducted in such a way as not to cause a nuisance;
- (2) Construction of fencing that will not substantially alter existing terrain or drainage patterns;
- (3) Construction of utilities other than drainage (gas, water, electric, telephone, etc.) which will not alter terrain or drainage patterns or result in discharge of sediment or other pollutants to the MS4 or, directly or indirectly, to a Watercourse or Waters of the Commonwealth;
- (4) Normal maintenance and improvement of land in agricultural or aquacultural use, as defined by the Massachusetts Wetlands Protection Act regulation 310 CMR 10.04; and
- (5) Disturbance of Land or Redevelopment that are subject to jurisdiction under the Massachusetts Wetlands Protection Act and demonstrate compliance with the Massachusetts Stormwater Management Standards and Cheshire Stormwater Management Regulations as reflected in an Order of Conditions issued by the Conservation Commission.

## **Section 6. Land Disturbance Permit and Procedure**

- A. **Permit Required.** A permit must be obtained prior to the commencement of land disturbing activity that may result in the disturbance of an area of one (1) acre or more, or activities that are part of a larger common plan of Development disturbing greater than one (1) acre. A Land Disturbance Permit must be obtained prior to applying for a building, grading or other local development permit.
- B. **Application.** A completed application for a Land Disturbance Permit shall be filed with Conservation Commission. The Land Disturbance Permit Application package shall include:
  - (1) A completed Application Form with original signatures of all property owners;
  - (2) A list of abutters within 300 feet of the property, certified by the TOWN Assessors Office;
  - (3) One (1) copy each of the following items, unless more is requested by Conservation Commission:
    - (a) Stormwater Management Plan;
    - (b) Erosion and Sediment Control Plan; and
    - (c) Operation and Maintenance Plan.
  - (4) Payment of the application and review fees (see next page for fee amount); and,
  - (5) One (1) copy each of the Application Form and the list of abutters
- C. **Information Requests.** The applicant shall submit all additional information requested by the Conservation Commission to issue a decision on the application.

- D. **Determination of Completeness:** The Conservation Commission shall make a determination as to the completeness of the application and adequacy of the materials submitted. No review shall take place until the application is determined complete.
- E. **Fee Structure.** Each application must be accompanied by the appropriate application fee of \$50 as established by the Conservation Commission. Application fees cover any expenses connected with the public hearing and review of the Land Disturbance Permit Application before the review process commences. The Conservation Commission is authorized to retain a Registered Professional Engineer or other professional consultant to advise the Conservation Commission on any or all aspects of the Application.
- F. **Entry.** Filing an application for a permit grants the Conservation Commission or its agent permission to enter the site to verify the information in the application and to inspect for compliance with permit conditions.
- G. **Public Hearing.** Conservation Commission shall hold a public hearing within twenty-one (21) days of the receipt of a complete application and shall take final action within twenty-one (21) days from the time of the close of the hearing unless such time is extended by agreement between the applicant and Conservation Commission. Notice of the public hearing shall be by publication, posting and by first-class mailings to abutters at least seven (7) days prior to the hearing. The Conservation Commission shall make the application available for inspection by the public during business hours. Post of public hearing will be completed by the applicant.
- H. **Action by the Conservation Commission.** The Conservation Commission may:
- (1) Approve the Land Disturbance Permit Application and issue a permit if it finds that the proposed plan will protect water resources, not cause or contribute to a violation of State Water Quality Standards, and meets the objectives and requirements of the Town Stormwater Management Bylaw and related regulations;
  - (2) Approve the Land Disturbance Permit Application and issue a permit with conditions, modifications or restrictions that Conservation Commission determines are required to ensure that the project will protect water resources and meets the objectives and requirements of the [Town Stormwater Management Bylaw and related regulations;
  - (3) Disapprove the Land Disturbance Permit Application and deny the permit if it finds that the proposed plan will not protect water resources or fails to meet the objectives and requirements of the Town Stormwater Management Bylaw and related regulations; or
  - (4) Disapprove the Land Disturbance Permit Application “without prejudice” where an applicant fails to provide requested additional information or review fees that in the Conservation Commission’s opinion are needed to adequately describe or review the proposed project.
- I. **Final Approval.** Final approval, if granted, shall be endorsed on the Land Disturbance Permit by the signature of the majority of the Conservation

Commission (or by the signature of the person officially authorized by the Conservation Commission).

- J. **Project Changes.** The permittee, or their agent, must notify the Conservation Commission in writing of any change or alteration of a land-disturbing activity authorized in a Land Disturbance Permit before any change or alteration occurs. If Conservation Commission determines that the change or alteration is significant, based on the design requirements listed in Section 8(E) and accepted construction practices, Conservation Commission may require that an amended Land Disturbance Permit application be filed, and a public hearing held. If any change or alteration from the Land Disturbance Permit occurs during any land disturbing activities, Conservation Commission may require the installation of interim erosion and sedimentation control measures before approving the change or alteration.

## **Section 7. Stormwater Management Plan for Permit Applications**

- A. The application for a Land Disturbance Permit shall include a Stormwater Management Plan. The Stormwater Management Plan shall contain sufficient information for the Conservation Commission to evaluate the environmental impact, effectiveness, and acceptability of the site planning process and the measures proposed by the applicant to reduce adverse impacts from stormwater runoff during construction, and post-construction in the long-term.
- B. The Stormwater Management Plan shall fully describe the project in narrative, drawings, and calculations. It shall at a minimum include:
- (1) Contact Information. The name, address, and telephone number of all persons having a legal interest in the property and the tax reference number and parcel number of the property or properties affected;
  - (2) Narrative describing:
    - (a) Purpose;
    - (b) Methodologies and assumptions;
    - (c) Existing and proposed uses and conditions;
    - (d) Project impacts and mitigation techniques including:
      - i. Summary of proposed land area to be cleared, proposed impervious area, work within proximity of regulated wetland resources, aquifer protection zones, earthwork within 4 feet of seasonal high groundwater elevations, and other sensitive environmental areas;
      - ii. Low Impact Development (LID) techniques considered for this project and an explanation as to why they were included or excluded from the project;
      - iii. Proposed best management practices;
      - iv. Identifying the immediate down gradient waterbody(s) that stormwater runoff from the project site discharges to, EPA's waterbody assessment and impairment status of the waterbody(s), and the LIDs and BMP's included in the project to address the pollutant(s) of concern;

- (e) Summary of pre- and post-development peak rates and volumes of stormwater runoff demonstrating no adverse impacts to down-gradient properties, stormwater management systems and wetland resources; and
  - (f) Conclusions
- (3) Plans
  - (a) Portion of the USGS Map indicating the site locus and properties within a minimum of 500 feet of project property line;
  - (b) Existing conditions and proposed design plans showing:
    - i. Buildings and/or structures including materials, approximate height;
    - ii. Utilities including size, material and invert data; and
    - iii. Regulated wetland resource areas within proximity of the site
  - (c) Stormwater management design plan(s) and details showing:
    - i. Location, size, material, inverts data and details for all existing and proposed stormwater management system components including structures, pipes, swales, detention, retention, and infiltration systems and any other Low Impact Development techniques or BMPs;
    - ii. Profiles of drainage trunk lines; and
    - iii. Drainage easements;
  - (d) Separate Pre- and Post- Condition Watershed Plans indicating:
    - i. Structures, pavements, surface vegetation and other ground cover materials;
    - ii. Topography sufficient to delineate watershed areas;
    - iii. Point(s) of analysis;
    - iv. Watershed areas including upgradient areas that contribute stormwater flow onto the project site, labeled to be easily identified in calculations. Total pre and post watershed areas should be equivalent;
    - v. Breakdown summary of various surface conditions by soil hydrologic group rating; and
    - vi. Flow path for time of concentration (Tc) calculation.
- (4) Calculations
  - (a) Hydrologic calculation to determine pre and post peak rates and volumes of stormwater runoff for 2-, 10-, 25- and 100-year 24 hour storm events;
  - (b) Groundwater recharge calculations and BMP drawdown (time to empty);

- (c) Water quality calculations including (if applicable):
      - i. TSS removal calculation for each watershed;
      - ii. Specific BMPs utilized in critical areas;
      - iii. Specific BMPs utilized for land uses of higher potential pollutant loads; and
      - iv. Specific treatment for pollutant causing impairment of down-gradient waterbody identified by U.S. Environmental Protection Agency and Massachusetts Department of Environmental Protection.
    - (d) Hydraulic calculations to size drainage pipes, swales and culverts; and
    - (e) Supplemental calculations for sizing LID and BMPs and addressing impairments to water bodies.
  - (5) Soil mapping and test data;
  - (6) Massachusetts Department of Environmental Protection Checklist for Stormwater Report completed, stamped, and signed by a Professional Engineer (PE) licensed in the Commonwealth of Massachusetts to certify that the Stormwater Management Plan is in accordance with the criteria established in the Massachusetts Stormwater Management Standards, Cheshire Stormwater Management bylaw and these regulations; and
  - (7) Any other information requested by the Conservation Commission.
- C. General Performance Standards for All Sites.
- (1) Low Impact Development and Green Infrastructure site design strategies shall be utilized to preserve existing natural features of the site, minimize the creation of impervious surfaces, and manage stormwater in a decentralized fashion, to the maximum extent feasible.
  - (2) The selection, design and construction of all pre-treatment, treatment and infiltration BMPs shall be in accordance with Massachusetts Stormwater Handbook and shall be consistent with all elements of the Massachusetts Stormwater Standards including but not limited to those regarding new stormwater conveyances, peak runoff rates, recharge, land uses with higher potential pollutant loads, discharges to Zone II or interim wellhead protection areas, sediment and erosion control, and illicit discharges.
  - (3) The first 1.0 inch of runoff from all post-construction impervious surfaces shall be retained on-site through a combination of infiltration, reuse and/or evaporation, to the maximum extent practicable. When determining whether the requirements have been met, the Conservation Commission shall consider all stormwater management practices available and capable of being implemented after taking into consideration costs, existing technology, proposed use, and logistics in light of overall project purposes. Project purposes shall be defined generally (e.g., single family home or expansion of a commercial development).
  - (4) Where it is not technically feasible to retain the first 1.0 inch of runoff from all impervious areas, the Applicant will describe in writing why it is

technically infeasible to do so due to physical site constraints, and indicate the volume of runoff to be retained. If different volumes are retained on different areas of the site, each area shall be described individually. That portion of the required volume which is not retained on-site shall be treated using stormwater BMPs that are optimized for the removal of TSS, total phosphorus, bacteria and pollutants of concern identified in any applicable impaired waters designation.

- (5) All Applicants who do not retain the first 1.0 inch of runoff from all impervious areas shall use the pollutant load reduction estimation tool(s) designated by the Conservation Commission to document that the proposed BMPs will remove 90% or more of the annual average load of total suspended solids and 60% or more of the average annual load of total phosphorous for all post-construction impervious areas on-site.

D. Stormwater Management Design Standards

- (1) Projects must be designed to collect and dispose of stormwater runoff from the project site in accordance with Massachusetts Stormwater Management Standards recognized engineering methodologies and these regulations with an emphasis to include Low Impact Development techniques in the design.
- (2) Projects must manage surface runoff so that no flow is conducted over public ways, nor over land not owned or controlled by the Applicant unless an easement in proper form is obtained permitting such discharge.
- (3) Projects must use Low Impact Development techniques where adequate soil, groundwater and topographic conditions allow. These may include but not be limited to reduction in impervious surfaces, disconnection of impervious surfaces, bioretention (rain gardens) and infiltration systems. The use of one or more Low Impact Development site design measures by the applicant may allow for a reduction in the water quality treatment volume required by these regulations. The applicant may, if approved by the Conservation Commission, take credit for the use of stormwater Low Impact Development measures to reduce some of the requirements specified in these regulations. The site design practices that qualify for these credits and procedures for applying and calculating credits are identified in the Massachusetts Stormwater Handbook.
- (4) Projects must use TR-55 and TR-20 methodologies to calculate peak rate and volume of runoff from pre-development to post-development conditions.
- (5) Stormwater management systems shall be designed to avoid disturbance of areas susceptible to erosion and sediment loss, avoiding, to the greatest extent practicable: the damaging of large forest stands; building on steep slopes (15% or greater); and disturbing land in wetland buffer zones and floodplains.
- (6) Watershed area for hydrologic analysis and BMP sizing calculations must include at a minimum the site area and all upgradient areas from which stormwater runoff flows onto the site.

- (7) For purposes of computing runoff, all pervious lands in the site are assumed prior to Development to be in "good hydrologic condition" regardless of the conditions existing at the time of the computation.
- (8) Length of sheet flow used for times of concentration is to be no more than 50 feet.
- (9) Utilize the 24-hour rainfall data taken from the Atlas of Precipitation Extremes for the Northeastern United States and Southeastern Canada.
- (10) Soils tests to be conducted by a Registered Professional Engineer or Massachusetts Soil Evaluator, performed at the location of all proposed Low Impact Development techniques and BMPs, to identify soil descriptions, depth to estimated seasonal high groundwater, depth to bedrock, and soil texture.
- (11) The design infiltration rate shall be determined from the on-site soil texture and published Rawls rates or saturated hydraulic conductivity tests.
- (12) Size drainage pipes to accommodate the 25-year storm event and maintain velocities between 2.5 and 10 feet per second using the Rational Method.
- (13) Size drainage swales to accommodate the 25-year storm event and velocities below 4 feet per second
- (14) Size culverts to accommodate the 50-year storm event and design adequate erosion protection. Design stream crossing culverts in accordance with the latest addition of the Massachusetts Stream Crossing Handbook.
- (15) Size stormwater basins to accommodate the 100-year storm event with a minimum of one foot of freeboard
- (16) All drainage structures are to be able to accommodate HS-20 loading.
- (17) Catch basins structures are to be constructed as required by Town Department of Public Works and spaced a maximum of 250 feet apart in roadways.
- (18) Catch basins adjacent to curbing are to be built with a curb inlet.
- (19) Catch basins in low points of road and on roads with profile grades greater than 5 percent are to be fitted with double grates (parallel with curb).
- (20) All drainpipes are to be reinforced concrete pipe or High Density Polyethylene pipe and have a minimum diameter of 12 inches;
- (21) Outfalls are to be designed to prevent erosion of soils, and pipes 24 inches or larger are to be fitted with grates or bars to prevent ingress.
- (22) Drainage easements are to provide sufficient access for maintenance and repairs of system components and be at least 20 feet wide.
- (23) Minimize permanently dewatering soils by:
  - (a) Limiting grading within 4 feet of seasonal high groundwater elevation (SHGWE);



- (b) Raising roadways to keep roadway section above SHGWE; and
  - (c) Setting bottom floor elevation of building(s) a minimum of 2 feet above SHGWE.
- E. Permittees shall submit as-built drawings no later than one year after completion of construction projects. The as-built drawings must depict all on-site controls, both structural and non-structural, designed to manage stormwater associated with the completed site.

## **Section 8. Erosion and Sedimentation Control Plan of Permit Applications**

- A. The Erosion and Sediment Control Plan shall be designed to ensure compliance with these regulations, the MS4, and if applicable, the NPDES General Permit for Storm Water Discharges From Construction Activities. In addition, the plan shall ensure that the Massachusetts Surface Water Quality Standards (314 CMR 4.00) are met in all seasons.
- B. If a project requires a Stormwater Pollution Prevention Plan (SWPPP) per the NPDES General Permit for Storm Water Discharges From Construction Activities (and as amended), then the applicant is required to submit a complete copy of the SWPPP (including the signed Notice of Intent and approval letter). If the SWPPP meets the requirements of the General Permit, it will be considered equivalent to the Erosion and Sediment Control Plan described in this section;
- C. The Erosion and Sediment Control Plan shall remain on file with the Conservation Commission. Refer to the latest version of the Massachusetts Erosion and Sediment Control Guidelines for Urban & Suburban Areas for detailed guidance;
- D. Erosion and Sedimentation Control Plan Content. The Plan shall contain the following information:
  - (1) Names, addresses, and telephone numbers of the owner, applicant, and person(s) or firm(s) preparing the plan;
  - (2) Title, date, north arrow, names of abutters, scale, legend, and locus map;
  - (3) 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 five hundred (500) feet of any construction activity.
  - (4) Lines of existing abutting streets showing drainage and driveway locations and curb cuts;

- (5) Existing soils, volume and nature of imported soil materials;
- (6) Topographical features including existing and proposed contours at intervals no greater than two (2) feet with spot elevations provided when needed;
- (7) 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;
- (8) Drainage patterns and approximate slopes anticipated after major grading activities (Construction Phase Grading Plans);
- (9) Location and details of 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;
- (10) Path and mechanism to divert uncontaminated water around disturbed areas, to the maximum extent practicable. When determining whether the requirements have been met, the Conservation Commission shall consider all stormwater management practices available and capable of being implemented after taking into consideration costs, existing technology, proposed use, and logistics in light of overall project purposes. Project purposes shall be defined generally (e.g., single family home or expansion of a commercial development).;
- (11) Location and description of industrial discharges, including stormwater discharges from dedicated asphalt plants and dedicated concrete plants, which are covered by this permit;
- (12) Stormwater runoff calculations in accordance with the Massachusetts Department of Environmental Protection's Stormwater Management Policy;
- (13) Location and description of and implementation schedule for temporary and permanent seeding, vegetative controls, and other stabilization measures;
- (14) 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;
- (15) A description of provisions for phasing the project where one acre of area or greater is to be altered or disturbed;
- (16) Plans must be stamped and certified by a qualified Professional Engineer registered in Massachusetts or a Certified Professional in Erosion and Sediment Control; and
- (17) Such other information as is required by the Conservation Commission.

E. Erosion Controls Design Standards. The Sediment and Erosion Control Plan shall be developed to comply with the MS4 and shall meet the following standards:

- (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 Department of Environmental Protection Stormwater Standards;
- (4) Minimize soil erosion and control sedimentation during construction;
- (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 Massachusetts Erosion and Sedimentation Control Guidelines for Urban and Suburban Areas, manufacturers 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) Protect natural resources and 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, including truck washing and cement concrete washout facilities;
- (14) Prevent off-site vehicle tracking of sediments; and
- (15) Incorporate appropriate BMPs designed to comply with the Massachusetts Stormwater Handbook.

## **Section 9. Operation and Maintenance Plan for Permit Applications**

- A. A stand-alone Operation and Maintenance Plan is required at the time of application for all projects that include structural and non-structural stormwater BMPs. The Operation and Maintenance Plan shall be designed to ensure compliance with the Permit and these regulations for the life of the system. The Operation and Maintenance Plan shall remain on file with the Conservation Commission and shall be an ongoing requirement. The Applicant shall provide copies of the Operation and Maintenance Plan to all persons responsible for maintenance and repairs.
- B. The Operation and Maintenance Plan shall include:

- (1) The name(s) of the owner(s) for all components of the system;
- (2) A map showing the location of the systems and facilities including all structural and nonstructural stormwater best management practices (BMPs), catch basins, manholes/access lids, pipes, and other stormwater devices. The plan showing such systems and facilities to be privately maintained, including associated easements shall be recorded with the Town Registry of Deeds prior to issuance of a Certificate of Compliance by the Conservation Commission.
- (3) Maintenance Agreement with the Conservation Commission that specifies:
  - (a) The names and addresses of the person(s) responsible for operation and maintenance;
  - (b) The person(s) financially responsible for maintenance and emergency repairs;
  - (c) An Inspection and Maintenance Schedule for all stormwater management facilities including routine and non-routine maintenance tasks to be performed. Where applicable, this schedule shall refer to the Maintenance Criteria provided in the Stormwater Handbook or the EPA National Menu of Stormwater Best Management Practices or equivalent;
  - (d) Instructions for routine and long-term operation and maintenance shall have sufficient detail for responsible parties to perform necessary maintenance activities and prevent actions that may adversely affect the performance of each structural and/or nonstructural stormwater BMP.
  - (e) A list of easements with the purpose and location of each; and
  - (f) The signature(s) of the owner(s) and all persons responsible for operation and maintenance, financing, and emergency repairs, as defined in the Maintenance Agreement, if maintenance is to be performed by an entity other than the owner.
- (4) Stormwater Management Easement(s)
  - (a) Stormwater Management easements shall be provided by the property owner(s) as necessary for:
    - i. Access for facility inspections and maintenance;
    - ii. Preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100-year storm event; and
    - iii. Direct maintenance access by heavy equipment to structures requiring maintenance.
  - (b) The purpose of each easement shall be specified in the Maintenance Agreement signed by the property owner.
  - (c) Stormwater Management easements are required for all areas used for permanent stormwater control, unless a waiver is granted by the Conservation Commission pursuant to Section 4(B).

- (d) Easements shall be recorded with the Registry of Deeds prior to issuance of a Certificate of Compliance by the Conservation Commission.
- (5) Changes to Operation and Maintenance Plans
  - (a) The owner(s) of record of the Stormwater Management system must notify the Conservation Commission of changes in ownership, assignment of Operation and Maintenance responsibilities, or assignment of financial responsibility within 30 days of the change in ownership. The owner of record shall be responsible for Operation and Maintenance activities until a copy of the updated Operation and Maintenance Plan has been furnished to the Conservation Commission signed by the new owner or any new responsible person;
  - (b) The maintenance schedule in the Maintenance Agreement may be amended to achieve the purposes of the Stormwater Management bylaw by mutual agreement of the Conservation Commission 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 and/or maintenance responsibility.
- (6) Enforcement. To ensure adequate long-term operation and maintenance of stormwater management practices, applicants are required to implement one or more of the following procedures, as directed by the Conservation Commission:
  - (a) Filing by the applicant of an annual Operation and Maintenance Report with the Conservation Commission on a form specified by the Conservation Commission;
  - (b) If any enforcement actions are required, they will be handled by the owner at the expense of the owner to the satisfaction of the Conservation Commission;
  - (e) When in violations, the owner will be required to submit an annual certification documenting the work that has been done over the last 12 months to properly operate and maintain the stormwater control measures and rectify any failures. The certification shall be signed by the person(s) or authorized agent of the person(s) named in the permit as being responsible for ongoing operation and management;
  - (f) Recording of Operation and Maintenance Plans will be kept by the Conservation Commission.

#### **Section 10. Inspection and Site Supervision for permit applicants.**

- A. Pre-construction Meeting. Prior to starting the clearing, excavation, construction, Redevelopment 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, may be required to meet with the Conservation Commission, to review the approved plans and their proposed implementation.

The need for a pre-construction meeting shall be determined by the Conservation Commission based on the project scope.

- B. Conservation Commission Inspection. The Conservation Commission or its designated agent shall make inspections as herein required and shall either approve that portion of the work completed or shall notify the applicant wherein the work fails to comply with the Erosion and Sedimentation Control Plan or the Stormwater Management Plan as approved. The approved Erosion and Sedimentation Control Plan and associated plans for grading, stripping, excavating, and filling work, bearing the signature of approval of the Conservation Commission, shall be maintained at the site during the progress of the work. In order to obtain inspections, the applicant shall notify the Conservation Commission at least two (2) working days before each of the following events:
- (1) Erosion and sedimentation 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 will be to determine the overall effectiveness of the Erosion and Sedimentation Control Plan, and the need for maintenance or additional control measures as well as verifying compliance with the Stormwater Management Plan. The applicant or his/her agent shall submit monthly reports to the Conservation Commission or designated agent in a format approved by the Conservation Commission.

#### **Section 11. Surety for projects requiring permits.**

The Conservation Commission may require the permittee to pay for all legal and administrative fees incurred by the Town if found in non-compliance. The permittee is responsible for the cost and management of restoration of the site to bring property into compliance.

#### **Section 12. Final Reports for projects requiring permits.**

Upon completion of the work, the permittee shall submit a report (including certified as-built construction plans) from a Professional Engineer (P.E.), surveyor, or Certified Professional in Erosion and Sediment Control (CPESC), certifying that all erosion and sediment control devices, and approved changes and modifications, have been completed in accordance with the conditions of the approved permit. Any discrepancies should be noted in the cover letter.

#### **Section 13. Certificate of Completion for projects requiring permits.**

The Conservation Commission shall issue a letter certifying completion upon receipt and approval of the final reports and/or upon otherwise determining that all work has been conducted in conformance with these regulations and the Stormwater Management Permit conditions.