Town of Watertown
Rules and Regulations
for
Stormwater Management
and
Erosion Control

1.0 Purpose

The purpose of these Rules and Regulations is to preserve, maintain, and enhance the public health, safety, environment, and general welfare of the Town of Watertown by establishing minimum requirements and procedures to control the adverse effects of erosion and sedimentation, uncontrolled stormwater runoff, decreased groundwater infiltration, and nonpoint source pollution, as more specifically addressed in the Stormwater Management and Erosion Control Ordinance (Chapter 98 of the Town Code of Ordinances).

2.0 Definitions

Agricultural Use: The cultivation and tillage of the soil; dairying; the production, cultivation, growing, and harvesting of any agricultural, aquacultural, floricultural, or horticultural commodities; the growing and harvesting of forest products upon forest land; the raising of livestock including horses; the keeping of horses as a commercial enterprise, the keeping and raising of poultry, swine, cattle, and other domesticated animals used for food and other agricultural purposes, including bees and fur-bearing animals; and any forestry or lumbering operations performed by a farmer, who is hereby defined as one engaged in agriculture or farming as herein defined, or on a farm as an incident to or in conjunction with such farming operations, including preparations for market, delivery to storage or to market or to carriers for transportation to market.

Alter or Alteration: Any activity that will change the ability of a ground surface to absorb water or will change existing surface drainage patterns. Alter may also be referred to as "alteration" and "land disturbance activities."

Applicant: Any person who has filed a Stormwater Management and Erosion Control Permit Application in accordance with these Rules and Regulations.

Best Management Practice (BMP)**:** A structural or nonstructural technique for managing stormwater to prevent or reduce nonpoint source pollutants from entering surface waters or groundwater. A structural stormwater Best Management Practice includes a basin, discharge outlet, swale, rain garden, filter or other stormwater treatment practice or measure either alone or in combination including without limitation any overflow pipe, conduit, weir control structure that: (a) is not naturally occurring; (b) is not designed as a wetland replication area; and (c) has been designed, constructed, and installed for the purpose of conveying, collecting, storing, discharging, recharging, or treating stormwater. Nonstructural stormwater Best Management Practices include source control and pollution prevention measures, such as street/parking lot sweeping, catch basin cleaning, public education/outreach, etc.

Biofiltration: The process of reducing pollutant concentrations, particularly nutrients, in stormwater runoff by filtering through vegetative areas and organic media, allowing pollutants to be removed through the processes of sedimentation and biological action.

Conveyance: Any structure or device, including pipes, drains, culverts, curb breaks, paved swales and man-made swales, natural and man-made channels, and ditches designed or utilized to move or direct stormwater runoff or existing water flow; any impervious surface/sheet flow utilized to remove rainfall (for example a parking lot) which drains directly onto a vegetated surface or public road without any curbing or drainage system to intercept the flow.

Design Storm: A precipitation event of specified return frequency and duration (e.g., a storm that occurs only once every 2 years with 24 hour duration) that is used to calculate the stormwater runoff volume and peak discharge rate.

Detention: The regulation and control of stormwater runoff by slowing the rate of discharge to reduce impacts downstream.

Easement: A right in land acquired by a party to use or enter the property of another party for access, stormwater management, utilities, or other purpose.

Engineer: A registered Professional Engineer (PE) licensed to practice professional engineering in the Commonwealth of Massachusetts.

Erosion Control: The prevention or reduction of the movement of soil particles or rock fragments due to stormwater runoff.

Erosion and Sediment Control Plan: A plan that shows the location and construction detail(s) of the erosion and sediment reduction controls to be utilized for a construction site during and after construction.

Floodplain: Any land area susceptible to being inundated by floodwaters from any source which will theoretically result from the statistical 100-year frequency storm. The boundary shall be that determined by reference to the Flood Insurance Rate Map (FIRM) for the Town of Watertown, published by the Federal Emergency Management Agency (FEMA). If such data is unavailable, the boundary shall be the maximum lateral extent of floodwater which has been observed or recorded.

Floodplain Contingency Plan: A plan establishing procedures for response to areas that have flooded or may be jeopardized by potential flooding.

Floodway: The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the 100-year frequency storm without cumulatively increasing the water surface elevation more than a designated height. The boundary shall be that determined by

reference to the Flood Insurance Rate Map (FIRM) for the Town of Watertown, published by the Federal Emergency Management Agency (FEMA).

Impervious Surface or Area: Any material or structure on or above the ground that prevents water from infiltrating through the underlying soil. Impervious surface is defined to include, without limitation: paved surfaces (parking lots, sidewalks, driveways, etc.), roof tops, swimming pools, and patios, as well as paved, gravel and compacted dirt surfaced roads.

Infiltration: Percolation of water into the subsurface. Also referred to as "Recharge."

Land Disturbance Activity: Any activity that causes a change in the position or location of soil, sand, rock, gravel, or similar earth material.

Low Impact Development (LID): A site design strategy for managing stormwater by maintaining or replicating the predevelopment hydrologic functions through the use of design techniques to create a functionally equivalent hydrologic landscape.

Maintenance: Maintenance of a stormwater management system means the work necessary to keep the system functional and in good repair so that it may continue to operate as originally designed. Maintenance of a stormwater management system does not include work that (a) reduces the capacity of the system to treat stormwater, provide recharge, or attenuate peak flow; (b) increases the total or peak rate or volume of the stormwater managed by the system; (c) directs additional stormwater discharges to the system; or (d) results in reduced use of above ground stormwater Best Management Practices.

Massachusetts Stormwater Management Standards: The Standards issued by the Massachusetts Department of Environmental Protection (DEP), codified in regulations at 310 CMR 10.05(6)(k)-(q) and further defined and specified in the Massachusetts Stormwater Handbook, Volumes 1 through 3, issued by the DEP. The Standards address stormwater impacts through implementation of performance standards that reduce or prevent pollutants from reaching water bodies and control the quantity of runoff from a site.

Maximum Extent Practicable: As defined in Section 8.2 of these Rules and Regulations.

M.G.L.: Massachusetts General Laws.

Municipal Separate Storm Sewer System (MS4): 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 structures that together comprise the storm drainage system owned or operated by the Town of Watertown.

National Pollutant Discharge Elimination System (NPDES) Discharge Permit: A permit issued by the United States Environmental Protection Agency or jointly with the Commonwealth of

Massachusetts that authorizes the discharge of pollutants to waters of the United States or Commonwealth.

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 ensure that it continues to function as designed.

Overlay of Pavement: The placement of pavement on top of an existing impervious surface. The underlying surface is sometimes milled (partially ground down in thickness) before the overlay is placed.

Owner: A person with a legal or equitable interest in land, structures, or equipment.

Permittee: The person who is issued a permit by the Watertown Department of Public Works pursuant to these Rules and Regulations.

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.

Pollutant: Any substance, either man-made or man-induced, that alters the chemical, physical, biological, or radiological integrity of water.

Reclamation of Pavement: A procedure whereby existing pavement is broken and pounded into small fragments.

Recorded: Recorded in the Middlesex South District Registry of Deeds; if registered land is affected, filed with the recorder of the Land Court of Massachusetts.

Redevelopment: Development, replacement, rehabilitation, expansion, demolition, or phased projects that disturb the ground surface on previously developed sites.

Responsible Party: Any person or entity holding fee title to the property or acting as the Owner's representative, including any person, firm, corporation, or other entity performing services, contracted, subcontracted, or obligated by other agreement to design, implement, inspect, verify, or maintain the BMPs and other approved elements of stormwater management plans and permits.

Retention: The process of collecting and holding stormwater runoff with no surface outflow.

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 depositing sediment.

Sheet Flow: A component of stormwater runoff in the form of an unconcentrated, overland flow or downslope movement of water as a thin, continuous film over relatively smooth soil, rock, or paved surfaces.

Simplified Permit: A permit issued for an Application that meets a set of predetermined standards adopted by the Department of Public Works in accordance with Section98.01(D) of the Stormwater Management and Erosion Control Ordinance.

Stormwater Management and Erosion Control Permit: A permit issued by the Department of Public Works, after review of an application, plans, calculations, and other supporting documents, in accordance with the provisions of the Stormwater Management and Erosion Control Ordinance.

Stormwater Management Plan: A plan submitted as part of an application for a Stormwater Management and Erosion Control Permit, in accordance with Section 7.0 of these Rules and Regulations.

Stormwater Management System: The collective system for conveying, collecting, storing, discharging, recharging, or treating stormwater on-site, including stormwater Best Management Practices and any pipes and outlets intended to transport and discharge stormwater to the groundwater, a surface water, or a municipal separate storm sewer system. Also referred to as "drainage."

Stormwater Pollution Prevention Plan (SWPPP): A site-specific document or collection of documents that identifies the potential sources of stormwater pollution, describes stormwater control measures, such as BMPs, to reduce or eliminate the identified pollutants, and identifies procedures operators will implement to comply with specific permit conditions.

Stormwater Runoff: Flow over the ground surface resulting from precipitation or snow and ice melt or through a drainage system.

Surveyor: A Professional Land Surveyor registered to practice land surveying in the Commonwealth of Massachusetts.

Total Suspended Solids (TSS): Total suspended solids, as used in the context of the Massachusetts Stormwater Management Standards.

Utilities: Private or municipal services, including, without limitation, telecommunications, cable, light and power, gas, sanitary sewers, drainage, water mains, and appurtenances.

Zoning Enforcement Officer: The person responsible for enforcing the Town of Watertown Zoning Ordinance.

3.0 Authority

The Rules and Regulations contained herein have been adopted by the Department of Public Works in accordance with Section98/03(C) of the Town of Watertown Stormwater Management and Erosion Control Ordinance.

4.0 Administration

The Watertown Department of Public Works shall administer, implement, and enforce these Rules and Regulations. Any powers granted to or duties imposed upon the Department of Public Works may be delegated to the Department's employees or agents.

5.0 Applicability

All activities subject to the Stormwater Management and Erosion Control Ordinance (as set forth in Section 98.01(B) of the Ordinance) must obtain a Stormwater Management and Erosion Control Permit.

6.0 Permit Procedures and Requirements

Projects requiring a Stormwater Management and Erosion Control Permit shall be required to submit the materials specified in this Section and are required to meet the Performance Standards specified in Section 8.0.

6.1 Application Requirements

An Applicant seeking to perform a land disturbance activity subject to the Stormwater Management and Erosion Control Ordinance shall submit to the Department of Public Works a Stormwater Management and Erosion Control Permit Application on a form provided for that purpose.

Except as provided for in Section 12.0, an application must be accompanied by the following:

- a Stormwater Management Plan meeting the requirements of Section 7.0; and
- a non-refundable Application Review Fee, as provided in Section 6.4.2.

The Stormwater Management and Erosion Control Permit Application must be signed by an Engineer, who will verify that the design of all stormwater management practices meet the requirements of these Rules and Regulations. No Stormwater Management and Erosion Control Permit shall be issued until a satisfactory Stormwater Management Plan that meets the requirements of Section 7.0 and Performance Standards of Section 8.0 has been reviewed and approved by the Department of Public Works.

6.2 Application Procedure

6.2.1 An application for a Stormwater Management and Erosion Control Permit may be filed with the Department of Public Works on any regular business day.

6.2.2 Permit applications shall include two copies of the Stormwater Management Plan, including all documents required in accordance with Section 7.0 of these Rules and Regulations, and the Application Review Fee, in accordance with Section 6.4.2.

6.2.3 Within 45 days of the receipt of a complete permit application, including all documents as required herein, the Department of Public Works shall inform the Applicant whether the Stormwater Management and Erosion Control Permit has been approved or disapproved, in accordance with Section 6.5.

6.2.4 If the permit application or one or more of the required plan components is disapproved, the Applicant may make the necessary revisions and resubmit the application. The Department of Public Works shall have 45 days from the date the additional information or revised application is received to inform the Applicant that the application and required plans are either approved or disapproved, in accordance with Section 6.5.

6.3 Right-of-Entry for Inspection

During the application process, the Department of Public Works, its employees and agents (including consultants) may conduct site visits of the project site to review the information presented in the application. As provided in Section 10.0 of these Rules and Regulations, inspections shall be required during the construction of the project. To the extent permitted by law, or if authorized by the owner or other party in control of the property, the Department of Public Works, its agents and employees may enter upon the site of a completed project at reasonable times and in a reasonable manner for the purpose of ensuring continuing compliance with the terms and requirements of the Ordinance, these Rules and Regulations, or an approved Stormwater Managmeent and Erosion Control Permit.

6.4 Application Review Fees and Technical Review

6.4.1 General

The Department of Public Works shall obtain with each submission an Application Review Fee established by the Department to cover expenses connected with the review of an application and issuance of a Stormwater Management and Erosion Control Permit. A Technical Review Fee, sufficient to cover professional review services for the project, may also be required in accordance with Section 6.4.3.

6.4.2 Application Review Fee

1. A non-refundable Application Review Fee of the larger of $50.00 or $0.0030 per square foot of land area that will be disturbed by activities authorized by the Stormwater Management and Erosion Control Permit shall be due and payable to the Town of Watertown at the time an application is filed.
2. These fees are in addition to any other local or state fees that may be charged under any other law, regulation, or local ordinance.

6.4.3 Technical Review

Some permit applications may require the Department of Public Works to engage the employment of outside consultants for specific expert services deemed necessary by the Department to come to a final decision on the application. These services may include, but are not limited to, wetland survey and delineation, hydrologic and drainage analysis, hydrogeologic analysis, stormwater quality analysis, site inspections, as-built plan review, and analysis of legal issues.

1. The consultant shall be chosen by, and report only to, the Department of Public Works. The fee charged by the consultant shall be paid for by the Applicant.
2. The Department of Public Works shall give written notice to the Applicant of the selection of an outside consultant, which notice shall state the identity of the consultant and the fee to be charged. Such notice shall be deemed to have been given on the date it is mailed or hand delivered.
3. The Applicant shall provide written confirmation to the Department of Public Works that such fee shall be paid for by the Applicant. The consultant may require that a retainer be paid prior to initiating work. Failure by the Applicant to confirm acceptance of the consultant fee and pay the retainer, if required, within ten (10) business days of written notice by the Department of Public Works shall be cause for the Department to determine that the application is incomplete.
4. The services of the consultant shall be paid in full by the Applicant prior to issuance of a Stormwater Management and Erosion Control Permit.

6.5 Actions

The action of the Department of Public Works, rendered in writing, shall consist of one of the following:

1. Approval of the Stormwater Management and Erosion Control Permit Application based upon determination that the proposed plan
   - meets the Performance Standards in Section 8.0;
   - will adequately protect the water resources of the community; and
   - is in compliance with the requirements set forth in these Rules and Regulations;
2. Approval of the Stormwater Management and Erosion Control Permit Application subject to written conditions, modifications, or restrictions required by the Department of Public Works that will ensure that the project meets the Performance Standards in Section 8.0 and adequately protects the water resources of the community, as set forth in these Rules and Regulations;
3. Disapproval of the Stormwater Management and Erosion Control Permit Application based upon a determination that the proposed plan, as submitted, is incomplete, does not meet the Application Requirements in Section 7.0 or the Performance Standards in Section 8.0, or does not adequately protect the water resources of the community, as set forth in these Rules and Regulations; or

4. Disapproval of an Application "without prejudice" where an Applicant fails to provide requested additional information that, in the opinion of the Department of Public Works, is needed to adequately describe the proposed project.

6.6 Failure of the Department of Public Works to take action upon receipt of an application accepted by the Department as complete within 45 days (or such additional period that is agreed to in writing by the Applicant) shall be deemed to be approval of said application.

6.7 Lapse of Permit

A Stormwater Management and Erosion Control Permit granted in accordance with the provisions of these Rules and Regulations shall lapse one (1) year from the date of issuance, if land disturbance activities have not begun by such date except for good cause, as determined by the Department of Public Works.

6.8 Project Changes

The Permittee, or its agent, shall notify the Department of Public Works in writing of any change or alteration in an approved Stormwater Management Plan before any change or alteration occurs. If the Department of Public Works determines that the change or alteration is significant, based on the standards referred to in Section 8.0 and accepted construction practices, the Department of Public Works may require that an amended Stormwater Management and Erosion Control Permit Application be filed. If any change or deviation from the Stormwater Management and Erosion Control Permit occurs during a project, the Department of Public Works may require the installation of interim measures before approving the change.

6.9 Project Completion

6.9.1 Upon completion, the Permittee is responsible for certifying that the completed project is in accordance with the approved plans and specifications by submitting As-built Plans to the Department of Public Works as described in Section 11.0.

6.9.2 Upon written request by the Permittee, the Department of Public Works shall assess whether the work has been completed in substantial conformance with the approved Stormwater Management Plan and any conditions of the Stormwater Management and Erosion Control Permit. Upon satisfactory completion of the work and submittal of the As-built Plans, the Department of Public Works shall issue a letter indicating that all required certifications have been submitted and all required inspections have been completed.

6.10 Maintenance Responsibility

The Responsible Party shall ensure that all components of the proposed Stormwater Management Plan are functioning according to manufacturer or design specifications. All components shall be maintained in good condition and promptly repaired, in accordance with the approved Operation

and Maintenance Plan. This shall constitute a perpetual condition of any Stormwater Management and Erosion Control Permit issued under these Rules and Regulations.

7.0 Stormwater Management Plan

The Stormwater Management Plan shall contain sufficient information for the Department of Public Works to evaluate the environmental impact, effectiveness, and acceptability of the measures proposed by the Applicant for preventing adverse impacts from stormwater.

All Stormwater Management Plans submitted for consideration shall contain the following minimum components:

1. Existing Conditions Plan;
2. Proposed Conditions Plan;
3. Erosion and Sediment Control Plan;
4. Construction Detail Plan;
5. Stormwater Management Report; and
6. Operation and Maintenance Plan.

More information than the minimum required herein may be required, provided such information is reasonably necessary for the proper evaluation of the Stormwater Management Plan. Additional plans, such as but not limited to utility plan, landscaping plan, etc., may be required for more complex projects.

Plans shall be prepared to fully detail and explain the intentions of the Applicant. Plans shall be prepared at a standard scale (1" = 20', 1" = 40', or 1" = 80', whichever is appropriate to the size of the proposal). All plans shall include a reasonable numbering system with an appropriate title block, North arrow, signature block, and legend identifying any representative symbols used on the sheet in question.

Design Certification: Each plan sheet shall show the seal and signature of an Engineer or a Surveyor, or both, as appropriate to the data.

7.1 Existing Conditions Plan

The Existing Conditions Plan shall contain all the necessary information to convey existing surface features and drainage patterns. It shall contain a topographical survey plan prepared by a Surveyor, including the following information:

- Name, seal, and signature of the Surveyor who performed the survey.
- Date(s) of the survey.
- Reference to all deeds, plans of record, and other information used to establish the existing property lines, the layout of all streets and ways, and easements, including deed references to the abutting lots.

- Locus Plan, prepared at a scale not smaller than 1" = 1200' and a minimum extent of one mile diameter. Major streets, buildings, brooks, streams, rivers, or other landmarks should be shown on the Locus Plan with sufficient clarity to be easily discernible.
- Existing property lines, easements, and road layouts with bearings and distances. All distances shall be in feet and decimals of a foot and all bearings shall be given to the nearest ten seconds. The error of closure shall not exceed one to ten thousand.
- Boundary of the entire parcel held in common ownership by the Applicant regardless of whether all or part is being developed at this time.
- Acreage of the parcel(s) to the nearest tenth of an acre.
- Existing monuments.
- Location and name of all abutters as they appear on the most recent tax list, including owners of the property on the opposite side of all streets abutting the property.
- Location, names, status (i.e., public or private), and present widths of streets and sidewalks bounding, approaching, or within reasonable proximity of the property, showing both roadway widths and right-of-way width.
- Location of all test pits, borings, percolation tests, or similar, in or adjacent to the development. Logs of observed groundwater elevations and other test data shall be included in the Stormwater Management Report.
- Location of all existing buildings and structures on the property and within reasonable proximity of the perimeter of the property.
- Location of all existing wells and septic systems that can be observed and/or are on file with the Health Department, on the property and within reasonable proximity of the perimeter of the property.
- Site features within and abutting the property, including but not limited to, waterways, water bodies, drainage ditches, streams, brooks, stone walls, fences, curbing, walkways and other paths (paved or unpaved), utility and light poles, buildings and other structures, ledge outcrops, wooded areas, public shade trees and all other trees greater than six inches in caliper, and historic sites.
- Location and identification of resource areas regulated under the Massachusetts Wetlands Protection Act or the Watertown Wetlands Ordinance, as amended, including areas located within the property and areas outside of the property with buffer zones or offsets that may intersect the property. This shall include wetlands and associated offsets and buffer zones, isolated lands subject to flooding (ILSF), bordering land subject to flooding (BLSF), and riverfront protection areas. If a currently valid delineation for the property does not exist, wetland boundaries shall be delineated in the field with numbered flags by a qualified wetlands specialist, surveyed, and shown on the plan(s) with reference to the flag numbers. The date of any Resource Area Delineation, Determination of Applicability, Order of Conditions, or other applicable decision from the Watertown Conservation Commission shall be indicated on the plans.
- Location of all existing above- and below-ground utilities and all associated appurtenances within and abutting the property. All utility pipe types, sizes, lengths, and slopes shall be provided, as well as utility structure information, including rim and invert elevations.
- Existing topography within the property and within reasonable proximity of the perimeter of the property. Topography shall be provided at a minimum one-foot contour intervals.

The plan survey datum shall be the National American Vertical Datum 1988 (NAVD88), and this reference shall be identified on the plans.
- Stormwater flow direction.

7.2 Proposed Conditions Plan

The Proposed Conditions Plan shall indicate all proposed site improvements, including but not limited to structures, buildings, sidewalks, handicap ramps, parking areas, curb type and limits, walls, fences, landscaped areas, and the proposed location of all utilities, as described below:

- All applicable information from the Existing Conditions Plan. The proposed improvements shall be overlaid on the existing conditions and shown in a darker line weight.
- The boundaries of the site, the outline or footprint of all proposed buildings, structures, parking areas, walkways, loading facilities, or significant landscaping features shall be shown.
- All means of vehicular access for ingress and egress to and from the site onto the public streets. Plans should show the size and location of driveways and curb cuts.
- The location and type of all above-ground and below-ground utilities.
- The existing and proposed stormwater management system, with pipe sizes, lengths, slopes, and materials including conveyances, catch basins, manholes, culverts, headwalls, detention and/or retention basins, treatment units, infiltration systems, and outlet pipes/structures. Rim and invert elevations shall be provided for all structures and other appurtenant features.
- Proposed contours indicating the finished grades of all proposed construction in the property. The plan shall show how the proposed grades will tie in to the existing grades within and outside of the property. The grades should be provided at a minimum one-foot contour intervals. Walls, curbing and any other features creating a break in grade shall be shown, including proposed top and bottom grades.
- Stormwater flow direction.

7.3 Erosion and Sediment Control Plan

The Erosion and Sediment Control Plan shall contain sufficient information to demonstrate that erosion will be minimized and sediment contained as part of a land disturbance activity, including the following:

- All applicable information from both the Existing and Proposed Conditions Plans. The proposed development information shall be shown in a darker line weight.
- Location of the proposed limit of work, to be lined by a row of hay bales and silt fencing in downgradient areas and along all resource areas.
- Location of anti-tracking area at each construction entrance.
- Hay bale and silt fence protection and/or silt sacks at all existing and proposed drainage structures.
- Seeding, sodding, or revegetation plans and specifications for all unprotected or unvegetated areas.

- Location and design of all structural erosion and sediment control measures, such as grade stabilization structures, temporary drainage swales, and temporary sedimentation basins.
- Location of all proposed construction stockpiling areas with appropriate erosion and sediment control measures.
- Notes detailing the proposed operation, maintenance, and inspection schedule for all erosion and sedimentation control measures, including proposed schedule for street sweeping of adjacent roadways and paved areas.
- Where a project is proposed to be constructed in phases, requires demolition, includes significant cuts and fills, or requires excavation of contaminated soils, the Department of Public Works may require that the Erosion and Sediment Control Plan be separated into phases targeted to each activity.
- Where a site is located in whole or in part within the floodplain, a Floodplain Contingency Plan shall be included with the Erosion and Sediment Control Plan. The Floodplain Contingency Plan shall describe the steps necessary to stabilize the site during construction in the event of a possible flood. A possible flood shall be defined as the period of time that a flood watch is declared for the Charles River by the National Weather Service.
- Where a project is also subject to coverage under a National Pollutant Discharge Elimination System (NPDES) Discharge Permit issued by the EPA, submission of the Stormwater Pollution Prevention Plan (SWPPP) shall be required prior to commencement of land disturbance activities.

7.4 Construction Detail Plan

The Construction Detail Plan should provide information regarding the component parts of the construction, illustrating how they fit together. The plan shall show the following:

- Typical construction details of all proposed stormwater management system devices, including but not limited to conveyances, catch basins, manholes, headwalls, sub-drains, detention and retention systems, and other stormwater management system structures.
- Landscaping details including, but not limited to, tree plantings, shrubs, perennials, fences, walls, guard rails, street furniture, and other specialty items, if applicable.
- Construction details for all hard surfaces, including but not limited to, roadways, sidewalks, driveways, loading docks, handicap ramps, permeable pavers, and curbing.
- Erosion and sediment control details that implement the Erosion and Sediment Control Plan.
- Where site constraints or differing conditions require work that deviates from “typical details,” specific construction details shall be provided.

7.5 Stormwater Management Report

A separate Stormwater Management Report shall be submitted with the Stormwater Management and Erosion Control Permit Application. It shall be prepared and stamped by an Engineer, and shall contain the following information:

- Narrative describing existing and proposed soil conditions (including Hydrologic Soils Group [HSG] classification published by the National Resources Conservation Service [NRCS]), land use, surface cover, estimated high groundwater elevations, design points, drainage patterns, and proposed stormwater management practices.
- Narrative describing the proposed stormwater management system, including all proposed LID techniques and BMPs incorporated in the project design.
- Description of all soil testing conducted in the study area, including sieve analyses, tests for saturated hydraulic conductivity, test pits, or soil borings. Soils information shall be based on field investigations by a Soil Evaluator approved by the Commonwealth of Massachusetts, or by an Engineer. Testing shall be performed in accordance with Volume 3 of the Massachusetts Stormwater Handbook (dated February 2008, as amended) and these Rules and Regulations. Raw test data shall be provided in an appendix to the report.
- Narrative describing the methodology used to conduct the hydrologic and hydraulic analyses of the site, estimates of the existing and proposed stormwater runoff peak rates and volumes, and the design of the proposed stormwater management system.
- Tables comparing existing and proposed impervious areas, peak stormwater runoff rates, and total stormwater runoff volumes for each design point and for the 2-, 10-, 25-, and 100-year design storms.
- Narrative and calculations demonstrating compliance with the Massachusetts Stormwater Management Standards, including:
    - Estimates of annual required recharge volume and recharge volume provided.
    - Estimates of average annual Total Suspended Solids (TSS) removal.
    - Narrative describing the Erosion and Sediment Control Plan, including a detailed construction sequence plan, source control and pollution prevention measures, description of BMPs provided to address soil erosion and sedimentation, stabilization measures, inspection and maintenance requirements, and record keeping.
    - Narrative describing the Operations and Maintenance Plan, as described in Section 7.6.
- Description of any impacts to the floodplain and floodway and a summary of compensatory flood storage calculations, if appropriate.
- Description of existing and proposed groundwater recharge on the site, including quantitative summary of existing and proposed recharge volumes, and summary of groundwater mounding analysis, if applicable.
- Map(s) showing pre- and post-development drainage areas, including any off-site contributions, and time of concentration travel flow-paths. Study design points should be indicated on the plan.
- If applicable, a map showing the location of the site overlaid on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) for the Town of Watertown, or other appropriate information pertaining to location of the floodplain and floodway boundaries in relation to the site.
- Appendix containing all drainage calculations for existing and proposed conditions, including hydrologic analysis of the site, hydraulic analysis of the proposed drainage system, and calculations supporting the design of all BMPs that will control stormwater runoff peak rates and total volumes.

7.6 Operation and Maintenance Plan

An Operation and Maintenance (O&M) Plan, in accordance with the Massachusetts Stormwater Management Standards, shall be included with the Stormwater Management Plan. The purpose of the plan is to identify the actions necessary to ensure that stormwater management systems and BMPs function as designed, in perpetuity.

7.6.1 Minimum Requirements

At a minimum, the O&M Plan shall contain:

- A plan that is prepared to scale and shows the location of all stormwater management system components and all discharge points.
- A description of all BMPs, including proper operating parameters and how the Owner will determine if a BMP is not functioning properly.
- A description of long-term source control and pollution prevention measures.
- An inspection log and a description of all inspection and maintenance procedures, responsibilities, and frequencies.
- Snow storage procedures and locations in accordance with the MassDEP Snow Disposal Guidance, dated March 8, 2001, as amended.
- The name(s) of the Owner of all components of the system, and the name(s) and address(es) of the Responsible Party for O&M of each component, if different from the Owner.
- A list of easements held to access any BMPs.
- A copy of the As-built Plan prepared in accordance with Section 11.0, upon project completion.
- An estimated O&M budget.

7.6.2 Record Keeping

Parties responsible for the O&M of the stormwater management system and BMPs shall keep records of all inspections, maintenance, and repairs and shall retain the records for at least five (5) years. These records shall be made available to the Department of Public Works during inspection of the stormwater management structure or system and at other reasonable times upon request.

The Town reserves the right to request written records, including receipts of inspection or cleaning services, documenting the maintenance of the system, and/or to physically inspect the systems to ensure that the proper maintenance has been carried out. The failure of the Responsible Party or Owner to maintain the stormwater management system in reasonable order and condition, in conformance with the approved Operation and Maintenance Plan, shall be considered a violation of these Rules and Regulations and subject to enforcement action in accordance with Section 6.0 of the Ordinance.

7.6.3 Changes to Operation and Maintenance Plans

The Owner(s) of the stormwater management system must notify the Department of Public Works of changes in ownership or assignment of financial responsibility for O&M of the stormwater infrastructure and management system or any changes to the Operation and Maintenance Plan. This shall be an on-going requirement of any Stormwater Management and Erosion Control Permit issued.

8.0 Performance Standards

At a minimum, all projects shall comply with the performance standards of the Massachusetts Stormwater Management Standards, except as hereafter amended in these Rules and Regulations.

8.1 Retention Standard

For all new development and redevelopment projects, stormwater management systems must be designed such that all stormwater runoff is retained on-site to the Maximum Extent Practicable (MEP)**.** The purpose of this policy is to provide reductions in stormwater flows to enhance the function of the MS4, to reduce the loading of pollutants in the MS4, to support compliance with the Final Phosphorous Total Maximum Daily Load (TMDL) Report for the Charles River Basin, and to reduce water quality impairments. The intent of this standard is to provide on-site stormwater retention measures (such as infiltration) for all storm events up to and including the 100-year, 24-hour storm.

8.2 Maximum Extent Practicable

For the purposes of these Rules and Regulations, the Maximum Extent Practicable shall mean:

- Applicants have demonstrated that they have made all reasonable efforts to meet the applicable requirements;
- Applicants have made a complete evaluation of possible stormwater management measures which could be used on-site, including environmentally sensitive site design that minimizes land disturbance and impervious surfaces, employs LID techniques, and implements stormwater BMPs; and
- If not in full compliance with the applicable requirements, Applicants are implementing the highest practicable level of stormwater management.

8.3 Factors Affecting Retention Potential

The Town of Watertown recognizes that site constraints may make it difficult to retain all stormwater on-site. These constraints include:

- Lack of space: The ability to provide infiltration BMPs on-site may be limited on small parcels or in densely developed areas. Sites may be located in areas of high land costs, where full compliance would result in a significant loss of development value. In some zoning districts, the Town's desire to encourage density development may conflict with

the goal of retaining all stormwater on-site. In densely developed areas, infiltration BMPs may also have a negative impact on groundwater elevations on adjacent properties.

- Soils: The presence of bedrock, clay, or can limit the effectiveness of infiltration BMPs.
- Groundwater: Depth to high groundwater may also limit the effectiveness of infiltration BMPs.
- Prior contamination: Many redevelopment sites have a history of documented environmental contamination that limits the type of infiltration BMPs that may be employed.
- Underground utilities: The presence of underground utilities can greatly reduce the amount of land available for on-site stormwater management controls.

8.4 Criteria for Determining Maximum Extent Practicable

The Town shall determine that the retention standard has been met to the Maximum Extent Practicable when the following criteria have been met:

8.4.1 Factors affecting retention potential, as described in Section 8.3 of these Rules and Regulations, have been identified on-site and preclude the ability to fully meet the retention standard.

8.4.2 Appropriate measures to reduce stormwater runoff from the site have been provided through better site design practices, such as removing extraneous parking, reconfiguring required parking, minimizing the use of impervious materials, and providing enhanced vegetation.

8.4.3 Appropriate measures have been taken to disconnect roof runoff from direct discharge to the drainage system.

8.4.4 Appropriate measures have been taken to disconnect other existing paved areas from direct discharge to the drainage system, allowing controlled flow over pervious areas or through BMPs providing at least partial recharge.

8.4.5 Appropriate measures have been taken to apply LID techniques for runoff reduction. Measures such as, but not limited to, porous pavement, green roofs, rain gardens, bioretention areas, and rainwater harvesting and reuse have been considered.

8.4.6 There shall be a documented reduction in the rate and volume of runoff. In no instance shall there be an increase in the rate or volume of runoff from a redeveloped site.

8.4.7 The design provides for treatment of all runoff from existing (as well as new) impervious areas to achieve the 80% TSS removal rate specified in the Massachusetts Stormwater Management Policy.

8.4.8 All other elements of the Massachusetts Stormwater Management Policy are met.

8.5 Documentation of Maximum Extent Practicable

It shall be the responsibility of the Applicant to show that on-site stormwater management control measures have been provided to the Maximum Extent Practicable according to the above criteria. Additional information shall be provided in the form of both a narrative and supporting documentation, to be included in the Stormwater Management Report:

- A description of the site-specific conditions that affect the ability to retain stormwater runoff;
- An alternatives analysis of all LID techniques and BMPs considered to reduce and manage stormwater runoff;
- Hydrologic and hydraulic estimates of stormwater runoff peak rates and total volumes from the site for the 2-, 10-, 25-, and 100-year design storms, demonstrating compliance with criteria 8.4.6. A narrative explaining the degree to which stormwater runoff will be contained on-site shall accompany the estimates.

8.6 Off-site Work

In the event that all stormwater runoff cannot be retained on-site, the Department of Public Works may permit BMPs to be implemented at other locations, preferably within the same drainage area as the original project. The Department shall identify priority areas in which projects can be completed. Provisions for off-site work in lieu of full on-site retention may be made only for redevelopment projects.

8.7 Retention Waiver

8.7.1 The requirement for retention may be waived in its entirety only in the following instances:

1. The site has been classified as contaminated;
2. Contamination has been capped in place;
3. An Activity and Use Limitation (AUL) precludes infiltrating runoff to the groundwater pursuant to Massachusetts General Law, Chapter 21E and the Massachusetts Contingency Plan, 310 CMR 40;
4. The site contains a solid waste landfill as defined in 310 CMR 19; or
5. Groundwater from the recharge area flows directly towards a solid waste or 21E site.

8.7.2 Where a recharge waiver is granted, the Department of Public Works may require other BMPs, such as detention systems, to provide temporary storage of stormwater runoff to reduce peak flows in the drainage system.

9.0 Stormwater Management and Erosion Control – Technical Requirements

Stormwater management systems shall be designed in accordance with the Massachusetts Stormwater Management Standards (except as stricter regulations outlined herein apply), regardless of the size of the development and whether or not it falls within the jurisdiction of the Massachusetts Wetlands Protection Act.

9.1 Precipitation Data: Unless specified, all design storms shall have a 24-hour duration and all drainage analyses shall use the following precipitation data, adopted from the web tool

"Extreme Precipitation in New York and New England" developed jointly by the Northeast Regional Climate Center (NRCC) at Cornell University and the Natural Resources Conservation Service (NRCS), as available at http://precip.eas.cornell.edu/ for the Town of Watertown centered at Department of Public Works, 124 Orchard Street, as accessed on July 15, 2014 and summarized in the table below:

Design Storm	24-Hour Precipitation (Inches)
2-year	3.2
10-year	4.9
25-year	6.2
100-year	8.9

9.2 Hydrologic Analysis Methodology: Existing and proposed stormwater runoff peak rates and total volumes shall be estimated using the methods described in Technical Release No. 20 (TR-20) and Technical Release No. 55 (TR-55), where applicable, published by the National Resources Conservation Service (NRCS), United States Department of Agriculture (USDA).

9.2.1 Common design point(s) shall be used for comparison between existing and proposed conditions.

9.2.2 The total length of "sheet flow" in the calculation of Time of Concentration for a subcatchment shall be limited to 100 feet or less for pre-developed conditions, and 50 feet or less for post-developed conditions. The minimum permissible Time of Concentration is 5.0 minutes.

9.2.3 The surface of all ponds, rivers, detention/retention ponds, and other waterbodies shall be assumed to be impervious for the purpose of calculating ground cover.

9.2.4 For purposes of computing runoff, all pervious lands in the site prior to the development shall be assumed to be in good condition regardless of conditions existing at the time of computation.

9.2.5 Stormwater analyses shall be performed using an NRCS (formerly Soil Conservation Service – SCS) Type III 24-hour rainfall distribution. The use of computer modeling techniques, such as HydroCAD, is strongly preferred.

9.2.6 For computer models that have the ability to adjust the time period of the storm analysis, the storm shall be analyzed from time 0.0 (the start of the storm) to at least 30 hours after the start of the storm event. The time increment between analysis points shall be 0.02 hours.

9.2.7 The size of the overall drainage area analyzed in the pre-development and post-development analyses shall be the same.

9.3 Closed Drainage System: LID practices are encouraged when feasible. Where closed drainage networks are proposed, calculations shall be provided in accordance with the following requirements:

9.3.1 Design Storms: The proposed drainage system shall be designed to accommodate a 25-year design storm. Bridges and culverts shall be designed for a 50-year design storm, with consideration being given to avoiding damage during a 100-year design storm. Stormwater BMPs for peak rate and volume control shall be

designed for 2-, 10-, 25-, and 100-year design storms, in accordance with the Performance Standards of Section 8.0. The effects of bypass (i.e., stormwater flow which bypasses a catch basin when the inflow capacity of the catch basin is exceeded) and tailwater shall be accounted for in the design of these BMPs.

9.3.2 Design Methodology: The Rational Method shall be used to determine peak flows of runoff for the design of the closed drainage system. The Rational Method cannot be used to determine runoff volumes. The Manning Formula shall be used for the sizing of drain pipe and other drainage conveyance swales. A worksheet similar to that provided in Exhibit 8-49 of the Massachusetts Highway Department (MHD) Project Development and Design Guide (2006 edition) shall be provided for the design of each closed drainage network. The effect of tailwater conditions at the end of the drainage system shall be taken into account. Documentation shall be provided to show how tailwater elevations were obtained for the respective design storms.

9.3.3 Catch Basins: In general, catch basins shall be required on both sides of roadways at intervals of not more than 300 feet, at all low points in grade, near the corners of roadways at intersecting streets, and at all other locations as required by the Department of Public Works. Catch basins are not allowed in front of driveway openings. Catch basin-to-catch basin connections are not allowed (including landscape area drain-to-catch basin connections). Each catch basin shall be connected to a manhole. All catch basins shall have a minimum four-foot sump and a floatables control hood on the outlet pipe. All grate openings shall be of a design and placement that will not trap or divert bicycle wheels. Catch basins shall be designed such that the grate capacity of each is not exceeded; double catch basin grates and curb inlets may be used as needed. No catch basin which collects runoff from roadways shall be designed to infiltrate stormwater runoff without providing pre-treatment in accordance with the Massachusetts Stormwater Management Standards.

9.3.4 Drain Pipe: All drain pipes shall be laid in a straight line and grade. A manhole shall be provided at every change in pipe size, material, direction, and/or grade. In no case shall drain manholes be spaced at a distance greater than 300 feet. Pipes shall be designed to operate without building up hydraulic pressure head under design flow conditions. The minimum allowable full flow pipe velocity shall be 3 feet per second (fps) when flowing at a depth of approximately one-third of the pipe diameter. The maximum allowable full flow pipe velocity shall be 10 fps.

9.3.5 Drain Pipe Materials: Drain pipes shall be either reinforced concrete pipe (RCP) or high-density polyethylene pipe (HDPE). Ductile iron pipe shall be used in areas with less than two feet of cover.

9.3.6 Outfall Protection: Pipe inlets or outfalls with a diameter of 15 inches or greater shall be fitted with a protective barrier, suitable in the opinion of the Department of Public Works, to prevent access by children. Said barrier shall be removable for maintenance purposes. Masonry headwalls and flared end-sections shall be installed, as approved by the Department of Public Works, to prevent erosion. Ground surfaces at all drainage outfalls shall be stabilized with rip-rap or other means to prevent erosion from stormwater flows up to the design capacity of the discharging conveyance. Design calculations for rip-rap splash pads or other

proposed outfall protection may be required at the discretion of the Department of Public Works.

9.4 Stormwater Infiltration System Design and Calculations: All stormwater infiltration systems shall be designed in accordance with the design standards listed in Volume 3 of the Massachusetts Stormwater Management Standards, except as modified herein:

9.4.1 Documentation of Soil Conditions and Estimated Seasonal High Groundwater: For all projects proposing infiltration BMPs, the Applicant shall provide documentation of the soil conditions and seasonal high groundwater conditions at the proposed site of the infiltration facility or facilities. At a minimum, existing Estimated Seasonal High Groundwater (ESHGW) elevation shall be documented at each location where an infiltration-type stormwater management practice is proposed. The soils on-site shall be classified according to the NRCS Hydrologic Soil Groups (HSG), and a soil textural analysis consistent with USDA methodologies shall be conducted where the HSG classification is inconclusive. Seasonal high groundwater shall be estimated based on redoximorphic features in the soil or, ideally, based on monitoring well observations taken in April or May, when groundwater is typically at its highest levels.

9.4.2 Storage Volume Sizing: the static, simple dynamic, or dynamic field methods shall be used to estimate sizing. The use of the Rational Method to size infiltration systems is strictly prohibited.

9.4.3 Infiltration Rates: When the static or simple dynamic methods are used, the infiltration rate for each system shall be estimated based on the rates specified by Rawls et al. 1982. For the "dynamic field" method, saturated hydraulic conductivity rates shall be determined at the actual location and soil layer (i.e., elevation) where infiltration is proposed. A Title 5 percolation test does not provide an acceptable estimate of the infiltration rate on the site using any of the three design methods. The Applicant also shall identify the depth to bedrock or other restrictive layer in the vicinity of proposed infiltration systems. Compaction of soils in designated infiltration areas shall be minimized during and after construction.

9.4.4 Groundwater Separation:

1. The bottom of stormwater infiltration systems shall be a minimum of 2 feet above the estimated seasonal high groundwater elevation.
2. Where a project proposes to attenuate the peak discharge from a 10-year, 24-hour design storm or higher, the bottom of the infiltration system shall be a minimum of 4 feet above the estimated seasonal high groundwater elevation.
3. A groundwater mounding analysis may be required, at the discretion of the Department of Public Works, to ensure that the infiltration system will not cause groundwater to break out above land surface, seep into basements of nearby buildings, or cause other problems. All infiltration systems shall be designed to drain within 72 hours.
4. At the discretion of the Department of Public Works these requirements may be waived.

9.5 Detention/Retention Basins: Detention/retention basins shall be designed to have a minimum of 1 foot of freeboard during the 100-year design storm. The volume of sediment forebays (if applicable) shall not be counted towards the storage volume of the detention/retention basin. For design purposes, it shall be assumed that there will be no infiltration of stormwater within the drainage basin unless the basin is designed as an infiltration basin in accordance with the Massachusetts Stormwater Management Standards. Detention/retention basins and associated forebays shall be required to drain with 72 hours. Basins shall be designed with an emergency overflow device, such as a weir, to safely pass the 100-year design storm to prevent overtopping and potential erosion of the berm, assuming the primary outlet is not functioning. The bottom of any sediment forebay shall be constructed of concrete or grass that may be mowed, for ease of maintenance; a rip-rap base shall not be allowed. Depending on the depth and size of the basin, the Department of Public Works may require fencing or other effective measures to be installed to prevent unauthorized persons and vehicles from entering the basin. The Department of Public Works also may require landscaping, consisting of evergreen trees and native shrubs, in the area surrounding the basin as a method of screening.

9.6 Maintenance Access: Adequate access shall be provided to all BMPs. Where such facilities are not located on property under ownership of the Permittee, an easement shall be obtained to provide adequate access to the BMP. A maintenance access driveway of 10 feet minimum width and 12 percent maximum slope shall be provided to any outlet control structure. Subsurface BMPs must be provided with easily accessible clean-outs and inspection ports.

9.7 Routing of Overflows: The site shall be designed to ensure that all stormwater runoff from the site up to the maximum design storm for the particular structure or BMP will actually enter the control structure. For example, the control structure may be designed for the 100-year design storm, while the closed drainage system connecting to that structure may be designed to convey only the 25-year design storm, with larger events flooding the system and traveling overland. This overland flow, or overflow, must be directed into the peak control structure; any bypass flow shall be accounted for in the hydraulic estimates for the project.

9.8 Connection to the MS4: Direct connections to the MS4 shall be avoided. If such a connection is proposed, the Applicant must provide an analysis to demonstrate that the closed drainage system can accept the proposed stormwater runoff (both peak rate and volume). If the capacity of the MS4 is not adequate to accommodate the entire proposed amount, then only that portion thereof which can be adequately accommodated shall be connected and/or the Applicant shall be required to improve the downstream system to provide adequate capacity. Connections to the MS4 shall occur at a manhole. If no manhole exists at the point of connection, one shall be installed.

9.9 Drainage Easements: It shall be the responsibility of the Applicant to make any necessary agreements/easements with any abutter(s) where any aspect of the proposed stormwater management system is to be conveyed beyond the boundaries of the site. Such

agreements/easements shall be presented to the Department of Public Works, in recordable form, prior to issuance of the Stormwater Management and Erosion Control Permit. The Applicant is responsible for recording the easements.

9.10 Water Quality: The use of retention or biofiltration shall be the preferred method of water quality treatment for the purpose of meeting Standard 4 of the Massachusetts Stormwater Management Policy. If proprietary manufactured stormwater treatment separators are proposed, the Standard Method shall be used to estimate the required water quality volume, in accordance with the policy published by Massachusetts Department of Environmental Protection (MassDEP), dated September 10, 2013, as amended.

9.11 Erosion Control: The *Erosion and Sediment Control Guidelines for Urban and Suburban Areas*, published by the MassDEP, originally dated March 1997, as amended, shall be used as the technical reference guide for the implementation of plans to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities.

10.0 Construction Inspections

10.1 Notice of Construction Commencement

The Permittee must notify the Department of Public Works at least 14 days prior to the commencement of construction. In addition, the Permittee must notify the Department of Public Works a minimum of 14 days in advance of construction of critical components of any stormwater management facility or BMP.

10.2 The Department of Public Works shall inspect the project site at the following stages, at a minimum:

1. Initial Site Inspection: prior to approval of any plan;

2. Erosion Control Inspection: An inspection to ensure that erosion control practices are in accordance with the approved Erosion and Sediment Control Plan. Such inspection must be made prior to commencement of any earth moving activity;

3. Completion of site clearing;

4. Close of the construction season;

5. Stormwater Management System Inspection: An inspection will be made of the completed stormwater management system, prior to backfilling of any underground drainage or stormwater conveyance structures; and

6. Final Inspection: After completion of all work and stabilization of all soils, the Department of Public Works or an authorized agent shall perform an inspection of the system.

10.3 Inadequacy of System

10.3.1 If any component of the erosion and sediment control measures or stormwater management system is found to be inadequate by virtue of physical evidence of operational failure, including evidence of erosion or sedimentation on adjacent properties, rights-of-ways, the MS4, wetland, or watercourse, even if it was built in accordance with the approved Stormwater Management Plan, it shall be corrected by the Permittee. Failure of the Permittee to take corrective action shall be considered a violation of these Rules and Regulations and subject to enforcement action in accordance with Section 98.06 of the Ordinance.

10.3.2 Any activity that fails to comply with the conditions of the approved Erosion and Sediment Control Plan shall be considered a violation of these Rules and Regulations and subject to enforcement action in accordance with Section 6.0 of the Ordinance.

11.0 As-built Plan Requirements

11.1 No later than one year following completion of work, the Permittee, or its agent, shall submit to the Department of Public Works a final As-built Plan showing the actual as-built location and profile of all streets, ways, and utilities, including those installed by others, such as the gas, electric, telephone, and cable companies. The final plan must, at a minimum, contain the following information. The Department of Public Works may require the inclusion of additional information not set forth herein when deemed reasonably necessary. At a minimum, the following shall be included:

- Name, seal, and signature of the Surveyor who performed the survey;
- Date(s) of the survey;
- Reference to the approved site plan, if any, including information regarding whether the plan is on record at the Middlesex South County Registry of Deeds or Land Court;
- All streets, ways, and utilities, including those installed by others;
- Rim elevation, location, size, length, slope type, and inverts for all drainage and sewer structures and pipes, including roof drains;
- Location, size, and type of all structural BMPs, including, where applicable, the number and bottom elevation of infiltration units or stormwater storage chambers; the bottom elevation depth, length, and width of crushed stone surrounding underground infiltration systems; location of all clean-outs; the actual dimensions of any inlet/outlet control structures, and the invert elevation, size, slope, and type of all orifices, weirs, inlet and outlet pipes, structures, and headwalls;
- Final, stabilized site topography, at a minimum of one-foot contour intervals.
- Location and topography at one-foot contour intervals for all surface retention/detention basins, drainage swales, or other stormwater management facilities. Additional spot grades should be provided as appropriate to confirm that the systems are constructed as designed. The invert elevation, size, and type of all orifices, weirs,

inlet and outlet pipes, headwall structures, and emergency spillways also shall be provided, as well as the actual dimensions for any inlet/outlet control structures;
- Location of all buildings, structures, pervious and impervious surfaces, roads, driveways, sidewalks, patios, walls, fences, trees, and other significant landscaping features;
- Curbing type; and
- Any other features that are deemed required to ensure compliance with any conditions imposed by the Department of Public Works.

11.2 Certification: All As-built Plans shall contain the following statement: "I certify, based on field verification, that this set of as-built plans accurately reflects the conditions as they exist on the property. I further certify that the development has been constructed substantially in accordance with the approved Stormwater Management Plan and meets the requirements of the Stormwater Management and Erosion Control Permit." This certification shall be accompanied by the signature and stamp of an Engineer and a Surveyor.

11.3 Electronic copies of all As-built Plans, in addition to paper copies, are required.

12.0 Simplified Permits

In accordance with Section 98.01(D) of the Stormwater Management and Erosion Control Ordinance, the following activities (if subject to permitting requirements under Section 98.01(B) of the Ordinance) shall be eligible for Simplified Permits. The Simplified Permit Application procedure shall be in accordance with Section 6.0 of these Rules and Regulations, except as modified below.

12.1 Raised Decks

12.1.1 Eligibility

Construction of a raised deck associated with an existing single- or two-family house.

12.1.2 Performance Standards

1. The ground area beneath the proposed deck shall not be paved or otherwise impervious if it is presently bare ground or landscaped, including lawn.
2. If the ground area is presently paved or impervious, it may remain so after construction of the deck and will still qualify for a Simplified Permit.
3. There shall be no roof constructed over the proposed deck. Should a roof be constructed over the deck in the future, a full permit will be required.
4. The proposed deck shall be constructed in such a manner to allow rainfall to pass through to the ground below. An example of this is the typical wooden deck with expansion spaces between the boards that form the deck surface.

12.1.3 Permitting Requirements

Plan showing the location of the deck and a description of surface and construction materials to demonstrate compliance with the performance standards in Section 12.1.2.

12.2 Patios

12.2.1 Eligibility

Construction of a patio associated with an existing single- or two-family house.

12.2.2 Performance Standards

1. The patio shall be constructed of brick, stone, or other materials in such a fashion to permit infiltration of rainfall to the soil below.
2. The patio surface shall not create a concentrated runoff discharge point for stormwater that is not infiltrated through the surface. Stormwater runoff must flow evenly off the edge(s) of the patio.

12.2.3 Permitting Requirements

Plan showing the location of the patio and direction of stormwater runoff flow to demonstrate that stormwater runoff will not create concentrated discharge.

12.3 Swimming Pools

12.3.1 Eligibility

Construction of a swimming pool associated with an existing single- or two-family house.

12.3.2 Performance Standards

Prior to draining, the pool water shall meet the requirements of Section 97.07(a) of the Town of Watertown Code of Ordinances.

12.3.3 Permitting Requirements

Plan showing the location of the pool, including accessory structures, such as decks and sidewalks. The plan should address discharge of water from the pool.

12.4 Driveway Expansion

12.4.1 Eligibility

1. Expansion of an existing driveway for an existing single- or two-family house;
2. The location has been approved by the Zoning Enforcement Officer;

3. No Stormwater Management and Erosion Control Permit or Simplified Permit for Driveway Expansion has been issued previously; and
4. No direct connections to the MS4 are present or proposed.

12.4.2 Performance Standards

1. The use of brick, stone, pervious pavers, or other materials has been considered to permit infiltration of rainfall.
2. The driveway shall not create a concentrated runoff discharge point. The expanded area shall flow to a pervious (e.g., grass, landscaping, etc.) surface.
3. Expansion of the driveway surface shall not result in additional stormwater runoff flowing to the MS4.
4. Sand shall not be used as a de-icing material on the driveway.

12.4.3 Permitting Requirements

1. Plan showing the location of the existing driveway, proposed expansion, and direction of stormwater runoff flow to demonstrate that stormwater runoff will not create concentrated discharge.
2. Area calculation of existing and proposed driveway surface area.

12.5 Residential Construction

12.5.1 Eligibility

1. Construction of a new single- or two-family residence, including demolition of an existing structure and construction of a new structure on the same lot;
2. Proposed work is not located in a resource area protected by the Massachusetts Wetlands Protection Act or the Watertown Wetlands Ordinance; and
3. No direct connections to the MS4 are proposed.

12.5.2 Performance Standards

1. All roof runoff shall be conveyed to a system of drywells or an infiltration system.
2. Driveways shall be graded to flow towards pervious areas.
3. Appropriate erosion and sediment controls are provided.
4. Sand shall not be used as a de-icing material on the driveway.

12.5.3 Permitting Requirements

1. Design Standards

    - Documentation of soil conditions and estimated seasonal high groundwater must be performed prior to submission of the permit application.
    - At the discretion of the Department of Public Works, documentation of soil conditions and estimated seasonal high groundwater prior to submission of the

permit application may be waived provided such documentation is obtained in conjunction with building demolition or other initial land disturbance activities. In the event that the actual soil conditions vary from those assumed during engineering design of the infiltration system, the Applicant shall redesign the system to account for the observed soil conditions. The redesign shall be reviewed and approved by the Department prior to installation.

- Abbreviated stormwater calculations: The Applicant shall utilize the design methodology described in Section 9.0 of these Rules and Regulations. Stormwater calculations shall be provided for the 100-year design storm. The drainage area shall comprise the total impervious area of the proposed building footprint. No deduction shall be made for existing conditions. A hydrograph shall be generated and hydraulically routed through the proposed infiltration system. Calculations shall demonstrate that no overflow occurs during the 100-year design storm.

2. Abbreviated Stormwater Management Report:

   - Include a copy of the soil conditions, including Hydrologic Soils Group (HSG) classification published by the National Resources Conservation Service (NRCS).
   - Include documentation of soil conditions and seasonal high groundwater.
   - Include calculations meeting the technical requirements of Section 9.0 are provided for the existing and proposed conditions for the 100-year design storm, demonstrating no overflow of the infiltration system.
   - Include an Operations and Maintenance Plan.

3. The requirements of Sections 7.1, 7.2, 7.3, and 7.4 may be met on a single 24” x 36” sheet.

4. The As-built Plan requirements of Section 11.0 are a condition of the Simplified Permit.

12.6 Driveway and Parking Lot Reclamation or Overlay with Direct Connection to MS4

12.6.1 Eligibility

1. Existing closed drainage system with connection to the MS4.
2. No increase in impervious area or modification to the drainage system, except if required to meet the performance standards of the Simplified Permit.

12.6.2 Performance Standards

1. The drainage system provides 80% removal of the average annual load of Total Suspended Solids, in accordance with Standard 4 of the Massachusetts Stormwater Management Standards. If the existing drainage system does not meet the

performance standard, then additional water quality controls shall be installed to meet the standard.
2. Appropriate erosion and sediment controls are provided during the paving process.

12.6.3 Permitting Requirements

1. An As-built Plan shall be submitted demonstrating compliance with the performance standards.
2. If additional work is required to meet the TSS removal performance standard, then documentation of proposed work, including TSS removal calculations, shall be provided.
3. Proposed erosion controls shall be noted on plan or narrative.
4. An Operations and Maintenance Plan, if not already in place, shall be implemented.

12.7 Driveway and Parking Lot Reclamation or Overlay with Sheet Flow to MS4

12.7.1 Eligibility

1. There is no direct connection to the MS4, but surface runoff is directed to the MS4 by means of sheet flow.
2. There is no increase in impervious area or modification to the stormwater management system or MS4, except if required to meet the performance standards of the Simplified Permit.

12.7.2 Performance Standards

1. The Applicant shall take steps to provide increased water quality treatment of stormwater runoff prior to discharge to the MS4. Examples include, but are not limited to, providing vegetated filter strips, rain gardens, or reducing overall impervious area. The installation of a closed drainage or treatment system is expressly not required.
2. Appropriate erosion and sediment controls are provided during the paving process.

12.7.3 Permitting Requirements

1. Plan of parking lot showing existing and proposed pavement limits and noting proposed improvements.
2. Proposed erosion controls shall be noted on plan or narrative.

13.0 Waivers

The Department of Public Works may waive strict compliance with any requirement of these Rules and Regulations where:

- Such action is allowed by federal, state, and other local statutes and/or regulations;

- Such action is in the public interest;
- Such action is not inconsistent with the purpose and intent of these Rules and Regulations and the Stormwater Management and Erosion Control Ordinance; and
- Meeting the minimum on-site management requirements is not feasible due to the natural or existing physical characteristics.

Any Applicant may submit a written request to be granted such a waiver. Such a request shall be accompanied by an explanation or documentation supporting the waiver request and demonstrating that strict application of the Stormwater Management and Erosion Control Ordinance and these Rules and Regulations does not further the purposes or objectives of the Ordinance and these Rules and Regulations. The Department of Public Works will provide a written statement of its findings and the reasons for granting or denying a waiver.

14.0 Severability

The invalidity of any section, provision, paragraph, sentence, or clause of these Rules and Regulations shall not invalidate any other section, provision, paragraph, sentence, or clause thereof, nor shall it invalidate any permit determination that has been previously issued.

525480v3/WATR/0023