

## APPENDIX A: STORMWATER MANAGEMENT CHECKLIST

### Contact, Site and Receiving Water Information

#### CONTACT TO ANSWER QUESTIONS REGARDING CIVIL SITE ENGINEERING

Name:
Company/Organization:
Mailing Address:
Phone Number:
Email Address:

#### CONSTRUCTION SITE INFORMATION

Project Name:	
Site Size (Acres): _____ Proposed Area of Disturbance (Acres): _____	
Latitude (to nearest 15 sec.) _____ Deg. _____ Min. _____ Sec. _____	Longitude (to nearest 15 sec.) _____ Deg. _____ Min. _____ Sec. _____
Nearest Utility Pole Number: _____	Assessors Plat: _____ Lot: _____
<input type="checkbox"/> YES <input type="checkbox"/> NO Is the construction site part of a larger common (overall) plan of development or sale? List Name of Larger Common Plan: _____ Total Disturbed Acres of Common Plan _____ Acres	
Projected Construction Start Date _____ MM/DD/YY Projected Construction Completion Date _____ MM/DD/YY	
<input type="checkbox"/> YES <input type="checkbox"/> NO Disturbance within a floodplain	

#### DISCHARGE IDENTIFICATION

- YES  NO Groundwater Discharge (will 100-yr storm be captured and infiltrated with no surface discharge)  
 Isolated Unnamed stream or wetlands  
 Connected unnamed stream that ultimately becomes a Named Waterbody  
 Named Waterbody  
 Separate Storm Sewer System (**MS4**) to Named Waterbody Owned by: \_\_\_\_\_

#### RECEIVING WATER ([see instructions](#))

**Groundwater Classification** of the site:  GB  GA  GAA

YES  NO Any Infiltrating Water Quality BMP's within a wellhead protection area (WPA)?

YES  NO Any Infiltrating Water Quality BMP's within 200ft of a drinking water well?

What is the first named waterbody that receives discharge from the site via MS4, from the unnamed stream or directly:

\_\_\_\_\_

What are the Waterbody ID#(s): \_\_\_\_\_

**Are any of the Waterbodies listed above?:**

YES  NO A Cold Water Fishery? If no, is it  Warm Water, or  Unassessed

YES  NO A public beach or shellfish area

YES  NO A Special Resource Protection Water (SRPW)?

YES  NO Impaired (on 303d list)? If yes, list impairments: \_\_\_\_\_

\_\_\_\_\_

YES  NO Have a completed Total Maximum Daily Load (TMDL)?

If yes – does your site discharge to a priority outfall?  YES  NO

**REDEVELOPMENT**

YES  NO Is the project new or redevelopment? Please use the equations in section (A.6 Redevelopment) of this document to determine whether or not the site meets the criteria for redevelopment.

Please note that for redevelopment sites, only Standards 2, 3 and 7-11 must be addressed. However, the permitting agency may require controls for peak flow or volume on a case-by case basis within a watershed with a history of flooding problems.

**HISTORIC, EXISTING AND PROPOSED ACTIVITY**

YES  NO Pre-application meeting for this project? If Yes  pre-application meeting notes have been provided

YES  NO Does the project propose activities that meet the criteria for a Land Use with Higher Potential Pollutant Loads (LUHPPL) as defined by the RISISDM?

If yes, describe: \_\_\_\_\_

YES  NO Is there proposed or existing industrial activity that is subject to the Multi-Sector General Permit (MSGP) under Rule 31(b)15 of the RIPDES Regulations?

If yes, what sector? \_\_\_\_\_

If yes, what is your MSGP Authorization # \_\_\_\_\_ (if no, please attach MSGP NOI)

YES  NO Have there been any known or suspected releases of hazardous materials at the site?

YES  NO Is this site on the list of CERCLA and State Sites in RI?  
<http://www.dem.ri.gov/programs/benviron/waste/pdf/cercstat.pdf>

If yes, list any other RIDEM programs/contacts involved with this site and application or approval numbers:

\_\_\_\_\_

DEM Office of Waste Management (OWM) Contact Person: \_\_\_\_\_

YES  NO Is the proposed project associated with a previous permit application or enforcement action?

If yes, please describe: \_\_\_\_\_

YES    NO   Does this project propose work within the 100-yr Floodplain? \_\_\_\_\_

**OTHER COORDINATING REGULATORY AGENCIES**

YES    NO   Does this project require a CRMC Assent?  
 If yes, and you have an assent #, please provide: \_\_\_\_\_

YES    NO   Does this project involve any fill to Waters of the State? \_\_\_\_\_

YES    NO   Does this project require a permit from the Army Corps of Engineers?  
 If yes, for what activities other than fill? \_\_\_\_\_

<b>Site Summary</b>				
Subwatershed (acres to each design point)	First Receiving Water ID or MS4	Area Disturbed (acres)	Existing Impervious (acres)	Proposed Impervious (acres)
DP-1:				
DP-2:				
DP-3:				
DP-4:				
Totals:				

**MINIMUM STANDARD 1 - LOW IMPACT DEVELOPMENT ASSESSMENT**

(REQUIRED for New Development and Pre-Application Meetings) - You may delete this section if you qualify for redevelopment

State Law requires the use of low impact-design techniques as the primary method of stormwater control to the maximum extent practicable. LID is intended to maintain or replicate predevelopment hydrology through the use of site planning, source control, and small-scale practices integrated throughout the site to prevent, infiltrate, and manage runoff as close to its source as possible. Non-structural LID techniques to Avoid and Reduce the stormwater impacts of development shall be explored as a first priority before LID structural practices are planned to Manage stormwater as part of a comprehensive LID approach.

<p><b>A) PRESERVATION OF UNDISTURBED AREAS, BUFFERS AND FLOODPLAINS</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Sensitive resource areas and site constraints are identified (required)</li> <li><input type="checkbox"/> Local development regulations have been reviewed (required)</li> <li><input type="checkbox"/> All vegetated buffers and coastal and freshwater wetlands have been designed to be protected during and after construction</li> <li><input type="checkbox"/> Conservation Development or other site design technique to protect open space and pre-development hydrology; [NOTE: If this technique has been used, check box and skip to c.]</li> <li><input type="checkbox"/> Maintain as much natural vegetation and pre-development hydrology as possible</li> </ul>	<p><b>IF NOT IMPLEMENTED - EXPLAIN HERE</b></p>
<p><b>B) LOCATE DEVELOPMENT IN LESS SENSITIVE AREAS AND WORK WITH THE NATURAL LANDSCAPE CONDITIONS, HYDROLOGY, AND SOILS</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Building envelopes/ development sites directed away from wetlands/waterbodies</li> <li><input type="checkbox"/> Development and stormwater systems are located in areas with greatest infiltration capacity (e.g., soil groups A and B.</li> <li><input type="checkbox"/> Plans show measures to prevent soil compaction in areas designated as Qualified Pervious Areas (QPA's)</li> <li><input type="checkbox"/> Building envelopes/ development sites are directed away from floodplains</li> <li><input type="checkbox"/> Site designed to locate buildings, roadways and parking to avoid impacts to surface water features.</li> <li><input type="checkbox"/> Building envelopes/ development sites directed away from steep slopes (<math>\geq 15\%</math>)</li> <li><input type="checkbox"/> Other:</li> </ul>	<p><b>IF NOT IMPLEMENTED - EXPLAIN HERE</b></p>
<p><b>C) REDUCE IMPERVIOUS COVER</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Reduce roadway widths (<math>\leq 22</math> feet for ADT <math>\leq 400</math>; <math>\leq 26</math> feet for ADT 400-2,000)</li> <li><input type="checkbox"/> Reduce driveway areas (length minimized via reduced ROW width (<math>\leq 45</math> ft.) and/or reduced (or absolute minimum) front yard setback; width minimized to <math>\leq 9</math> ft. wide one lane; <math>\leq 18</math> ft. wide two lanes; shared driveways; pervious surface)</li> <li><input type="checkbox"/> Reduced building footprint: Explain approach</li> <li><input type="checkbox"/> Reduce sidewalk area (<math>\leq 4</math> ft. wide; one side of the street; unpaved path; pervious surface)</li> <li><input type="checkbox"/> Reduce cul-de-sacs (radius <math>&lt; 45</math> ft; vegetated island; alternative turn-around)</li> <li><input type="checkbox"/> Reduced parking lot area: Explain approach</li> <li><input type="checkbox"/> Pervious surfaces (driveways, sidewalks, parking areas/overflow parking area)</li> <li><input type="checkbox"/> Maximum Impervious Surface (project meets or is less than the maximum specified by the Zoning Ordinance)</li> <li><input type="checkbox"/> Other (describe):</li> </ul>	<p><b>IF NOT IMPLEMENTED - EXPLAIN HERE</b></p>

<p><b>D) DISCONNECT IMPERVIOUS AREA</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Impervious surfaces have been disconnected and runoff has been diverted to QPAs to the maximum extent possible</li> <li><input type="checkbox"/> Residential street edges allow side-of-the-road drainage into vegetated open swales</li> <li><input type="checkbox"/> Parking lot landscaping breaks up impervious expanse AND accepts runoff</li> <li><input type="checkbox"/> Other:</li> </ul>	<p><b>IF NOT IMPLEMENTED - EXPLAIN HERE</b></p>
<p><b>E) MITIGATE RUNOFF AT THE POINT OF GENERATION</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Small-scale BMPs have been designated to treat runoff as close as possible to the source</li> </ul>	<p><b>IF NOT IMPLEMENTED - EXPLAIN HERE</b></p>
<p><b>F) PROVIDE LOW-MAINTENANCE NATIVE VEGETATION</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Low-maintenance landscaping is proposed using native species and cultivars</li> <li><input type="checkbox"/> Plantings of native trees and shrubs in areas previously cleared of native vegetation are shown on the site plan</li> <li><input type="checkbox"/> Lawn areas have been limited and/or minimized and yards have been kept undisturbed to the maximum extent on residential lots</li> </ul>	<p><b>IF NOT IMPLEMENTED - EXPLAIN HERE</b></p>
<p><b>G) RESTORE STREAMS/WETLANDS</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Historic drainage patterns have been restored by removing closed drainage systems, daylighting buried streams, and/or restoring degraded stream channels and/or wetlands.</li> <li><input type="checkbox"/> Removal of invasive species</li> <li><input type="checkbox"/> Other</li> </ul>	<p><b>IF NOT IMPLEMENTED - EXPLAIN HERE</b></p>

**A.2 Minimum Standard 2: Groundwater Recharge**

N/A (not applicable); (i.e. the project meets the redevelopment criteria) Use space below to explain why:

\_\_\_\_\_

\_\_\_\_\_

YES  NO The project has been designed to meet the groundwater recharge standard.

If No, please explain the justification for groundwater recharge criterion waiver (i.e. threat of groundwater contamination), if applicable (see Manual Section 3.3.4);

Please describe your waiver request

\_\_\_\_\_

\_\_\_\_\_

**TABLE 2-1: Summary of Recharge (see Manual section 3.3.2)**

Subwatershed	Total Re <sub>v</sub> Required (Acre-ft)	LID Stormwater Credits (Manual see Section 4.6.1)		Recharge Required by Remaining BMPs (acre-ft)	Recharge Provided by BMPs (acre-ft)
		Impervious volume directed to a QPA (acre-ft)	Recharge Credit Applied (acre-ft)		
DP-1:					
DP-2:					
DP-3:					
DP-4:					
Totals:					

*\*Note: Only BMPs listed in Manual Table 3-5, List of BMPs Acceptable for Recharge may be used to meet the recharge requirement.*

Indicate below where the pertinent calculations and/or information for the above items are provided (i.e. name of report/document, page numbers);

\_\_\_\_\_

**A.3 Minimum Standard 3: Water Quality**

YES  NO Does this project meet or exceed the water quality standard?

YES  NO Does this project qualify for reduced water quality requirements because it meets redevelopment criteria?

YES  NO Is there an increase of impervious cover to a receiving water body with impairments?

If yes, please indicate below the method that was used to address the water quality requirements of no further degradation to a low quality water.

\_\_\_\_\_

- RISDISM section H.3 Pollutant Loading Analysis
- The Water Quality Guidance Document (Water Quality Goals and Pollutant Loading Analysis Guidance for Discharges to Impaired Waters)
- YES    NO   BMPs are proposed that are on the approved technology list
- YES    NO   Additional pollutant-specific requirements and/or pollutant removal efficiencies are applicable to the site as the result a TMDL, SAMP or other watershed-specific requirements;

**TABLE 3-1: Summary of Water Quality (see Manual section 3.3.3)**

Subwatershed	Total WQ <sub>v</sub> Required (Acre-ft)	LID Stormwater Credits (Manual see Section 4.6.1)		Water Quality Treatment Remaining (acre-ft)	Water Quality Provided by BMPs (acre-ft)
		Impervious volume directed to a QPA (acre-ft)	Water Quality Credit Applied (acre-ft)		
DP-1:					
DP-2:					
DP-3:					
DP-4:					
Totals:					

*\*Note: Only BMPs listed in Chapter 5 of the Manual or the Approved Technologies List of BMPs is Acceptable for Water Quality treatment.*

- Indicate below where the pertinent calculations and/or information for the above items are provided (i.e. name of report/document, page numbers);

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**A.4 Minimum Standard 4: Conveyance and Natural Channel Protection (3.3.4)**

- N/A (not applicable); if true, explain why (i.e. the project meets the redevelopment criteria, site-wide totals or flows to an individual receiving water):

\_\_\_\_\_

- YES    NO   Conveyance and natural channel protection for the site have been met.

If no, explain why \_\_\_\_\_

\_\_\_\_\_

**TABLE 4-1: Summary of Channel Protection Volumes (see Manual section 3.3.4)**

Drainage Point	Receiving Water Body Name	Total CPv Required (acre-ft)	Total CPv Provided (acre-ft)	Release Rate Modeled in the 2-yr storm (cfs)
DP-1:				
DP-2:				
DP-3:				
DP-4:				
<b>Totals:</b>				

- The required channel protection volume (CP<sub>v</sub>) for each design analysis point and/or individual receiving watercourse (see Manual Section 3.3.4);
- The CP<sub>v</sub> released at roughly a uniform rate over a 24-hour duration (see example sizing calculations in Appendix D of the RISDISM).
- The specific BMPs from Table A.1.3 that will be used to meet the channel protection requirement. Hydrologic and hydraulic site evaluation as described in Manual Section 3.3.4 should be included in Table A.1.3 for each channel protection BMP;
- Indicate that no additional design restrictions apply as per Manual Section 3.3.4 resulting from any discharge to cold water fisheries;
- Indicate below where the pertinent calculations and/or information for the above items are provided (i.e. name of report/document, page numbers);

\_\_\_\_\_

- YES  NO Does this project meet the CP<sub>v</sub> standard?
- YES  NO If the project flows to an MS4, specifically RIDOT, are post-volumes for the 25 yr storm less than pre-volumes?

**A.5 Minimum Standard 5: Overbank Flood Protection**

Demonstrate that the overbank flood protection criteria for the site have been met. Include:

- N/A (not applicable); Use space below to explain why:

\_\_\_\_\_

- The justification for overbank flood protection criterion waiver (site-wide totals or for flows to individual receiving watercourse), if applicable (see Manual Section 3.3.5);

Please describe your waiver request \_\_\_\_\_

- Indicate that a TR-55/TR-20 type model was utilized for the submitted hydrologic analysis;
- Indicate that off-site areas have been modeled as “present condition” for both pre- and post-development analysis;
- Indicate that the hydrologic model confirms safe passage of the 100-year flow through the site for off-site runoff;
- Indicate that the hydrologic model demonstrates that flows from the 100-year event will be safely conveyed to a control practice designed to manage the 100-year event;
- The pre- and post-development peak discharge rates;
- Specific BMPs Table A.1.3 that will be used to meet the overbank flood protection requirement. Hydrologic and hydraulic site evaluation as described in Manual Section 3.3.4 should be included in Table A.1.3 for each overbank flood protection BMP;
- YES    NO   Does this project meet the overbank flood protection standard?
- YES    NO   is a Downstream Analysis required (see Manual Section 3.3.6);

Please calculate the following:

Area of disturbance within the sub-watershed (areas) \_\_\_\_\_

Impervious cover (%) \_\_\_\_\_

- Indicate below where the pertinent calculations and/or information for the above items are provided (i.e. name of report/document, page numbers);

\_\_\_\_\_

\_\_\_\_\_

Table 5.1 Hydraulic Analysis Summary					
Subwatershed (design point)	C <sub>pv</sub> (cu. ft)		1-yr Peak Flow (cfs)	10-yr Peak Flow (cu. ft)	100-yr Peak Flow (cu ft.)
	Pre-	post-			
DP-1:					
DP-2:					
DP-3:					
DP-4:					
Totals:					

- YES    NO   Specify which (if any) BMP's will be off-line or will have internal bypasses or overflow bypasses;

In addition, for all structural components of stormwater system (e.g., storm drains, open channels, swales, stormwater BMPs, etc.) provide the following, if applicable:

- Hydrologic and hydraulic analysis, including:

- Study design/analysis points. The existing and proposed condition analyses need to compare the same overall area; thus, common study points are needed for both existing and proposed conditions;
- Existing condition analysis for drainage area boundaries, curve numbers, times of concentration, runoff rates, volumes, velocities, and water surface elevations showing methodologies used and supporting calculations;
- Proposed condition analysis for drainage area boundaries, curve numbers, times of concentration, runoff rates, volumes, velocities, water surface elevations, and routing showing the methodologies used and supporting calculations;
- Downstream Analysis, where required (see Manual Section 3.3.6); moved to overbank section
- Final sizing calculations for structural stormwater BMPs including, contributing drainage area, storage, and outlet configuration;
- Stage-discharge or outlet rating curves and inflow and outflow hydrographs for storage facilities (e.g., detention, retention, or infiltration facilities);
- Dam breach analysis, where necessary, for earthen embankments over six (6) feet in height, or a capacity of 15 acre-feet or more, and that is a significant or high hazard dam.



**A.6 Minimum Standard 6: Redevelopment and Infill Projects**

Is the project new or redevelopment, this is determined by calculating the following:

**Step #1:** Determine the total pre-construction impervious area

Total Impervious area (TIA), = \_\_\_\_\_

**Step #2:** Calculate the Site Size

Total Site Area (TSA), = \_\_\_\_\_

Jurisdictional Wetlands (JW), = \_\_\_\_\_

Conservation Land (CL), = \_\_\_\_\_

Site Size (SS) = (TSA) – (JW) – (CL), = \_\_\_\_\_

Please note that the TSA is defined as one or more lots or parcels of land to be developed or redeveloped. If the construction project is located within a campus, then the Total Site Area needs to be based on the total area of the campus.

**Step #3:** Please determine whether or not the project meets the redevelopment criteria.

If  $(TIA)/(SS) > 0.4$ , then the site meets the redevelopment criteria. Otherwise the project does not qualify for reduced treatment requirements for redevelopment and you must follow the requirements for new development.

YES  NO is  $(TIA)/(SS) > 0.4$

**Step #4:** Please indicate New Development or Redevelopment in the table located on page A-1

YES  NO Approved off-site location within watershed where stormwater management requirements will be met, if applicable (see Manual Section 3.2.6);

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**A.7 Minimum Standard 7: Pollution Prevention (see Appendix G for Guidance)**

All sources of pollutants, either identified as a LUHPPL or as a part of an industrial practice, do not come into contact with stormwater runoff, to the maximum extent practicable.

No pollution is mobilized via infiltration through contaminated soil. Any contaminated soil has been approved for

infiltration by the Office of Waste Management. (see Subsurface Contamination Guidance)

- Floatables, trash and debris have been prevented through use of trash racks.
- YES    NO   Pet waste stations are provided (particularly when the receiving water has a bacteria impairment)
- Regular sweeping is required for this site
- Deicing is specified in accordance with Appendix G of the Manual. Specifically, \_\_\_\_\_ method has been chosen
- Deicer impacts have been reduced with the following methods (see Appendix G):  
\_\_\_\_\_  
\_\_\_\_\_
- Emergency snow disposal locations have been selected and are shown on the plans and meet the site selection criteria in section G.4.3.
- Asphalt based sealants have been specified in the maintenance manual.
- Section G.7 – Lawn, Garden and Landscape Management have been reviewed and recommended in the maintenance manual for this site. If not, why not? \_\_\_\_\_  
\_\_\_\_\_

**A.8 Minimum Standard 8: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)**

Demonstrate that the project meets the criteria for LUHPPLs, if applicable.

- N/A (not applicable); Use space below to explain why  
\_\_\_\_\_  
\_\_\_\_\_
- Please provide a description of any land use activities considered stormwater LUHPPL (see Manual Table 3-2);  
\_\_\_\_\_
- Specific BMPs listed in Table A.1.3 that receive stormwater from LUHPPL drainage areas. These BMP types must be listed in Manual Table 3-3, “Acceptable BMPs for Use at LUHPPLs”;  
\_\_\_\_\_

Please list BMPs \_\_\_\_\_

Additional BMPs, or additional pretreatment BMP's if any, that meet RIPDES MSGP requirements;

Please list BMPs \_\_\_\_\_

Indicate below where the pertinent calculations and/or information for the above items are provided (i.e. name of report/document, page numbers);

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### **A.9 Minimum Standard 9: Illicit Discharges**

Applicant asserts that no illicit discharges exist or are proposed to the stormwater management system in accordance with State regulations;

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### **A.10 Minimum Standard 10 Construction Erosion and Sediment Control**

All projects must demonstrate that Soil Erosion and Sediment Control measures will be used during the construction phase and land disturbing activities. Applicants must submit a Stormwater Management Plan that addresses SESC measures consistent with the Rhode Island Soil Erosion and Sediment Control Handbook (as amended). In order to facilitate an expeditious review and make it easier for the site owner and operator to comply with applicable soil erosion, runoff, and sediment control requirements, it is recommended that the Soil Erosion and Sediment Control component of the Stormwater Management Plan be developed as a stand-alone document. The Department has designed a [model plan](#) to assist you with the submission. The length and complexity of the plan should be commensurate with the size of the project, the site conditions, and potential for off-site impacts.

Elements of a SESC Plan:

Soil Erosion and Sediment Control Plan project narrative including a description of how the fifteen (15)

Performance Criteria have been met:

- Provide Natural Buffers and Maintain Existing Vegetation;
  - Minimize Area of Disturbance;
  - Minimize the Disturbance of Steep Slopes;
  - Preserve Topsoil;
  - Stabilize Soils;
-

- Protect Storm Drain Inlets;
- Protect Storm Drain Outlets;
- Establish Temporary Controls for the Protection of Post-Construction Stormwater Control Measures;
- Establish Perimeter Controls and Sediment Barriers;
- Divert or Manage Run-On from Up-Gradient Areas;
- Properly Design Constructed Stormwater Conveyance Channels;
- Retain Sediment On-Site;
- Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows;
- Apply construction Activity Pollution Prevention Control Measures;
- Install, Inspect, and Maintain Control Measures and Take Corrective Actions.
- Soil Erosion and Sediment Control Plan Set and/or Complete Construction Plan Set;
- Owner's information and signature;
- Qualified SESC plan preparer's information and certification;
- Operator's information and certification; if not known at the time of application the operator must certify the SESC Plan upon selection and prior to initiating site activities;
- Description of control measures such as temporary sediment trapping and conveyance practices, including design calculations and supporting documentation, as required.

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**A.11 Minimum Standard 11: Stormwater Management System Operation and Maintenance (O&M) (See Appendix E for guidance)**

Provide a long-term stormwater management system Operation and Maintenance (O&M) Plan that at a minimum includes:

- Name, address, and phone number of responsible parties for maintenance;
- Description of annual maintenance tasks for required elements for each BMP;
- Description of any proposed deed restrictions related to the long-term maintenance of stormwater BMP's and/or systems;
- 8.5" x 11" map indicating the location of all of the proposed stormwater BMPs that will require maintenance (as listed in Table A.1.3);
- Description of applicable easements;
- Description of funding source;
- Minimum vegetative cover requirements;
- Access and safety issues;

- Pollution Prevention to Protect BMPs (from Minimum Standard 7);
- Indicate below where the pertinent calculations and/or information for the above are provided.
- Identification of all anticipated legal agreements related to stormwater (e.g., off-site easements, deed restrictions, and covenants); The legal entity responsible for maintenance is:  

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- If the entity responsible for stormwater maintenance is not the owner of the property (i.e. the town), a legally enforceable maintenance agreement has been provided.

#### **A.12 Existing and Proposed Mapping and Plans**

- Drainage Area Maps prepared in accordance with DEM's *Guidance for Preparation of Drainage Area Maps* (included in Appendix K).
  - Representative cross-section and profile drawings, notes and details of structural stormwater management practices and conveyances (i.e., storm drains, open channels, swales, etc.), which include:
    - Locations, cross sections, and profiles of all streams and drainage swales and their method of stabilization;
    - Existing and proposed structural elevations (e.g., invert of pipes, manholes, etc.);
    - Design water surface elevations;
    - Structural details of outlet structures, embankments, spillways, stilling basins, grade control structures, conveyance channels, etc.;
    - Logs of borings and/or test pit investigations along with supporting soils/geotechnical report.
  - Planting plans for structural stormwater BMPs, including:
    - Species, size, planting methods, and maintenance requirements of proposed planting;
  - Structural calculations, where necessary;
  - Applicable construction specifications;
  - Identification of all anticipated applicable local and State permits;
    - Existing and proposed mapping and plans (scale not greater than 1" = 40') with North arrow that illustrate at a minimum:
-

- Existing and proposed site topography (2-foot contours required). 10-foot contours accepted for off-site areas;
- Existing and proposed drainage area delineations and drainage flow paths, mapped according to the DEM *Guidance for Preparation of Drainage Area Maps* (included in Appendix K). Drainage area boundaries need to be complete; include off-site areas in both mapping and analyses, as applicable;
- Perennial and intermittent streams, in addition to areas subject to storm flowage (ASSFs);
- Mapping of predominant soils from the digital RI Soil Survey, available through USDA or RIGIS, especially hydrologic soil groups and depth to seasonal high water table, as well as location of site-specific borings and/or test pits (on drainage area maps only – not site plans) with accompanying results;
- Mapping of any OWM approved activities related to current/former site use areas for any known contamination and/or remedial clean-up efforts;
- Boundaries of existing predominant vegetation and proposed limits of clearing;
- Location and field-verified boundaries of resource protection areas such as freshwater and coastal wetlands, lakes, ponds, coastal shoreline features and required setbacks (e.g., buffers, water supply wells, septic systems);
- Location of floodplain and, if applicable, floodway limits and relationship of site to upstream and downstream properties and drainages;
- Location of existing and proposed roads, buildings, and other structures including limits of disturbance;
- Area of the property in wetlands, vegetation and impervious cover including percent impervious calculated excluding wetlands, under current and proposed land use.
- Existing and proposed utilities (e.g., water, sewer, gas, electric) and easements;
- Location of existing and proposed conveyance systems such as grass channels, swales, and storm drains, as well as location(s) of final discharge point (wetland, waterbody);
- Location and dimensions of channel modifications, such as bridge or culvert crossings;
- Location, size, and limits of proposed LID planning and site design techniques (type of practice, depth, area). LID techniques should be labeled clearly on the plan and a key should be provided that corresponds to a tabular description;

- Location, size, and limits of disturbance of proposed stormwater treatment practices (type of practice, depth, area). Stormwater treatment practices (BMPs) should be labeled with numbers that correspond to the Table 6.
- Soils information from test pits or borings at the location of proposed stormwater management facilities, including but not limited to soil descriptions, depth to seasonal high groundwater, depth to bedrock, and estimated hydraulic conductivity. Soils information will be based on site test pits or borings logged by a DEM-licensed Class IV soil evaluator or RI-registered PE.;
- Existing and proposed area of the site
- 8.5" x 11" copy of site plan for public notice, if necessary.