

## **APPENDIX A: STORMWATER MANAGEMENT PLAN CHECKLIST AND LID PLANNING REPORT – STORMWATER DESIGN SUMMARY**

<b>PROJECT NAME</b> 668-670 METACOM AVENUE		<b>(RIDEM USE ONLY)</b>  STW/WQC File #:  Date Received:
<b>TOWN</b> BRISTOL		
<b>BRIEF PROJECT DESCRIPTION:</b> Construction of a new commercial building on an existing lot with associated parking, grading, utilities, grading & stormwater control. An adjacent lot is currently being utilized by the same business and will not be developed to any greater degree.		

### **Stormwater Management Plan (SMP) Elements – Minimum Standards**

When submitting a SMP,<sup>1</sup> submit **four separately bound** documents: Appendix A Checklist; Stormwater Site Planning, Analysis and Design Report with Plan Set/Drawings; Soil Erosion and Sediment Control (SESC) Plan, and Post Construction Operations and Maintenance (O&M) Plan. Please refer to [Suggestions to Promote Brevity](#).

**Note:** All stormwater construction projects must create a Stormwater Management Plan (SMP). However, not every element listed below is required per the [RIDEM Stormwater Rules](#) and the [RIPDES Construction General Permit \(CGP\)](#). This checklist will help identify the required elements to be submitted with an Application for Stormwater Construction Permit & Water Quality Certification.

### **PART 1. PROJECT AND SITE INFORMATION**

#### **PROJECT TYPE** (Check all that apply)

<input type="checkbox"/> Residential	<input checked="" type="checkbox"/> Commercial	<input type="checkbox"/> Federal	<input checked="" type="checkbox"/> Retrofit	<input type="checkbox"/> Restoration
<input type="checkbox"/> Road	<input type="checkbox"/> Utility	<input type="checkbox"/> Fill	<input type="checkbox"/> Dredge	<input type="checkbox"/> Mine
<input type="checkbox"/> Other (specify):				

#### **SITE INFORMATION**

☒ Vicinity Map

**INITIAL DISCHARGE LOCATION(S):** The WQv discharges to: (You may choose more than one answer if several discharge points are associated with the project.)

<input checked="" type="checkbox"/> <b>Groundwater</b>	<input type="checkbox"/> <b>Surface Water</b>	<input type="checkbox"/> <b>MS4</b>
<input type="checkbox"/> GAA	<input type="checkbox"/> Isolated Wetland	<input type="checkbox"/> RIDOT
<input type="checkbox"/> GA	<input type="checkbox"/> Named Waterbody	<input type="checkbox"/> RIDOT Alteration Permit is Approved
<input type="checkbox"/> GB	<input type="checkbox"/> Unnamed Waterbody Connected to Named Waterbody	<input type="checkbox"/> Town
		<input type="checkbox"/> Other (specify):

**ULTIMATE RECEIVING WATERBODY LOCATION(S):** Include pertinent information that applies to both WQv and flow from larger storm events including overflows. Choose all that apply, and repeat table for each waterbody.

<input type="checkbox"/> Groundwater or Disconnected Wetland	<input type="checkbox"/> SRWP
<input checked="" type="checkbox"/> Waterbody Name: Upper East Passage	<input type="checkbox"/> Coldwater <input type="checkbox"/> Warmwater <input type="checkbox"/> Unassessed
<input type="checkbox"/> Waterbody ID: 010900040907	<input type="checkbox"/> 4 <sup>th</sup> order stream of pond 50 acres or more
<input type="checkbox"/> TMDL for:	<input type="checkbox"/> Watershed of flood prone river (e.g., Pocasset River)
<input type="checkbox"/> Contributes to a priority outfall listed in the TMDL	<input type="checkbox"/> Contributes stormwater to a public beach
<input type="checkbox"/> 303(d) list – Impairment(s) for:	<input type="checkbox"/> Contributes to shellfishing grounds

PROJECT HISTORY		
<input type="checkbox"/> RIDEM Pre- Application Meeting	Meeting Date:	<input type="checkbox"/> Minutes Attached
<input type="checkbox"/> Municipal Master Plan Approval	Approval Date:	<input type="checkbox"/> Minutes Attached
<input type="checkbox"/> Subdivision Suitability Required	Approval #:	
<input type="checkbox"/> Previous Enforcement Action has been taken on the property	Enforcement #:	
FLOODPLAIN & FLOODWAY See <a href="#">Guidance Pertaining to Floodplain and Floodways</a>		
<input type="checkbox"/> Riverine 100-year floodplain: <a href="#">FEMA FLOODPLAIN FIRMETTE</a> has been reviewed and the 100-year floodplain is on site		
<input type="checkbox"/> Delineated from FEMA Maps		
<b>NOTE:</b> Per Rule 250-RICR-150-10-8-1.1(B)(5)(d)(3), provide volumetric floodplain compensation calculations for cut and fill/displacement calculated by qualified professional		
<input type="checkbox"/> Calculated by Professional Engineer		
<input type="checkbox"/> Calculations are provided for cut vs. fill/displacement volumes proposed within the 100-year floodplain	Amount of Fill (CY):	
	Amount of Cut (CY):	
<input type="checkbox"/> Restrictions or modifications are proposed to the flow path or velocities in a floodway		
<input type="checkbox"/> Floodplain storage capacity is impacted		
<input checked="" type="checkbox"/> Project area is not within 100-year floodplain as defined by RIDEM		

CRMC JURISDICTION
<input type="checkbox"/> CRMC Assent required
<input type="checkbox"/> Property subject to a Special Area Management Plan (SAMP). If so, specify which SAMP:
<input type="checkbox"/> Sea level rise mitigation has been designed into this project

LUHPPL IDENTIFICATION - MINIMUM STANDARD 8:		
1. OFFICE OF Land Revitalization and Sustainable Materials Management (OLRSMM)		
<input type="checkbox"/> Known or suspected releases of HAZARDOUS MATERIAL are present at the site (Hazardous Material is defined in Rule 1.4(A)(33) of 250-140-30-1 of the RIDEM Rules and Regulations for Investigation and Remediation of Hazardous Materials (the Remediation Regulations))		<b>RIDEM CONTACT:</b>
<input type="checkbox"/> Known or suspected releases of PETROLEUM PRODUCT are present at the site (Petroleum Product as defined in Rule 1.5(A)(84) of 250-140-25-1 of the RIDEM Rules and Regulations for Underground Storage Facilities Used for Regulated Substances and Hazardous Materials)		
<input type="checkbox"/> This site is identified on the <a href="#">RIDEM Environmental Resources Map</a> as one of the following regulated facilities		<b>SITE ID#:</b>
<input type="checkbox"/> CERCLIS/Superfund (NPL)		
<input type="checkbox"/> State Hazardous Waste Site (SHWS)		
<input type="checkbox"/> Environmental Land Usage Restriction (ELUR)		
<input type="checkbox"/> Leaking Underground Storage Tank (LUST)		
<input type="checkbox"/> Closed Landfill		
<b>Note:</b> If any boxes in 1 above are checked, the applicant must contact the RIDEM OLRSM Project Manager associated with the Site to determine if subsurface infiltration of stormwater is allowable for the project. Indicate if the infiltration corresponds to "Red," "Yellow" or "Green" as described in Section 3.2.8 of the RISDISM Guidance (Subsurface Contamination Guidance). Also, note and reference approval in PART 3, Minimum Standard 2: Groundwater Recharge/Infiltration.		
2. PER MINIMUM STANDARD 8 of RICR 8.14.C.1-6 "LUHPPLS," THE SITE IS/HAS:		
<input type="checkbox"/> Industrial Site with RIPDES MSGP, except where No Exposure Certification exists. <a href="http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/status.php">http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/status.php</a>		
<input type="checkbox"/> Auto Fueling Facility (e.g., gas station)		
<input type="checkbox"/> Exterior Vehicles Service, Maintenance, or Equipment Cleaning Area		

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

<input type="checkbox"/>	Road Salt Storage and Loading Areas (exposed to rainwater)	
<input type="checkbox"/>	Outdoor Storage and Loading/Unloading of Hazardous Substances	
<b>3. STORMWATER INDUSTRIAL PERMITTING</b>		
<input type="checkbox"/>	The site is associated with existing or proposed activities that are considered Land Uses with Higher Potential Pollutant Loads (LUHPPLS) (see RICR 8.14.C)	Activities: Sector:
<input type="checkbox"/>	Construction is proposed on a site that is subject to <a href="#">THE MULTI-SECTOR GENERAL PERMIT (MSGP) UNDER RULE 31(B)15 OF THE RIPDES REGULATIONS.</a>	MSGP permit #
<input type="checkbox"/>	Additional stormwater treatment is required by the MSGP Explain:	

REDEVELOPMENT STANDARD – MINIMUM STANDARD 6		
<input checked="" type="checkbox"/> Pre Construction Impervious Area <b>LOT 16 ONLY</b>		
<input checked="" type="checkbox"/>	Total Pre-Construction Impervious Area ( <b>TIA</b> ): 0.3 Ac.	
<input checked="" type="checkbox"/>	Total Site Area ( <b>TSA</b> ): 0.72 Ac.	
<input checked="" type="checkbox"/>	Jurisdictional Wetlands ( <b>JW</b> ): 0.03 Ac.	
<input type="checkbox"/>	Conservation Land ( <b>CL</b> )	
<input type="checkbox"/> Calculate the Site Size (defined as contiguous properties under same ownership)		
<input checked="" type="checkbox"/>	Site Size ( <b>SS</b> ) = ( <b>TSA</b> ) – ( <b>JW</b> ) – ( <b>CL</b> ) 0.72-0.03=0.69	
<input checked="" type="checkbox"/>	( <b>TIA</b> ) / ( <b>SS</b> ) = 0.3/0.69=0.43>0.4	<input checked="" type="checkbox"/> ( <b>TIA</b> ) / ( <b>SS</b> ) >0.4?
<input checked="" type="checkbox"/> YES, Redevelopment		

PART 2. LOW IMPACT DEVELOPMENT ASSESSMENT – MINIMUM STANDARD 1 (NOT REQUIRED FOR REDEVELOPMENT OR RETROFITS) This section may be deleted if not required.	
<p><b>Note:</b> A written description must be provided specifying why each method is not being used or is not applicable at the Site. Appropriate answers may include:</p> <ul style="list-style-type: none"> <li>• Town requires ... (state the specific local requirement)</li> <li>• Meets Town's dimensional requirement of ...</li> <li>• Not practical for site because ...</li> <li>• Applying for waiver/variance to achieve this (pending/approved/denied)</li> <li>• Applying for wavier/variance to seek relief from this (pending/approved/denied)</li> </ul>	
<p><b>A) PRESERVATION OF UNDISTURBED AREAS, BUFFERS, AND FLOODPLAINS</b></p> <p><input checked="" type="checkbox"/> Sensitive resource areas and site constraints are identified (required)</p> <p><input checked="" type="checkbox"/> Local development regulations have been reviewed (required)</p> <p><input checked="" type="checkbox"/> All vegetated buffers and coastal and freshwater wetlands will be protected during and after construction</p> <p><input type="checkbox"/> Conservation Development or another site design technique has been incorporated to protect open space and pre-development hydrology. <b>Note:</b> If Conservation Development has been used, check box and skip to Subpart C</p> <p><input checked="" type="checkbox"/> As much natural vegetation and pre-development hydrology as possible has been maintained</p>	<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 checked="" type="checkbox"/> Development sites and building envelopes have been appropriately distanced from wetlands and waterbodies</li> <li><input type="checkbox"/> Development and stormwater systems have been 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 checked="" type="checkbox"/> Development sites and building envelopes have been positioned outside of floodplains</li> <li><input checked="" type="checkbox"/> Site design positions buildings, roadways and parking areas in a manner that avoids impacts to surface water features</li> <li><input checked="" type="checkbox"/> Development sites and building envelopes have been located to minimize impacts to steep slopes (<math>\geq 15\%</math>)</li> <li><input type="checkbox"/> Other (describe):</li> </ul>	
<p><b>C) MINIMIZE CLEARING AND GRADING</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Site clearing has been restricted to <u>minimum area needed</u> for building footprints, development activities, construction access, and safety.</li> <li><input checked="" type="checkbox"/> Site has been designed to position buildings, roadways, and parking areas in a manner that minimizes grading (cut and fill quantities)</li> <li><input checked="" type="checkbox"/> Protection for stands of trees and individual trees and their root zones to be preserved has been specified, and such protection extends at least to the tree canopy drip line(s)</li> <li><input type="checkbox"/> Plan notes specify that public trees removed or damaged during construction shall be replaced with equivalent</li> </ul>	
<p><b>D) REDUCE IMPERVIOUS COVER</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Reduced 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"/> Reduced 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"/> Reduced sidewalk area (<math>\leq 4</math> ft. wide; one side of the street; unpaved path; pervious surface)</li> <li><input type="checkbox"/> Reduced cul-de-sacs (radius <math>&lt; 45</math> ft; vegetated island; alternative turn-around)</li> <li><input checked="" type="checkbox"/> Reduced parking lot area: Explain approach</li> <li><input type="checkbox"/> Use of pervious surfaces for driveways, sidewalks, parking areas/overflow parking areas, etc.</li> <li><input checked="" type="checkbox"/> Minimized impervious surfaces (project meets or is less than maximum specified by Zoning Ordinance)</li> <li><input type="checkbox"/> Other (describe):</li> </ul>	
<p><b>E) 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 (describe):</li> </ul>	
<p><b>F) MITIGATE RUNOFF AT THE POINT OF GENERATION</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Small-scale BMPs have been designated to treat runoff as close as possible to the source</li> </ul>	
<p><b>G) PROVIDE LOW-MAINTENANCE NATIVE VEGETATION</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Low-maintenance landscaping has been proposed using native species and cultivars</li> <li><input checked="" type="checkbox"/> Plantings of native trees and shrubs in areas previously cleared of native vegetation are shown on site plan</li> <li><input type="checkbox"/> Lawn areas have been limited/minimized, and yards have been kept undisturbed to the maximum extent practicable on residential lots</li> </ul>	

<b>H) RESTORE STREAMS/WETLANDS</b> <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 <input type="checkbox"/> Removal of invasive species <input type="checkbox"/> Other	
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### PART 3. SUMMARY OF REMAINING STANDARDS

GROUNDWATER RECHARGE – MINIMUM STANDARD 2		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project has been designed to meet the groundwater recharge standard.
<input type="checkbox"/>	<input type="checkbox"/>	If “No,” the justification for groundwater recharge criterion waiver has been explained in the Narrative (e.g., threat of groundwater contamination or physical limitation), if applicable (see RICR 8.8.D);
<input type="checkbox"/>	<input type="checkbox"/>	Your waiver request has been explained in the Narrative, if applicable.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is this site identified as a Regulated Facility in Part 1, Minimum Standard 8: LUHPPL Identification?
<input type="checkbox"/>	<input type="checkbox"/>	If “Yes,” has approval for infiltration by the OLRSM Site Project Manager, per Part 1, Minimum Standard 8, been requested?

**TABLE 2-1: Summary of Recharge (see RISDISM Section 3.3.2)**

(Add or Subtract Rows as Necessary)

Design Point	Impervious Area Treated (sq ft)	Total Re <sub>v</sub> Required (cu ft)	LID Stormwater Credits (see RISDISM Section 4.6.1)	Recharge Required by Remaining BMPs (cu ft)	Recharge Provided by BMPs (cu ft)
			Portion of Re <sub>v</sub> directed to a QPA (cu ft)		
DP-1: SITE	13,011	271		271	1,133
DP-2:					
DP-3:					
DP-4:					
<b>TOTALS:</b>					

**Notes:**

- Only BMPs listed in RISDISM Table 3-5 “List of BMPs Acceptable for Recharge” may be used to meet the recharge requirement.
- Recharge requirement must be satisfied for each waterbody ID.

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

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

WATER QUALITY – MINIMUM STANDARD 3		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does this project meet or exceed the required water quality volume WQv (see RICR 8.9.E-I)?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is the proposed final impervious cover greater than 20% of the disturbed area (see RICR 8.9.E-I)?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	If “Yes,” either the Modified Curve Number Method or the Split Pervious/Impervious method in Hydro-CAD was used to calculate WQv; or,
<input checked="" type="checkbox"/>	<input type="checkbox"/>	If “Yes,” either TR-55 or TR-20 was used to calculate WQv; and,
<input type="checkbox"/>	<input type="checkbox"/>	If “No,” the project meets the minimum WQv of 0.2 watershed inches over the entire disturbed area.
<input type="checkbox"/>	<input type="checkbox"/>	Not Applicable
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does this project meet or exceed the ability to treat required water quality flow WQf (see RICR 8.9.I.1-3)?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Does this project propose 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.
<input type="checkbox"/>	<input type="checkbox"/>	RICR 8.36. A Pollutant Loading Analysis is needed and has been completed.
<input type="checkbox"/>	<input type="checkbox"/>	The Water Quality Guidance Document ( <a href="#">Water Quality Goals and Pollutant Loading Analysis Guidance for Discharges to Impaired Waters</a> ) has been followed as applicable.
<input type="checkbox"/>	<input type="checkbox"/>	BMPs are proposed that are on the <a href="#">approved technology list</a> . If “Yes,” please provide all required worksheets from the manufacturer.
<input type="checkbox"/>	<input type="checkbox"/>	Additional pollutant-specific requirements and/or pollutant removal efficiencies are applicable to the site as the result of a TMDL, SAMP, or other watershed-specific requirements. If “Yes,” please describe:

TABLE 3-1: Summary of Water Quality (see RICR 8.9)					
Design Point and WB ID	Impervious area treated (sq ft)	Total WQv Required (cu ft)	LID Stormwater Credits (see RICR 8.18)	Water Quality Treatment Remaining (cu ft)	Water Quality Provided by BMPs (cu ft)
			WQv directed to a QPA (cu ft)		
DP-1: SITE	13,011	1,084		1,084	1,133
DP-2:					
DP-3:					
DP-4:					
<b>TOTALS:</b>					
<b>Notes:</b> 1. Only BMPs listed in RICR 8.20 and 8.25 or the Approved Technologies List of BMPs is Acceptable for Water Quality treatment. 2. For each Design Point, the Water Quality Volume Standard must be met for each Waterbody ID.					
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		This project has met the setback requirements for each BMP. If “No,” please explain: Setback to surface water is not met due to site constraints.			
<input type="checkbox"/> Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.):					

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

CONVEYANCE AND NATURAL CHANNEL PROTECTION (RICR 8.10) – MINIMUM STANDARD 4		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is this standard waived? If “Yes,” please indicate one or more of the reasons below:
		<input type="checkbox"/> The project directs discharge to a large river (i.e., 4th-order stream or larger. See RISDISM Appendix I for State-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters. <input checked="" type="checkbox"/> The project is a small facility with impervious cover of less than or equal to 1 acre. <input type="checkbox"/> The project has a post-development peak discharge rate from the facility that is less than 2 cfs for the 1-year, 24-hour Type III design storm event (prior to any attenuation). ( <u>Note</u> : LID design strategies can greatly reduce the peak discharge rate).
<input type="checkbox"/>	<input type="checkbox"/>	Conveyance and natural channel protection for the site have been met. If “No,” explain why:

TABLE 4-1: Summary of Channel Protection Volumes (see RICR 8.10)					
Design Point	Receiving Water Body Name	Coldwater Fishery? (Y/N)	Total CPv Required (cu ft)	Total CPv Provided (cu ft)	Average Release Rate Modeled in the 1-yr storm (cfs)
DP-1:					
DP-2:					
DP-3:					
DP-4:					
<b>TOTALS:</b>					
<u>Note</u> : The Channel Protection Volume Standard must be met in each waterbody ID.					
<input type="checkbox"/> YES <input type="checkbox"/> NO	The CPv is released at roughly a uniform rate over a 24-hour duration (see examples of sizing calculations in Appendix D of the RISDISM).				
<input type="checkbox"/> YES <input type="checkbox"/> NO	Do additional design restrictions apply resulting from any discharge to cold-water fisheries; If “Yes,” please indicate restrictions and solutions below.				
<input type="checkbox"/> Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.).					



<b>OVERBANK FLOOD PROTECTION (RICR 8.11) AND OTHER POTENTIAL HIGH FLOWS – MINIMUM STANDARD 5</b>			
<b>YES</b>	<b>NO</b>		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is this standard waived? If yes, please indicate one or more of the reasons below:	
		<input type="checkbox"/>	The project directs discharge to a large river (i.e., 4th-order stream or larger. See Appendix I for state-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters.
		<input type="checkbox"/>	A Downstream Analysis (see RICR 8.11.D and E) indicates that peak discharge control would not be beneficial or would exacerbate peak flows in a downstream tributary of a particular site (e.g., through coincident peaks).
<input type="checkbox"/>	<input type="checkbox"/>	Does the project flow to an MS4 system or subject to other stormwater requirements? If “Yes,” indicate as follows:	
		<input type="checkbox"/>	RIDOT
		<input type="checkbox"/>	Other (specify):
<b>Note:</b> The project could be approved by RIDEM but not meet RIDOT or Town standards. RIDOT’s regulations indicate that post-volumes must be <b>less</b> than pre-volumes for the 10-yr storm at the design point entering the RIDOT system. If you have not already received approval for the discharge to an MS4, please explain below your strategy to comply with RIDEM and the MS4.			
		Indicate below which model was used for your analysis. <input type="checkbox"/> TR-55 <input type="checkbox"/> TR-20 <input checked="" type="checkbox"/> HydroCAD <input type="checkbox"/> Bentley/Haestad <input type="checkbox"/> Intellisolve <input type="checkbox"/> Other (Specify):	
<b>YES</b>	<b>NO</b>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the drainage design demonstrate that flows from the 100-year storm event through a BMP will safely manage and convey the 100-year storm? If “No,” please explain briefly below and reference where in the application further documentation can be found (i.e., name of report/document, page numbers, appendices, etc.)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Do off-site areas contribute to the sub-watersheds and design points? If “Yes,”	
<input type="checkbox"/>	<input type="checkbox"/>	Are the areas modeled as “present condition” for both pre- and post-development analysis?	
<input type="checkbox"/>	<input type="checkbox"/>	Are the off-site areas shown on the subwatershed maps?	
<input type="checkbox"/>	<input type="checkbox"/>	Does the drainage design confirm safe passage of the 100-year flow through the site for off-site runoff?	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is a Downstream Analysis required (see RICR 8.11.E.1)?	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Calculate the following:	
		<input checked="" type="checkbox"/>	Area of disturbance within the sub-watershed (areas) = 39,441 sf
		<input checked="" type="checkbox"/>	Impervious cover (%) = 33%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is a dam breach analysis required (earthen embankments over six (6) feet in height, or a capacity of 15 acre-feet or more, and contributes to a significant or high hazard dam)?	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does this project meet the overbank flood protection standard?	



Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

**Table 5-1 Hydraulic Analysis Summary**

Subwatershed (Design Point)	1.2" Peak Flow (cfs) **		1-yr Peak Flow (cfs)		10-yr Peak Flow (cfs)		100-yr Peak Flow (cfs)	
	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)
DP-1: SITE	0.10	0.02	0.71	0.15	1.72	0.49	3.57	3.63
DP-2:								
DP-3:								
DP-4:								
<b>TOTALS:</b>								

\*\* Utilize modified curve number method or split pervious /impervious method in HydroCAD.

Note: The hydraulic analysis must demonstrate no impact to each individual subwatershed DP unless each DP discharges to the same wetland or water resource.

Indicate as follows where the pertinent calculations and/or information for the items above are provided	Name of report/document, page numbers, appendices, etc.
Existing conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, and water surface elevations showing methodologies used and supporting calculations.	
Proposed conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, water surface elevations, and routing showing the methodologies used and supporting calculations.	
Final sizing calculations for structural stormwater BMPs, including contributing drainage area, storage, and outlet configuration.	
Stage-storage, inflow and outflow hydrographs for storage facilities (e.g., detention, retention, or infiltration facilities).	

**Table 5-2 Summary of Best Management Practices**

Table 5-2 Summary of Best Management Practices											
BMP ID	DP #	BMP Type (e.g., bioretention, tree filter)	BMP Functions					Bypass Type	Horizontal Setback Criteria are met per RICR 8.21.B.10, 8.22.D.11, and 8.35.B.4		
			Pre-Treatment (Y/N/NA)	Re <sub>v</sub>	WQ <sub>v</sub>	CP <sub>v</sub> (Y/N/NA)	Overbank Flood Reduction (Y/N/NA)		External (E) Internal (I) or NA	Yes/No	Technical Justification (Design Report page number)
BIO	SITE	Bioretention	X	X	X	NA	X		N		15’<50’
		TOTALS:									

Table 5.3 Summary of Soils to Evaluate Each BMP									
DP #	BMP ID	BMP Type (e.g., bioretention, tree filter)	Soils Analysis for Each BMP						Exfiltration Rate Applied (in/hr)
			Test Pit ID# and Ground Elevation		SHWT Elevation (ft)	Bottom of Practice Elevation* (ft)	Separation Distance Provided (ft)	Hydrologic Soil Group (A, B, C, D)	
			Primary	Secondary					
SITE	BIO	Bioretention	Pond		112	116	4	C	0.50
		TOTALS:							
* For underground infiltration systems (UICs) bottom equals bottom of stone, for surface infiltration basins bottom equals bottom of basin, for filters bottom equals interface of storage and top of filter layer									

LAND USES WITH HIGHER POTENTIAL POLLUTANTS LOADS (LUHPPLs) – MINIMUM STANDARD 8			
YES	NO	N/A	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Describe any LUHPPLs identified in Part 1, Minimum Standard 8, Section 2. If not applicable, continue to Minimum Standard 9.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are these activities already covered under an MSGP? If “No,” please explain if you have applied for an MSGP or intend to do so?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	List the specific BMPs that are proposed for this project that receive stormwater from LUHPPL drainage areas. These BMP types must be listed in RISDISM Table 3-3, “Acceptable BMPs for Use at LUHPPLs.” Please list BMPs:
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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, appendices, etc.).

ILLICIT DISCHARGES – MINIMUM STANDARD 9			
Illicit discharges are defined as unpermitted discharges to Waters of the State that do not consist entirely of stormwater or uncontaminated groundwater, except for certain discharges identified in the RIPDES Phase II Stormwater General Permit.			
YES	NO	N/A	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Have you checked for illicit discharges?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Have any been found and/or corrected? If “Yes,” please identify.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does your report explain preventative measures that keep non-stormwater discharges out of the Waters of the State (during and after construction)?

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

SOIL EROSION AND SEDIMENT CONTROL (SESC) – MINIMUM STANDARD 10			
YES	NO	N/A	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Have you included a Soil Erosion and Sediment Control Plan Set and/or Complete Construction Plan Set?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Have you provided a <b>separately-bound</b> document based upon the <a href="#">SESC Template</a> ? If yes, proceed to Minimum Standard 11 (the following items can be assumed to be addressed).
			If “No,” include a document with your submittal that addresses the following elements of an SESC Plan:
		<input type="checkbox"/>	Soil Erosion and Sediment Control Plan Project Narrative, including a description of how the fifteen (15) Performance Criteria have been met:
		<input checked="" type="checkbox"/>	Provide Natural Buffers and Maintain Existing Vegetation
		<input checked="" type="checkbox"/>	Minimize Area of Disturbance
		<input checked="" type="checkbox"/>	Minimize the Disturbance of Steep Slopes
		<input type="checkbox"/>	Preserve Topsoil
		<input checked="" type="checkbox"/>	Stabilize Soils
		<input type="checkbox"/>	Protect Storm Drain Inlets
		<input checked="" type="checkbox"/>	Protect Storm Drain Outlets
		<input type="checkbox"/>	Establish Temporary Controls for the Protection of Post-Construction Stormwater Control Measures
		<input checked="" type="checkbox"/>	Establish Perimeter Controls and Sediment Barriers
		<input type="checkbox"/>	Divert or Manage Run-On from Up-Gradient Areas
		<input type="checkbox"/>	Properly Design Constructed Stormwater Conveyance Channels
		<input checked="" type="checkbox"/>	Retain Sediment On-Site
		<input type="checkbox"/>	Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows
		<input checked="" type="checkbox"/>	Apply Construction Activity Pollution Prevention Control Measures
		<input type="checkbox"/>	Install, Inspect, and Maintain Control Measures and Take Corrective Actions
		<input type="checkbox"/>	Qualified SESC Plan Preparer’s Information and Certification
		<input checked="" type="checkbox"/>	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
		<input type="checkbox"/>	Description of Control Measures, such as Temporary Sediment Trapping and Conveyance Practices, including design calculations and supporting documentation, as required

STORMWATER MANAGEMENT SYSTEM OPERATION, MAINTENANCE, AND POLLUTION PREVENTION PLAN – MINIMUM STANDARDS 7 AND 9			
Operation and Maintenance Section			
YES	NO		
<input checked="" type="checkbox"/>	<input type="checkbox"/>		Have you minimized all sources of pollutant contact with stormwater runoff, to the maximum extent practicable?
<input checked="" type="checkbox"/>	<input type="checkbox"/>		Have you provided a <b>separately-bound</b> Operation and Maintenance Plan for the site and for all of the BMPs, and does it address each element of RICR 8.17 and RISDISM Appendix C and E?
<input type="checkbox"/>	<input type="checkbox"/>		Lawn, Garden, and Landscape Management meet the requirements of RISDISM Section G.7? If “No,” why not?
<input checked="" type="checkbox"/>	<input type="checkbox"/>		Is the property owner or homeowner’s association responsible for the stormwater maintenance of all BMP’s? If “No,” you must provide a legally binding and enforceable maintenance agreement (see RISDISM Appendix E, page 26) that identifies the entity that will be responsible for maintenance of the stormwater. Indicate where this agreement can be found in your report (i.e., name of report/document, page numbers, appendices, etc.).
<input type="checkbox"/>	<input checked="" type="checkbox"/>		Do you anticipate that you will need legal agreements related to the stormwater structures? (e.g. off-site easements, deed restrictions, covenants, or ELUR per the Remediation Regulations). If “Yes,” have you obtained them? Or please explain your plan to obtain them:

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is stormwater being directed from public areas to private property? If "Yes," note the following: <u>Note:</u> This is not allowed unless a funding mechanism is in place to provide the finances for the long-term maintenance of the BMP and drainage, or a funding mechanism is demonstrated that can guarantee the long-term maintenance of a stormwater BMP by an individual homeowner.
<b>Pollution Prevention Section</b>		
<input type="checkbox"/>	<input type="checkbox"/>	Designated snow stockpile locations?
<input type="checkbox"/>	<input type="checkbox"/>	Trash racks to prevent floatables, trash, and debris from discharging to Waters of the State?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Asphalt-only based sealants?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Pet waste stations? ( <u>Note:</u> If a receiving water has a bacterial impairment, and the project involves housing units, then this could be an important part of your pollution prevention plan).
<input type="checkbox"/>	<input type="checkbox"/>	Regular sweeping? Please describe:
<input type="checkbox"/>	<input type="checkbox"/>	De-icing specifications, in accordance with RISDISM Appendix G. (NOTE: If the groundwater is GAA, or this area contributes to a drinking water supply, then this could be an important part of your pollution prevention plan).
<input type="checkbox"/>	<input checked="" type="checkbox"/>	A prohibition of phosphate-based fertilizers? ( <u>Note:</u> If the site discharges to a phosphorus impaired waterbody, then this could be an important part of your pollution prevention plan).

**PART 4. SUBWATERSHED MAPPING AND SITE-PLAN DETAILS**

Existing and Proposed Subwatershed Mapping (REQUIRED)		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Existing and proposed drainage area delineations
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Locations of all streams and drainage swales
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Drainage flow paths, mapped according to the DEM <i>Guidance for Preparation of Drainage Area Maps</i> (included in RISDISM Appendix K)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Complete drainage area boundaries; include off-site areas in both mapping and analyses, as applicable
<input type="checkbox"/>	<input type="checkbox"/>	Logs of borings and/or test pit investigations along with supporting soils/geotechnical report
<input type="checkbox"/>	<input type="checkbox"/>	Mapped seasonal high-water-table test pit locations
<input type="checkbox"/>	<input type="checkbox"/>	Mapped locations of the site-specific borings and/or test pits and soils information from the test pits at the locations of the BMPs
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Mapped locations of the BMPs, with the BMPs consistently identified on the Site Construction Plans
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mapped bedrock outcrops adjacent to any infiltration BMP
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Soils were logged by a:
	<input type="checkbox"/>	DEM-licensed Class IV soil evaluator Name: Thomas J. Principe, III
	<input type="checkbox"/>	RI-registered P.E. Name: Thomas j. Principe, III

Subwatershed and Impervious Area Summary				
Subwatershed (area to each design point)	First Receiving Water ID or MS4	Area Disturbed (units)	Existing Impervious (units)	Proposed Impervious (units)
DP-1: SITE	Un-named pond	39,441	12,983	13,011
DP-2:				
DP-3:				
DP-4:				
TOTALS:				

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

Site Construction Plans (Indicate that the following applicable specifications are provided)		
YES	NO	
<input type="checkbox"/>	<input type="checkbox"/>	Existing and proposed plans (scale not greater than 1" = 40') with North arrow
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Existing and proposed site topography (with 1 or 2-foot contours); 10-foot contours accepted for off-site areas
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Boundaries of existing predominant vegetation and proposed limits of clearing
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Site Location clarification
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Location and field-verified boundaries of resource protection areas such as: <ul style="list-style-type: none"> <li>▶ freshwater and coastal wetlands, including lakes and ponds</li> <li>▶ coastal shoreline features</li> </ul> Perennial and intermittent streams, in addition to Areas Subject to Storm Flowage (ASSFs)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	All required setbacks (e.g., buffers, water-supply wells, septic systems)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Representative cross-section and profile drawings, and notes and details of structural stormwater management practices and conveyances (i.e., storm drains, open channels, swales, etc.), which include: <ul style="list-style-type: none"> <li>▶ Location and size of the stormwater treatment practices (type of practice, depth, area). Stormwater treatment practices (BMPs) must have labels that correspond to RISDISM Table 5-2;</li> <li>▶ Design water surface elevations (applicable storms);</li> <li>▶ Structural details of outlet structures, embankments, spillways, stilling basins, grade-control structures, conveyance channels, etc.;</li> <li>▶ Existing and proposed structural elevations (e.g., inverts of pipes, manholes, etc.);</li> <li>▶ Location of floodplain and, if applicable, floodway limits and relationship of site to upstream and downstream properties or drainage that could be affected by work in the floodplain;</li> <li>▶ Planting plans for structural stormwater BMPs, including species, size, planting methods, and maintenance requirements of proposed planting</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	Logs of borings and/or test pit investigations along with supporting soils/geotechnical report and corresponding water tables
<input type="checkbox"/>	<input type="checkbox"/>	Mapping of any OLRSM-approv'd remedial actions/systems (including ELURs)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Location of existing and proposed roads, buildings, and other structures including limits of disturbance; <ul style="list-style-type: none"> <li>▶ Existing and proposed utilities (e.g., water, sewer, gas, electric) and easements;</li> <li>▶ Location of existing and proposed conveyance systems, such as grass channels, swales, and storm drains, and location(s) of final discharge point(s) (wetland, waterbody, etc.);</li> <li>▶ Cross sections of roadways, with edge details such as curbs and sidewalks;</li> <li>▶ Location and dimensions of channel modifications, such as bridge or culvert crossings</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	Locations, cross sections, and profiles of all stream or wetland crossings and their method of stabilization