

DELEGATED REVIEW STORMWATER APPLICATION CHECKLIST

Applicant: Riding to the Top			
Agent: Andrew Johnston, PE - Verdantas			
Project Name: Riding to the Top Site Improvements			
Town: Windham			
Application Type:	☒ Stormwater	☐ Site Law	
Application Status:	☒ Preliminary	☐ Final	
Watershed Name: Small Brook > Presumpscot River			
Watershed Type:	☐ UIS	☐ Phosphorus	☒ Neither

Project Area Information

	Existing to Remain ¹ Square Feet (Acres)	New / Proposed Square Feet (Acres)	Total Square Feet (Acres)
Impervious (Im)	72,745 (1.67)	43,125 (0.99)	116,305 (2.66)
Landscaped (Land)	307,534 (7.06)	15,682 (0.36)	323,216 (7.42)
Developed (Dev) ²	380,279 (8.73)	59,242 (1.35)	439,521 (10.08)

1- If area is not subject to treatment, provide reason and show in a separate column in the Water Quality Calc table. **Initial development of the site was completed prior to the adoption of the revised Stormwater Management Law in 2005. As the initial development pre-dates this jurisdictional threshold, the existing developed area is not subject to stormwater quality treatment.**

2- Developed area = Impervious Area + Landscaped Area

A. BASIC STANDARD

1. Erosion and Sedimentation Controls (Appendix A, page 32 of Chapter 500)
 - Guidance in Department [ESC BMP Manuals](#)
2. Inspection & Maintenance (Appendix B, page 37 of Chapter 500) Construction Phase:

Show on Plans the following:

 - ☒ Responsibility for inspection and maintenance
 - ☒ Construction schedule (how long will it take and in what sequence/critical path to build)
 - ☒ Inspection frequency
 - ☒ Scope of inspection
 - ☒ Inspector qualifications
 - ☒ Define storm event that triggers a wet weather inspection during construction (0.5" of rain in 24 hours)
 - ☒ Documentation (3 years minimum)





Post-Construction: Include in written I&M Plan the following:

- ☒ Responsibility for inspection and maintenance
- ☒ Inspection frequency for each BMP
- ☒ Inspection form for each BMP
- ☒ Inspector qualifications
- ☒ Define post-construction storm event that triggers a wet weather inspection (1" of rain in 24 hours)
- ☐ Documentation (5 years, minimum) **See Note 1.**
- ☒ Project is subject to Department 5-Year Recertification

3. Good Housekeeping (Appendix C, page 41 of Chapter 500)

- ☒ Show all seven elements on Plans.

Basic Standards Review:

- ☐ The submitted information appears to meet the Basic Standards of MaineDEP's Chapter 500.
- ☒ The submitted information does not appear to meet the Basic Standards of MaineDEP's Chapter 500. See notes below.

Comments:

1. Within the written Stormwater Maintenance Plan, provide information regarding the retainage of inspection documentation for a minimum of 5-years per Appendix B, Section 2.D – Documentation of Chapter 500.

B. GENERAL STANDARD

- ☒ **Must provide the following on WQ Treatment Plan:** All BMPs with subcatchments including time of concentration (Tc) lines, flow lengths and flow types.

1. Soil Explorations (test pit completed by a certified soil scientist) at each proposed BMP

- ☐ Include test pit summary table on detail plan.
 - ☐ If there is potential ledge, address in design.
 - ☐ If shallow groundwater, address in design.
- See Comment 1.**



2. Treatment Standards (modify to fit project): Fill out the following table for the applicable standards that apply.

Applicable Standard	Section in Ch. 500	Required Treatment (Im / Dev)	Area Eligible		Area Treated		Provided Treatment %	
			Im	Dev	Im	Dev	Im	Dev
General Standard	4(C)(2)(a)(i)	95% / 80%	43,125	58,806	53,499	66,766	>100%	88.0%
Increased Runoff Treated ¹	4(C)(2)(a)(ii)	90% / 80% min						N/A
% Parcel Developed ²	4(C)(2)(a)(iii)	90% / 75% min						N/A
Redevelopment ³ (Dev Area)	4(C)(2)(d)	0% min (SW) 50% min (Site)						N/A
Linear	4(C)(5)(c)	75% / 50% min						N/A
Other: Offsite Treatment/Mitigation								N/A
Project Total Area =			43,125	58,806	53,499	66,766	>100%	>100%

1-If proposing to treat more than the first flush, state why meeting Ch. 500, § 4(C)(2)(a)(i) is not practicable.

2-Reduced % based on portion of parcel developed.

3-Include pollutant impact ranking calculations (current and proposed) and a figure showing the Redevelopment window.

3. Proposed BMPs: Please provide the following information on the Table below for EACH BMP.

BMPs Proposed	#	Pretreatment	Sizing calcs	Detail on Plans ¹	CPV Draindown Time	HydroCAD
Bioretention Basin 1	BR-1	Stone Filter	Included	Included	Not provided*	Included**
Bioretention Basin 2	BR-2	Grassed Swale	Included	Included	Not provided*	Included**
Bioretention Basin 3	BR-3	Grassed Swale	Included	Included	Not provided*	Included**
Roof Dripline Filters	N/A	N/A (Roof Runoff)	Included	Cross Section Included	N/A	N/A

1- BMP details (cross sections, elevation sections, plan view)

* See Comment 2.

** See Comment 3.



Link to Stormwater Design BMP Volumes I, II, III

<https://www.maine.gov/dep/land/stormwater/stormwaterbmps/index.html>

- Provide Construction Oversight Notes. **Included**
- If BMP is unlined, review and satisfy (Appendix E Sections 4(b) and 4(c), page 50 of Chapter 500). **See Comment 4.**
- Treatment buffers (Appendix F, page 56 of Chapter 500): must provide sample deed restriction (Appendix G, page 64 of Chapter 500). **N/A**
- Infiltration must satisfy Appendix D, page 44 of Chapter 500. **See Comment 4.**
- Is conveyance designed to a 10-year, 24-hour storm? **Yes**
- Is a drainage easement required for any areas to be flooded? **N/A**
- Discharge to a public storm sewer system: Must provide authorization from the authority. **N/A**

If proposing Proprietary BMPs, provide:

- Letter from vendor approving sizing and siting **N/A**
<https://www.maine.gov/dep/land/stormwater/stormwaterbmps/index.html>.
- Executed 5-Year I&M Agreement with a provider approved by vendor. **N/A**
- Narrative section and specific inspection forms in the written I&M Plan. **N/A**
- Pervious pavement: Must provide Executed 5-Year I&M Agreement and vacuum equipment used. **N/A**

General Standards Review:

- ☐ The submitted information appears to meet the General Standards of MaineDEP's Chapter 500.
- ☒ The submitted information does not appear to meet the General Standards of MaineDEP's Chapter 500. See comments below.

Comments:

1. Provide subsurface investigation information in the locations of the three bioretention cells to identify depths to seasonal high groundwater and bedrock. Based on these findings, confirm that adequate separation can be achieved between the bottom of the basin and the SHGWL and bedrock. Also, provide a test pit summary table within the detail sheets of the plan set for all test pits associated with a stormwater BMPs.
2. Provide the tabulation of the hydrograph which demonstrates the bioretention cells drain dry within 24 to 48 hours.
3. Provide the full HydroCAD model printouts for the 10- and 25-year, 24 hour storm events. We will provide further review of the stormwater modeling upon receipt of the full HydroCAD report.
4. Bioretention cells and drip edge filters are proposed to be unlined. As stated in Comment 1, provide subsurface investigation information and a narrative which



illustrates the infiltration standards outlined in Appendix D as well as Appendix E, Section 4(b) and/or Section 4(c) have been met.

5. The Landscape Plan proposes planting deciduous, upland trees within Bioretention Cell 2. Due to the well-draining soils, and frequent inundation, we recommend different plant species that are more tolerant of these conditions be utilized within the bioretention cell. Additionally, a pole for lighting is shown on the Landscape Plan in the center of BR-2.
6. There appears to be inconsistencies with the stormdrain sizes called out in the stormdrain system to the northeast of Bioretention Cell 3 as shown on Sheet C-102. Review the stormdrain callouts and revise as necessary.
7. Provide specific elevation details for the bioretention cells on the Grading and Drainage Plan, including bottom of pond and berm crest elevation.

C. PHOSPHORUS STANDARD

MUST provide on the WQ Treatment Plan: BMPs with subcatchments including time of concentration (Tc) lines, flow lengths and flow types;

Provide export calculations clearly showing distinct BMPs: Phosphorus Table Calculations [Worksheet 4 july 2015.xlsx](#).

Phosphorus Standards Review:

- ☐ The submitted information appears to meet the Phosphorus Standards of MaineDEP's Chapter 500.
- ☐ The submitted information does not appear to meet the Phosphorus Standards of MaineDEP's Chapter 500.
- ☒ The project does not trigger review under the Phosphorus Standards of MaineDEP's Chapter 500.

Comments:

1. This project is not located within a lake watershed, so it is not required to meet the Phosphorus Standard of Chapter 500. Runoff from the project is tributary to Small Brook, which is ultimately tributary to the Presumpscot River.

D. FLOODING STANDARD

- ☐ Add pre- and post- peak flow rates table to post development plan for storms (2-, 10-, 25-year).
- ☐ Is primary access road passable up to a 25-year, 24-hour storm?
- ☐ If requesting a waiver of the Flooding Standard, must state justification for the waiver.



- ☐ HydroCad or other runoff model
 - If post peak flow rate is > pre-peak flow, a waiver request will be needed with justification Ch. 500, § 4(F)(3)(a) or (b).
 - If discharging to wetland see Chap. 500, § 4(I).

Flooding Standards Review:

- ☐ The submitted information appears to meet the Flooding Standards of MaineDEP's Chapter 500.
- ☐ The submitted information does not appear to meet the Flooding Standards of MaineDEP's Chapter 500.
- ☒ The project does not trigger review under the Flooding Standards of MaineDEP's Chapter 500.

Comments:

1. The project results in the creation of less than 3 acres of impervious area and less than 20 acres of developed area. This project is not required to meet the MaineDEP Flooding Standards. However, the Town of Windham Land Use Ordinance requires the project to meet the Flooding Standards.
2. Although not required for the Stormwater Law permit, to meet the Flooding Standards required through the Town's Ordinance, we offer the following comments:
 - a. The bioretention cell underdrains are modeled in HydroCAD with a restrictive orifice, however no details are shown on the plans for this. Provide information for the underdrain cap and orifice in the Bioretention Primary Outlet Detail on Sheet C-302.
 - b. We will provide further review of the stormwater BMP's upon receipt of the complete HydroCAD report as noted in the General Standard comments.

E. REVIEW SUMMARY

- ☐ The submitted Maine Department of Environmental Protection Stormwater Law Permit appears to meet the standards of MaineDEP's Chapters 500, 501, and 502.
- ☒ The submitted Maine Department of Environmental Protection Stormwater Law Permit does not appear to meet the standards of MaineDEP's Chapters 500, 501, and 502.

Comments:

1. Address comments listed in the Basic Standard and General Standard sections of this review. Address comments listed in the Flooding Standard section to meet the Town's Site Plan Review Standards.



2. Although not regulated through the Town's Delegated Review Authority, it appears that a Maine Construction General Permit from Maine Department of Environmental Protection will be required for this project.

If there are any questions regarding the above review, please contact our office at bnault@ljbinc.com or (207) 772-2515.

Signature: Will C. Haskell

Name: Will Haskell, PE

Signature: Ben Nault

Name: Ben Nault, EI

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