

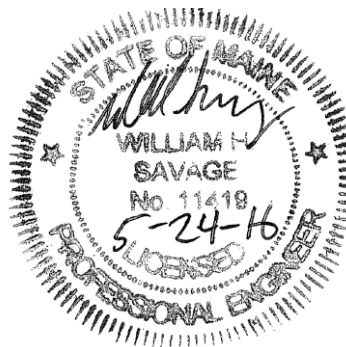
POST CONSTRUCTION - STORMWATER INSPECTION & MAINTENANCE PLAN

Prepared For:

**Peninsula Property Development, LLC
31 Fore Street Redevelopment
31 Fore Street
Portland, Maine 04101**

Prepared By:

**Acorn Engineering, Inc.
PO Box 3372
Portland, Maine 04104**



May 2016



A C O R N

ENGINEERING, INC.

RESPONSIBLE PARTY

The owner, Peninsula Property Development, LLC, and/or their successor shall be responsible for contracting with a qualified stormwater professional to implement the Inspection and Maintenance Plan. The qualified stormwater professional shall maintain a stormwater log (report) summarizing inspections, maintenance, and corrective action taken. The Qualified Stormwater Professional shall annually submit the Stormwater Log to the Department of Public Services prior to June 30th.

The following is an example of a qualified stormwater professional that the owner may contract through.

Organization: Will Savage, PE
Acorn Engineering, Inc
Portland, Maine

Phone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #11419
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert #14
- Certified Erosion, Sediment and Storm Water Inspector (CESSWI) Cert #0293
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #4620

The inspection and maintenance criteria is based upon the Maine DEP - Stormwater Management for Maine, Volume III: BMPs Technical Design Manual. Refer to the Grading, Drainage, & Erosion Control Plan, revised April 7th, 2016 or the latest version for the location of the BMPs.

PURPOSE

This Inspection and Maintenance Plan has been individually tailored to this parcel's stormwater infrastructure, site characteristics, and their respective opportunities and limitations related to reducing the pollutant load on the receiving watershed. The maintenance of a parcel's impervious surfaces and stormwater infrastructure is critical to extending the long term performance and effectiveness of Best Management Practices (BMPs). The Inspection and Maintenance Plan represents the parcel's minimum activities to meet the permit requirements. The parcel shall still be subject to any applicable Civil Site Plans, Permit Applications, Erosion and Sedimentation Control Plans Reports, Stormwater Management Plans, Inspection and Maintenance Manuals, and all Municipal, State, and Federal rules.

OPERATION AND MAINTENANCE ACTIVITY

Underdrained Bioretention Cell “Rain Garden”:

The maintenance of the rain garden shall be in accordance with the following activities identified below and the most recent version of the Maine DEP Volume III BMPs Technical Design Manual Chapter 7.2 Underdrained Bioretention Cell BMP.

- The soil filter shall be inspected after every major storm within the first year to ensure the filter area is draining within a 48-hour period and no less than a 24-hour period, and that the plants are establishing. Thereafter, the filter should be inspected at least once every six months to ensure that is draining within a 48-hour period following a one-inch storm or greater.
- Soil filter modification shall occur if the filter bed is draining in less than 24 hours. The top six inches of the filter shall be replaced with six inches of loam, per the most recent Maine DEP specification. Soil filter replacement shall be replaced with fresh material on a yearly basis.
- The filter area shall not be fertilized unless it is absolutely necessary.
- Harvesting and pruning of excessive growth shall be done occasionally. Weeding to control unwanted or invasive plants may be necessary and plants that are not thriving must be replaced.
- Inspect the overflow outlet at least annually to ensure it is in good working order and unobstructed from trash and debris. Removed sediments should be disposed of in an acceptable manner.

Sweeping:

Annual sweeping of the driveway following the snow melt for accumulated winter sand, if necessary. Appropriately dispose of all collected material.

Storm Drains:

The storm drain shall be annually inspected for the presence of accumulated sediment or debris. Any sediment shall be removed as required.

- The equipment shall meet the following minimum specifications; power jet and water source for washing down the storm drain, vacuum attachment for catch basin cleaning, and a liquid handling method to dewater the material.
- Inspect and legally dispose of accumulated sediment and debris within the storm drains between basins. Liquids must be decanted on-site and returned to the catch basin.

Oil/Water Separator:

The Oil/Water Separator shall be inspected to confirm that the structure is operating properly.

- Oil/Water separators should be cleaned out at least twice a year of accumulated oil-contaminated sediment or slurry with a vacuum truck or other catch basin cleaning device.
- Inlet grate to be checked and cleaned of sediment and/or debris as necessary.

- Oil/Water separator to be inspected and cleaned as necessary following a spill of any material prohibited from entering the sanitary sewer system such as detergent, solvent, etc.
- Material removed from the separator must be disposed of appropriately within the guidelines set by the Maine DEP Bureau of Hazardous Materials and Solid Waste Control

Landscaped, Vegetated and Areas Adjacent to Retaining Walls:

Inspect all landscaped and or vegetated slopes and embankments on an annual basis. Vegetated areas with bare areas or sparse growth (<90% coverage) shall be revegetated. Mulch shall be applied to landscaped areas, as necessary. Dead or decaying landscaping (ground cover, shrubs, trees etc.) shall be replanted in accordance with the contract documents.

If signs of rill erosion or scour are present within areas tributary to the retaining walls, or stormwater flow is observed flowing over the wall, Acorn Engineering should be immediately contacted to perform an inspection and/or to contact the appropriate professional. Periodic inspections of the retaining walls shall be performed, under separate contract, by a Professional Geotechnical Engineer.

INSPECTION AND MAINTENANCE TABLE

Inspection and Maintenance Frequency	Spring or Yearly	Summer	Fall	As Necessary
Rain Garden	X	X		X
Sweeping	X			X
Storm Drains		X		X
Oil/Water Separator	X		X	X
Landscaped/Vegetated/Wall Areas	X			X

STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

BIORETENTION CELL "RAIN GARDEN" BMP:	
Location: 31 Fore Street, Portland ME 04101	Latitude: 43.663307
	Longitude: -70.244181
Description of Located Point: Southernmost property corner	Inspector:
	Date of Inspection:
	Weather Conditions:
Days since last precipitation	MEDEP Permit # YES
Quantity of last precipitation (in)	Design Drawings:

Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
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Underdrained Ditch, Vegetated Underdrain Soil Filter, Bio-retention Cell, etc.							
Soil filter retains the design volume for a drain down time greater than 24-hours and less than 48-hours	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Permeability is between 2.4 and 4 in/hr	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Filter bed consists of at least 6 in of loam	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Filter bed planting height is no less than 6"	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Filter area is properly planted, showing no bare spots and free of unwanted vegetative growth	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
The outlet control structure is in good working condition and free of debris	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Plantings are in good condition and do not show signs of rot or decay	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			

STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
General							
Access to facility is adequate	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Photographs of most recent site inspection are included	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				Photographs are attached.
Additional Comments:							

STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

OIL/WATER SEPARATOR:	
Location: 31 Fore Street, Portland ME 04101	Latitude: 43.663428
	Longitude: -70.24427
Description of Located Point: Central location within the covered parking garage	Inspector:
	Date of Inspection:
	Weather Conditions:
	Design Drawings: YES

Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
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Oil/Water Separator:							
Separator is free of oil and/or slurry accumulation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Inlet grate are free of material and/or excess waste and debris and are draining properly	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			

General							
Access to facility is adequate	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Photographs of most recent site inspection are included	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				Photographs are attached.

Additional Comments:	
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STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

STORMWATER PIPE:							
Location: 31 Fore Street, Portland ME 04101				Latitude:		43.663307	
				Longitude:		-70.244181	
Description of Located Point: Southernmost corner of property, outlet pipe from the rain garden				Inspector			
				Date of Inspection:			
				Weather Conditions:			
Days since last precipitation:				MEDEP Permit #:		N/A	
Quantity of last precipitation (in):				Design Drawings:		YES	
Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
Inlets, Outlets, & Storm Drains							
Pipe is free of obstruction, accumulated sediment and debris	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Pipe inlet and outlet is free of obstruction, accumulated sediment and debris	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Pipe, inlet and outlet is free of collapses and structural damage	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Outlet and inlet are properly conveying stormwater and no erosion is visible	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
General							
Access to facility is adequate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Photographs of most recent site inspection are included	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				Photographs are attached.
Additional Comments:							

STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

VEGETATED AREAS:							
Location: 31 Fore Street, Portland ME 04101				Latitude: 43.663485			
				Longitude: -70.244232			
Description of Located Point: Throughout the property, retaining wall located at Northermost property line				Inspector:			
				Date of Inspection:			
				Weather Conditions:			
				Design Drawings: YES			
Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
Embankments							
Slopes and embankments are in good condition.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Site is free of rill erosion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
General							
Site is free of locations with less than 90% vegetative cover	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Plantings are capable of withstanding concentrated flows	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Access to facility is adequate	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Photographs of most recent site inspection are included	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				Photographs are attached.
Additional Comments:							