

23 Ocean Avenue Stormwater Management Narrative

Date: June 2, 2016
From: John Mahoney, P.E.
Peer Review: Stephen J. Bradstreet, P.E.
Location: 23 Ocean Avenue, Portland, Maine

Existing Conditions:

The site is a 9,519 SF (.22 acres) acre parcel located at 23 Ocean Avenue, which is located at the northeast corner of the intersection of Ocean Avenue and Hersey Street. The parcel is currently occupied by a 1,222 square-foot office building, parking area, and lawn. The parcel drains from northwest to southeast with a change in elevation of approximately four feet.

Stormwater runoff currently drains across the lawn area to the existing paved parking lot to the southeast. The site is graded such that stormwater runoff concentrates in the southeast corner. Runoff exits the site through the existing driveway into the public right-of-way on Hersey Street. Runoff then flows down the Hersey Street gutter for approximately 300 feet then into a catch basin that is connected to a 15" combined sewer.

The existing drainage systems on Ocean Avenue and Hersey Street are currently combined sanitary sewer and stormdrain systems.

Based on the Cumberland County USDA soil survey GIS data, the existing soils on this site are hydrological group C & D, moderately to somewhat poorly drained.

Proposed Development:

The owner is proposing to continue the use of the existing building as office space and to construct a mixed-use building with four two-bedroom apartments and eight offices. The proposed development will result in a moderate increase in the impervious area.

Stormwater Management – Basic Standards:

Erosion and sedimentation control measures are detailed and described on Sheets C1 - C3. Good housekeeping practices shall be in accordance with Maine DEP Best Management Practices. A post

construction stormwater management plan and a stormwater BMP inspection and maintenance log are included with this submission.

Stormwater Management - Quality:

We are proposing to install pervious pavers in the patio between the buildings and at the driveway entrance, to construct two rain gardens and to install an underdrained roof drain collection system in order to capture and infiltrate stormwater runoff.

Approximately one third of the parking lot, half the existing building's roof and a portion of the property to the north will drain overland to a shallow rain garden situated on the eastern lot boundary. Overflow from this rain garden will be directed to the rain garden at the southeastern corner, allowing for two opportunities for stormwater quality improvement. The site is graded such that the entire parking area is directed to this second deeper rain garden. We have included a strip of pervious pavers (pitched away from Hersey Street at the driveway entrance to capture stormwater and direct it towards the rain garden before it can leave the site.

The entire roof of the proposed building and the southern half of the roof of the existing building will be piped into an underdrain system with 12" of crushed stone storage below the pipe. This underdrain system will daylight to the rain garden in the southeast corner. The proposed building's foundation drainage will be collected and pumped to this underdrain system and daylight to the same rain garden area. During larger storm events, when the capacity of the rain gardens and stone storage is exceeded, stormwater will overflow from the rain garden in the southeast corner through the driveway into the Hersey Street gutter as it does now.

Because the water from the entire site flows to this southeast corner and because the site's soils are not well drained, it is our opinion that it will be necessary to underdrain the rain garden in the southeast corner. We are proposing to connect this underdrain to the 8" combined sewer in Hersey Street because it is the only viable option. This underdrain will be significantly lower than and separated from the roof drain conveyance system by 18" of sand (Underdrain Type B Backfill MDOT 703.22), which will dramatically reduce the rate of discharge into the combined sewer and reduce pollutant loads.

Stormwater Management - Quantity:

In our opinion, the combination of collecting and treating stormwater prior to discharging to the combined sewer on Hersey Street will reduce the site's contribution to surface drainage on Hersey Street during typical precipitation events. Due to the size of the property and the existing drainage patterns, meeting the flooding standard would require underground storage and piping a significant amount of surface runoff directly into the combined system. For these reasons, we are requesting a waiver to the flooding standard. Installation of the proposed stormwater management measures on this property will also facilitate connection to separated storm drain in the event that the City undertakes separation of storm drain and sewer on Hersey Street.

23 Ocean Avenue: Post-Construction Stormwater Compliance Requirements

The Applicant shall maintain the BMPs in accordance with the approved plan and shall demonstrate compliance with the plan as follows:

- (a) *Inspections.* The owner or operator of a BMP shall hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs, including but not limited to any parking areas, catch basins, drainage swales, detention basins and ponds, rain gardens, pervious pavers, pipes and related structures, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post-construction stormwater management plan.
- (b) *Maintenance and repair.* If the BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator of the BMP shall take corrective action(s) to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective action(s) to the department of public services ("DPS") in the annual report.
- (c) *Annual report.* The owner or operator of a BMP or a qualified post-construction stormwater inspector hired by that person, shall, on or by June 30 of each year, provide a completed and signed certification to DPS in a form provided by DPS, certifying that the person has inspected the BMP(s) and that they are adequately maintained and functioning as intended by the approved post-construction stormwater management plan, or that they require maintenance or repair, including the record of the deficiency and corrective action(s) taken.
- (d) *Filing fee.* Any persons required to file an annual certification under this section shall include with the annual certification a filing fee established by DPS to pay the administrative and technical costs of review of the annual certification.
- (e) *Right of entry.* In order to determine compliance with this article and with the post-construction stormwater management plan, DPS may enter upon property at reasonable hours with the consent of the owner, occupant or agent to inspect the BMPs.

23 Ocean Avenue: Stormwater BMP Inspection and Maintenance Log

The City of Portland, ME requires ongoing annual inspections to ensure the proper maintenance and operation of stormwater management facilities. Inspections must be conducted by third parties qualified by the City.

A. General Information

Use only one Cover Sheet per site with as many specific structural BMP Inspection Report attachments as needed. Attach required color digital photos of site, structures and devices as applicable with captions.

Project Name:	23 Ocean Avenue	Inspection Date:	
Parcel Map, Block and Lot:	129 G001	Current Weather:	
BMP Owner:	Steven & Roberta Cope	Date / Amount Last Precip:	
Owner Mailing Address:	172 Concord Street Portland, ME 04103	3PI Company:	
		3PI Mailing Address:	
Owner Phone #:	(207) 939-3326	Inspector Name:	
Owner Email:	adcope1@yahoo	Inspector Phone #:	
		Inspector Email:	

B. Inspection Report Attachments

Please document the number of each structural BMP type found at this site in the blank spaces provided below. Use additional Attachments if / as needed and submit all Attachments together with the Cover Sheet as a single report.

BMP Type	Number BMPs at site
Vegetated Areas	-
Rain Garden Areas	2
Parking-Driveway Area	1
Stormdrain (Roof Drain) Outlets	1
Pervious paver areas	2

Other (describe

C. Inspection Results

FAIL**

** If any one item on an Inspection Report attachment is coded as "Work Needed" then entire BMP fails inspection.

** If a site has multiple BMPs and one fails inspection, mark as "Fail" until all BMPs pass inspection.

Note: Applicable BMP Inspection Reports and confirmatory color digital photos summarizing required repairs must be submitted to the City following completion of the preliminary inspection. A re-inspection and certification must be completed within 60 days of the failed preliminary report. It is recommended that the inspector be part of the repair / maintenance process to ensure that repairs are performed properly.

PASS

Note: a qualified professional (as determined by the City) must sign below and include all applicable Inspection Report attachments and confirmatory digital color photos with captions.

D. Professional Certification (as qualified by City of Portland Stormwater Program Coordinator)

To be completed only when all BMPs at this site are functioning as designed with no outstanding maintenance issues.

I, _____, as a duly qualified third party inspector attest that a thorough inspection has been completed for ALL applicable BMPs that are associated with this particular site. All inspected structural BMPs are performing as designed and intended and are in compliance with the provisions of the City Portland's Standards

Signature: _____

Date: _____

Form Adapted from the City of South Portland's Annual Structural BMP Inspection Report Cover Sheet

	Date:
General Information	Observations
Inspection duration (hours)	
Days since last precipitation	
Quantity of last precipitation (in)	
Type of inspection	
Storm event	
Current weather	
Photos taken	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Nearby natural resources	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Copy of ESC plan	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
MEDEP Permit # (if applicable)	
General info notes	
Vegetated Areas	Observations
No bare areas (< 90% covered) with sparse growth	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
No erosion	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Vegetated area notes	
Stormdrain (roof drain) outlets	Observations
Accumulated sediments and debris at the outlet and within the conduit have been removed.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Erosion damage at the outlet have been repaired	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Outlet notes	
Pervious Pavers	Observations
Pavers observed to be free draining and clear of sediment and debris.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Sediment and debris removed with shop vacuum	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
<p>Pervious Paver Notes: Pervious pavers should be cleaned of leaf matter by using a blower. Sweeping is inferior as it will only push material into the gaps. Sanding of pervious paver surfaces should be minimized because sand will collect in the gaps and clog the pavers.</p> <p>The pervious paved surface should be inspected annually and during rain events. If the gaps are observed to be clogged then sediment/debris will need to be removed by vacuuming.</p>	
Rain Garden Areas	Observations
Accumulated sediments and debris (trash) within the infiltration area have been removed and legally disposed of	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Sediment forebays are clear of debris	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Grades as shown on the Drainage & Utilities Plan – C1 have been retained	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Plantings are healthy	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA

Rain Garden Notes			
The rain garden areas are planted depressions intended to slow and infiltrate stormwater run-off and it is critical that they not be filled in. Sediment forebays must be clear of debris and mulch must be replaced annually.			
Parking/Driveway Area			
Accumulated winter sand has been cleared	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
Pavement swept to help remove sediment	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
No stormwater is impeded by accumulations of material	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
Notes:			
Other Comments		Observations	
Corrective action needed	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
<i>If corrective action in needed, please explain detail</i>			
Verbal notification provided to responsible party	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Verbal notification contact			
Follow up required	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Final comment notes			

Photos (*use additional pages as needed*)



Review Notes

Date Reviewed:
Reviewed by:
Date entered:
Date edited:
Edited by:

23 Ocean Avenue, Portland, Maine

**STORMWATER DRAINAGE SYSTEM
MAINTENANCE AGREEMENT AND
RELEASE FROM LIABILITY**

IN CONSIDERATION OF the site plan and subdivision approval granted by the Planning Board of the City of Portland to a plan entitled **23 Ocean Avenue: Utility & Stormwater Management Plan** prepared for **Steven & Roberta Cope**, by **Ransom Consulting, Inc.** dated [REDACTED], 2016 recorded in the Cumberland County Registry of Deeds in Plan Book [REDACTED], Page [REDACTED] (the “Plan”) and pursuant to a condition thereof, **Steven & Roberta Cope** (owner) having a mailing address of **172 Concord Street, Portland, Maine 04103**, the owner of the subject premises, does hereby agree, for itself, its successors and assigns (the “Owner”), as follows:

Maintenance Agreement

That it will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order the stormwater drainage system, as shown on said plan, including but not limited to the **rain gardens, roof drain outlets, and pervious pavers** in strict compliance with the Maintenance of Facilities as described in **23 Ocean Avenue Stormwater Management Narrative and the 23 Ocean Avenue Stormwater Inspection and Maintenance Log** (Stormwater Management Plan) dated [REDACTED], 2016 and Chapter 32 of the Portland City Code. Owner of the subject premises further agrees to keep a Stormwater Maintenance Log that will be made available for inspection by the City of Portland upon reasonable notice and request.

This Agreement is for the benefit of the said City of Portland and all persons in lawful possession of the property; further, that the said City of Portland may enforce this Agreement by an action at law or in equity in any court of competent jurisdiction; further, that after giving the Owner written notice as described in this Agreement, and a stated time to perform, that the said City of Portland, by its authorized agents or representatives, may, but is not obligated to, enter upon the property in question to maintain, repair, or replace said stormwater drainage system, including but not limited to the **rain gardens, roof drain outlets, and pervious pavers** thereon in the event of any failure or neglect thereof, the cost and expense thereof to be reimbursed in full to the said City of Portland by the Owner upon written demand. Any funds owed to the City under this paragraph shall be secured by a lien on the property.

This Agreement shall bind the undersigned only so long as it retains any interest in said premises, and shall run with the land and be binding upon the Owner's successors and assigns as their interests may from time to time appear. The Owner agrees to provide a copy of this Agreement to any successor or assign and to forward to the City an Addendum signed by any successor or assign in which the successor or assign states that the successor or assign has read the Agreement, agrees to all its terms and conditions.

For the purpose of this Agreement the real estate shown by chart, block and lot number in the records on file in the City Assessor's office shall constitute "the property" that may be entered by the City and liened if the City is not paid all of its costs and charges following the mailing of a written demand for payment to the Owner pursuant to the process and with the same force and effect as that established by 36 M.R.S.A. §§ 942 and 943 for real estate tax liens.

Any written notices or demands required by this Agreement shall be complete on the date the notice is mailed to the owner of record as shown on the tax roles on file in the City Assessor's Office. If the property has more than one owner on said tax rolls, service shall be complete by mailing it to only the first listed owner. The failure to receive any written notice required by this Agreement shall not prevent the City from entering the property and performing maintenance or repairs on the stormwater system, or any component thereof, or liening it or create a cause of action against the City.

Dated at Portland, Maine this _____ day of _____, 20__.

By: _____
Its: _____

STATE OF MAINE
CUMBERLAND, ss.

Date: _____

Personally appeared the above-named _____, and acknowledged the foregoing instrument to be his/his free act and deed in his/her said capacity, and the free act and deed of said _____.

Before me,

Notary Public/Attorney at Law

Print name: _____