

**133 YORK STREET
PORTLAND, MAINE
June 19, 2013**

**INSPECTION AND MAINTENANCE
OF STORMWATER MANAGEMENT FACILITIES**

Stormwater Management Facilities include swales, paved surfaces, manholes, drain pipe, ripped aprons, and level spreaders. Periodic inspection and maintenance of these site features and devices is necessary to prevent erosion, protect roadways and other paved areas, and remove pollutants from stormwater runoff.

SWALES, DITCHES, CURBS AND PAVED AREAS:

Swales, ditches, curbs and paved areas are easily inspected during a site walk or even a ride-by. Since visual inspection is easy, their condition should be assessed during and/or after significant rainfall events such as thunder showers and periods of heavy or extended rainfall and during periods of significant snowmelt. Any damage or unusual condition such as sedimentation of a ditch, erosion, damaged curb or dying vegetation should be recorded, dated and initialed by the inspector when observed. Even if there is no damage, the inspector should make record of these inspections at least twice annually.

Paved areas should be visually inspected monthly during the winter. The inspector should pay particular attention to the build up of sand around catch basin grates and remove accumulations that block the free flow of surface runoff to the catch basins. The date and initials of the inspector should be recorded on the forms provided as well as a notation of any cleanup effort that was made and the approximate volume of sand that was removed.

DRAIN PIPES:

Drain pipes are road culverts and pipes connecting drain manholes. Inspect drain pipes when inspecting other stormwater maintenance facilities. At least annually make a visual inspection of the pipe. During the daylight you should be able to see light through most pipes as they have been laid to a straight line and grade. In some cases (e.g. pipe runs to a drain manhole, or is blocked) you will need a light to inspect pipes.

Clean pipes as necessary. Record inspections on the forms provided noting condition of pipe and any maintenance procedures implemented.

TREE FILTER SYSTEM:

The tree filter system is located at the end of the driveway near York Street. The purpose of the system is to provide treatment of stormwater from the entire parking lot, roof, and other landscaped areas graded to drain to the parking area. It is important that proper maintenance is performed to insure the system is operating efficiently.

Maintenance of the tree filter system should optimally be performed on a twice yearly basis: in fall after leaves have fallen; in spring, following all winter sanding operations. If winter sanding operations are not customarily performed or impact the system, or minimal accumulation occurs, once yearly maintenance may only be necessary. Following are the appropriate maintenance and inspection procedures:

1. Remove any apparent diseased or damaged tree branches; prune tree for health and aesthetics as necessary.
2. Remove any debris or trash from the concrete surface and/or grating.
3. Remove any debris, trash or obstacles from curb inlet (throat) opening.
4. Remove surface grating surrounding the tree to access media (mulch) surface; remove any visible debris and trash. Should any accumulated sands or sediment be observed on the mulch surface, remove to assure a loose and unobstructed mulch layer. Replace or replenish hardwood mulch as necessary to maintain an optimum depth of three inches.
5. If overflow port and piping exist, remove any debris or obstruction surrounding the exposed inlet.
6. If separate, remove grating overlying pre-treatment sump (catch basin).
7. Remove any bottles, cans, or trash from the catch basin.
8. If a vactoring system is to be utilized, commence vacuuming sands and sediment from the interior of the catch basin. If hand tools are to be utilized, shovel out as necessary.
9. Replace all grating and securely fasten any hardware.
10. Complete any required maintenance logs or paperwork.
11. Properly dispose of sands, sediment, debris, and trash.

Inspect tree annually. Provided that it is not disturbed or physically damaged, under normal growing conditions, the tree should mature naturally such as other landscaped trees, and therefore, should not require replacement. If for any reason tree replacement is required, the trunk and associated root mass should be removed. The mulch and soil (engineered media), to a depth of approximately two feet, should also be removed.

Although not a proprietary product, the engineered media is a specially blended mixture of several components formulated to maintain a specific infiltration capacity. Please consult Green Street Systems at 781-534-2218 directly regarding media replacement or for additional information.

**133 YORK STREET
PORTLAND, MAINE**

INSPECTION / MAINTENANCE LOG

SWALES, DITCHES, CURBS AND PAVED SURFACES

I: INSPECTED - C: CLEANED - S: SWEEPED - R: REPAIRED

DATE	INITIALS	ACTION	COMMENT
12/3/12	RST	I, C	EXAMPLE: removed sand around CB's 1, 2 and 3. Heavy rain over the weekend.

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PORTLAND, MAINE

INSPECTION / MAINTENANCE LOG

DRAIN PIPES

I: INSPECTED - C: CLEANED - R: REPAIRED

DATE	INITIALS	ACTION	COMMENT
12/3/12	JKL	I, C	EXAMPLE: Called ACME to clean catch basins, cleaned debris from culvert inlets along access road.

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INSPECTION / MAINTENANCE LOG

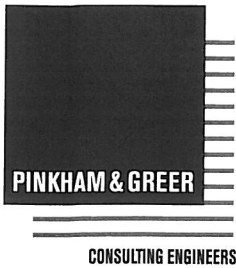
TREE FILTER SYSTEM

I: INSPECTED - C: CLEANED - R: REPAIRED

DATE	INITIALS	ACTION	COMMENT
4/28/10	MNO	I, C	EXAMPLE: Removed debris from curb inlet opening. Trimmed dying branches from tree.

**STORMWATER MANAGEMENT SYSTEM
MAINTENANCE PROGRAM
SUMMARY CHECKLIST**

Item	Commentary	Frequency			
		Month	Semi-Annual	Annual	Long-Term
Pond side slopes	Inspect slopes for sloughing, erosion or undesirable tree growth. Mow slopes to control vegetation, repair any structure flaws identified	X Mow Summer		X	
Pond Sediment Removal	Remove sediment when it occupies 15% of volume.				X 5 Years
Open Swale, Ditches & Inlet Structures	Inspect for debris accumulation, erosion and excessive vegetation. Mow monthly, remove debris, repair and revegetate any area of erosion	X Mow		X	
Pavement	Review for damage and buildup of debris and sand.	X	X Sweep		
Catchbasin and Drain Manholes	Inspect grates to assure optimum water flows into the structures. Inspect sump and casco traps for blockage and sediment accumulation. Clean out sumps.	X Inspect		X Sediment removal	
Outlet Control Structures	Inspect inlet device, sump and control plates. Remove any blocking material. Clean sump.	X		X Sediment removal	
Pipelines	Inspect for sediment build-up in pipe. Flush and remove as required.			X	
Oil/Grit Separators	Inspect for debris and sediment accumulation. Remove as necessary.	X Inspect		X Sediment removal	
Wooded Buffer	Review and Inspect for erosion.			X	
Tree Filter	Checked sediment and tree health		X		



28 Vannah Avenue
Portland, Maine 04103
Tel: 207.781.5242
Fax: 207.781.4245

October 21, 2013
File: 13105

Ms. Jean Fraser
City of Portland
389 Congress Street, 4th Floor
Portland, ME 04101

RE: STORMWATER SYSTEM, 133 YORK STREET

Dear Jean,

Attached is a revised stormwater maintenance report. We have added the annual inspection and reporting criteria that is in Chapter 38.

Also attached is the HydroCad Report for the tree wells. We have reduced the infiltration rate to 0.02 cfs. As a result of the reduced rate, we have added an infiltrator to the system, increasing the storage and the available infiltration area.

Let me know if you have any questions.

Sincerely,

PINKHAM & GREER

A handwritten signature in black ink, appearing to read "Thomas S. Greer". The signature is stylized and overlaps the printed name below it.

Thomas S. Greer, P.E.

Enclosures

cc: Jeremy Benn/Joe Flynn, File

TSG/rjs

Summary for Pond 37P: TREE WELL

Inflow Area = 0.127 ac, 100.00% Impervious, Inflow Depth > 0.98"
 Inflow = 0.15 cfs @ 12.07 hrs, Volume= 0.010 af
 Outflow = 0.06 cfs @ 12.27 hrs, Volume= 0.010 af, Atten= 56%, Lag= 12.1 min
 Discarded = 0.02 cfs @ 11.70 hrs, Volume= 0.010 af
 Primary = 0.04 cfs @ 12.27 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.62' @ 12.25 hrs Surf.Area= 31 sf Storage= 122 cf

Plug-Flow detention time= 38.7 min calculated for 0.010 af (100% of inflow)
 Center-of-Mass det. time= 37.7 min (790.2 - 752.4)

Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	275 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	120	0	0
34.00	10	130	130
36.00	10	20	150
38.00	10	20	170
39.00	200	105	275

Device	Routing	Invert	Outlet Devices
#1	Discarded	32.00'	0.02 cfs Exfiltration at all elevations
#2	Primary	33.50'	6.0" Round Culvert L= 6.0' Ke= 0.500 Inlet / Outlet Invert= 33.50' / 33.25' S= 0.0417 '/' Cc= 0.900 n= 0.010
#3	Primary	38.50'	4.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.02 cfs @ 11.70 hrs HW=32.08' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.04 cfs @ 12.27 hrs HW=33.61' (Free Discharge)
 ↑ **2=Culvert** (Inlet Controls 0.04 cfs @ 1.15 fps)
 ↑ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

**133 YORK STREET
PORTLAND, MAINE
June 19, 2013
(Revised October 21, 2013)**

POST CONSTRUCTION MONITORING:

The Condominium Association is required to hire a qualified post construction stormwater inspector to inspect the stormwater system on an annual basis. This includes the sweeping of the parking lot, catch basin, and tree well system, in accordance with Section 32-38 of the City's Ordinance.

Based on the inspection, the Owners shall take corrective action on any systems requiring maintenance. A record of all inspections and corrective action must be kept.

Reporting: On or before June 30th of every year the qualified inspector shall file a report with DPS, of the City, noting the system's condition and any maintenance or corrective action that has been taken.

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