Exhibit 11

Stormwater Management Plan

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CIVIL ENGINEERING ▪ SURVEYING ▪ LANDSCAPE ARCHITECTURE

STORMWATER MANAGEMENT PLAN

for

Lot 5
81 Industrial Way
Portland, Maine

Prepared for

Deerfield 91 Industrial LLC
One Canal Plaza
Portland, Maine 04101

June 2015

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Table of Contents

STORMWATER MANAGEMENT PLAN

Lot 5
81 Industrial Way
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I. Introduction

This Stormwater Management report has been prepared to evaluate the pre and post-development conditions associated with the proposed development of Lot 5 on Industrial Way in Portland. The development is proposed on a 3.24-acre site forested lot, identified as Block C, Lot 5 on the City of Portland Tax Map 326.

The proposed development includes the construction of a 9,900 square foot office building, 75 space parking lot, employee courtyard, landscaping and construction of stormwater treatment/detention basin. The project will create approximately 0.90 acres of new impervious surface and approximately 1.31 acres of developed area.

The site is tributary to the Dole Brook Watershed. The watershed is not currently listed as an Urban Impaired Stream by the Maine Department of Environmental Protection (MDEP). However, the City's Public Services Department has identified this resource as an impaired water body, which may necessitate future stormwater management requirements within the watershed. The City of Portland has delegated stormwater review authority from MDEP. Although the project creates less than one acre of non-vegetated surface, all Level II Site Plan projects (except single and two-family homes) are required to comply with the standards of Section 5 of the Technical Manual including basic, general and flooding standards.

An underdrained soil filter basin, which has been designed and sized in accordance with criteria published in Chapter 500 BMP's Technical Design Manual, is proposed to provide treatment for a minimum of 95% of the non-vegetated area and a minimum 80% of the developed area. Additionally, the basin is designed to provide detention to control peak rates of runoff from the 2-year, 10-year and 25-year storm events.

II. Existing Conditions

Land Cover: The parcel is currently undeveloped consisting of forested upland with a contiguous area of forested wetland in the center of the parcel.

Site Topography: Slopes on the site are generally between 0% and 6% with an elevation range between 75 feet and 70 feet, relative to mean sea level. The site is located within the Dole Brook Watershed with surface runoff generally flowing in a easterly direction. Stormwater discharges onto the abutting property along the eastern property line.

Surface Water Features: There is no known surface water features located within the development site.

Soils: Soil information for the site was obtained via the U.S. Department of Agriculture and natural Resources Conservation Service's Web Soil Survey. The Hydrologic Soil Group (HSG) of the site soils are classified by Technical Release TR-55 of the Soil Conservation Service as follows:

Soil Type	Symbol	HSG	Drainage Class
Belgrade	BgB	D	Very fine sandy loam
Scantic	Sn	D	Silt loam
Walpole	WmB	D	Fine sandy loam

Historic Flooding: Based on the City of Portland GIS Flood Map, the project site does not appear to be located within a special flood zone.

III. Proposed Development

Alterations to Land Cover: The applicant proposes to construct a 9,900 square foot building addition and a 27,500 square foot parking lot with 75 proposed parking spaces. Treatment and detention of stormwater runoff from the site will be accomplished by utilizing Stormwater Best Management Practices (BMP) including one underdrained soil filter.

The proposed development will result in the following:

Total disturbed area	= 1.51 ac.
Total developed area	= 1.31 ac.
Total impervious area	= 0.90 ac.

IV. Downstream Ponds and Waterbodies

The project site is tributary to Dole Brook, which is not currently listed as an Urban Impaired Stream by the MDEP.

V. Regulatory Requirements

City of Portland and Maine Department of Environmental Protection

Site Plan projects are subject to the stormwater management regulations as contained in the Technical Manual, Section 5 and the City of Portland Code of Ordinances, Section 14-526. In addition, MDEP Chapter 500 Rules describe stormwater management requirements for new development projects. These rules describe performance

standards divided into five major categories: Basic Standards, General Standards, Phosphorous Standards, Urban Impaired Stream Standards, and Flooding Standards. The following sections describe how this project will address these stormwater management performance standards.

Basic Standards: A project must meet basic standards if it disturbs an area greater than one (1) acre. The City of Portland requires all Level II Site Plan projects to meet the basic standards. These standards include various erosion and sedimentation controls, inspection and maintenance procedures, and general housekeeping requirements. These performance standards have been addressed ion the plan entitled "Erosion and Sedimentation Control Plan" and the report entitled "Inspection, Maintenance, and Housekeeping Plan" Please refer to these plans for more detailed information.

General Standards: MDEP requires projects creating one (1) or more acres of impervious area or developed areas greater than five (5) acres to meet the general standards. The City of Portland requires all Level II Site Plan projects to meet the general standards. These standards require that a minimum of 95% of all impervious areas and at least 80% of all developed areas are designed to be tributary to stormwater BMPs. Standard BMPs have been defined by the MDEP and are described thoroughly in their publication Stormwater Management for Maine: Best Management Practices Manual as revised in January of 2006. Section VI - Stormwater Management BMPs of this Stormwater Management Plan describes the BMPs to be utilized on this project and specific design information for each BMP.

Phosphorous Standards: Stormwater from this project is not tributary to a lake watershed and, therefore, is not subject to the phosphorus standards.

Urban Impaired Stream Standards: Stormwater from this project is not tributary to an Urban Impaired Stream watershed and, therefore, is not subject to the Urban Impaired Stream standards.

Flooding Standards: The MDEP requires that projects creating impervious areas greater than three (3) acres, or developed areas greater than twenty (20) acres address various flooding standards. The City of Portland requires all Level II Site Plan projects to meet the flooding standards. These standards require that the post-development peak rate of runoff from the 2-, 10- and 25-year, 24-hour storm events be maintained at equivalent or reduced peak rates of runoff when compared to the pre-development peak rate of runoff.

VI. Stormwater Management BMPs

An underdrained soil filter detention basins will be constructed in accordance with the criteria in the current edition of the MDEP publication, "Stormwater Management for Maine".

A. Underdrained Soil Filter Basin Design

Underdrained soil filter detention basin provide both stormwater quality and quantity control for the project. The underdrained filtration basins have been designed so that it treats the volume of at least 1.0" of runoff from tributary impervious areas and 0.4" of runoff from non-impervious developed areas tributary to the basin.

VII. Peak Flow Analysis

This section has been prepared to discuss the proposed modifications to peak flow rates as a result of the development.

Modeling Technique

In order to evaluate drainage characteristics in pre and post-development conditions, a quantitative analysis was performed to determine peak rates of runoff for the 2, 10, and 25-year storm events. Runoff calculations were performed following the methodology outlined in the USDA Soil Conservation Service's "Urban Hydrology for Small Watersheds, Technical Release #55" and HydroCAD Stormwater Modeling System Software. A 24-hour, SCS Type III storm distribution for the 2, 10, and 25-year storm frequencies were used for analysis.

- The rate for filtration for flow through the under drained soil filters have been changed to 2.41 ft/hr, the typical value allowed by MDEP.

- The 24-hour rainfall values utilized in the hydrologic model for Southeast Cumberland County are as follows:

Table 2 - Storm Frequency Precipitation (in./24 hr)	
2-year	3.0
10-year	4.7
25-year	5.5

Drainage Characteristics (Pre and Post-Development Watershed Delineation)

Two watershed study points (SP1 and SP2) were established to evaluate the pre-development and post-development peak runoff conditions for compliance with the Town Site Plan review standards.

SP-1 is identified as the low area along the eastern property line. SP-2 is identified as drainage ditch discharge adjacent to Industrial Way, also along the eastern property line.

Pre-Development

Subcatchment 1 includes the entire wooded parcel. Stormwater runoff flows overland via sheet flow and shallow concentrated flow. The runoff is discharged at SP-1.

Post-Development

Subcatchment 2 includes a small portion of the developed area along the northern side of the property line. Stormwater runoff is directed to the drainage ditch along Industrial Way and is routed through a proposed culvert to SP-2.

Subcatchment 3 includes the majority of the developed area. Stormwater runoff flows overland via sheet flow, shallow concentrated flow and channelized flow to the underdrained soil filter. Treated stormwater from the basin is discharged to SP-1.

Subcatchment 4 consists of the remainder of the property which contains mostly wooded area. Stormwater runoff is conveyed via sheet flow and shallow flow and is routed to SP-1.

Comparison

The subcatchment areas and times of concentration of the post-development conditions vary from the pre-development conditions based on the proposed site development and grading. The following table summarizes the results of the hydrologic analysis of the project during pre-development and post-development conditions.

Stormwater Peak Discharge Summary Table

Study Point	2-Year Storm			10-Year Storm			25-Year Storm		
	Pre (cfs)	Post (cfs)	Diff. (cfs)	Pre (cfs)	Post (cfs)	Diff. (cfs)	Pre (cfs)	Post (cfs)	Diff. (cfs)
SP1	1.41	1.13	-0.28	3.27	2.72	-0.55	4.22	4.10	-0.12
SP2	0.00	0.15	0.15	0.00	0.29	0.29	0.00	0.36	0.36

The results of the stormwater modeling indicate that the peak rates of runoff in the post-developed condition will be less than the pre-developed condition for the 2-year, 10-year and 25-year storm events at Study Point SP-1. The model depicts an increase in the peak rates of runoff at Study Point SP-2.

VIII. General Standards

An Erosion & Sedimentation Control Plan will be implemented as an integral part of the stormwater management plan addressing erosion and sediment control during construction and the post-construction stabilization of the site. Temporary erosion control measures to be installed during construction will include the placement of sedimentation barriers (siltation fence) along down gradient areas, together with specific requirements for the use of riprap, erosion control blanket, and temporary/permanent re-vegetation measures. These construction requirements have been developed following Best Management Practice guidelines and have been placed directly on the design plans for construction reference.

The attached treatment summary table quantifies the total impervious and developed areas for the proposed development. The results of this tabulation indicate the following:

- The post-development areas requiring treatment include approximately 39,350 square feet of new impervious area and a total of approximately 57,800 square feet of new developed area.

- The general standards require treatment for 95% of the new impervious areas. As such, the site is required to provide treatment for a minimum of 37,383 square feet. Treatment is provided for 37,400, equal to 95.0% of the impervious area.

- The general standards require treatment for 80% of the new developed areas. As such, the site is required to provide treatment for a minimum of 46,240 square feet. Treatment is provided for 46,600 square feet, equal to 80.6% of the developed area.

IX. Conclusion

Erosion and sedimentation controls, inspection and maintenance procedures and general housekeeping requirements have been outlined to prevent unreasonable impacts on the site and to the surrounding environment. By utilizing Best Management practices, stormwater quality treatment has been provided for 95.0% of the total impervious area and at least 80.6% of the total developed area.

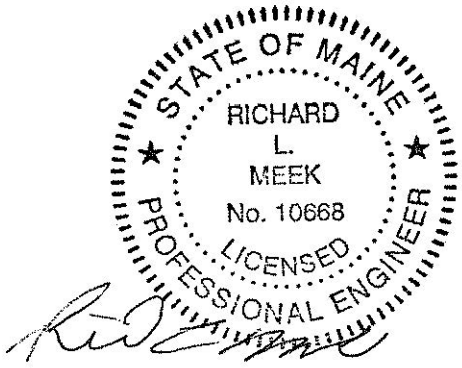
At Study Point SP-1, the post-development peak runoff rates of runoff have been controlled to less than pre-development peak runoff rates for the 2-year, 10-year and 25-year storm events. The model indicates an increase to the peak rates of runoff at

Study Point SP-2. The increase is unavoidable due to the conversion of forested land to grass and impervious surface (associated with the access drive). The runoff is directed to the existing ditch within the Industrial Way right-of-way, which is constructed to accommodate runoff from the larger off-site watershed. The cumulative post-development peak rates of runoff for the site are maintained below pre-development peak rates during the 2-year and 10-year storm events; with an insignificant increase indicated during the 25-year storm event.

It is anticipated that stormwater runoff from the proposed site development will not cause a significant adverse effect to off-site receiving channels or downstream properties.

Prepared by,

SEBAGO TECHNICS, INC.



Richard L. Meek, P.E.
Senior Project Engineer

RLM
June 29, 2015

Attachment A

Stormwater Quality Calculations

Lot 5 Industrial Way
STI Project No. 04479

TREATMENT SUMMARY

		Areas Requiring Treatment							
Sub-catchment ID	Description	Impervious (S.F.)	Landscaping (S.F.)	Total Developed (S.F.)	Receives Treatment (Yes/No)	Impervious Area Treated (S.F.)	Landscaped Area Treated (S.F.)	Developed Area Treated (S.F.)	TREATMENT BMP
2	Northern central portion of site	700	2750	3450	No	0	0	0	None
3	Southern central portion of site	37400	9200	46600	Yes	37400	9200	46600	USF-1
4	Eastern Portion of Site	1250	6500	7750	No	0	0	0	None
		39,350	**18,450**	**57,800**		**37,400**	**9,200**	**46,600**	

TOTAL IMPERVIOUS AREA (requiring treatment)	**39,350**	**TOTAL DEVELOPED AREA (requiring treatment)**	**57,800**
95% of IMPERVIOUS AREA REQUIRING TREATMENT	**37,383**	**80% of DEVELOPED AREA REQUIRING TREATMENT**	**46,240**
TOTAL IMPERVIOUS AREA RECEIVING TREATMENT	**37,400**	**TOTAL DEVELOPED AREA RECEIVING TREATMENT**	**46,600**
% OF IMPERVIOUS AREA RECEIVING TREATMENT	**95.0%**	**% OF DEVELOPED AREA RECEIVING TREATMENT**	**80.6%**

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JOB 04479 - Lot 5 Industrial Way
SHEET NO. 1 OF 1
CALCULATED BY RLM DATE 6/29/2015
CHECKED BY RLM DATE
FILE NAME 13448.ud ponds.xls PRNT DATE 6/29/2015

Treatment Calculations:

Pond 5: Area to Pond = 0.858 acres Impervious
0.211 acres Landscaped

0.86	acres x 1 inch	→	3115	ft^3
0.21	acres x 0.4 inches	→	306	ft^3
			3421	ft^3

Treatment Volume Needed = 3421 ft^3

Elevation	Surf. Area	Inc. Store	Cum. Store
72.00	3,020	0	0
73.00	4,070	3,545	3,545
73.60	5,405	2,842	6,387

Filter Size:

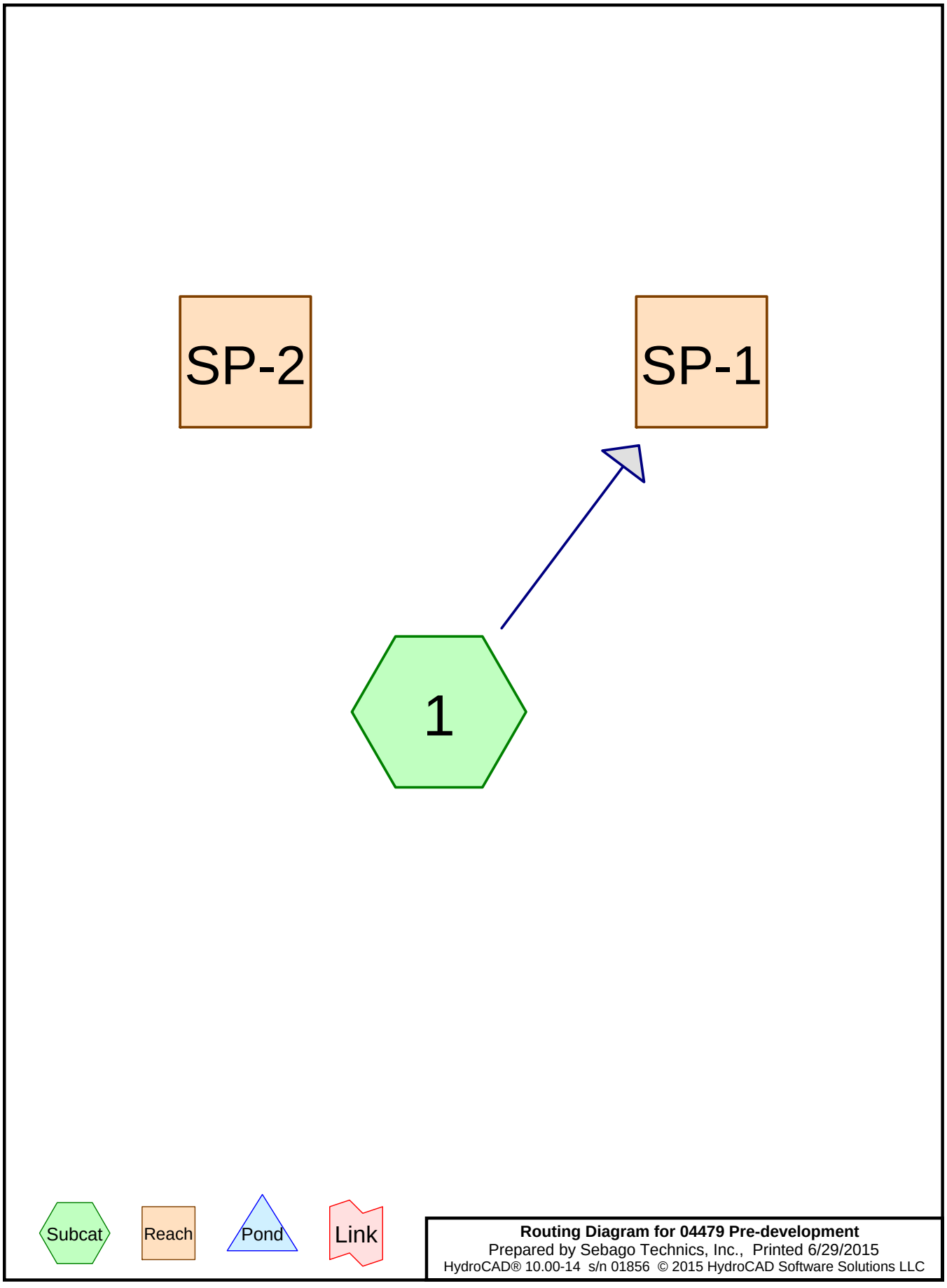
0.86	ac x 5% =	0.043	acres
0.21	ac x 2 % =	0.004	acres
		0.047	acres
	=	2053	ft^2

Volume @ Elevation 72.39 → 3430 ft^3

Storage Depth = 5 inches

Attachment B

HydroCAD Output



Routing Diagram for 04479 Pre-development
Prepared by Sebago Technics, Inc., Printed 6/29/2015

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: Runoff Area=3.240 ac 0.00% Impervious Runoff Depth=1.07"
Flow Length=372' Tc=67.7 min CN=77 Runoff=1.41 cfs 0.289 af

ReachSP-1: Inflow=1.41 cfs 0.289 af
Outflow=1.41 cfs 0.289 af

ReachSP-2:
Outflow=0.00 cfs 0.000 af

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: Runoff Area=3.240 ac 0.00% Impervious Runoff Depth=2.37"
Flow Length=372' Tc=67.7 min CN=77 Runoff=3.27 cfs 0.641 af

ReachSP-1: Inflow=3.27 cfs 0.641 af
Outflow=3.27 cfs 0.641 af

ReachSP-2:
Outflow=0.00 cfs 0.000 af

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: Runoff Area=3.240 ac 0.00% Impervious Runoff Depth=3.05"
Flow Length=372' Tc=67.7 min CN=77 Runoff=4.22 cfs 0.823 af

ReachSP-1: Inflow=4.22 cfs 0.823 af
Outflow=4.22 cfs 0.823 af

ReachSP-2:
Outflow=0.00 cfs 0.000 af

Summary for Subcatchment 1:

Runoff = 4.22 cfs @ 12.91 hrs, Volume= 0.823 af, Depth= 3.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.50"

Area (ac)	CN	Description
3.240	77	Woods, Good, HSG D
3.240		100.00% Pervious Area

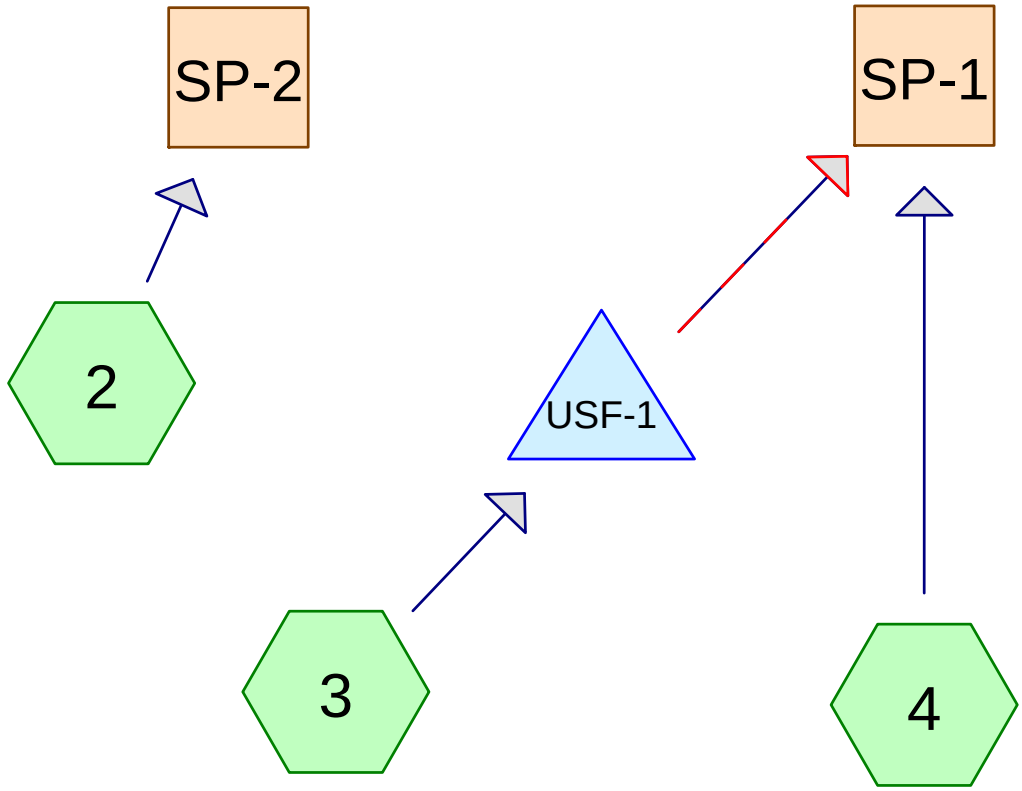
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
59.9	150	0.0150	0.04		**Sheet Flow, A to B** Woods: Dense underbrush n= 0.800 P2= 3.00"
7.8	222	0.0090	0.47		**Shallow Concentrated Flow, B to C** Woodland Kv= 5.0 fps
67.7	372	Total			

Summary for Reach SP-1:

Inflow Area = 3.240 ac, 0.00% Impervious, Inflow Depth = 3.05" for 25-YEAR event
Inflow = 4.22 cfs @ 12.91 hrs, Volume= 0.823 af
Outflow = 4.22 cfs @ 12.91 hrs, Volume= 0.823 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach SP-2:



Subcat Reach Pond Link

Routing Diagram for 04479 Post-development
Prepared by Sebago Technics, Inc., Printed 6/29/2015

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2: Runoff Area=0.079 ac 20.25% Impervious Runoff Depth=1.52"
Flow Length=68' Tc=3.9 min CN=84 Runoff=0.15 cfs 0.010 af

Subcatchment3: Runoff Area=1.069 ac 80.26% Impervious Runoff Depth=2.35"
Flow Length=223' Tc=5.1 min CN=94 Runoff=2.84 cfs 0.209 af

Subcatchment4: Runoff Area=1.887 ac 1.54% Impervious Runoff Depth=1.13"
Flow Length=312' Tc=64.8 min CN=78 Runoff=0.91 cfs 0.178 af

ReachSP-1: Inflow=1.13 cfs 0.387 af
Outflow=1.13 cfs 0.387 af

ReachSP-2: Inflow=0.15 cfs 0.010 af
Outflow=0.15 cfs 0.010 af

PondUSF-1: Peak Elev=73.04' Storage=3,703 cf Inflow=2.84 cfs 0.209 af
Primary=0.23 cfs 0.209 af Secondary=0.00 cfs 0.000 af Outflow=0.23 cfs 0.209 af

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2: Runoff Area=0.079 ac 20.25% Impervious Runoff Depth=3.00"
Flow Length=68' Tc=3.9 min CN=84 Runoff=0.29 cfs 0.020 af

Subcatchment3: Runoff Area=1.069 ac 80.26% Impervious Runoff Depth=4.01"
Flow Length=223' Tc=5.1 min CN=94 Runoff=4.70 cfs 0.357 af

Subcatchment4: Runoff Area=1.887 ac 1.54% Impervious Runoff Depth=2.46"
Flow Length=312' Tc=64.8 min CN=78 Runoff=2.04 cfs 0.387 af

ReachSP-1: Inflow=2.72 cfs 0.744 af
Outflow=2.72 cfs 0.744 af

ReachSP-2: Inflow=0.29 cfs 0.020 af
Outflow=0.29 cfs 0.020 af

PondUSF-1: Peak Elev=73.37' Storage=5,155 cf Inflow=4.70 cfs 0.357 af
Primary=0.25 cfs 0.286 af Secondary=1.70 cfs 0.072 af Outflow=1.96 cfs 0.358 af

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2: Runoff Area=0.079 ac 20.25% Impervious Runoff Depth=3.73"
Flow Length=68' Tc=3.9 min CN=84 Runoff=0.36 cfs 0.025 af

Subcatchment3: Runoff Area=1.069 ac 80.26% Impervious Runoff Depth=4.80"
Flow Length=223' Tc=5.1 min CN=94 Runoff=5.57 cfs 0.428 af

Subcatchment4: Runoff Area=1.887 ac 1.54% Impervious Runoff Depth=3.14"
Flow Length=312' Tc=64.8 min CN=78 Runoff=2.61 cfs 0.494 af

ReachSP-1: Inflow=4.10 cfs 0.922 af
Outflow=4.10 cfs 0.922 af

ReachSP-2: Inflow=0.36 cfs 0.025 af
Outflow=0.36 cfs 0.025 af

PondUSF-1: Peak Elev=73.46' Storage=5,537 cf Inflow=5.57 cfs 0.428 af
Primary=0.26 cfs 0.308 af Secondary=3.11 cfs 0.120 af Outflow=3.37 cfs 0.428 af

Summary for Subcatchment 2:

Runoff = 0.36 cfs@ 12.06 hrs, Volume= 0.025 af, Depth= 3.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.50"

	Area (ac)	CN	Description
*	0.016	98	Impervious (pavement)
	0.063	80	>75% Grass cover, Good, HSG D
	0.079	84	Weighted Average
	0.063		79.75% Pervious Area
	0.016		20.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	26	0.0560	0.13		**Sheet Flow, A to B**
					Grass: Dense n= 0.240 P2= 3.00"
0.6	42	0.0270	1.15		**Shallow Concentrated Flow, B to C**
					Short Grass Pasture Kv= 7.0 fps
3.9	68	Total			

Summary for Subcatchment 3:

Runoff = 5.57 cfs@ 12.07 hrs, Volume= 0.428 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.50"

	Area (ac)	CN	Description
*	0.227	98	Impervious (building)
*	0.631	98	Impervious (pavement)
	0.211	80	>75% Grass cover, Good, HSG D
	1.069	94	Weighted Average
	0.211		19.74% Pervious Area
	0.858		80.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	27	0.0400	0.11		**Sheet Flow, A to B**
					Grass: Dense n= 0.240 P2= 3.00"
0.3	57	0.0200	2.87		**Shallow Concentrated Flow, B to C**
					Paved Kv= 20.3 fps
0.4	104	0.0120	4.90	28.16	**Trap/Vee/Rect Channel Flow, C to D**
					Bot.W=0.00' D=0.50' Z= 0.0 & 46.0 '/' Top.W=23.00'
					n= 0.013 Asphalt, smooth
0.5	35	0.0030	1.11		**Shallow Concentrated Flow, D to E**
					Paved Kv= 20.3 fps
5.1	223	Total			

Summary for Subcatchment 4:

Runoff = 2.61 cfs@ 12.88 hrs, Volume= 0.494 af, Depth= 3.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.50"

	Area (ac)	CN	Description
*	0.029	98	Impervious (concrete)
	0.149	80	>75% Grass cover, Good, HSG D
	1.709	77	Woods, Good, HSG D
	1.887	78	Weighted Average
	1.858		98.46% Pervious Area
	0.029		1.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
59.9	150	0.0150	0.04		**Sheet Flow, A to B**
					Woods: Dense underbrush n= 0.800 P2= 3.00"
4.9	162	0.0120	0.55		**Shallow Concentrated Flow, B to C**
					Woodland Kv= 5.0 fps
64.8	312	Total			

Summary for Reach SP-1:

Inflow Area = 2.956 ac, 30.01% Impervious, Inflow Depth = 3.74" for 25-YEAR event
Inflow = 4.10 cfs@ 12.20 hrs, Volume= 0.922 af
Outflow = 4.10 cfs@ 12.20 hrs, Volume= 0.922 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach SP-2:

Inflow Area = 0.079 ac, 20.25% Impervious, Inflow Depth = 3.73" for 25-YEAR event
Inflow = 0.36 cfs@ 12.06 hrs, Volume= 0.025 af
Outflow = 0.36 cfs@ 12.06 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond USF-1:

Inflow Area = 1.069 ac, 80.26% Impervious, Inflow Depth = 4.80" for 25-YEAR event
Inflow = 5.57 cfs@ 12.07 hrs, Volume= 0.428 af
Outflow = 3.37 cfs@ 12.18 hrs, Volume= 0.428 af, Atten= 40%, Lag= 6.6 min
Primary = 0.26 cfs@ 12.18 hrs, Volume= 0.308 af
Secondary= 3.11 cfs@ 12.18 hrs, Volume= 0.120 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 73.46' @ 12.18 hrs Surf.Area= 4,678 sf Storage= 5,537 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 129.2 min (899.3 - 770.0)

Volume	Invert	Avail.Storage	Storage Description
#1	72.00'	8,283 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
72.00	3,020	0	0
73.00	4,070	3,545	3,545
74.00	5,405	4,738	8,283

Device	Routing	Invert	Outlet Devices
#1	Primary	69.83'	**4.0" Vert. 4" Underdrain** C= 0.600
#2	Device 1	72.00'	**2.410 in/hr Exfiltration over Surface area**
#3	Secondary	73.20'	**10.0' long x 6.0' 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 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.26 cfs @ 12.18 hrs HW=73.45' TW=0.00' (Dynamic Tailwater)
↑**1=4" Underdrain** (Passes 0.26 cfs of 0.78 cfs potential flow)
↑**2=Exfiltration** (Exfiltration Controls 0.26 cfs)

Secondary OutFlow Max=3.06 cfs @ 12.18 hrs HW=73.45' TW=0.00' (Dynamic Tailwater)
↑**3=Broad-Crested Rectangular Weir** (Weir Controls 3.06 cfs @ 1.21 fps)

Attachment C

Underdrained Soil Filter – Test Pit Log

SOIL PROFILE/CLASSIFICATION INFORMATION

Detailed Description of Subsurface Conditions at Project Sites

Project Name:	Applicant Name:	Project Location (municipality):
LOT 5 INDUSTRIAL WAY	DEERFIELD 91 INDUSTRIAL, LLC.	PORTLAND

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: B-1 ☐ Test Pit ■ Boring

01- " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (Inches)

Depth	Texture	Consistency	Color	Mottling
0–5	LOAM		VERY DARK BROWN	
5–15	SILT LOAM	FRIABLE	OLIVE GRAY	COMMON, MEDIUM, & DISTINCT
15–30	SILTY CLAY LOAM	FIRM	GRAY	MANY, COARSE, & PROMINENT

LIMIT OF EXCAVATION = 30"

■ hydric ☐ non-hydric | Slope %: 0-3 | Limiting factor: 5" | ■ ground water ☐ restrictive layer ☐ bedrock

C.S.S. Soil Series / phase name: NAUMBURG | Drainage Class: PD | Hydrologic Group: D

L.S.E. Soil Classification: ____ Profile ____ Drainage Class ____ Design Class

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: ________ ☐ Test Pit ☐ Boring

________" Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling

☐ hydric ☐ non-hydric | Slope % | Limiting factor | ☐ ground water ☐ restrictive layer ☐ bedrock

C.S.S. Soil Series / phase name: ____ Drainage Class ____ Hydrologic Group

L.S.E. Soil Classification: ____ Profile ____ Drainage Class ____ Design Class

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: ________ ☐ Test Pit ☐ Boring

________" Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling

☐ hydric ☐ non-hydric | Slope % | Limiting factor | ☐ ground water ☐ restrictive layer ☐ bedrock

C.S.S. Soil Series / phase name: ____ Drainage Class ____ Hydrologic Group

L.S.E. Soil Classification: ____ Profile ____ Drainage Class ____ Design Class

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: ________ ☐ Test Pit ☐ Boring

________" Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling

☐ hydric ☐ non-hydric | Slope % | Limiting factor | ☐ ground water ☐ restrictive layer ☐ bedrock

C.S.S. Soil Series / phase name: ____ Drainage Class ____ Hydrologic Group

L.S.E. Soil Classification: ____ Profile ____ Drainage Class ____ Design Class

Professional Endorsements *(as applicable)*

C.S.S.	signature: [signature]	Date: 6/17/15
	name printed/typed: Gary M. Fullerton	Lic.#: 462
L.S.E.	signature:	Date:
	name printed/typed:	Lic.#:

STATE OF MAINE GARY M. FULLERTON NO. 462 CERTIFIED SOIL SCIENTIST

affix professional seal

Attachment D

Inspection, Maintenance and Housekeeping Plan

INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN

Lot 5 Industrial Way
Portland, ME

Introduction

The owner of the development is Deerfield 91 Industrial LLC. The owner's address is One Canal Plaza, Portland, ME 04101; the telephone number is 207-772-1333. During construction, the contractor will be responsible for the maintenance of all stormwater management structures and the keeping of records and maintenance logbook. After construction, the owner will be responsible for the maintenance of all stormwater management structures, the establishment of any contract services required to implement the program, and the keeping of records and maintenance logbook

Records of all inspections and maintenance work accomplished must be kept on file and retained for a minimum 5-year time span. The maintenance logbook will be made available to the Maine Department of Environmental Protection (MDEP) and the City of Portland upon request. At a minimum, the appropriate and relevant activities for each of the stormwater management systems will be performed on the prescribed schedule.

The following plan outlines the anticipated inspection, maintenance, and housekeeping procedures for the erosion and sedimentation controls as well as stormwater management devices for the project site. Also, this plan outlines several housekeeping requirements that shall be followed during and after construction. These procedures should be followed in order to ensure the intended function of the designed measures and to prevent unreasonable adverse impacts to the surrounding environment.

The procedures outlined in the Inspection, Maintenance, and Housekeeping Plan are provided as an overview of the anticipated practices to be used on this site. In some instances, additional measures may be required due to unexpected conditions. For additional details on any of the erosion and sedimentation control measures or stormwater management devices to be utilized on this project, refer to the most recently revised edition of the "Maine Erosion and Sedimentation Control BMP" manual and/or the "Stormwater Management for Maine: Best Management Practices" manual as published by the MDEP.

During Construction

1. **Inspection:** During the construction process, it is the Contractor's responsibility to comply with the inspection and maintenance procedures outlined in this section. These responsibilities include inspecting disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once a week as well as before and after a storm event, and prior to

completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in any applicable permits, shall conduct the inspections.

2. **Maintenance:** All measures shall be maintained in an effective operating condition until areas are permanently stabilized. If Best Management Practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within seven (7) calendar days and prior to any storm event (rainfall).

3. **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained on-site. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, material storage areas, and vehicle access points to the site. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken.

   The log must be made accessible to the appropriate regulatory agency upon request. The permittee shall retain a copy of the log for a period of at least three (3) years from the completion of permanent stabilization.

4. **Specific Inspection and Maintenance Tasks:** The following is a list of erosion control and stormwater management measures and the specific inspection and maintenance tasks to be performed during construction.

   A. <u>Sediment Barriers:</u>

   - Hay bale barriers, silt fences, and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.
   - If the fabric on a silt fence or filter barrier should decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, it shall be replaced.
   - Sediment deposits should be removed after each storm event. They must be removed before deposits reach approximately one-half the height of the barrier.
   - Filter berms shall be reshaped as needed.
   - Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared, and seeded.

   B. <u>Riprap Materials:</u>

   - Once a riprap installation has been completed, it should require very little maintenance. It shall, however, be inspected periodically to determine if high flows have caused scour

beneath the riprap or dislodged any of the stone.

C. Erosion Control Blankets:

- Inspect these reinforced areas semi-annually and after significant rainfall events for slumping, sliding, seepage, and scour. Pay close attention to unreinforced areas adjacent to the erosion control blankets, which may experience accelerated erosion.
- Review all applicable inspection and maintenance procedures recommended by the specific blanket manufacturer. These tasks shall be included in addition to this plan.

D. Temporary Storm Drain Inlet Protection:

- The inlet protection structure shall be inspected before each rain event and repaired as necessary.
- Sediment shall be removed and the storm drain sediment barrier restored to its original dimensions when the sediment has accumulated to half of the design depth of the trap.
- Structures shall be removed upon permanent stabilization of the tributary area.
- Upon removal of the structure, all accumulated sediments downstream of the structure shall be cleaned from the storm drain system.

E. Stabilized Construction Entrances/Exits:

- The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way.
- When the control pad becomes ineffective, the stone shall be removed along with the collected soil material. The entrance should then be reconstructed.
- Areas that have received mud-tracking or sediment deposits shall be swept or washed. Washing shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device (not into storm drains, ditches, or waterways).

F. Temporary Seed and Mulch:

- Mulched areas should be inspected after rain events to check for rill erosion.
- If less than 90% of the soil surface is covered by mulch, additional mulch shall be applied in bare areas.
- In applications where seeding and mulch have been applied in conjunction with erosion control blankets, the blankets must be inspected after rain events for dislocation or undercutting.
- Mulch shall continue to be reapplied until 95% of the soil surface has established temporary vegetative cover.

G. Stabilized Drainage Swales:

- Sediment accumulation in the swale shall be removed once the cross section of the swale is reduced by 25%.
- The swales shall be inspected after rainfall events. Any evidence of sloughing of the side slopes or channel erosion shall be repaired and corrective action should be taken to prevent reoccurrence of the problem.
- In addition to the stabilized lining of the channel (i.e. erosion control blankets), stone check dams may be needed to further reduce channel velocity.

5. **Housekeeping:** The following general performance standards apply to the proposed project.

A. Spill Prevention: Controls must be used to prevent pollutants from being discharged from materials on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.

B. Groundwater Protection: During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors, accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

C. Fugitive Sediment and Dust: Actions must be taken to insure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control.

D. Debris and Other Materials: Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

E. Trench or Foundation Dewatering: Trench dewatering is the removal of water from trenches, foundations, cofferdams, ponds, and other areas within the construction area that retain water after excavation. In most cases, the collected water is heavily silted and hinders correct and safe construction practices. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved.

After Construction

1. **Inspection:** After construction, the owner or operator shall hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post-construction stormwater management plan.

2. **Maintenance, and repair:** If a BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator shall take corrective actions 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 actions to the Department of Public Services (DPS). The following is a list of permanent erosion control and stormwater management measures and the inspection, maintenance, and housekeeping tasks to be performed after construction.

   A. Vegetated Areas:

      - Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems.
      - Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

   B. Winter Sanding:

      - Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring.
      - Accumulations on pavement may be removed by pavement sweeping.
      - Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader or other acceptable method.

   C. Culverts:

      - Inspect culverts in the spring, in the late fall, and after heavy rains to remove any obstructions to flow.
      - Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit.
      - Inspect and repair any erosion damage at the culvert's inlet and outlet.
      - Inspect embankment for erosion, settling, and structural failure.

   D. Underdrained Soil Filter Detention Basin:

      - The soil filter should be inspected after every major storm in the first few months to ensure proper function. Thereafter, the filter should be inspected at least once every six

months to ensure that it is draining within 24 hours.

- The top several inches of the filter shall be replaced with fresh material when water ponds on the surface of the bed for more than 72 hours.
- Sediment and plant debris should be removed from the pretreatment structure (sediment forebay) at least annually.
- The filter bed vegetations shall be mowed once or twice per year to a grass height no less than six (6) inches.
- Fertilization of the under drained filter area should be avoided unless absolutely necessary to establish vegetation.
- Harvesting and pruning of excessive growth will need to be done occasionally. Weeding to control unwanted or invasive plants may also be necessary.
- Inspect embankment for erosion, settling, and structural failure

3. **Snow storage:** Snow storage is prohibited within the underdrained soil filter basins and the on-site wetlands. If the snow storage areas depicted on the plans exceed their capacity, the owner will contract with a third party to haul and dispose of the snow off-site.

4. **Annual Report:** The owner or operator 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 that the person has inspected the BMPs 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 actions taken.

5. **Duration of Maintenance:** Perform maintenance as described and required for any associated permits unless and until the system is formally accepted by a municipality or quasi-municipal district, or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system. If a municipality or quasi-municipal district chooses to accept a stormwater management system, or a component of a stormwater system, it must provide a letter to the MDEP stating that it assumes responsibility for the system. The letter must specify the components of the system for which the municipality or district will assume responsibility, and that the municipality or district agrees to maintain those components of the system in compliance with MDEP standards. Upon such assumption of responsibility, and approval by the MDEP, the municipality, quasi-municipal district, or association becomes a co-permittee for this purpose only and must comply with all terms and conditions of the permit.

Attachments

Attachment 1 – Sample Stormwater Inspection and Maintenance Form

Attachment 1

Sample Stormwater Inspection and Maintenance Form
Lot 5 Industrial Way
Portland, ME

This log is intended to accompany the stormwater Inspection, Maintenance and Housekeeping Plan for the Avita Nursing Home/Medical Clinic. The following items shall be checked, cleaned and maintained on a regular basis as specified in the Maintenance Plan and as described in the table below. This log shall be kept on file for a minimum of five (5) years and shall be available for review. Qualified personnel familiar with drainage systems and soils shall perform all inspections. Attached is a copy of the construction and post-construction maintenance logs.

Item	Maintenance Required & Frequency	Date Completed	Maintenance Personnel	Comments
Ditches and Swales	Inspect after major rainfall event producing greater than 3" of rain in 2 hours.			
	Repair erosion or damage immediately.			
Catch Basins and Culverts	Remove accumulated sediment and debris			
	Sump depth			
Vegetated Areas	Inspect Slopes			
	Replant Bare Areas			
	Check after Major Storms			
Winter Sanding	Clean annually (Spring)			
	Remove sand and sediment from roadway shoulders			
Underdrained Detention Basin	Inspect inlet and outlet for blockage and debris			
	Inspect for erosion, destabilization or side slopes and other structural failure			
	Mowed			
	Inspect periodically during wet weather conditions			
	Check for sediment build up			
	Ensure proper function			