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STORMWATER MANAGEMENT REPORT
RAINMAKER BUSINESS PARK – PHASE 2
PORTLAND, MAINE

October 17, 2017

Project Description:

This project is the development of the final lot in the Rainmaker Business Park. A 9,990 square foot industrial building with 10,600 square feet of pavement for access and parking is proposed. There will be 19 parking spaces, including 1 handicapped, van accessible space. Stormwater treatment and flow control will be an underdrained soil filter, adjacent to the building. The existing detention pond will be modified with a new outlet structure and minor grading changes to the bottom.

This project is the final phase of the Rainmaker Business Park. The original engineering and drainage analysis was completed by Sevee & Maher Engineers, Inc. See attached report by Sevee & Maher dated April 21, 2004 for reference.

Existing Conditions:

Rainmaker Drive comes off Riverside Street about 2,200 feet south of Forest Avenue. The lot is at the eastern end of Rainmaker drive beyond the light industrial building at the end of the road. Currently, a portion of the stormwater from the Rainmaker Business Park flows onto the site into a detention pond. From the pond, the water is discharged off site through 3 culverts (AP #4). From there it flows north to a major drainage swale which then takes it west to the Presumpscot River.

Developed Conditions:

The developed conditions will add 0.24 acres of new pavement and 0.23 acres of new building will be added to the site. This new development will have a Stormwater Treatment System consisting of an Underdrained Soil Filter (UDSF). The filter will treat most of the new impervious. A small part of the driveway will drain directly into the existing detention pond.

The Underdrained Soil Filter will have a volume of 3,431 cubic feet, above the required size of 1,924 cubic feet, providing additional detention.

Peak Flows:

The Underdrained Soil Filter and modification of the detention pond reduce the peak flows from the site. The pre-development condition rates are different from

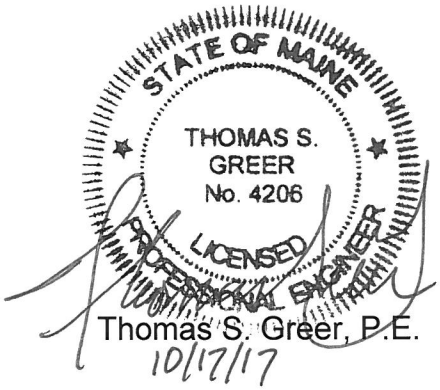
the original report by Sevee & Mahar. The updated stormwater model uses the current DEP rainfalls for the area. Below is the table showing the reduction in peak flows.

TABLE 1

POINT OF ANALYSIS	*PEAK RATE OF RUNOFF (CFS)*					
	2-YR	*10-YR*	*25-YR*	*2-YR*	*10-YR*	*25-YR*
	PRE-DEVELOPMENT CONDITIONS			**POST-DEVELOPMENT CONDITIONS**		
POA # 4	4.39	8.77	12.49	3.67	5.61	11.69
POA # 5	0.16	0.48	0.48	0.10	0.19	0.27

Results:

This project will control peak flows through the UDSF and modified detention pond. The project will not have adverse impacts to downstream properties or environments as a result of stormwater runoff.



Thomas S. Greer, P.E.
10/17/17

GENERAL STANDARD CALCULATIONS

Rainmaker Business Park - Phase 2

September 12, 2017

TABLE 1: AREAS TREATED FOR COMPLIANCE WITH THE GENERAL STANDARDS

Subcatchment	*Treated Landscape Area (SF)*	*Untreated Landscape Area (SF)*	*Treated Impervious Area (SF)*	*Untreated Impervious Area (SF)*	*Undisturbed Area (SF)*	*Stormwater Treatment Device*
	16,039	5,823	20,584	535	1,476	UDSF
Total Area	16,039	5,823	20,584	535	1,476	

TABLE 2: TOTAL AREAS TREATED

Treatment Required:	80% of Total Developed Area	
Total Developed Area:	42,981 SF	
Total Treated Area:	36,623 SF =	**85.2%**

TABLE 3: IMPERVIOUS TREATED

Treatment Required:	95% of Impervious Area	
Total Impervious Area:	21,119 SF	
Impervious Area Treated:	20,584 SF =	**97.5%**

STORMWATER MANAGEMENT PLAN
RAINMAKER BUSINESS PARK
RIVERSIDE STREET
PORTLAND, MAINE

1.0 INTRODUCTION

B & L Partners, LLC (B & L) is planning to develop a 4.53-acre site on Riverside Street in Portland, Maine. The site is presently improved with a 12,000-square-foot wholesale/warehouse storage facility and associated paved parking and access. The proposed development will include two new buildings: a 3-tenant light industrial/storage facility consisting of a 9,600-square-foot building and associated access and parking; and a 9,900-square-foot, 2-tenant light industrial/storage building and associated access and parking. This stormwater management plan has been prepared to comply with City of Portland requirements and the requirements of the Maine Department of Environmental Protection (MDEP) Rules for Stormwater Quantity, as outlined in 06-096 CMP, Chapter 5003 Stormwater Management, and using the general objectives of MDEP's Stormwater Management for Maine: Best Management Practices (MDEP BMP) (MDEP, 1995), including effective drainage, flood prevention, and erosion control.

As designed, the peak runoff rates for the post-development conditions on the site will be slightly less than the pre-development condition. The stormwater runoff rates were evaluated for 2-, 10-, and 25-year/24-hour storm events with Type III Soil Conservation Service rainfall distribution, and antecedent moisture condition 2 using the HydroCAD computer modeling system by Applied Microcomputer Systems.

2.0 PROJECT DESCRIPTION

B & L Partners, LLC of Rochester, New Hampshire and Portland, Maine is proposing to construct two light industrial buildings on a 4.52-acre lot on Riverside Street, in Portland, Maine. The project site is located at 585 Riverside Street in Portland and is denoted as 312-B-4 and

306B-006-001 on the City tax maps. The property consists of an existing one-story, 12,000-square-foot wholesale/warehouse facility, 14,200± square feet of paved parking and access, and 3.9± acres of undeveloped land. The site is bordered by commercial facilities to the north, including a plumbing and heating company and a paving company, by Riverside Street to the west, a new multi-tenant light industrial building and Portland Water District easement to the south, and an undeveloped parcel to the east. The total impervious surface on the site in the present condition is 0.62 acres. This will increase to 2.36 acres in the developed condition. This represents an increase of 1.74 acres (0.45 acres in building and 1.29 acres of parking and access).

3.0 SITE WATERSHEDS

The proposed site is situated in the Presumpscot River watershed. The majority of the site drains approximately 1,000 feet to the north to a major drainageway, which then flows west under Riverside Street to the river. Surficial soils on the site were mapped by the Soil Conservation Service as Scantic series soil. For stormwater modeling purposes these soils were modeled as Hydrologic Group (HSG) D soils. A lot to the south conveys stormwater through the site at two locations. One is located in the middle of the site and the second is via a wetland drainageway to the rear of the site. Pre- and post-development drainage conditions are shown on Drawings D-100 and D-101.

The stormwater study area consists of 10.4± acres. Of this, 5.7± acres are part of an adjacent lot to the south. The area is shown on Drawings D-100 and D-101. Stormwater runoff is evaluated at five analysis points which receive runoff from five separate subcatchments. Runoff from Subcatchment 1 flows in a westerly direction to the sideline of Riverside Street (Analysis Point 1), then down the gutter line into a catch basin in front of the PWD easement. From there it flows south to a crosspipe which conveys it across Riverside Street to a drainage which drains west to the Presumpscot River. Subcatchment C-1 is approximately 0.41 acres in the pre-development condition and 0.39 acres in the post-development condition. Subcatchment 1

consists of lawn area, impervious roof, and pavement in both the pre- and post-development conditions.

Runoff from Subcatchment 2 flows north to a drainage swale at the property boundary (Analysis Point 2). From there it flows northerly until it converges with a major drainage swale that carries runoff to the Presumpscot River. Subcatchment C-2 is approximately 1.18 acres in the pre-development condition and approximately 1.08 acres in the post-development condition. Subcatchment C-2 consists of grass covered/scrub brush area, impervious roof and paved area in both the pre- and post-development conditions.

In the post-development condition, Subcatchment C-2 decreases by 0.1 acre because of construction of the proposed building. In addition, the impervious area increases by 0.24 acres.

Runoff from Subcatchment 3 flows north to a swale at the property boundary (Analysis Point 3). From there it converges with runoff from SC-2 and flows northerly until it converges with a major drainage swale that conveys drainage to the Presumpscot River. Subcatchment 3 is 1.83 acres in the pre-development condition and 0.83 acres in the post-development condition. This subcatchment consists partly of a roof of a building on the abutting lot to the south, lawn area, and woods in the pre-development condition. In the post-development condition, the subcatchment will consist of impervious roof, pavement, landscape areas and woods. , Because of site improvements, a portion of SC-3 becomes part of SC-4 in the post-condition, therefore, the watershed is smaller; however, it has 0.25 additional acres of impervious surface.

Runoff from Subcatchment 4 flows north to a drainage swale at the northerly boundary (Analysis Point 4). From there it flows north to a major drainage swale which then takes it west to the Presumpscot River. Subcatchment 4 is 6.77 acres in the pre-development condition, and includes 0.48 acres of impervious surface on the adjacent lot to the south. The remainder is woods and scrub brush. In the post-development condition, SC-4 is divided into two subcatchments. SC-4A contains the area of proposed development on the site. SC-4B is the area

on the adjacent site and a portion of woods on the subject site. The combined acreage for SC-4 in the post-development condition is 7.89 acres. The increase in acreage is the portion of SC-3 (pre) that is diverted to SC-4 in the post-development condition. The combined (SC-4A and SC-4B) impervious area in SC-4 increases to 1.33 acres in the post-development condition.

Runoff from Subcatchment 5 flows east to the property line (Analysis Point 5). From there it flows into a drainage swale and ultimately converges with the major drainage swale that carries drainage west to the Presumpscot River. Subcatchment 5 consists of 0.2 acres of woods in both the pre- and post-development conditions.

To determine the peak surface water runoff rates for each watershed, a weighted curve number (CN) and time of concentration (T_c) were calculated for each subcatchment in pre- and post-development conditions based on area, hydrologic soil group, cover type, and drainage patterns. These calculations are presented in Appendices A and B. Pre- and post-development results for all subcatchments are summarized in Table 1.

As indicated in Table 1, the post-development peak rates of runoff at Analysis Points 1, 2, 3, and 4 are slightly less than the pre-development conditions. Subcatchment 5 remains unchanged. Since the runoff from all subcatchments, except Subcatchment 1, converge into the same major drainageway, the result is a slight reduction in total runoff from the site.

TABLE 1

STORMWATER RUNOFF SUMMARY

PRE-DEVELOPMENT							
Analysis Point	Subcatchment	Area (ac)	CN	Tc	Peak Flow (cfs)		
					2-yr	10-yr	25-yr
1	SC-1	0.417	91	2.6	1.66	2.85	3.40
2	SC-2	1.182	92	3.5	4.72	7.98	9.50
3	SC-3	1.831	84	26.9	2.57	5.09	6.32
4	SC-4	6.77	79	47.6	4.87	10.83	13.84
5	SC-5	2.03	77	24.6	0.2	0.47	0.61
POST-DEVELOPMENT							
1	SC-1	0.396	90	2.6	1.53	2.66	3.18
2	SC-2	1.081	94	3.2	4.62	7.59	8.98
3	SC-3	0.825	87	7.4	2.53	4.65	5.66
	SC-4A	2.0	87	23.2	3.54	6.63	8.09
	SC-4B	5.89	81	47.6	4.76	10.12	12.80
4	Link AP4				4.86	10.24	12.92
5	SC-5	0.165	77	24.6	0.2	0.47	0.61

4.0 PROPOSED DRAINAGE FACILITIES

Surface water from the site will flow overland to drainage ditches and to the original discharge points, with the exception of SC-4A, which flows into a detention pond and then discharges to the original analysis point.

5.0 TREATMENT OF STORMWATER RUNOFF

Because the project site topography is essentially flat and there is no enclosed drainage system, stormwater runoff will be treated using grass waterways, buffers, and a small sedimentation pond. Most of the runoff from the site flows through grass waterways before discharging into natural buffers. The exceptions to this are Subcatchment 1 and Subcatchment 4. Subcatchment 1 flows to a grassed waterway and then to an existing catch basin on Riverside Street. There is no change in this subcatchment from pre- to post-development conditions.

Runoff from the developed portion of Subcatchment 4 flows through grassed waterways into a detention pond. A shallow storage area is provided for settlement of grit from paved areas. From the detention pond it flows into an existing wetland drainage area on-site.

The combination of grassed waterways, natural buffers, the shallow sedimentation pond, and the extensive natural wetland buffers off-site will provide adequate treatment of stormwater runoff prior to it entering the Presumpscot River.

6.0 SUMMARY

As shown from Table 1, the development of the site will not adversely impact the downstream drainage system. It will maintain peak runoff rates at or below that of the pre-developed condition.

Subcatchment 4

Subcatchment 5

Subcat Reach Pond Link

Routing Diagram for Rainmaker Business Park, Existing Condition 04262004
Prepared by Hewlett-Packard Company, Printed 10/17/2017
HydroCAD® 10.00-16 s/n 01454 © 2015 HydroCAD Software Solutions LLC

Summary for Subcatchment SC4: Subcatchment 4

Runoff = 4.39 cfs @ 12.68 hrs, Volume= 0.644 af, Depth> 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.10"

	Area (ac)	CN	Description
	6.256	77	Woods, Good, HSG D
*	0.514	98	Paved parking & roofs
	6.770	79	Weighted Average
	6.256		92.41% Pervious Area
	0.514		7.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.7	135	0.0230	0.08		**Sheet Flow, segment a-b** Woods: Light underbrush n= 0.400 P2= 3.00"
20.9	560	0.0080	0.45		**Shallow Concentrated Flow, segment b-c** Woodland Kv= 5.0 fps
47.6	695	Total			

Summary for Subcatchment SC5: Subcatchment 5

Runoff = 0.16 cfs @ 12.36 hrs, Volume= 0.018 af, Depth> 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.10"

Area (ac)	CN	Description
0.203	77	Woods, Good, HSG D
0.203		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.6	90	0.0125	0.06		**Sheet Flow, segment a-b** Woods: Light underbrush n= 0.400 P2= 3.00"

Summary for Subcatchment SC4: Subcatchment 4

Runoff = 8.77 cfs @ 12.66 hrs, Volume= 1.274 af, Depth> 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=4.60"

	Area (ac)	CN	Description
	6.256	77	Woods, Good, HSG D
*	0.514	98	Paved parking & roofs
	6.770	79	Weighted Average
	6.256		92.41% Pervious Area
	0.514		7.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.7	135	0.0230	0.08		**Sheet Flow, segment a-b** Woods: Light underbrush n= 0.400 P2= 3.00"
20.9	560	0.0080	0.45		**Shallow Concentrated Flow, segment b-c** Woodland Kv= 5.0 fps
47.6	695	Total			

Summary for Subcatchment SC5: Subcatchment 5

Runoff = 0.33 cfs @ 12.35 hrs, Volume= 0.036 af, Depth> 2.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=4.60"

Area (ac)	CN	Description
0.203	77	Woods, Good, HSG D
0.203		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.6	90	0.0125	0.06		**Sheet Flow, segment a-b** Woods: Light underbrush n= 0.400 P2= 3.00"

Summary for Subcatchment SC4: Subcatchment 4

Runoff = 12.49 cfs @ 12.65 hrs, Volume= 1.823 af, Depth> 3.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

	Area (ac)	CN	Description
	6.256	77	Woods, Good, HSG D
*	0.514	98	Paved parking & roofs
	6.770	79	Weighted Average
	6.256		92.41% Pervious Area
	0.514		7.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.7	135	0.0230	0.08		**Sheet Flow, segment a-b** Woods: Light underbrush n= 0.400 P2= 3.00"
20.9	560	0.0080	0.45		**Shallow Concentrated Flow, segment b-c** Woodland Kv= 5.0 fps
47.6	695	Total			

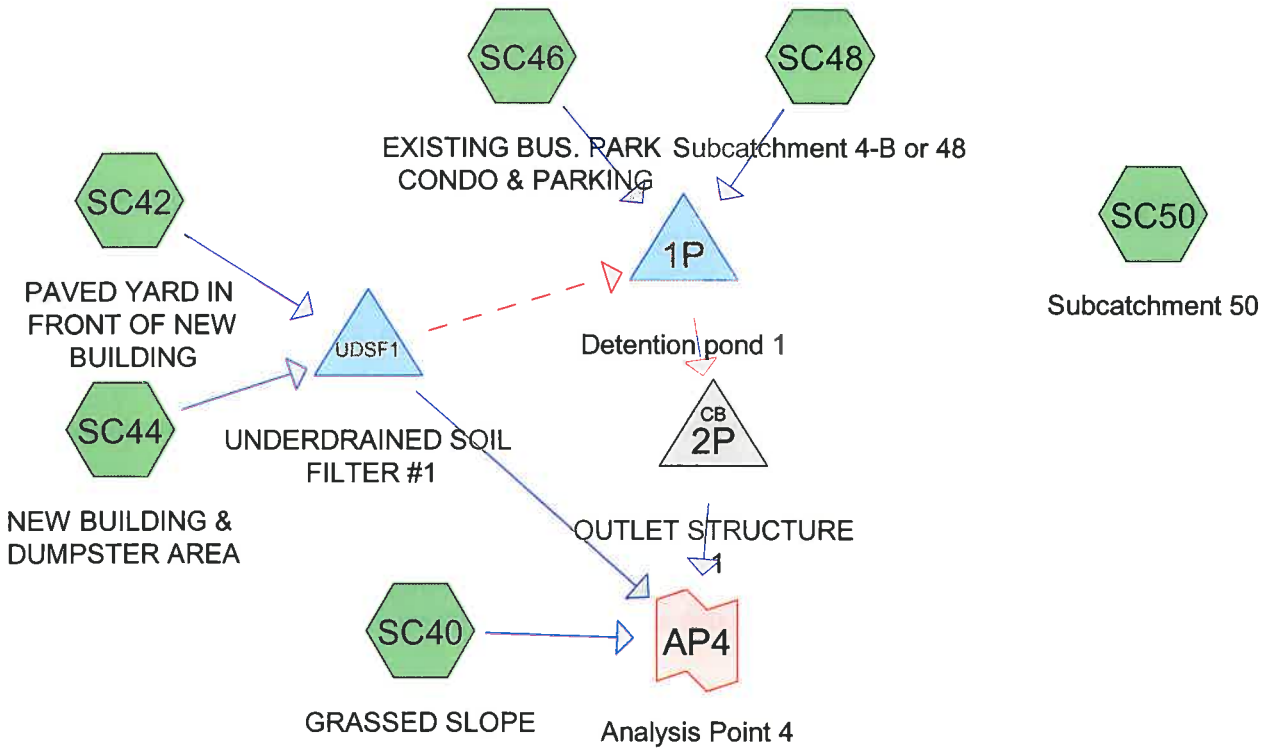
Summary for Subcatchment SC5: Subcatchment 5

Runoff = 0.48 cfs @ 12.34 hrs, Volume= 0.052 af, Depth> 3.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

Area (ac)	CN	Description
0.203	77	Woods, Good, HSG D
0.203		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.6	90	0.0125	0.06		**Sheet Flow, segment a-b** Woods: Light underbrush n= 0.400 P2= 3.00"



Subcat Reach Pond Link

Routing Diagram for Rainmaker Business Park, Post Development 080317
Prepared by Hewlett-Packard Company, Printed 10/17/2017

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment SC40: GRASSED SLOPE Runoff Area=1,991 sf 0.00% Impervious Runoff Depth>1.22"
Tc=2.0 min CN=80 Runoff=0.08 cfs 0.005 af

Subcatchment SC42: PAVED YARD IN Runoff Area=10,635 sf 79.90% Impervious Runoff Depth>2.31"
Flow Length=194' Tc=5.8 min CN=94 Runoff=0.66 cfs 0.047 af

Subcatchment SC44: NEW BUILDING & Runoff Area=17,000 sf 68.03% Impervious Runoff Depth>2.13"
Flow Length=184' Tc=2.4 min CN=92 Runoff=1.10 cfs 0.069 af

Subcatchment SC46: EXISTING BUS. Runoff Area=1.390 ac 58.99% Impervious Runoff Depth>2.04"
Flow Length=378' Tc=7.6 min CN=91 Runoff=3.25 cfs 0.236 af

Subcatchment SC48: Subcatchment 4-B or Runoff Area=5.890 ac 8.66% Impervious Runoff Depth>1.27"
Flow Length=695' Tc=47.1 min CN=81 Runoff=4.28 cfs 0.621 af

Subcatchment SC50: Subcatchment 50 Runoff Area=2,775 sf 0.00% Impervious Runoff Depth>1.22"
Tc=5.0 min CN=80 Runoff=0.10 cfs 0.006 af

Pond 1P: Detention pond 1 Peak Elev=67.25' Storage=6,461 cf Inflow=4.78 cfs 0.857 af
Primary=3.56 cfs 0.850 af Secondary=0.00 cfs 0.000 af Outflow=3.56 cfs 0.850 af

Pond 2P: OUTLET STRUCTURE 1 Peak Elev=66.50' Inflow=3.56 cfs 0.850 af
Outflow=3.56 cfs 0.850 af

Pond UDSF1: UNDERDRAINED SOIL FILTER Peak Elev=69.25' Storage=2,395 cf Inflow=1.71 cfs 0.116 af
Primary=0.10 cfs 0.088 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.088 af

Link AP4: Analysis Point 4 Inflow=3.67 cfs 0.943 af
Primary=3.67 cfs 0.943 af

Total Runoff Area = 8.024 ac Runoff Volume = 0.984 af Average Runoff Depth = 1.47"
77.68% Pervious = 6.233 ac 22.32% Impervious = 1.791 ac

Summary for Subcatchment SC40: GRASSED SLOPE

Runoff = 0.08 cfs @ 12.04 hrs, Volume= 0.005 af, Depth> 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.10"

Area (sf)	CN	Description
1,991	80	>75% Grass cover, Good, HSG D
1,991		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0					**Direct Entry,**

Summary for Subcatchment SC42: PAVED YARD IN FRONT OF NEW BUILDING

Runoff = 0.66 cfs @ 12.09 hrs, Volume= 0.047 af, Depth> 2.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.10"

Area (sf)	CN	Description
8,497	98	Paved parking, HSG D
2,138	80	>75% Grass cover, Good, HSG D
10,635	94	Weighted Average
2,138		20.10% Pervious Area
8,497		79.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	25	0.0200	0.09		**Sheet Flow, ACROSS GRASS** Grass: Dense n= 0.240 P2= 3.10"
0.9	153	0.0197	2.85		**Shallow Concentrated Flow, ACROSS PAVED LOT** Paved Kv= 20.3 fps
0.1	16	0.0625	3.75		**Shallow Concentrated Flow, GRASS** Grassed Waterway Kv= 15.0 fps
5.8	194	Total			

Summary for Subcatchment SC44: NEW BUILDING & DUMPSTER AREA

Runoff = 1.10 cfs @ 12.04 hrs, Volume= 0.069 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.10"

	Area (sf)	CN	Description
*	11,565	98	Paved parking & Buildings, HSG D
	5,435	80	>75% Grass cover, Good, HSG D
	17,000	92	Weighted Average
	5,435		31.97% Pervious Area
	11,565		68.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	40	0.0250	1.23		**Sheet Flow, ACROSS PAVED AREA BY DUMPSTER** Smooth surfaces n= 0.011 P2= 3.10"
1.9	144	0.0069	1.25		**Shallow Concentrated Flow, GRASS DRAINAGE WAY TO UDSF** Grassed Waterway Kv= 15.0 fps
2.4	184	Total			

Summary for Subcatchment SC46: EXISTING BUS. PARK CONDO & PARKING

Runoff = 3.25 cfs @ 12.11 hrs, Volume= 0.236 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.10"

	Area (ac)	CN	Description
	0.570	80	>75% Grass cover, Good, HSG D
*	0.820	98	Paved parking & roofs
	1.390	91	Weighted Average
	0.570		41.01% Pervious Area
	0.820		58.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	35	0.0250	0.15		**Sheet Flow, BUILDING TO DRIVEWAY ACROSS COBBLES** Grass: Short n= 0.150 P2= 3.10"
1.0	116	0.0100	2.03		**Shallow Concentrated Flow, ACROSS PARKING LOT** Paved Kv= 20.3 fps
2.7	227	0.0088	1.41		**Shallow Concentrated Flow, THROUGH GRASSED DRAINAGE V** Grassed Waterway Kv= 15.0 fps
7.6	378	Total			

Summary for Subcatchment SC48: Subcatchment 4-B or 48

Runoff = 4.28 cfs @ 12.67 hrs, Volume= 0.621 af, Depth> 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.10"

	Area (ac)	CN	Description
	5.380	79	Woods, Fair, HSG D
*	0.510	98	Paved parking & roofs
	5.890	81	Weighted Average
	5.380		91.34% Pervious Area
	0.510		8.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.2	135	0.0230	0.09		**Sheet Flow, Sheet Flow, Segment A_b** Woods: Light underbrush n= 0.400 P2= 3.10"
20.9	560	0.0080	0.45		**Shallow Concentrated Flow, Shallow Concentrated Flow, Segm** Woodland Kv= 5.0 fps
47.1	695	Total			

Summary for Subcatchment SC50: Subcatchment 50

Runoff = 0.10 cfs @ 12.08 hrs, Volume= 0.006 af, Depth> 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.10"

Area (sf)	CN	Description
2,775	80	>75% Grass cover, Good, HSG D
2,775		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Pond 1P: Detention pond 1

Inflow Area = 7.280 ac, 18.27% Impervious, Inflow Depth > 1.41" for 2-YEAR event
Inflow = 4.78 cfs @ 12.60 hrs, Volume= 0.857 af
Outflow = 3.56 cfs @ 12.98 hrs, Volume= 0.850 af, Atten= 25%, Lag= 22.5 min
Primary = 3.56 cfs @ 12.98 hrs, Volume= 0.850 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 67.25' @ 12.98 hrs Surf.Area= 7,248 sf Storage= 6,461 cf

Plug-Flow detention time= 23.8 min calculated for 0.850 af (99% of inflow)
Center-of-Mass det. time= 20.7 min (838.1 - 817.4)

Volume	Invert	Avail.Storage	Storage Description
#1	66.00'	34,417 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.00	2,550	0	0
67.00	6,890	4,720	4,720
68.00	8,342	7,616	12,336
69.00	10,410	9,376	21,712
70.00	15,000	12,705	34,417

Device	Routing	Invert	Outlet Devices
#1	Primary	65.86'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Secondary	68.50'	**2.0" x 2.0" Horiz. Orifice/Grate X 81.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.56 cfs @ 12.98 hrs HW=67.25' (Free Discharge)
└─**1=Orifice/Grate** (Orifice Controls 3.56 cfs @ 4.53 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=66.00' (Free Discharge)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 2P: OUTLET STRUCTURE 1

Inflow Area = 7.280 ac, 18.27% Impervious, Inflow Depth > 1.40" for 2-YEAR event
Inflow = 3.56 cfs @ 12.98 hrs, Volume= 0.850 af
Outflow = 3.56 cfs @ 12.98 hrs, Volume= 0.850 af, Atten= 0%, Lag= 0.0 min
Primary = 3.56 cfs @ 12.98 hrs, Volume= 0.850 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 66.50' @ 12.98 hrs
Flood Elev= 68.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.70'	**24.0" Round Culvert** L= 63.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.70' / 65.00' S= 0.0111 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Primary	70.00'	**10.0' long x 24.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=3.56 cfs @ 12.98 hrs HW=66.50' (Free Discharge)
├─**1=Culvert** (Inlet Controls 3.56 cfs @ 3.04 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond UDSF1: UNDERDRAINED SOIL FILTER #1

Inflow Area = 0.634 ac, 72.60% Impervious, Inflow Depth > 2.20" for 2-YEAR event
Inflow = 1.71 cfs @ 12.05 hrs, Volume= 0.116 af
Outflow = 0.10 cfs @ 11.10 hrs, Volume= 0.088 af, Atten= 94%, Lag= 0.0 min
Primary = 0.10 cfs @ 11.10 hrs, Volume= 0.088 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 69.25' @ 13.86 hrs Surf.Area= 2,358 sf Storage= 2,395 cf

Plug-Flow detention time= 172.4 min calculated for 0.088 af (76% of inflow)
Center-of-Mass det. time= 112.7 min (875.0 - 762.3)

Volume	Invert	Avail.Storage	Storage Description
#1	66.50'	4,329 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.50	2,220	0.0	0	0
66.60	2,220	30.0	67	67
68.90	2,220	30.0	1,532	1,598
69.00	2,220	100.0	222	1,820
69.67	2,587	100.0	1,610	3,431
70.00	2,860	100.0	899	4,329

Device	Routing	Invert	Outlet Devices
#1	Secondary	69.67'	**5.0' 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
#2	Primary	66.50'	**0.10 cfs DISCHARGE THROUGH UNDERDRAIN at all elevations**

Primary OutFlow Max=0.10 cfs @ 11.10 hrs HW=66.54' (Free Discharge)
↑—**2=DISCHARGE THROUGH UNDERDRAIN** (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=66.50' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link AP4: Analysis Point 4

Inflow Area = 7.960 ac, 22.49% Impervious, Inflow Depth > 1.42" for 2-YEAR event
Inflow = 3.67 cfs @ 12.98 hrs, Volume= 0.943 af
Primary = 3.67 cfs @ 12.98 hrs, Volume= 0.943 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment SC40: GRASSED SLOPE Runoff Area=1,991 sf 0.00% Impervious Runoff Depth>2.38"
Tc=2.0 min CN=80 Runoff=0.15 cfs 0.009 af

Subcatchment SC42: PAVED YARD IN Runoff Area=10,635 sf 79.90% Impervious Runoff Depth>3.69"
Flow Length=194' Tc=5.8 min CN=94 Runoff=1.03 cfs 0.075 af

Subcatchment SC44: NEW BUILDING & Runoff Area=17,000 sf 68.03% Impervious Runoff Depth>3.50"
Flow Length=184' Tc=2.4 min CN=92 Runoff=1.76 cfs 0.114 af

Subcatchment SC46: EXISTING BUS. Runoff Area=1.390 ac 58.99% Impervious Runoff Depth>3.40"
Flow Length=378' Tc=7.6 min CN=91 Runoff=5.28 cfs 0.393 af

Subcatchment SC48: Subcatchment 4-B or Runoff Area=5.890 ac 8.66% Impervious Runoff Depth>2.43"
Flow Length=695' Tc=47.1 min CN=81 Runoff=8.21 cfs 1.191 af

Subcatchment SC50: Subcatchment 50 Runoff Area=2,775 sf 0.00% Impervious Runoff Depth>2.38"
Tc=5.0 min CN=80 Runoff=0.19 cfs 0.013 af

Pond 1P: Detention pond 1 Peak Elev=68.48' Storage=16,539 cf Inflow=9.40 cfs 1.612 af
Primary=5.50 cfs 1.599 af Secondary=0.00 cfs 0.000 af Outflow=5.50 cfs 1.599 af

Pond 2P: OUTLET STRUCTURE 1 Peak Elev=66.72' Inflow=5.50 cfs 1.599 af
Outflow=5.50 cfs 1.599 af

Pond UDSF1: UNDERDRAINED SOIL FILTER Peak Elev=69.77' Storage=3,701 cf Inflow=2.71 cfs 0.189 af
Primary=0.10 cfs 0.099 af Secondary=0.42 cfs 0.028 af Outflow=0.52 cfs 0.127 af

Link AP4: Analysis Point 4 Inflow=5.61 cfs 1.707 af
Primary=5.61 cfs 1.707 af

Total Runoff Area = 8.024 ac Runoff Volume = 1.795 af Average Runoff Depth = 2.68"
77.68% Pervious = 6.233 ac 22.32% Impervious = 1.791 ac

Summary for Subcatchment SC40: GRASSED SLOPE

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.009 af, Depth> 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=4.60"

Area (sf)	CN	Description
1,991	80	>75% Grass cover, Good, HSG D
1,991		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0					**Direct Entry,**

Summary for Subcatchment SC42: PAVED YARD IN FRONT OF NEW BUILDING

Runoff = 1.03 cfs @ 12.08 hrs, Volume= 0.075 af, Depth> 3.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=4.60"

Area (sf)	CN	Description
8,497	98	Paved parking, HSG D
2,138	80	>75% Grass cover, Good, HSG D
10,635	94	Weighted Average
2,138		20.10% Pervious Area
8,497		79.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	25	0.0200	0.09		**Sheet Flow, ACROSS GRASS** Grass: Dense n= 0.240 P2= 3.10"
0.9	153	0.0197	2.85		**Shallow Concentrated Flow, ACROSS PAVED LOT** Paved Kv= 20.3 fps
0.1	16	0.0625	3.75		**Shallow Concentrated Flow, GRASS** Grassed Waterway Kv= 15.0 fps
5.8	194	Total			

Summary for Subcatchment SC44: NEW BUILDING & DUMPSTER AREA

Runoff = 1.76 cfs @ 12.04 hrs, Volume= 0.114 af, Depth> 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=4.60"

	Area (sf)	CN	Description
*	11,565	98	Paved parking & Buildings, HSG D
	5,435	80	>75% Grass cover, Good, HSG D
	17,000	92	Weighted Average
	5,435		31.97% Pervious Area
	11,565		68.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	40	0.0250	1.23		**Sheet Flow, ACROSS PAVED AREA BY DUMPSTER** Smooth surfaces n= 0.011 P2= 3.10"
1.9	144	0.0069	1.25		**Shallow Concentrated Flow, GRASS DRAINAGE WAY TO UDSF** Grassed Waterway Kv= 15.0 fps
2.4	184	Total			

Summary for Subcatchment SC46: EXISTING BUS. PARK CONDO & PARKING

Runoff = 5.28 cfs @ 12.11 hrs, Volume= 0.393 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=4.60"

	Area (ac)	CN	Description
	0.570	80	>75% Grass cover, Good, HSG D
*	0.820	98	Paved parking & roofs
	1.390	91	Weighted Average
	0.570		41.01% Pervious Area
	0.820		58.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	35	0.0250	0.15		**Sheet Flow, BUILDING TO DRIVEWAY ACROSS COBBLES** Grass: Short n= 0.150 P2= 3.10"
1.0	116	0.0100	2.03		**Shallow Concentrated Flow, ACROSS PARKING LOT** Paved Kv= 20.3 fps
2.7	227	0.0088	1.41		**Shallow Concentrated Flow, THROUGH GRASSED DRAINAGE V** Grassed Waterway Kv= 15.0 fps
7.6	378	Total			

Summary for Subcatchment SC48: Subcatchment 4-B or 48

Runoff = 8.21 cfs @ 12.65 hrs, Volume= 1.191 af, Depth> 2.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=4.60"

	Area (ac)	CN	Description
	5.380	79	Woods, Fair, HSG D
*	0.510	98	Paved parking & roofs
	5.890	81	Weighted Average
	5.380		91.34% Pervious Area
	0.510		8.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.2	135	0.0230	0.09		**Sheet Flow, Sheet Flow, Segment A_b** Woods: Light underbrush n= 0.400 P2= 3.10"
20.9	560	0.0080	0.45		**Shallow Concentrated Flow, Shallow Concentrated Flow, Segm** Woodland Kv= 5.0 fps
47.1	695	Total			

Summary for Subcatchment SC50: Subcatchment 50

Runoff = 0.19 cfs @ 12.08 hrs, Volume= 0.013 af, Depth> 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=4.60"

Area (sf)	CN	Description
2,775	80	>75% Grass cover, Good, HSG D
2,775		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Pond 1P: Detention pond 1

Inflow Area = 7.280 ac, 18.27% Impervious, Inflow Depth > 2.66" for 10-YEAR event
Inflow = 9.40 cfs @ 12.57 hrs, Volume= 1.612 af
Outflow = 5.50 cfs @ 13.10 hrs, Volume= 1.599 af, Atten= 42%, Lag= 32.3 min
Primary = 5.50 cfs @ 13.10 hrs, Volume= 1.599 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 68.48' @ 13.10 hrs Surf.Area= 9,326 sf Storage= 16,539 cf

Plug-Flow detention time= 33.7 min calculated for 1.594 af (99% of inflow)
Center-of-Mass det. time= 30.7 min (835.8 - 805.2)

Volume	Invert	Avail.Storage	Storage Description
#1	66.00'	34,417 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.00	2,550	0	0
67.00	6,890	4,720	4,720
68.00	8,342	7,616	12,336
69.00	10,410	9,376	21,712
70.00	15,000	12,705	34,417

Device	Routing	Invert	Outlet Devices
#1	Primary	65.86'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Secondary	68.50'	**2.0" x 2.0" Horiz. Orifice/Grate X 81.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.50 cfs @ 13.10 hrs HW=68.48' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 5.50 cfs @ 7.00 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=66.00' (Free Discharge)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 2P: OUTLET STRUCTURE 1

Inflow Area = 7.280 ac, 18.27% Impervious, Inflow Depth > 2.64" for 10-YEAR event
Inflow = 5.50 cfs @ 13.10 hrs, Volume= 1.599 af
Outflow = 5.50 cfs @ 13.10 hrs, Volume= 1.599 af, Atten= 0%, Lag= 0.0 min
Primary = 5.50 cfs @ 13.10 hrs, Volume= 1.599 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 66.72' @ 13.10 hrs
Flood Elev= 68.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.70'	**24.0" Round Culvert** L= 63.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.70' / 65.00' S= 0.0111 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Primary	70.00'	**10.0' long x 24.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.50 cfs @ 13.10 hrs HW=66.72' (Free Discharge)
├**1=Culvert** (Barrel Controls 5.50 cfs @ 4.96 fps)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond UDSF1: UNDERDRAINED SOIL FILTER #1

Inflow Area = 0.634 ac, 72.60% Impervious, Inflow Depth > 3.57" for 10-YEAR event
Inflow = 2.71 cfs @ 12.05 hrs, Volume= 0.189 af
Outflow = 0.52 cfs @ 12.49 hrs, Volume= 0.127 af, Atten= 81%, Lag= 26.1 min
Primary = 0.10 cfs @ 10.00 hrs, Volume= 0.099 af
Secondary = 0.42 cfs @ 12.49 hrs, Volume= 0.028 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 69.77' @ 12.49 hrs Surf.Area= 2,672 sf Storage= 3,701 cf

Plug-Flow detention time= 141.3 min calculated for 0.126 af (67% of inflow)
Center-of-Mass det. time= 72.4 min (824.5 - 752.1)

Volume	Invert	Avail.Storage	Storage Description
#1	66.50'	4,329 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.50	2,220	0.0	0	0
66.60	2,220	30.0	67	67
68.90	2,220	30.0	1,532	1,598
69.00	2,220	100.0	222	1,820
69.67	2,587	100.0	1,610	3,431
70.00	2,860	100.0	899	4,329

Device	Routing	Invert	Outlet Devices
#1	Secondary	69.67'	**5.0' 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
#2	Primary	66.50'	**0.10 cfs DISCHARGE THROUGH UNDERDRAIN at all elevations**

Primary OutFlow Max=0.10 cfs @ 10.00 hrs HW=66.54' (Free Discharge)
↑—**2=DISCHARGE THROUGH UNDERDRAIN** (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=0.41 cfs @ 12.49 hrs HW=69.77' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.41 cfs @ 0.81 fps)

Summary for Link AP4: Analysis Point 4

Inflow Area = 7.960 ac, 22.49% Impervious, Inflow Depth > 2.57" for 10-YEAR event
Inflow = 5.61 cfs @ 13.10 hrs, Volume= 1.707 af
Primary = 5.61 cfs @ 13.10 hrs, Volume= 1.707 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment SC40: GRASSED SLOPE Runoff Area=1,991 sf 0.00% Impervious Runoff Depth>3.38"
Tc=2.0 min CN=80 Runoff=0.21 cfs 0.013 af

Subcatchment SC42: PAVED YARD IN Runoff Area=10,635 sf 79.90% Impervious Runoff Depth>4.80"
Flow Length=194' Tc=5.8 min CN=94 Runoff=1.32 cfs 0.098 af

Subcatchment SC44: NEW BUILDING & Runoff Area=17,000 sf 68.03% Impervious Runoff Depth>4.61"
Flow Length=184' Tc=2.4 min CN=92 Runoff=2.28 cfs 0.150 af

Subcatchment SC46: EXISTING BUS. Runoff Area=1.390 ac 58.99% Impervious Runoff Depth>4.50"
Flow Length=378' Tc=7.6 min CN=91 Runoff=6.88 cfs 0.521 af

Subcatchment SC48: Subcatchment 4-B or Runoff Area=5.890 ac 8.66% Impervious Runoff Depth>3.43"
Flow Length=695' Tc=47.1 min CN=81 Runoff=11.51 cfs 1.682 af

Subcatchment SC50: Subcatchment 50 Runoff Area=2,775 sf 0.00% Impervious Runoff Depth>3.37"
Tc=5.0 min CN=80 Runoff=0.27 cfs 0.018 af

Pond 1P: Detention pond 1 Peak Elev=68.78' Storage=19,437 cf Inflow=13.24 cfs 2.277 af
Primary=5.88 cfs 1.982 af Secondary=5.69 cfs 0.278 af Outflow=11.57 cfs 2.261 af

Pond 2P: OUTLET STRUCTURE 1 Peak Elev=67.33' Inflow=11.57 cfs 2.261 af
Outflow=11.57 cfs 2.261 af

Pond UDSF1: UNDERDRAINED SOIL FILTER Peak Elev=69.90' Storage=4,040 cf Inflow=3.50 cfs 0.247 af
Primary=0.10 cfs 0.106 af Secondary=1.38 cfs 0.074 af Outflow=1.48 cfs 0.180 af

Link AP4: Analysis Point 4 Inflow=11.69 cfs 2.379 af
Primary=11.69 cfs 2.379 af

Total Runoff Area = 8.024 ac Runoff Volume = 2.481 af Average Runoff Depth = 3.71"
77.68% Pervious = 6.233 ac 22.32% Impervious = 1.791 ac

Summary for Subcatchment SC40: GRASSED SLOPE

Runoff = 0.21 cfs @ 12.04 hrs, Volume= 0.013 af, Depth> 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

Area (sf)	CN	Description
1,991	80	>75% Grass cover, Good, HSG D
1,991		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0					**Direct Entry,**

Summary for Subcatchment SC42: PAVED YARD IN FRONT OF NEW BUILDING

Runoff = 1.32 cfs @ 12.08 hrs, Volume= 0.098 af, Depth> 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

Area (sf)	CN	Description
8,497	98	Paved parking, HSG D
2,138	80	>75% Grass cover, Good, HSG D
10,635	94	Weighted Average
2,138		20.10% Pervious Area
8,497		79.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	25	0.0200	0.09		**Sheet Flow, ACROSS GRASS** Grass: Dense n= 0.240 P2= 3.10"
0.9	153	0.0197	2.85		**Shallow Concentrated Flow, ACROSS PAVED LOT** Paved Kv= 20.3 fps
0.1	16	0.0625	3.75		**Shallow Concentrated Flow, GRASS** Grassed Waterway Kv= 15.0 fps
5.8	194	Total			

Summary for Subcatchment SC44: NEW BUILDING & DUMPSTER AREA

Runoff = 2.28 cfs @ 12.04 hrs, Volume= 0.150 af, Depth> 4.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	11,565	98	Paved parking & Buildings, HSG D
	5,435	80	>75% Grass cover, Good, HSG D
	17,000	92	Weighted Average
	5,435		31.97% Pervious Area
	11,565		68.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	40	0.0250	1.23		**Sheet Flow, ACROSS PAVED AREA BY DUMPSTER** Smooth surfaces n= 0.011 P2= 3.10"
1.9	144	0.0069	1.25		**Shallow Concentrated Flow, GRASS DRAINAGE WAY TO UDSF** Grassed Waterway Kv= 15.0 fps
2.4	184	Total			

Summary for Subcatchment SC46: EXISTING BUS. PARK CONDO & PARKING

Runoff = 6.88 cfs @ 12.11 hrs, Volume= 0.521 af, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

	Area (ac)	CN	Description
	0.570	80	>75% Grass cover, Good, HSG D
*	0.820	98	Paved parking & roofs
	1.390	91	Weighted Average
	0.570		41.01% Pervious Area
	0.820		58.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	35	0.0250	0.15		**Sheet Flow, BUILDING TO DRIVEWAY ACROSS COBBLES** Grass: Short n= 0.150 P2= 3.10"
1.0	116	0.0100	2.03		**Shallow Concentrated Flow, ACROSS PARKING LOT** Paved Kv= 20.3 fps
2.7	227	0.0088	1.41		**Shallow Concentrated Flow, THROUGH GRASSED DRAINAGE V** Grassed Waterway Kv= 15.0 fps
7.6	378	Total			

Summary for Subcatchment SC48: Subcatchment 4-B or 48

Runoff = 11.51 cfs @ 12.64 hrs, Volume= 1.682 af, Depth> 3.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

Area (ac)	CN	Description
5.380	79	Woods, Fair, HSG D
* 0.510	98	Paved parking & roofs
5.890	81	Weighted Average
5.380		91.34% Pervious Area
0.510		8.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.2	135	0.0230	0.09		**Sheet Flow, Sheet Flow, Segment A_b** Woods: Light underbrush n= 0.400 P2= 3.10"
20.9	560	0.0080	0.45		**Shallow Concentrated Flow, Shallow Concentrated Flow, Segm** Woodland Kv= 5.0 fps
47.1	695	Total			

Summary for Subcatchment SC50: Subcatchment 50

Runoff = 0.27 cfs @ 12.08 hrs, Volume= 0.018 af, Depth> 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=5.80"

Area (sf)	CN	Description
2,775	80	>75% Grass cover, Good, HSG D
2,775		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Pond 1P: Detention pond 1

Inflow Area = 7.280 ac, 18.27% Impervious, Inflow Depth > 3.75" for 25-YEAR event
Inflow = 13.24 cfs @ 12.53 hrs, Volume= 2.277 af
Outflow = 11.57 cfs @ 12.81 hrs, Volume= 2.261 af, Atten= 13%, Lag= 16.8 min
Primary = 5.88 cfs @ 12.81 hrs, Volume= 1.982 af
Secondary = 5.69 cfs @ 12.81 hrs, Volume= 0.278 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 68.78' @ 12.81 hrs Surf.Area= 9,948 sf Storage= 19,437 cf

Plug-Flow detention time= 31.6 min calculated for 2.261 af (99% of inflow)
Center-of-Mass det. time= 28.7 min (826.7 - 798.0)

Volume	Invert	Avail.Storage	Storage Description
#1	66.00'	34,417 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.00	2,550	0	0
67.00	6,890	4,720	4,720
68.00	8,342	7,616	12,336
69.00	10,410	9,376	21,712
70.00	15,000	12,705	34,417

Device	Routing	Invert	Outlet Devices
#1	Primary	65.86'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Secondary	68.50'	**2.0" x 2.0" Horiz. Orifice/Grate X 81.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.88 cfs @ 12.81 hrs HW=68.78' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 5.88 cfs @ 7.48 fps)

Secondary OutFlow Max=5.69 cfs @ 12.81 hrs HW=68.78' (Free Discharge)
└**2=Orifice/Grate** (Orifice Controls 5.69 cfs @ 2.53 fps)

Summary for Pond 2P: OUTLET STRUCTURE 1

Inflow Area = 7.280 ac, 18.27% Impervious, Inflow Depth > 3.73" for 25-YEAR event
Inflow = 11.57 cfs @ 12.81 hrs, Volume= 2.261 af
Outflow = 11.57 cfs @ 12.81 hrs, Volume= 2.261 af, Atten= 0%, Lag= 0.0 min
Primary = 11.57 cfs @ 12.81 hrs, Volume= 2.261 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 67.33' @ 12.81 hrs
Flood Elev= 68.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.70'	**24.0" Round Culvert** L= 63.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.70' / 65.00' S= 0.0111 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Primary	70.00'	**10.0' long x 24.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=11.56 cfs @ 12.81 hrs HW=67.33' (Free Discharge)
├**1=Culvert** (Barrel Controls 11.56 cfs @ 5.73 fps)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond UDSF1: UNDERDRAINED SOIL FILTER #1

Inflow Area = 0.634 ac, 72.60% Impervious, Inflow Depth > 4.68" for 25-YEAR event
Inflow = 3.50 cfs @ 12.05 hrs, Volume= 0.247 af
Outflow = 1.48 cfs @ 12.25 hrs, Volume= 0.180 af, Atten= 58%, Lag= 11.7 min
Primary = 0.10 cfs @ 9.15 hrs, Volume= 0.106 af
Secondary = 1.38 cfs @ 12.25 hrs, Volume= 0.074 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 69.90' @ 12.25 hrs Surf.Area= 2,775 sf Storage= 4,040 cf

Plug-Flow detention time= 111.6 min calculated for 0.179 af (72% of inflow)
Center-of-Mass det. time= 48.5 min (795.9 - 747.3)

Volume	Invert	Avail.Storage	Storage Description
#1	66.50'	4,329 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.50	2,220	0.0	0	0
66.60	2,220	30.0	67	67
68.90	2,220	30.0	1,532	1,598
69.00	2,220	100.0	222	1,820
69.67	2,587	100.0	1,610	3,431
70.00	2,860	100.0	899	4,329

Device	Routing	Invert	Outlet Devices
#1	Secondary	69.67'	**5.0' 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
#2	Primary	66.50'	**0.10 cfs DISCHARGE THROUGH UNDERDRAIN at all elevations**

Primary OutFlow Max=0.10 cfs @ 9.15 hrs HW=66.54' (Free Discharge)
└**2=DISCHARGE THROUGH UNDERDRAIN** (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=1.38 cfs @ 12.25 hrs HW=69.90' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 1.38 cfs @ 1.21 fps)

Summary for Link AP4: Analysis Point 4

Inflow Area = 7.960 ac, 22.49% Impervious, Inflow Depth > 3.59" for 25-YEAR event
Inflow = 11.69 cfs @ 12.81 hrs, Volume= 2.379 af
Primary = 11.69 cfs @ 12.81 hrs, Volume= 2.379 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

RAINMAKER BUSINESS PARK – PHASE 2
PORTLAND, MAINE

INSPECTION AND MAINTENANCE
OF STORMWATER MANAGEMENT FACILITIES

Stormwater Management Facilities include swales, paved surfaces, drain pipe, riprapped aprons, level spreaders, buffers detention basins/treatment ponds. 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.

The operation and maintenance will be the responsibility of the developer during construction until such time the condominium associations take over the responsibilities.

POST CONSTRUCTION MONITORING:

32-38. Post-construction stormwater management plan compliance.

Any person owning, operating, or otherwise having control over a BMP required by a post Construction stormwater management plan shall maintain the BMPs in accordance with the approved plan and shall demonstrate compliance with that 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, 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 and 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.

(Ord. No. 35-09/10, 8-17-09)

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.

STORM DRAIN PIPES:

Drain pipes are road culverts and pipes. 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.

UNDERDRAINED SOIL FILTERS:

There is an underdrained soil filter located on the project site. An underdrained soil filter is a landscaped depression with an underdrained soil bed or soil filter that exfiltrates the stormwater. The depression is designed to temporarily store runoff, which will drain through the soil filter into the underdrains; excess runoff will flow over the downhill lip.

Soil Filter Inspection: 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 48 hours; and that, after storms that fill the system to overflow, it drains in no less than 24 hours. If the system drains too fast, the orifice on the underdrain outlet may need to be modified.

Soil Filter Replacement: 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. The removed sediments should be disposed in an acceptable manner.

Sediment Removal: Sediment and plant debris should be removed from the pretreatment structure at least annually.

Mowing: Filters with grass cover should be mowed no more than 2 times per growing season to maintain grass heights less than 12 inches.

Fertilization: Fertilization of the underdrained filter area should be avoided unless absolutely necessary to establish vegetation.

Harvesting and Weeding: Harvesting and pruning of excessive growth will need to be done occasionally. Weeding to control unwanted or invasive plants may also be necessary. Add new mulch as necessary for bioretention cells.

Record all maintenance on forms provided.

RIPRAPPED APRONS:

Riprapped aprons are layers of stone and a geotextile fabric placed over soil at the ends of culverts and other pipes that collect stormwater or discharge stormwater onto the ground. Their purpose is to prevent scour and erosion at the ends of these pipes.

Riprapped aprons are easily inspected during a site walk. In time, sediment will collect in the voids in the stone and grass or weeds will establish and cover the riprap. Since visual inspection is easy, the condition of riprapped aprons should be assessed during and/or after significant rainfall events such as thundershowers and periods of heavy or extended rainfall. Any damage or unusual condition such as stones being displaced or blocking the culvert ends should be repaired and the observation and repair work noted with the date and initials of the inspector. Even if there is no damage, the inspector should make record of these inspections at least twice annually.

DETENTION BASIN/TREATMENT POND:

Detention ponds/treatment ponds are impoundments designed to temporarily store runoff, release it at a controlled rate and treat the stormwater for TSS removal. The detention basin is designed to attenuate peak flows from the subdivision before they reach to outlet.

Inlets and Outlets of detention ponds should be inspected monthly during wet weather conditions from March to November. The pipe ends should be cleared of debris as necessary and inspected for damage.

Ponds should be inspected annually for erosion, destabilization of side slopes, embankment settling and other signs of structural failure, and loss of storage volume due to sediment accumulation. Corrective action should be taken immediately upon identification of problems.

Embankments should be maintained to preserve their integrity as impoundment structures, including, but not necessarily limited to, vegetative maintenance (mowing, control of woody vegetation), rodent control, erosion control and repair.

Inspections should be documented on forms similar to those provided. The date and initials of the inspector should be recorded as well as a description of conditions and any repair effort.

RAINMAKER BUSINESS PARK – PHASE 4 PORTLAND, MAINE			
INSPECTION / MAINTENANCE LOG			
SWALES, DITCHES, CURBS AND PAVED SURFACES			
I: INSPECTED - C: CLEANED - S: SWEPT - R: REPAIRED			
DATE	**INITIALS**	**ACTION**	**COMMENT**
4-26-17	TSG	I, C	EXAMPLE: removed sand around CB's 1, 2 and 3. Heavy rain over the weekend.

RAINMAKER BUSINESS PARK – PHASE 4 PORTLAND, MAINE			
INSPECTION / MAINTENANCE LOG			
DRAIN PIPES			
I: INSPECTED - C: CLEANED - R: REPAIRED			
DATE	**INITIALS**	**ACTION**	**COMMENT**
4-26-17	TSG	I, C	EXAMPLE: Called ACME to clean catch basins, cleaned debris from culvert inlets along access road.

RAINMAKER BUSINESS PARK – PHASE 4 PORTLAND, MAINE			
INSPECTION / MAINTENANCE LOG			
DETENTION PONDS/TREATMENT PONDS/INDERDRAINED SOIL FILTER			
I: INSPECTED - C: CLEANED - S: SWEPT - R: REPAIRED			
DATE	**INITIALS**	**ACTION**	**COMMENT**
4-26-17	TSG	I, C	EXAMPLE: Units cleaned by ACME, 2 truckloads to Pike

STORMWATER MANAGEMENT SYSTEM MAINTENANCE PROGRAM SUMMARY CHECKLIST					
		Frequency			
Item	Commentary	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**		
Pipelines	Inspect for sediment build-up in pipe. Flush and remove as required.			**X**	
Buffers	Inspect and repair any erosion damage	**X**			
Soil Filter	The soil filter should be inspected after every major storm in the first few months to ensure proper function		**X Mow, Check Drain Rate**	**X Sediment Removal**	**X Weed, Repl. Media**

HOUSEKEEPNG REPORT

RAINMAKER BUSINESS PARK – PHASE 2
PORTLAND, MAINE

October 17, 2017

Housekeeping: The developer is responsible for notifying the contractor and owner of the housekeeping standards.

1. Spill Prevention: The contractor and owners need to take care with construction and waste materials such that contaminates do not enter the stormwater. The storage of materials such as paint, petroleum products, cleaning agents and the like are to be stored in watertight containers. The use of the products should be in accordance with manufacturer recommendations. When fueling equipment, including snowblowers and lawnmowers, have oil absorbent pads available below the fueling.

   Staging areas are noted on the plans for the contractor's use. Refueling of small engines by the owner should occur in the garage or on a paved surface.

   Any spill or release of toxic or hazardous substances must be reported to the Department. For oil spills, call 1-800-482-0777 which is available 24 hours a day. For spills of toxic or hazardous material, call 1-800-452-4664 which is available 24 hours a day. For more information, visit the Department's website at: http:/www.maine.gov/dep/spills/emergspillresp/

2. Groundwater Protection: Protection of the groundwater is required by the contractor and owner. Petroleum products should be stored in manufactured cans designed for the purpose. Spill preventions procedures should be followed.

3. Fugitive Sediment and Dust: The contractor is required to minimize dust from the construction operation. The road should be swept regularly (weekly) and prior to any rain event. The gravel areas are to be watered regularly to minimize dust. Any mud that is tracked off site should be cleaned up prior to it drying and becoming a dust issue.

   Do not use oil to control dust.

   Dewatering a stream without a permit from the Department may violate state water quality standards and the Natural Resources Protection Act.

4. Debris and Other Materials: Construction materials and construction debris should be covered to prevent rainwater from washing contaminants off the site. Any fertilizers, cleaning products, herbicides should be protected from the weather and used in accordance with manufacturers recommendations.

   Note any contaminants that are washed off the site by rainwater is a violation of the Clean Waters Act.

Storage Handling and Disposal of Solid Waste items must comply with Maine's Solid Waste Management Rules. Lack of appropriate pollutant control may result in violations of the Groundwater Quality Standards.

This project has a written Erosion Control Plan and Stormwater Maintenance Plan. Modifications to the plan must be approved by the Town.

Maintenance of stormwater treatment and control systems must occur regularly. The Stormwater Maintenance Report provides inspection details and time lines for doing the inspections and reporting to the Town and DEP