

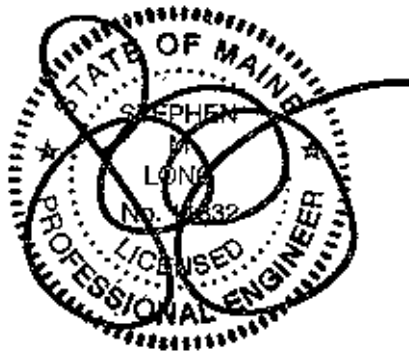


# **STORMWATER MANAGEMENT PLAN**

## **Commercial & Maple Street Mixed Use Development Portland, ME**

Applicant:  
J B Brown & Sons  
36 Danforth Street  
Portland, ME 04101

October 22, 2012  
Revised: January 2, 2013



Prepared By

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11 Corporate Drive  
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# **Stormwater Drainage Analysis**

Mixed Use Development

321 Commercial Street

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## **SECTION I: Narrative**

**Mixed Use Development**  
**Stormwater Drainage Analysis**  
**October 22, 2012**

**INTRODUCTION**

J.B. Brown & Sons is proposing a mixed-use development at the corner of Maple Street and Commercial Street. The proposal includes a 131 room hotel, 7,000 sf of restaurant use, and 14 residences. The proposed development is located on the west side of Commercial Street on the site of an existing gravel surface parking lot (#311-331 Commercial Street). The site is bordered by Commercial Street to the east, Maple Street to the south, a commercial building and parking lot to the north and a parking lot to the west. The project site is identified on City of Portland tax maps as Map 40, Block E, Lot 3. The site is surrounded by a mix of business, commercial, and residential uses including; hotels, parking lots, restaurants, office space, apartments, condominiums and other commercial uses.

Currently runoff from the existing gravel parking lot and the paved parking lot at the corner of Maple and York Street drain to a closed drainage system. The existing catch basins are connected in series. The runoff is directed to an 8" PVC pipe connecting to the municipal overflow located in Maple Street. Stormwater is eventually discharged to Casco Bay.

The proposed closed drainage system will intercept the stormwater from the existing paved parking lot and direct it through the site. The project's on-site drainage system will discharge runoff into the City's municipal system located in Commercial Street. The drainage flows enter a manhole at the intersection of Maple and Commercial Street and are directed to Casco Bay. The roof drain will be connected to the existing 8" PVC pipe at the southeast corner of the property.

During large storm events overflow from the combined sewer system enters the drainage system via a sewer manhole located in front of the lumberyard entrance on Maple Street. Flows that go above the overflow weir are diverted to the drain manhole located at the intersection of Commercial Street via two 15" RCP pipes. This manhole directs flows to Casco Bay.

The USDA Natural Resources Conservation Service Web Soil Survey 2.3 was utilized to determine the hydrologic soil groups for the pre-development and post-development drainage analysis. The assumed Hydrologic Soil Group (HSG) for the proposed watershed areas on-site are as follows:

*Cu – Cut and Fill land - HSG C*

*H1B – Hinckley gravelly sandy loam, 3 to 8 percent slopes – HSG A*

The drainage design analyzes for the new project utilizes HydroCAD 10.0. HydroCAD is a Computer Aided Design system for modeling the hydrology and hydraulics of stormwater runoff. For a given rainfall event, techniques are used to generate hydrographs throughout a watershed. This allows us to verify that a given drainage system is adequate for the area under consideration, or to predict where flooding or erosion is likely to occur. A feature of this software is the use of a watershed routing diagram to visually display watershed flows and the relationships between each area. We have superimposed the flow diagrams onto the watershed area plans to correlate the model to the plan.

### PRE-DEVELOPMENT CONDITION

The predevelopment condition was analyzed for the 2, 10 and 25-year frequency storm events. For Bar Harbor, the 24-hour rain intensity is 3.00, 4.70 and 5.50 inches respectively. The site was analyzed using two separate study points. The following table lists the runoff from each area for the predevelopment condition:

Existing Design Point	2-Year Storm	10-Year Storm	25-Year Storm
1	4.8 cfs	8.2 cfs	9.9 cfs
2	0.8 cfs	1.4 cfs	1.6 cfs

### POST-DEVELOPMENT CONDITION

Post development runoff will be directed to the same design points as the pre-development model. Runoff from the project area will be collected by catch basins. The proposed system will discharge runoff into the City's municipal system located in Commercial Street. Roof water will be collected and directed to an existing 8" PVC pipe. The following table lists the total runoff from each area for the post-development condition:

Proposed Design Point	2-Year Storm	10-Year Storm	25-Year Storm
1	5.2 cfs	8.8 cfs	10.5 cfs
2	1.0 cfs	1.6 cfs	1.9 cfs

### CONCLUSION

In conclusion, all components of the post-development drainage system have been sized appropriately. See the runoff rate summary table below:

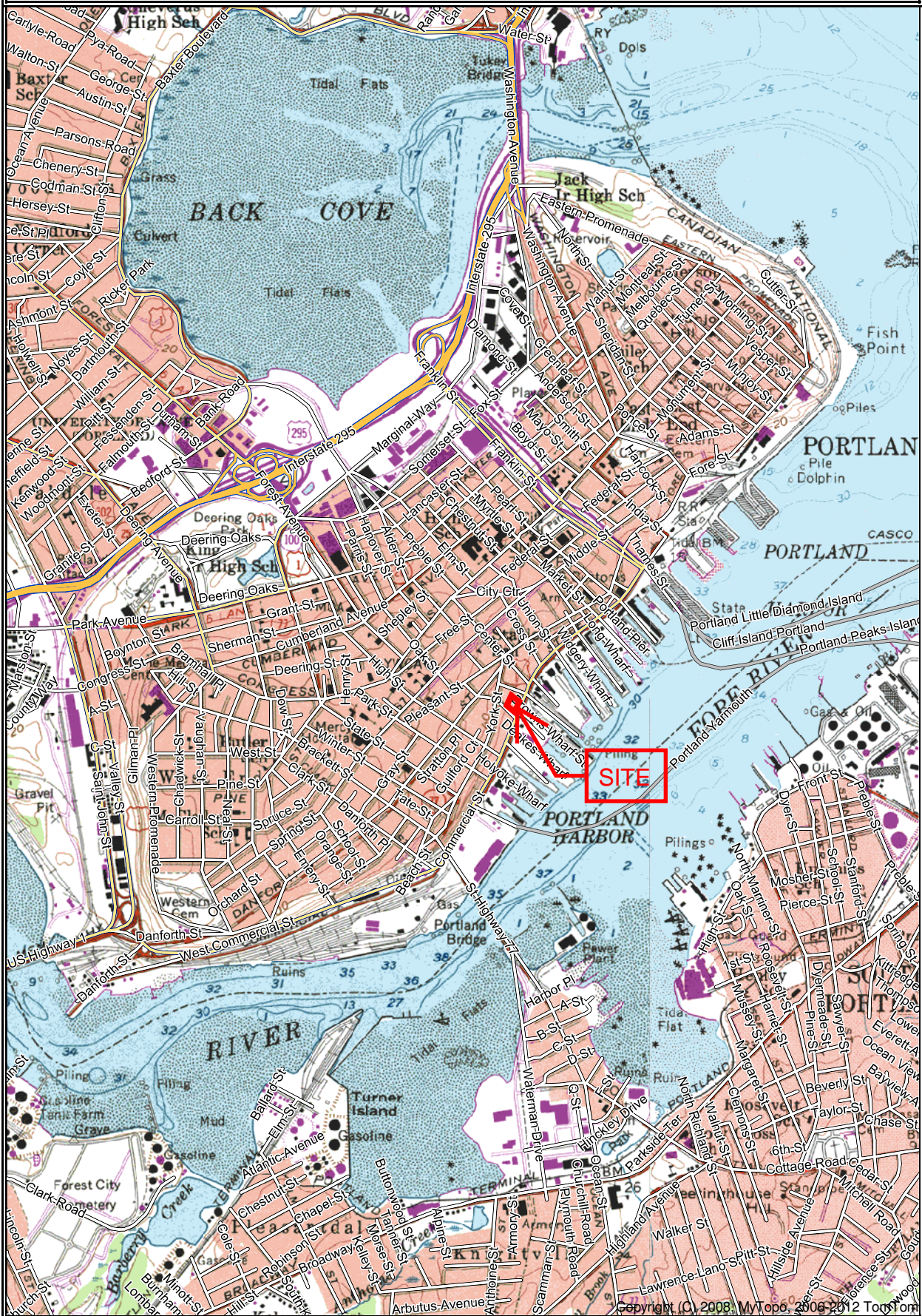
Overall	2-year Storm		10-year Storm		25-year Storm	
Design Point	Pre	Post	Pre	Post	Pre	Post
1	4.8cfs	5.2 cfs	8.2cfs	8.8 cfs	9.9 cfs	10.5 cfs
2	0.8 cfs	1.0 cfs	1.4cfs	1.6 cfs	1.6 cfs	1.9 cfs

The increases in flows from the site are insignificant. The site will have no adverse affects on abutting properties or the existing drainage systems.

## **SECTION II: Site Location Maps & Plans**



Map Name: PORTLAND WEST      Scale: 1 inch = 2,000 ft.      Horizontal Datum: NAD83  
Print Date: 09/12/12      Map Center: 043° 39' 20.98" N 0





70° 15' 27"

70° 15' 21"

43° 39' 14"

43° 39' 14"



43° 39' 7"

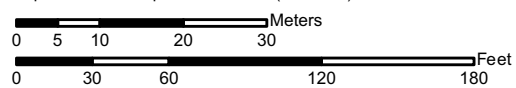
43° 39' 7"

70° 15' 27"

70° 15' 21"




Map Scale: 1:901 if printed on A size (8.5" x 11") sheet.





## MAP LEGEND






















### Area of Interest (AOI)


 Area of Interest (AOI)

### Soils


 Soil Map Units

### Special Point Features



-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot

 Very Stony Spot


 Wet Spot

 Other

### Special Line Features

-  Gully
-  Short Steep Slope
-  Other






### Political Features

 Cities

### Water Features

 Streams and Canals

### Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

## MAP INFORMATION

Map Scale: 1:901 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>

Coordinate System: UTM Zone 19N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine

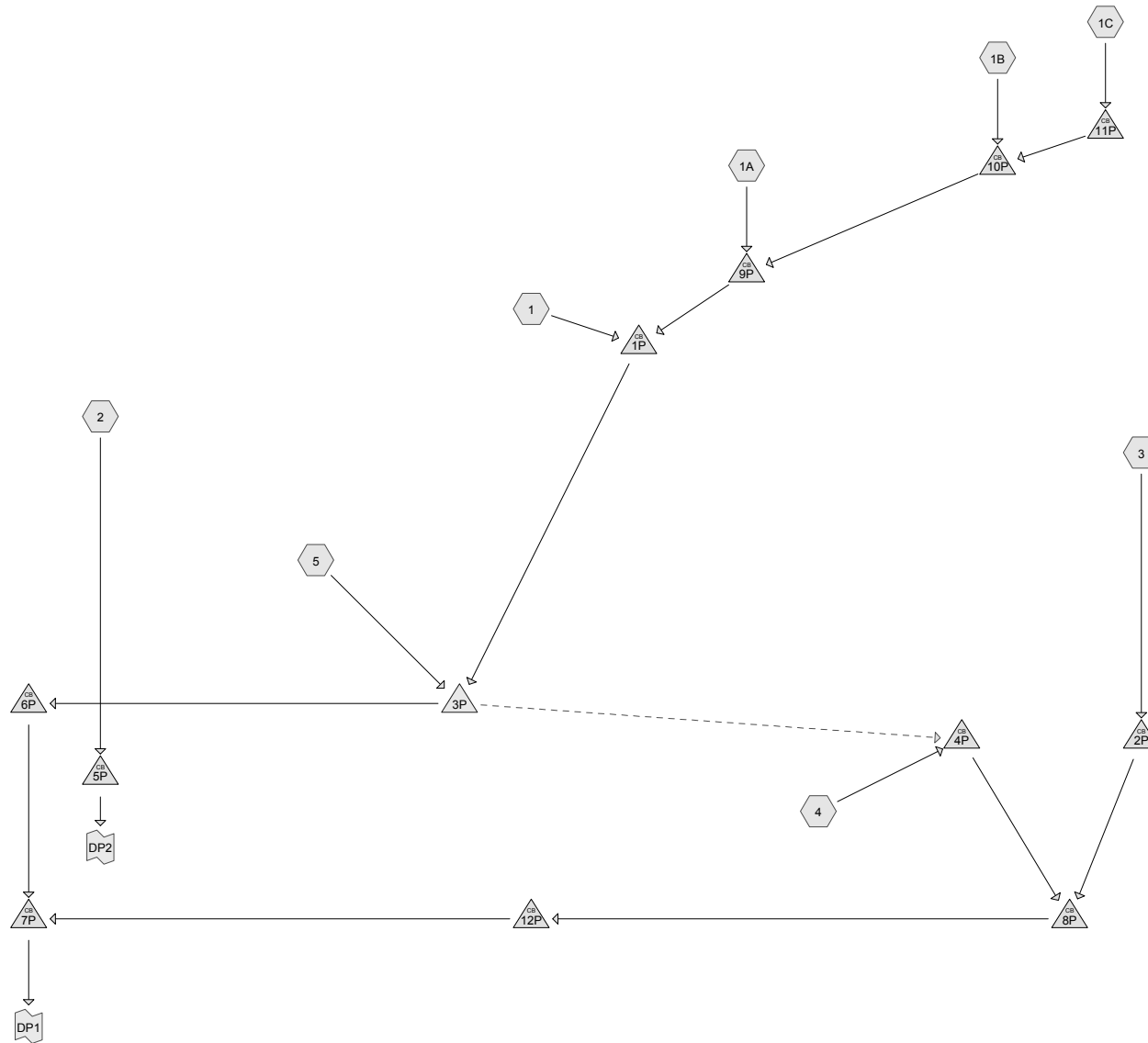
Survey Area Data: Version 7, Jan 8, 2009

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Cumberland County and Part of Oxford County, Maine (ME005)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Cu	Cut and fill land	2.0	79.2%
HIB	Hinckley gravelly sandy loam, 3 to 8 percent slopes	0.5	20.8%
<b>Totals for Area of Interest</b>		<b>2.5</b>	<b>100.0%</b>



Subcat

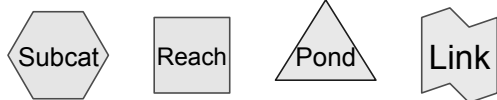
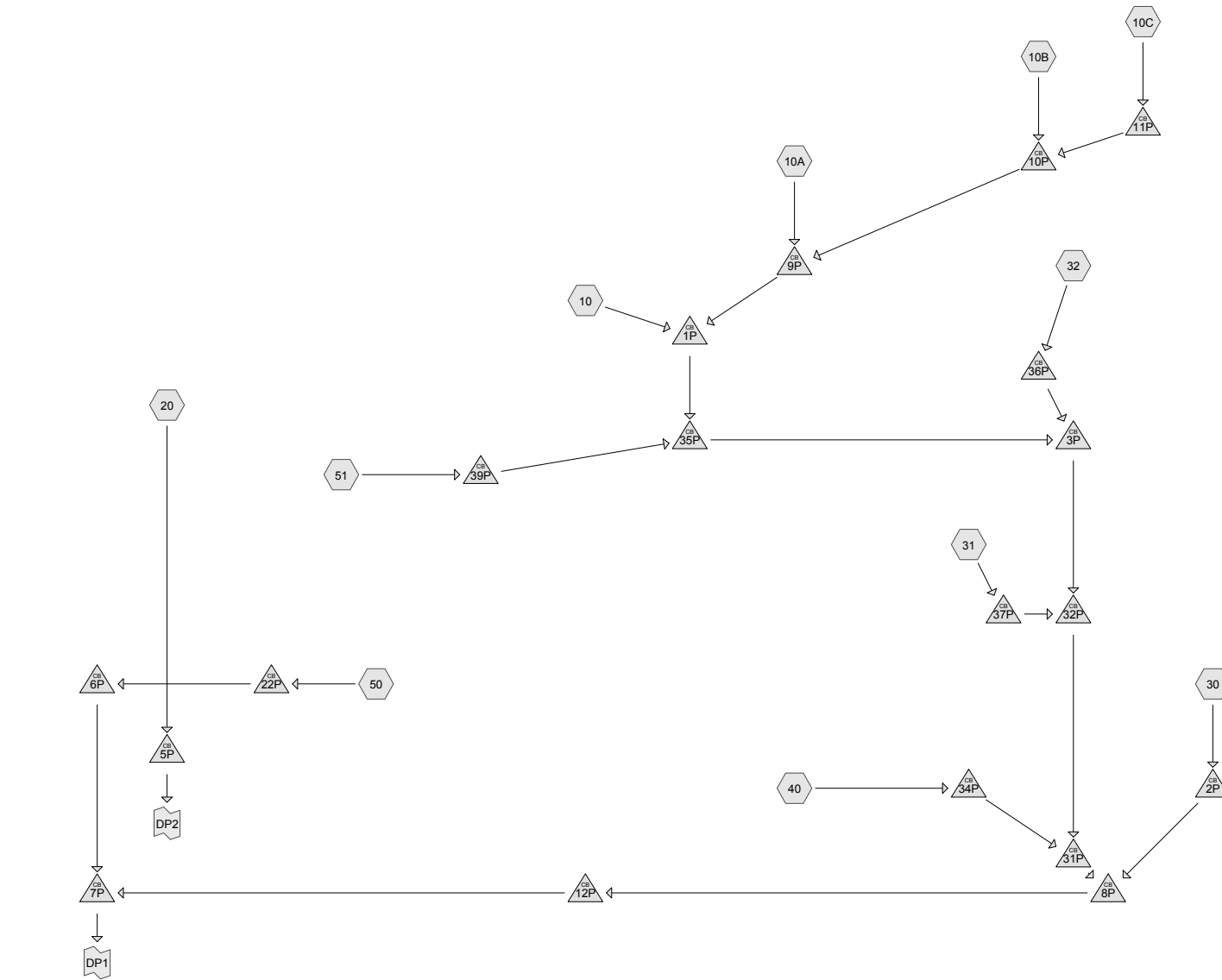
Reach

Pond

Link

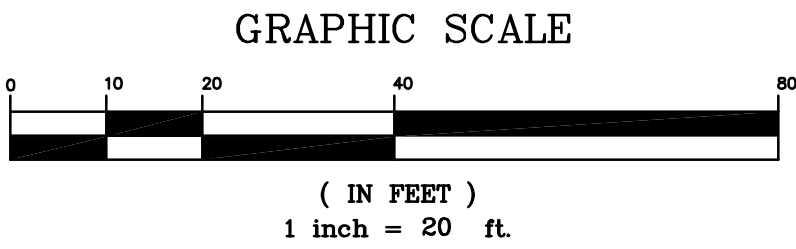
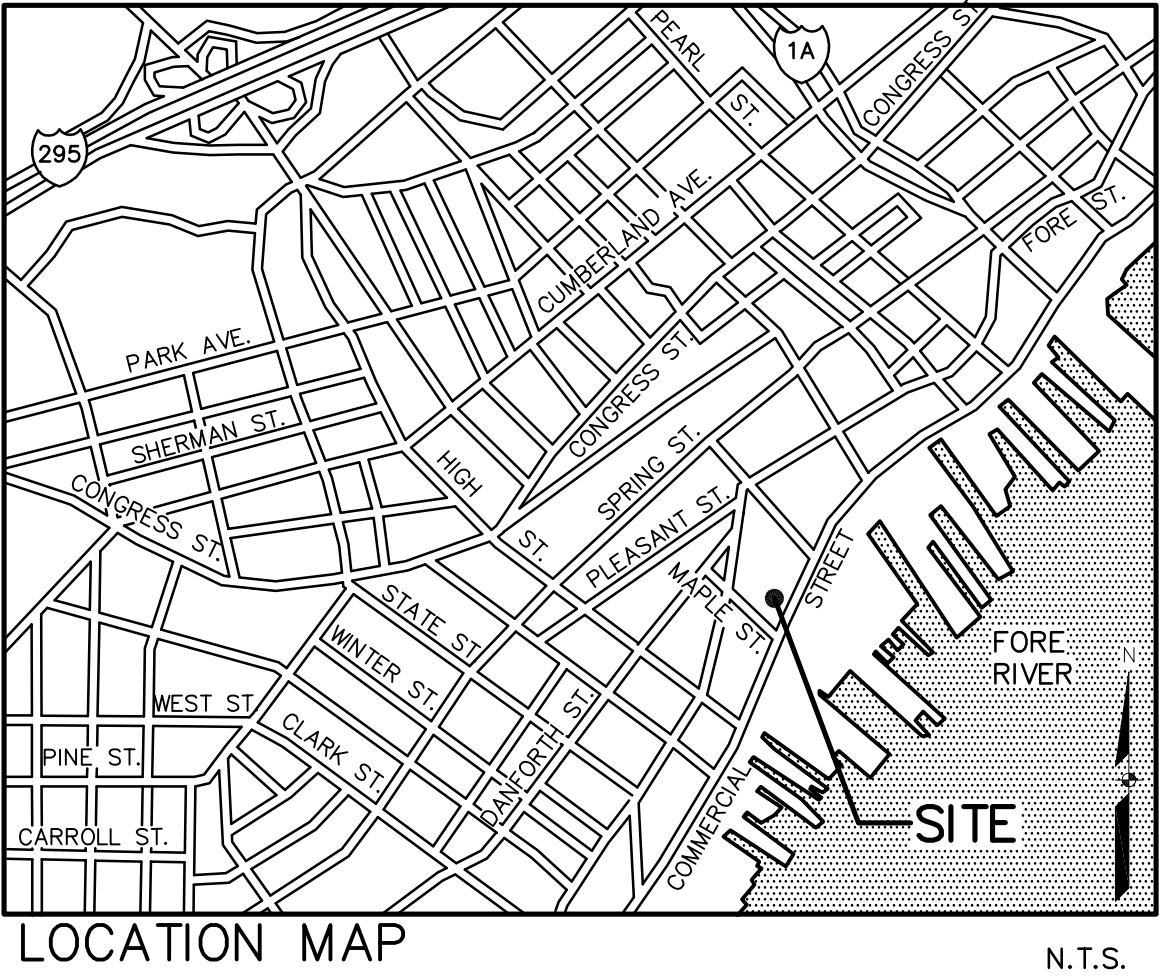
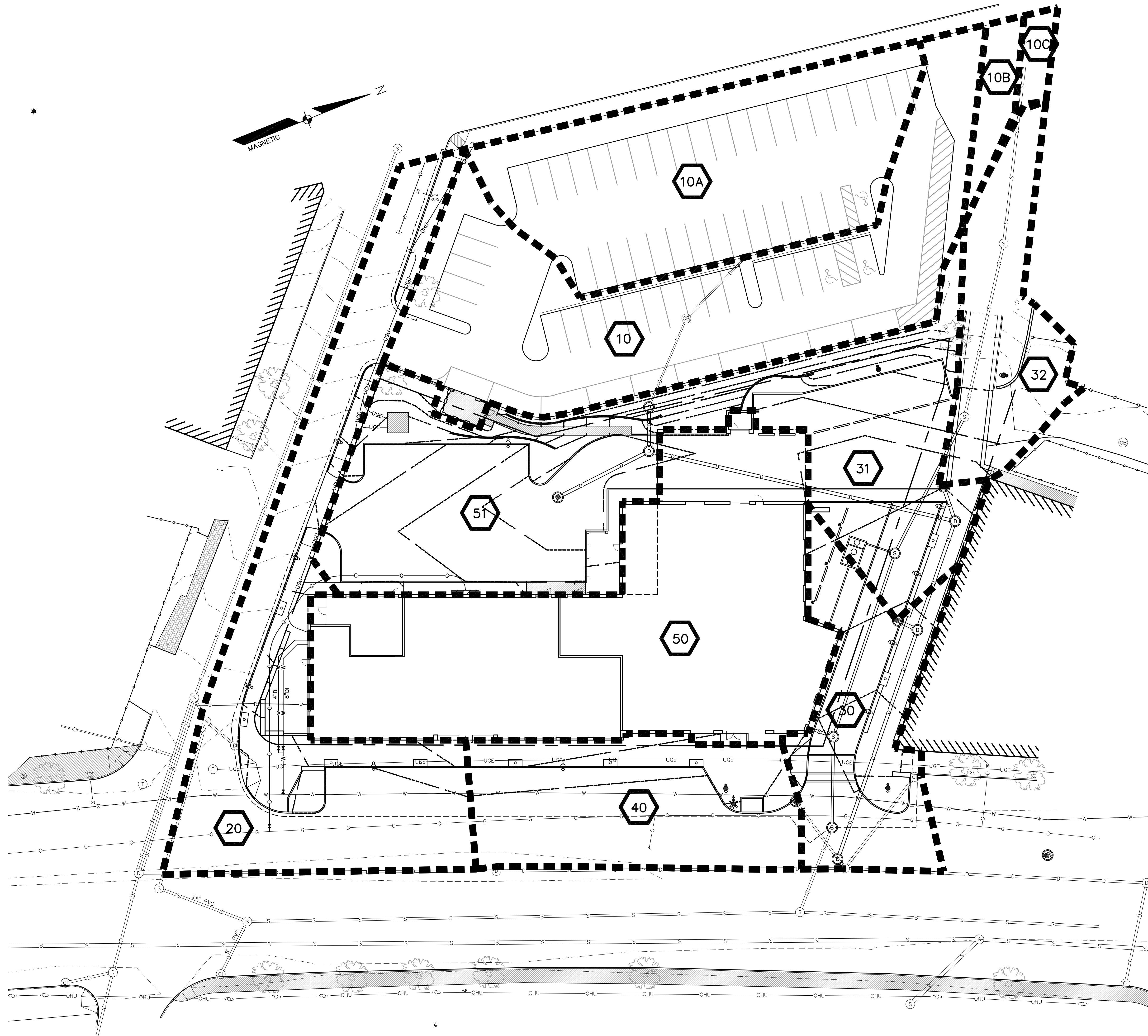
**Routing Diagram for Marriott Courtyard Portland Pre**  
 Prepared by Opechee Construction Corporation  
 HydroCAD® 10.00 s/n 01241 © 2012 HydroCAD Software Solutions LLC





**Routing Diagram for Marriott Courtyard Portland Post Revised**  
 Prepared by Opechee Construction Corporation  
 HydroCAD® 10.00 s/n 01241 © 2012 HydroCAD Software Solutions LLC





DATE	REVISION	SCHEDULE
01-02-13	REVISED DRAINAGE AREAS PER PROPOSED NEW LAYOUT	SMC

**LOPECHEE**  
CONSTRUCTION CORPORATION  
11 CORPORATE DRIVE, BELMONT NH 03220  
PHONE (603) 227-3090 FAX (603) 227-2191

POST-DEVELOPMENT  
DRAINAGE PLAN

PROJECT: MIXED-USE  
REDEVELOPMENT  
PORTLAND, ME

DATE: 10-22-12  
SCALE: 1"=20'  
DRAWN BY: BJS  
**D02**  
SHEET: 2 OF 2

## **SECTION III: Site Photos**





Photo 1



Photo 2





Photo 3



Photo 4





Photo 5



Photo 6





Photo 7



Photo 8

## **SECTION IV: Drainage Computations**

## **Existing 2-Year Storm Event**

**Marriott Courtyard Portland Pre***Type III 24-hr 2-yr Rainfall=3.00"*

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Page 1

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points x 3

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment1:</b>	Runoff Area=16,255 sf 76.39% Impervious Runoff Depth=1.90" Tc=6.0 min CN=89 Runoff=0.8 cfs 0.059 af
<b>Subcatchment1A:</b>	Runoff Area=12,940 sf 77.53% Impervious Runoff Depth=1.59" Tc=6.0 min CN=85 Runoff=0.6 cfs 0.039 af
<b>Subcatchment1B:</b>	Runoff Area=1,106 sf 100.00% Impervious Runoff Depth=2.77" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.006 af
<b>Subcatchment1C:</b>	Runoff Area=571 sf 100.00% Impervious Runoff Depth=2.77" Tc=6.0 min CN=98 Runoff=0.0 cfs 0.003 af
<b>Subcatchment2:</b>	Runoff Area=13,487 sf 88.62% Impervious Runoff Depth=2.35" Tc=6.0 min CN=94 Runoff=0.8 cfs 0.061 af
<b>Subcatchment3:</b>	Runoff Area=13,209 sf 86.80% Impervious Runoff Depth=2.35" Tc=6.0 min CN=94 Runoff=0.8 cfs 0.059 af
<b>Subcatchment4:</b>	Runoff Area=7,249 sf 100.00% Impervious Runoff Depth=2.77" Tc=6.0 min CN=98 Runoff=0.5 cfs 0.038 af
<b>Subcatchment5:</b>	Runoff Area=41,166 sf 84.84% Impervious Runoff Depth=2.35" Tc=6.0 min CN=94 Runoff=2.5 cfs 0.185 af
<b>Pond 1P:</b>	Peak Elev=14.13' Inflow=1.5 cfs 0.107 af 12.0" Round Culvert n=0.012 L=180.0' S=0.0260 '/ Outflow=1.5 cfs 0.107 af
<b>Pond 2P:</b>	Peak Elev=7.53' Inflow=0.8 cfs 0.059 af 12.0" Round Culvert n=0.012 L=48.0' S=0.0056 '/ Outflow=0.8 cfs 0.059 af
<b>Pond 3P:</b>	Peak Elev=11.04' Storage=186 cf Inflow=4.0 cfs 0.292 af Primary=3.6 cfs 0.292 af Secondary=0.0 cfs 0.000 af Outflow=3.6 cfs 0.292 af
<b>Pond 4P:</b>	Peak Elev=7.46' Inflow=0.5 cfs 0.038 af 12.0" Round Culvert n=0.012 L=50.0' S=0.0048 '/ Outflow=0.5 cfs 0.038 af
<b>Pond 5P:</b>	Peak Elev=6.84' Inflow=0.8 cfs 0.061 af 12.0" Round Culvert n=0.012 L=15.0' S=0.0153 '/ Outflow=0.8 cfs 0.061 af
<b>Pond 6P:</b>	Peak Elev=7.00' Inflow=3.6 cfs 0.292 af 18.0" Round Culvert n=0.012 L=75.0' S=0.0073 '/ Outflow=3.6 cfs 0.292 af
<b>Pond 7P:</b>	Peak Elev=6.40' Inflow=4.8 cfs 0.390 af 24.0" Round Culvert n=0.012 L=44.0' S=0.0052 '/ Outflow=4.8 cfs 0.390 af
<b>Pond 8P:</b>	Peak Elev=7.40' Inflow=1.3 cfs 0.098 af 18.0" Round Culvert n=0.012 L=150.0' S=0.0010 '/ Outflow=1.3 cfs 0.098 af

**Marriott Courtyard Portland Pre***Type III 24-hr 2-yr Rainfall=3.00"*

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**Pond 9P:**

Peak Elev=14.66' Inflow=0.7 cfs 0.048 af  
12.0" Round Culvert n=0.012 L=32.0' S=0.0156 '/' Outflow=0.7 cfs 0.048 af

**Pond 10P:**

Peak Elev=17.16' Inflow=0.1 cfs 0.009 af  
12.0" Round Culvert n=0.012 L=101.0' S=0.0272 '/' Outflow=0.1 cfs 0.009 af

**Pond 11P:**

Peak Elev=21.09' Inflow=0.0 cfs 0.003 af  
12.0" Round Culvert n=0.012 L=34.0' S=0.1176 '/' Outflow=0.0 cfs 0.003 af

**Pond 12P:**

Peak Elev=7.21' Inflow=1.3 cfs 0.098 af  
18.0" Round Culvert n=0.012 L=145.0' S=-0.0003 '/' Outflow=1.3 cfs 0.098 af

**Link DP1:**

Inflow=4.8 cfs 0.390 af  
Primary=4.8 cfs 0.390 af

**Link DP2:**

Inflow=0.8 cfs 0.061 af  
Primary=0.8 cfs 0.061 af

**Total Runoff Area = 2.433 ac   Runoff Volume = 0.451 af   Average Runoff Depth = 2.22"**  
**15.34% Pervious = 0.373 ac   84.66% Impervious = 2.060 ac**



**Summary for Subcatchment 1:**

Runoff = 0.8 cfs @ 12.09 hrs, Volume= 0.059 af, Depth= 1.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
1,773	39	>75% Grass cover, Good, HSG A
2,065	74	>75% Grass cover, Good, HSG C
12,417	98	Paved parking, HSG A
16,255	89	Weighted Average
3,838		23.61% Pervious Area
12,417		76.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 1A:**

Runoff = 0.6 cfs @ 12.09 hrs, Volume= 0.039 af, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
10,033	98	Paved parking, HSG C
100	74	>75% Grass cover, Good, HSG C
2,807	39	>75% Grass cover, Good, HSG A
12,940	85	Weighted Average
2,907		22.47% Pervious Area
10,033		77.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 1B:**

Runoff = 0.1 cfs @ 12.08 hrs, Volume= 0.006 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
1,106	98	Paved parking, HSG A
1,106		100.00% Impervious Area

**Marriott Courtyard Portland Pre**

Type III 24-hr 2-yr Rainfall=3.00"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 1C:**

Runoff = 0.0 cfs @ 12.08 hrs, Volume= 0.003 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
571	98	Paved parking, HSG A
571		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 2:**

Runoff = 0.8 cfs @ 12.08 hrs, Volume= 0.061 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
400	39	>75% Grass cover, Good, HSG A
1,135	74	>75% Grass cover, Good, HSG C
11,952	98	Paved parking, HSG A
13,487	94	Weighted Average
1,535		11.38% Pervious Area
11,952		88.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 3:**

Runoff = 0.8 cfs @ 12.08 hrs, Volume= 0.059 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

**Marriott Courtyard Portland Pre**

Type III 24-hr 2-yr Rainfall=3.00"

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Area (sf)	CN	Description
300	39	>75% Grass cover, Good, HSG A
1,443	74	>75% Grass cover, Good, HSG C
11,466	98	Paved parking, HSG C
13,209	94	Weighted Average
1,743		13.20% Pervious Area
11,466		86.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 4:**

Runoff = 0.5 cfs @ 12.08 hrs, Volume= 0.038 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
7,249	98	Paved parking, HSG C
7,249		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 5:**

Runoff = 2.5 cfs @ 12.08 hrs, Volume= 0.185 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
* 33,937	98	Gravel surface, HSG C
990	98	Paved parking, HSG C
6,239	74	>75% Grass cover, Good, HSG C
41,166	94	Weighted Average
6,239		15.16% Pervious Area
34,927		84.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Pond 1P:**

Inflow Area = 0.709 ac, 78.15% Impervious, Inflow Depth = 1.82" for 2-yr event  
 Inflow = 1.5 cfs @ 12.09 hrs, Volume= 0.107 af  
 Outflow = 1.5 cfs @ 12.09 hrs, Volume= 0.107 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.5 cfs @ 12.09 hrs, Volume= 0.107 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 14.13' @ 12.09 hrs

Flood Elev= 18.48'

Device	Routing	Invert	Outlet Devices
#1	Primary	13.48'	<b>12.0" Round Culvert</b> L= 180.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 13.48' / 8.80' S= 0.0260 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.5 cfs @ 12.09 hrs HW=14.13' TW=11.00' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 1.5 cfs @ 2.75 fps)

**Summary for Pond 2P:**

Inflow Area = 0.303 ac, 86.80% Impervious, Inflow Depth = 2.35" for 2-yr event  
 Inflow = 0.8 cfs @ 12.08 hrs, Volume= 0.059 af  
 Outflow = 0.8 cfs @ 12.08 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.8 cfs @ 12.08 hrs, Volume= 0.059 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 7.53' @ 12.08 hrs

Flood Elev= 10.62'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.79'	<b>12.0" Round Culvert</b> L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 6.79' / 6.52' S= 0.0056 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.8 cfs @ 12.08 hrs HW=7.53' TW=7.40' (Dynamic Tailwater)

↑1=Culvert (Outlet Controls 0.8 cfs @ 1.78 fps)

**Summary for Pond 3P:**

Inflow Area = 1.654 ac, 81.98% Impervious, Inflow Depth = 2.12" for 2-yr event  
 Inflow = 4.0 cfs @ 12.09 hrs, Volume= 0.292 af  
 Outflow = 3.6 cfs @ 12.13 hrs, Volume= 0.292 af, Atten= 11%, Lag= 2.4 min  
 Primary = 3.6 cfs @ 12.13 hrs, Volume= 0.292 af  
 Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

**Marriott Courtyard Portland Pre**

Type III 24-hr 2-yr Rainfall=3.00"

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Peak Elev= 11.04' @ 12.13 hrs Surf.Area= 1,415 sf Storage= 186 cf

Flood Elev= 12.00' Surf.Area= 7,538 sf Storage= 2,256 cf

Plug-Flow detention time= 0.1 min calculated for 0.292 af (100% of inflow)

Center-of-Mass det. time= 0.1 min ( 798.7 - 798.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	10.69'	2,256 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.69	0	0	0
11.00	918	142	142
11.50	7,538	2,114	2,256

Device	Routing	Invert	Outlet Devices
#1	Primary	8.72'	<b>8.0" Round Culvert</b> L= 140.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.72' / 7.67' S= 0.0075 '/ Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#2	Primary	10.69'	<b>2.0" x 2.0" Horiz. Orifice/Grate X 5.00 columns</b> X 5 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads
#3	Secondary	11.10'	<b>20.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> 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

**Primary OutFlow** Max=3.6 cfs @ 12.13 hrs HW=11.04' TW=7.00' (Dynamic Tailwater)↑ **1=Culvert** (Barrel Controls 1.6 cfs @ 4.57 fps)↓ **2=Orifice/Grate** (Orifice Controls 2.0 cfs @ 2.84 fps)**Secondary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=10.69' TW=6.76' (Dynamic Tailwater)↑ **3=Broad-Crested Rectangular Weir** ( Controls 0.0 cfs)**Summary for Pond 4P:**

Inflow Area = 0.166 ac, 100.00% Impervious, Inflow Depth = 2.77" for 2-yr event  
 Inflow = 0.5 cfs @ 12.08 hrs, Volume= 0.038 af  
 Outflow = 0.5 cfs @ 12.08 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.5 cfs @ 12.08 hrs, Volume= 0.038 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 7.46' @ 12.08 hrs

Flood Elev= 10.47'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.76'	<b>12.0" Round Culvert</b> L= 50.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 6.76' / 6.52' S= 0.0048 '/ Cc= 0.900



**Marriott Courtyard Portland Pre**

Type III 24-hr 2-yr Rainfall=3.00"

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n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.5 cfs @ 12.08 hrs HW=7.46' TW=7.40' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 0.5 cfs @ 1.16 fps)**Summary for Pond 5P:**

Inflow Area = 0.310 ac, 88.62% Impervious, Inflow Depth = 2.35" for 2-yr event  
Inflow = 0.8 cfs @ 12.08 hrs, Volume= 0.061 af  
Outflow = 0.8 cfs @ 12.08 hrs, Volume= 0.061 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.8 cfs @ 12.08 hrs, Volume= 0.061 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 6.84' @ 12.08 hrs

Flood Elev= 11.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.37'	<b>12.0" Round Culvert</b> L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 6.37' / 6.14' S= 0.0153 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.8 cfs @ 12.08 hrs HW=6.84' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 0.8 cfs @ 3.30 fps)**Summary for Pond 6P:**

Inflow Area = 1.654 ac, 81.98% Impervious, Inflow Depth = 2.12" for 2-yr event  
Inflow = 3.6 cfs @ 12.13 hrs, Volume= 0.292 af  
Outflow = 3.6 cfs @ 12.13 hrs, Volume= 0.292 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.6 cfs @ 12.13 hrs, Volume= 0.292 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 7.00' @ 12.12 hrs

Flood Elev= 11.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	5.96'	<b>18.0" Round Culvert</b> L= 75.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 5.96' / 5.41' S= 0.0073 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

**Primary OutFlow** Max=3.6 cfs @ 12.13 hrs HW=7.00' TW=6.39' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 3.6 cfs @ 3.85 fps)

**Marriott Courtyard Portland Pre**

Type III 24-hr 2-yr Rainfall=3.00"

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**Summary for Pond 7P:**

Inflow Area = 2.123 ac, 84.08% Impervious, Inflow Depth = 2.20" for 2-yr event  
 Inflow = 4.8 cfs @ 12.10 hrs, Volume= 0.390 af  
 Outflow = 4.8 cfs @ 12.10 hrs, Volume= 0.390 af, Atten= 0%, Lag= 0.0 min  
 Primary = 4.8 cfs @ 12.10 hrs, Volume= 0.390 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 6.40' @ 12.10 hrs

Flood Elev= 11.91'

Device	Routing	Invert	Outlet Devices
#1	Primary	5.31'	<b>24.0" Round Culvert</b> L= 44.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 5.31' / 5.08' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

**Primary OutFlow** Max=4.8 cfs @ 12.10 hrs HW=6.40' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 4.8 cfs @ 3.96 fps)**Summary for Pond 8P:**

Inflow Area = 0.470 ac, 91.48% Impervious, Inflow Depth = 2.50" for 2-yr event  
 Inflow = 1.3 cfs @ 12.08 hrs, Volume= 0.098 af  
 Outflow = 1.3 cfs @ 12.08 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.3 cfs @ 12.08 hrs, Volume= 0.098 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 7.40' @ 12.08 hrs

Flood Elev= 11.84'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.52'	<b>18.0" Round Culvert</b> L= 150.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 6.52' / 6.37' S= 0.0010 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

**Primary OutFlow** Max=1.3 cfs @ 12.08 hrs HW=7.40' TW=7.21' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 1.3 cfs @ 1.71 fps)**Summary for Pond 9P:**

Inflow Area = 0.336 ac, 80.11% Impervious, Inflow Depth = 1.72" for 2-yr event  
 Inflow = 0.7 cfs @ 12.09 hrs, Volume= 0.048 af  
 Outflow = 0.7 cfs @ 12.09 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.7 cfs @ 12.09 hrs, Volume= 0.048 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 14.66' @ 12.09 hrs

Flood Elev= 19.50'

**Marriott Courtyard Portland Pre**

Type III 24-hr 2-yr Rainfall=3.00"

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Device	Routing	Invert	Outlet Devices
#1	Primary	14.25'	<b>12.0" Round Culvert</b> L= 32.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 14.25' / 13.75' S= 0.0156 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.7 cfs @ 12.09 hrs HW=14.66' TW=14.13' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 0.7 cfs @ 2.18 fps)**Summary for Pond 10P:**

Inflow Area = 0.038 ac, 100.00% Impervious, Inflow Depth = 2.77" for 2-yr event  
Inflow = 0.1 cfs @ 12.08 hrs, Volume= 0.009 af  
Outflow = 0.1 cfs @ 12.08 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.1 cfs @ 12.08 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 17.16' @ 12.08 hrs

Flood Elev= 23.52'

Device	Routing	Invert	Outlet Devices
#1	Primary	17.00'	<b>12.0" Round Culvert</b> L= 101.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 17.00' / 14.25' S= 0.0272 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.1 cfs @ 12.08 hrs HW=17.16' TW=14.66' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 0.1 cfs @ 1.37 fps)**Summary for Pond 11P:**

Inflow Area = 0.013 ac, 100.00% Impervious, Inflow Depth = 2.77" for 2-yr event  
Inflow = 0.0 cfs @ 12.08 hrs, Volume= 0.003 af  
Outflow = 0.0 cfs @ 12.08 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.0 cfs @ 12.08 hrs, Volume= 0.003 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 21.09' @ 12.08 hrs

Flood Elev= 26.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	<b>12.0" Round Culvert</b> L= 34.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 21.00' / 17.00' S= 0.1176 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.0 cfs @ 12.08 hrs HW=21.09' TW=17.16' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 0.0 cfs @ 1.04 fps)

**Summary for Pond 12P:**

Inflow Area = 0.470 ac, 91.48% Impervious, Inflow Depth = 2.50" for 2-yr event  
Inflow = 1.3 cfs @ 12.08 hrs, Volume= 0.098 af  
Outflow = 1.3 cfs @ 12.08 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.3 cfs @ 12.08 hrs, Volume= 0.098 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 7.21' @ 12.08 hrs

Flood Elev= 12.12'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.41'	<b>18.0" Round Culvert</b> L= 145.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 6.37' / 6.41' S= -0.0003 ' ' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

**Primary OutFlow** Max=1.3 cfs @ 12.08 hrs HW=7.21' TW=6.39' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 1.3 cfs @ 1.81 fps)

**Summary for Link DP1:**

Inflow Area = 2.123 ac, 84.08% Impervious, Inflow Depth = 2.20" for 2-yr event  
Inflow = 4.8 cfs @ 12.10 hrs, Volume= 0.390 af  
Primary = 4.8 cfs @ 12.10 hrs, Volume= 0.390 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

**Summary for Link DP2:**

Inflow Area = 0.310 ac, 88.62% Impervious, Inflow Depth = 2.35" for 2-yr event  
Inflow = 0.8 cfs @ 12.08 hrs, Volume= 0.061 af  
Primary = 0.8 cfs @ 12.08 hrs, Volume= 0.061 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

## **Existing 10-Year Storm Event**

**Marriott Courtyard Portland Pre***Type III 24-hr 10-yr Rainfall=4.70"*

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points x 3

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment1:</b>	Runoff Area=16,255 sf 76.39% Impervious Runoff Depth=3.49" Tc=6.0 min CN=89 Runoff=1.5 cfs 0.108 af
<b>Subcatchment1A:</b>	Runoff Area=12,940 sf 77.53% Impervious Runoff Depth=3.09" Tc=6.0 min CN=85 Runoff=1.1 cfs 0.077 af
<b>Subcatchment1B:</b>	Runoff Area=1,106 sf 100.00% Impervious Runoff Depth=4.46" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.009 af
<b>Subcatchment1C:</b>	Runoff Area=571 sf 100.00% Impervious Runoff Depth=4.46" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.005 af
<b>Subcatchment2:</b>	Runoff Area=13,487 sf 88.62% Impervious Runoff Depth=4.01" Tc=6.0 min CN=94 Runoff=1.4 cfs 0.104 af
<b>Subcatchment3:</b>	Runoff Area=13,209 sf 86.80% Impervious Runoff Depth=4.01" Tc=6.0 min CN=94 Runoff=1.3 cfs 0.101 af
<b>Subcatchment4:</b>	Runoff Area=7,249 sf 100.00% Impervious Runoff Depth=4.46" Tc=6.0 min CN=98 Runoff=0.8 cfs 0.062 af
<b>Subcatchment5:</b>	Runoff Area=41,166 sf 84.84% Impervious Runoff Depth=4.01" Tc=6.0 min CN=94 Runoff=4.1 cfs 0.316 af
<b>Pond 1P:</b>	Peak Elev=14.50' Inflow=2.7 cfs 0.199 af 12.0" Round Culvert n=0.012 L=180.0' S=0.0260 '/ Outflow=2.7 cfs 0.199 af
<b>Pond 2P:</b>	Peak Elev=8.38' Inflow=1.3 cfs 0.101 af 12.0" Round Culvert n=0.012 L=48.0' S=0.0056 '/ Outflow=1.3 cfs 0.101 af
<b>Pond 3P:</b>	Peak Elev=11.22' Storage=676 cf Inflow=6.9 cfs 0.515 af Primary=4.1 cfs 0.493 af Secondary=2.2 cfs 0.022 af Outflow=6.3 cfs 0.515 af
<b>Pond 4P:</b>	Peak Elev=8.86' Inflow=2.9 cfs 0.084 af 12.0" Round Culvert n=0.012 L=50.0' S=0.0048 '/ Outflow=2.9 cfs 0.084 af
<b>Pond 5P:</b>	Peak Elev=7.01' Inflow=1.4 cfs 0.104 af 12.0" Round Culvert n=0.012 L=15.0' S=0.0153 '/ Outflow=1.4 cfs 0.104 af
<b>Pond 6P:</b>	Peak Elev=7.25' Inflow=4.1 cfs 0.493 af 18.0" Round Culvert n=0.012 L=75.0' S=0.0073 '/ Outflow=4.1 cfs 0.493 af
<b>Pond 7P:</b>	Peak Elev=6.81' Inflow=8.2 cfs 0.679 af 24.0" Round Culvert n=0.012 L=44.0' S=0.0052 '/ Outflow=8.2 cfs 0.679 af
<b>Pond 8P:</b>	Peak Elev=8.27' Inflow=4.1 cfs 0.185 af 18.0" Round Culvert n=0.012 L=150.0' S=0.0010 '/ Outflow=4.1 cfs 0.185 af

**Marriott Courtyard Portland Pre***Type III 24-hr 10-yr Rainfall=4.70"*

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**Pond 9P:**

Peak Elev=14.90' Inflow=1.2 cfs 0.091 af  
12.0" Round Culvert n=0.012 L=32.0' S=0.0156 '/' Outflow=1.2 cfs 0.091 af

**Pond 10P:**

Peak Elev=17.20' Inflow=0.2 cfs 0.014 af  
12.0" Round Culvert n=0.012 L=101.0' S=0.0272 '/' Outflow=0.2 cfs 0.014 af

**Pond 11P:**

Peak Elev=21.12' Inflow=0.1 cfs 0.005 af  
12.0" Round Culvert n=0.012 L=34.0' S=0.1176 '/' Outflow=0.1 cfs 0.005 af

**Pond 12P:**

Peak Elev=7.94' Inflow=4.1 cfs 0.185 af  
18.0" Round Culvert n=0.012 L=145.0' S=-0.0003 '/' Outflow=4.1 cfs 0.185 af

**Link DP1:**

Inflow=8.2 cfs 0.679 af  
Primary=8.2 cfs 0.679 af

**Link DP2:**

Inflow=1.4 cfs 0.104 af  
Primary=1.4 cfs 0.104 af

**Total Runoff Area = 2.433 ac   Runoff Volume = 0.782 af   Average Runoff Depth = 3.86"**  
**15.34% Pervious = 0.373 ac   84.66% Impervious = 2.060 ac**

## **Existing 25-Year Storm Event**



**Marriott Courtyard Portland Pre***Type III 24-hr 25-yr Rainfall=5.50"*

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points x 3

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment1:</b>	Runoff Area=16,255 sf 76.39% Impervious Runoff Depth=4.25" Tc=6.0 min CN=89 Runoff=1.8 cfs 0.132 af
<b>Subcatchment1A:</b>	Runoff Area=12,940 sf 77.53% Impervious Runoff Depth=3.83" Tc=6.0 min CN=85 Runoff=1.3 cfs 0.095 af
<b>Subcatchment1B:</b>	Runoff Area=1,106 sf 100.00% Impervious Runoff Depth=5.26" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.011 af
<b>Subcatchment1C:</b>	Runoff Area=571 sf 100.00% Impervious Runoff Depth=5.26" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.006 af
<b>Subcatchment2:</b>	Runoff Area=13,487 sf 88.62% Impervious Runoff Depth=4.80" Tc=6.0 min CN=94 Runoff=1.6 cfs 0.124 af
<b>Subcatchment3:</b>	Runoff Area=13,209 sf 86.80% Impervious Runoff Depth=4.80" Tc=6.0 min CN=94 Runoff=1.6 cfs 0.121 af
<b>Subcatchment4:</b>	Runoff Area=7,249 sf 100.00% Impervious Runoff Depth=5.26" Tc=6.0 min CN=98 Runoff=0.9 cfs 0.073 af
<b>Subcatchment5:</b>	Runoff Area=41,166 sf 84.84% Impervious Runoff Depth=4.80" Tc=6.0 min CN=94 Runoff=4.9 cfs 0.378 af
<b>Pond 1P:</b>	Peak Elev=14.75' Inflow=3.3 cfs 0.244 af 12.0" Round Culvert n=0.012 L=180.0' S=0.0260 '/ Outflow=3.3 cfs 0.244 af
<b>Pond 2P:</b>	Peak Elev=9.27' Inflow=1.6 cfs 0.121 af 12.0" Round Culvert n=0.012 L=48.0' S=0.0056 '/ Outflow=1.6 cfs 0.121 af
<b>Pond 3P:</b>	Peak Elev=11.27' Storage=851 cf Inflow=8.2 cfs 0.622 af Primary=4.2 cfs 0.580 af Secondary=3.4 cfs 0.042 af Outflow=7.6 cfs 0.622 af
<b>Pond 4P:</b>	Peak Elev=10.39' Inflow=4.2 cfs 0.115 af 12.0" Round Culvert n=0.012 L=50.0' S=0.0048 '/ Outflow=4.2 cfs 0.115 af
<b>Pond 5P:</b>	Peak Elev=7.09' Inflow=1.6 cfs 0.124 af 12.0" Round Culvert n=0.012 L=15.0' S=0.0153 '/ Outflow=1.6 cfs 0.124 af
<b>Pond 6P:</b>	Peak Elev=7.37' Inflow=4.2 cfs 0.580 af 18.0" Round Culvert n=0.012 L=75.0' S=0.0073 '/ Outflow=4.2 cfs 0.580 af
<b>Pond 7P:</b>	Peak Elev=7.00' Inflow=9.9 cfs 0.816 af 24.0" Round Culvert n=0.012 L=44.0' S=0.0052 '/ Outflow=9.9 cfs 0.816 af
<b>Pond 8P:</b>	Peak Elev=9.11' Inflow=5.7 cfs 0.236 af 18.0" Round Culvert n=0.012 L=150.0' S=0.0010 '/ Outflow=5.7 cfs 0.236 af

**Marriott Courtyard Portland Pre***Type III 24-hr 25-yr Rainfall=5.50"*

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**Pond 9P:**

Peak Elev=15.07' Inflow=1.5 cfs 0.112 af  
12.0" Round Culvert n=0.012 L=32.0' S=0.0156 '/' Outflow=1.5 cfs 0.112 af

**Pond 10P:**

Peak Elev=17.22' Inflow=0.2 cfs 0.017 af  
12.0" Round Culvert n=0.012 L=101.0' S=0.0272 '/' Outflow=0.2 cfs 0.017 af

**Pond 11P:**

Peak Elev=21.13' Inflow=0.1 cfs 0.006 af  
12.0" Round Culvert n=0.012 L=34.0' S=0.1176 '/' Outflow=0.1 cfs 0.006 af

**Pond 12P:**

Peak Elev=8.48' Inflow=5.7 cfs 0.236 af  
18.0" Round Culvert n=0.012 L=145.0' S=-0.0003 '/' Outflow=5.7 cfs 0.236 af

**Link DP1:**

Inflow=9.9 cfs 0.816 af  
Primary=9.9 cfs 0.816 af

**Link DP2:**

Inflow=1.6 cfs 0.124 af  
Primary=1.6 cfs 0.124 af

**Total Runoff Area = 2.433 ac   Runoff Volume = 0.940 af   Average Runoff Depth = 4.64"**  
**15.34% Pervious = 0.373 ac   84.66% Impervious = 2.060 ac**

## **Proposed 2-Year Storm Event**

**Marriott Courtyard Portland Post Revised***Type III 24-hr 2-yr Rainfall=3.00"*

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points x 3

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment10:</b>	Runoff Area=16,540 sf 76.80% Impervious Runoff Depth=1.90" Tc=6.0 min CN=89 Runoff=0.8 cfs 0.060 af
<b>Subcatchment10A:</b>	Runoff Area=12,940 sf 77.53% Impervious Runoff Depth=1.59" Tc=6.0 min CN=85 Runoff=0.6 cfs 0.039 af
<b>Subcatchment10B:</b>	Runoff Area=1,106 sf 100.00% Impervious Runoff Depth=2.77" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.006 af
<b>Subcatchment10C:</b>	Runoff Area=571 sf 100.00% Impervious Runoff Depth=2.77" Tc=6.0 min CN=98 Runoff=0.0 cfs 0.003 af
<b>Subcatchment20:</b>	Runoff Area=14,969 sf 100.00% Impervious Runoff Depth=2.77" Tc=6.0 min CN=98 Runoff=1.0 cfs 0.079 af
<b>Subcatchment30:</b>	Runoff Area=6,682 sf 100.00% Impervious Runoff Depth=2.77" Tc=6.0 min CN=98 Runoff=0.4 cfs 0.035 af
<b>Subcatchment31:</b>	Runoff Area=8,082 sf 77.04% Impervious Runoff Depth=2.16" Tc=6.0 min CN=92 Runoff=0.5 cfs 0.033 af
<b>Subcatchment32:</b>	Runoff Area=5,262 sf 61.88% Impervious Runoff Depth=1.90" Tc=6.0 min CN=89 Runoff=0.3 cfs 0.019 af
<b>Subcatchment40:</b>	Runoff Area=7,991 sf 100.00% Impervious Runoff Depth=2.77" Tc=6.0 min CN=98 Runoff=0.5 cfs 0.042 af
<b>Subcatchment50:</b>	Runoff Area=19,662 sf 100.00% Impervious Runoff Depth=2.77" Tc=6.0 min CN=98 Runoff=1.3 cfs 0.104 af
<b>Subcatchment51:</b>	Runoff Area=12,178 sf 71.03% Impervious Runoff Depth=2.07" Tc=6.0 min CN=91 Runoff=0.7 cfs 0.048 af
<b>Pond 1P:</b>	Peak Elev=10.15' Inflow=1.5 cfs 0.108 af 15.0" Round Culvert n=0.012 L=15.0' S=0.0447 '/' Outflow=1.5 cfs 0.108 af
<b>Pond 2P:</b>	Peak Elev=8.20' Inflow=0.4 cfs 0.035 af 12.0" Round Culvert n=0.012 L=48.0' S=0.0056 '/' Outflow=0.4 cfs 0.035 af
<b>Pond 3P:</b>	Peak Elev=8.81' Inflow=2.4 cfs 0.176 af 18.0" Round Culvert n=0.012 L=47.0' S=0.0072 '/' Outflow=2.4 cfs 0.176 af
<b>Pond 5P:</b>	Peak Elev=6.90' Inflow=1.0 cfs 0.079 af 12.0" Round Culvert n=0.012 L=15.0' S=0.0153 '/' Outflow=1.0 cfs 0.079 af
<b>Pond 6P:</b>	Peak Elev=6.69' Inflow=1.3 cfs 0.104 af 18.0" Round Culvert n=0.012 L=75.0' S=0.0073 '/' Outflow=1.3 cfs 0.104 af

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<b>Pond 7P:</b>	Peak Elev=6.45' Inflow=5.2 cfs 0.391 af 24.0" Round Culvert n=0.012 L=44.0' S=0.0052 '/' Outflow=5.2 cfs 0.391 af
<b>Pond 8P:</b>	Peak Elev=8.19' Inflow=3.9 cfs 0.287 af 18.0" Round Culvert n=0.012 L=150.0' S=0.0010 '/' Outflow=3.9 cfs 0.287 af
<b>Pond 9P:</b>	Peak Elev=14.66' Inflow=0.7 cfs 0.048 af 12.0" Round Culvert n=0.012 L=32.0' S=0.0156 '/' Outflow=0.7 cfs 0.048 af
<b>Pond 10P:</b>	Peak Elev=17.16' Inflow=0.1 cfs 0.009 af 12.0" Round Culvert n=0.012 L=101.0' S=0.0272 '/' Outflow=0.1 cfs 0.009 af
<b>Pond 11P:</b>	Peak Elev=21.09' Inflow=0.0 cfs 0.003 af 12.0" Round Culvert n=0.012 L=34.0' S=0.1176 '/' Outflow=0.0 cfs 0.003 af
<b>Pond 12P:</b>	Peak Elev=7.87' Inflow=3.9 cfs 0.287 af 18.0" Round Culvert n=0.012 L=145.0' S=-0.0003 '/' Outflow=3.9 cfs 0.287 af
<b>Pond 22P:</b>	Peak Elev=9.19' Inflow=1.3 cfs 0.104 af 8.0" Round Culvert n=0.012 L=52.0' S=0.0075 '/' Outflow=1.3 cfs 0.104 af
<b>Pond 31P:</b>	Peak Elev=8.35' Inflow=3.4 cfs 0.251 af 18.0" Round Culvert n=0.012 L=3.0' S=0.0067 '/' Outflow=3.4 cfs 0.251 af
<b>Pond 32P:</b>	Peak Elev=8.59' Inflow=2.9 cfs 0.209 af 18.0" Round Culvert n=0.012 L=102.0' S=0.0072 '/' Outflow=2.9 cfs 0.209 af
<b>Pond 34P:</b>	Peak Elev=8.37' Inflow=0.5 cfs 0.042 af 12.0" Round Culvert n=0.012 L=26.0' S=0.0050 '/' Outflow=0.5 cfs 0.042 af
<b>Pond 35P:</b>	Peak Elev=9.57' Inflow=2.2 cfs 0.157 af 18.0" Round Culvert n=0.012 L=137.0' S=0.0070 '/' Outflow=2.2 cfs 0.157 af
<b>Pond 36P:</b>	Peak Elev=8.82' Inflow=0.3 cfs 0.019 af 12.0" Round Culvert n=0.012 L=16.0' S=0.0100 '/' Outflow=0.3 cfs 0.019 af
<b>Pond 37P:</b>	Peak Elev=8.61' Inflow=0.5 cfs 0.033 af 12.0" Round Culvert n=0.012 L=9.0' S=0.0100 '/' Outflow=0.5 cfs 0.033 af
<b>Pond 39P:</b>	Peak Elev=9.84' Inflow=0.7 cfs 0.048 af 12.0" Round Culvert n=0.012 L=44.0' S=0.0100 '/' Outflow=0.7 cfs 0.048 af
<b>Link DP1:</b>	Inflow=5.2 cfs 0.391 af Primary=5.2 cfs 0.391 af
<b>Link DP2:</b>	Inflow=1.0 cfs 0.079 af Primary=1.0 cfs 0.079 af

**Total Runoff Area = 2.433 ac Runoff Volume = 0.470 af Average Runoff Depth = 2.32"**  
**13.34% Pervious = 0.324 ac 86.66% Impervious = 2.109 ac**

### Summary for Subcatchment 10:

Runoff = 0.8 cfs @ 12.09 hrs, Volume= 0.060 af, Depth= 1.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
1,773	39	>75% Grass cover, Good, HSG A
2,065	74	>75% Grass cover, Good, HSG C
12,702	98	Paved parking, HSG A
16,540	89	Weighted Average
3,838		23.20% Pervious Area
12,702		76.80% Impervious Area

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

### Summary for Subcatchment 10A:

Runoff = 0.6 cfs @ 12.09 hrs, Volume= 0.039 af, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
10,033	98	Paved parking, HSG C
100	74	>75% Grass cover, Good, HSG C
2,807	39	>75% Grass cover, Good, HSG A
12,940	85	Weighted Average
2,907		22.47% Pervious Area
10,033		77.53% Impervious Area

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

### Summary for Subcatchment 10B:

Runoff = 0.1 cfs @ 12.08 hrs, Volume= 0.006 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
1,106	98	Paved parking, HSG A
1,106		100.00% Impervious Area

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Type III 24-hr 2-yr Rainfall=3.00"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 10C:**

Runoff = 0.0 cfs @ 12.08 hrs, Volume= 0.003 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
571	98	Paved parking, HSG A
571		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 20:**

Runoff = 1.0 cfs @ 12.08 hrs, Volume= 0.079 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
14,969	98	Paved parking, HSG A
14,969		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 30:**

Runoff = 0.4 cfs @ 12.08 hrs, Volume= 0.035 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
6,682	98	Paved parking, HSG C
6,682		100.00% Impervious Area

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Type III 24-hr 2-yr Rainfall=3.00"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 31:**

Runoff = 0.5 cfs @ 12.09 hrs, Volume= 0.033 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
1,856	74	>75% Grass cover, Good, HSG C
6,226	98	Paved parking, HSG C
8,082	92	Weighted Average
1,856		22.96% Pervious Area
6,226		77.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 32:**

Runoff = 0.3 cfs @ 12.09 hrs, Volume= 0.019 af, Depth= 1.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
2,006	74	>75% Grass cover, Good, HSG C
3,256	98	Paved parking, HSG C
5,262	89	Weighted Average
2,006		38.12% Pervious Area
3,256		61.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 40:**

Runoff = 0.5 cfs @ 12.08 hrs, Volume= 0.042 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"



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Area (sf)	CN	Description
7,991	98	Paved parking, HSG C
7,991		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 50:**

Runoff = 1.3 cfs @ 12.08 hrs, Volume= 0.104 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
19,662	98	Roofs, HSG C
19,662		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 51:**

Runoff = 0.7 cfs @ 12.09 hrs, Volume= 0.048 af, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-yr Rainfall=3.00"

Area (sf)	CN	Description
3,528	74	>75% Grass cover, Good, HSG C
8,650	98	Paved parking, HSG C
12,178	91	Weighted Average
3,528		28.97% Pervious Area
8,650		71.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Pond 1P:**

Inflow Area = 0.715 ac, 78.35% Impervious, Inflow Depth = 1.82" for 2-yr event  
 Inflow = 1.5 cfs @ 12.09 hrs, Volume= 0.108 af  
 Outflow = 1.5 cfs @ 12.09 hrs, Volume= 0.108 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.5 cfs @ 12.09 hrs, Volume= 0.108 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

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Type III 24-hr 2-yr Rainfall=3.00"

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Peak Elev= 10.15' @ 12.09 hrs

Flood Elev= 18.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.56'	<b>15.0" Round Culvert</b> L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.56' / 8.89' S= 0.0447 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

**Primary OutFlow** Max=1.5 cfs @ 12.09 hrs HW=10.15' TW=9.57' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 1.5 cfs @ 2.62 fps)**Summary for Pond 2P:**

Inflow Area = 0.153 ac, 100.00% Impervious, Inflow Depth = 2.77" for 2-yr event  
 Inflow = 0.4 cfs @ 12.08 hrs, Volume= 0.035 af  
 Outflow = 0.4 cfs @ 12.08 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.4 cfs @ 12.08 hrs, Volume= 0.035 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 8.20' @ 12.09 hrs

Flood Elev= 10.62'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.79'	<b>12.0" Round Culvert</b> L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 6.79' / 6.52' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.4 cfs @ 12.08 hrs HW=8.20' TW=8.18' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 0.4 cfs @ 0.57 fps)**Summary for Pond 3P:**

Inflow Area = 1.116 ac, 74.73% Impervious, Inflow Depth = 1.89" for 2-yr event  
 Inflow = 2.4 cfs @ 12.09 hrs, Volume= 0.176 af  
 Outflow = 2.4 cfs @ 12.09 hrs, Volume= 0.176 af, Atten= 0%, Lag= 0.0 min  
 Primary = 2.4 cfs @ 12.09 hrs, Volume= 0.176 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 8.81' @ 12.09 hrs

Flood Elev= 12.84'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.73'	<b>18.0" Round Culvert</b> L= 47.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 7.73' / 7.39' S= 0.0072 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

**Primary OutFlow** Max=2.4 cfs @ 12.09 hrs HW=8.81' TW=8.59' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 2.4 cfs @ 2.51 fps)

### Summary for Pond 5P:

Inflow Area = 0.344 ac, 100.00% Impervious, Inflow Depth = 2.77" for 2-yr event  
 Inflow = 1.0 cfs @ 12.08 hrs, Volume= 0.079 af  
 Outflow = 1.0 cfs @ 12.08 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.0 cfs @ 12.08 hrs, Volume= 0.079 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 6.90' @ 12.08 hrs

Flood Elev= 11.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.37'	<b>12.0" Round Culvert</b> L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 6.37' / 6.14' S= 0.0153 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.0 cfs @ 12.08 hrs HW=6.90' TW=0.00' (Dynamic Tailwater)

↑**1=Culvert** (Barrel Controls 1.0 cfs @ 3.42 fps)

### Summary for Pond 6P:

Inflow Area = 0.451 ac, 100.00% Impervious, Inflow Depth = 2.77" for 2-yr event  
 Inflow = 1.3 cfs @ 12.08 hrs, Volume= 0.104 af  
 Outflow = 1.3 cfs @ 12.08 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.3 cfs @ 12.08 hrs, Volume= 0.104 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 6.69' @ 12.08 hrs

Flood Elev= 11.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	5.96'	<b>18.0" Round Culvert</b> L= 75.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 5.96' / 5.41' S= 0.0073 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

**Primary OutFlow** Max=1.3 cfs @ 12.08 hrs HW=6.69' TW=6.45' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 1.3 cfs @ 2.24 fps)

### Summary for Pond 7P:

Inflow Area = 2.089 ac, 84.47% Impervious, Inflow Depth = 2.25" for 2-yr event  
 Inflow = 5.2 cfs @ 12.09 hrs, Volume= 0.391 af  
 Outflow = 5.2 cfs @ 12.09 hrs, Volume= 0.391 af, Atten= 0%, Lag= 0.0 min  
 Primary = 5.2 cfs @ 12.09 hrs, Volume= 0.391 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 6.45' @ 12.09 hrs

Flood Elev= 11.91'

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Device	Routing	Invert	Outlet Devices
#1	Primary	5.31'	<b>24.0" Round Culvert</b> L= 44.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 5.31' / 5.08' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

**Primary OutFlow** Max=5.2 cfs @ 12.09 hrs HW=6.45' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 5.2 cfs @ 4.04 fps)**Summary for Pond 8P:**

Inflow Area = 1.638 ac, 80.19% Impervious, Inflow Depth = 2.10" for 2-yr event  
 Inflow = 3.9 cfs @ 12.09 hrs, Volume= 0.287 af  
 Outflow = 3.9 cfs @ 12.09 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.0 min  
 Primary = 3.9 cfs @ 12.09 hrs, Volume= 0.287 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 8.19' @ 12.09 hrs

Flood Elev= 11.84'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.52'	<b>18.0" Round Culvert</b> L= 150.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 6.52' / 6.37' S= 0.0010 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

**Primary OutFlow** Max=3.9 cfs @ 12.09 hrs HW=8.18' TW=7.87' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 3.9 cfs @ 2.47 fps)**Summary for Pond 9P:**

Inflow Area = 0.336 ac, 80.11% Impervious, Inflow Depth = 1.72" for 2-yr event  
 Inflow = 0.7 cfs @ 12.09 hrs, Volume= 0.048 af  
 Outflow = 0.7 cfs @ 12.09 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.7 cfs @ 12.09 hrs, Volume= 0.048 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 14.66' @ 12.09 hrs

Flood Elev= 19.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	14.25'	<b>12.0" Round Culvert</b> L= 32.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 14.25' / 13.75' S= 0.0156 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.7 cfs @ 12.09 hrs HW=14.66' TW=10.15' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 0.7 cfs @ 2.18 fps)

### Summary for Pond 10P:

Inflow Area = 0.038 ac, 100.00% Impervious, Inflow Depth = 2.77" for 2-yr event  
 Inflow = 0.1 cfs @ 12.08 hrs, Volume= 0.009 af  
 Outflow = 0.1 cfs @ 12.08 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.1 cfs @ 12.08 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 17.16' @ 12.08 hrs

Flood Elev= 23.52'

Device	Routing	Invert	Outlet Devices
#1	Primary	17.00'	<b>12.0" Round Culvert</b> L= 101.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 17.00' / 14.25' S= 0.0272 ' / Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.1 cfs @ 12.08 hrs HW=17.16' TW=14.66' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 0.1 cfs @ 1.37 fps)

### Summary for Pond 11P:

Inflow Area = 0.013 ac, 100.00% Impervious, Inflow Depth = 2.77" for 2-yr event  
 Inflow = 0.0 cfs @ 12.08 hrs, Volume= 0.003 af  
 Outflow = 0.0 cfs @ 12.08 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.0 cfs @ 12.08 hrs, Volume= 0.003 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 21.09' @ 12.08 hrs

Flood Elev= 26.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	<b>12.0" Round Culvert</b> L= 34.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 21.00' / 17.00' S= 0.1176 ' / Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.0 cfs @ 12.08 hrs HW=21.09' TW=17.16' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 0.0 cfs @ 1.04 fps)

### Summary for Pond 12P:

Inflow Area = 1.638 ac, 80.19% Impervious, Inflow Depth = 2.10" for 2-yr event  
 Inflow = 3.9 cfs @ 12.09 hrs, Volume= 0.287 af  
 Outflow = 3.9 cfs @ 12.09 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.0 min  
 Primary = 3.9 cfs @ 12.09 hrs, Volume= 0.287 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 7.87' @ 12.09 hrs

Flood Elev= 12.12'

**Marriott Courtyard Portland Post Revised**

Type III 24-hr 2-yr Rainfall=3.00"

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Device	Routing	Invert	Outlet Devices
#1	Primary	6.41'	<b>18.0" Round Culvert</b> L= 145.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 6.37' / 6.41' S= -0.0003 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

**Primary OutFlow** Max=3.9 cfs @ 12.09 hrs HW=7.87' TW=6.45' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 3.9 cfs @ 2.72 fps)**Summary for Pond 22P:**

Inflow Area = 0.451 ac, 100.00% Impervious, Inflow Depth = 2.77" for 2-yr event  
Inflow = 1.3 cfs @ 12.08 hrs, Volume= 0.104 af  
Outflow = 1.3 cfs @ 12.08 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.3 cfs @ 12.08 hrs, Volume= 0.104 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 9.19' @ 12.08 hrs

Flood Elev= 14.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.06'	<b>8.0" Round Culvert</b> L= 52.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 8.06' / 7.67' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

**Primary OutFlow** Max=1.3 cfs @ 12.08 hrs HW=9.19' TW=6.69' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 1.3 cfs @ 3.75 fps)**Summary for Pond 31P:**

[80] Warning: Exceeded Pond 34P by 0.03' @ 12.03 hrs (0.6 cfs 0.005 af)

Inflow Area = 1.485 ac, 78.14% Impervious, Inflow Depth = 2.03" for 2-yr event  
Inflow = 3.4 cfs @ 12.09 hrs, Volume= 0.251 af  
Outflow = 3.4 cfs @ 12.09 hrs, Volume= 0.251 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.4 cfs @ 12.09 hrs, Volume= 0.251 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 8.35' @ 12.09 hrs

Flood Elev= 11.42'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.54'	<b>18.0" Round Culvert</b> L= 3.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 6.54' / 6.52' S= 0.0067 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

**Primary OutFlow** Max=3.4 cfs @ 12.09 hrs HW=8.35' TW=8.18' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 3.4 cfs @ 1.94 fps)

**Summary for Pond 32P:**

Inflow Area = 1.301 ac, 75.06% Impervious, Inflow Depth = 1.93" for 2-yr event  
 Inflow = 2.9 cfs @ 12.09 hrs, Volume= 0.209 af  
 Outflow = 2.9 cfs @ 12.09 hrs, Volume= 0.209 af, Atten= 0%, Lag= 0.0 min  
 Primary = 2.9 cfs @ 12.09 hrs, Volume= 0.209 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 8.59' @ 12.09 hrs

Flood Elev= 11.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.29'	<b>18.0" Round Culvert</b> L= 102.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 7.29' / 6.56' S= 0.0072 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

**Primary OutFlow** Max=2.9 cfs @ 12.09 hrs HW=8.59' TW=8.35' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 2.9 cfs @ 2.36 fps)

**Summary for Pond 34P:**

Inflow Area = 0.183 ac, 100.00% Impervious, Inflow Depth = 2.77" for 2-yr event  
 Inflow = 0.5 cfs @ 12.08 hrs, Volume= 0.042 af  
 Outflow = 0.5 cfs @ 12.08 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.5 cfs @ 12.08 hrs, Volume= 0.042 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 8.37' @ 12.09 hrs

Flood Elev= 11.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.69'	<b>12.0" Round Culvert</b> L= 26.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 6.69' / 6.56' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.4 cfs @ 12.08 hrs HW=8.36' TW=8.35' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 0.4 cfs @ 0.52 fps)

**Summary for Pond 35P:**

Inflow Area = 0.995 ac, 76.29% Impervious, Inflow Depth = 1.89" for 2-yr event  
 Inflow = 2.2 cfs @ 12.09 hrs, Volume= 0.157 af  
 Outflow = 2.2 cfs @ 12.09 hrs, Volume= 0.157 af, Atten= 0%, Lag= 0.0 min  
 Primary = 2.2 cfs @ 12.09 hrs, Volume= 0.157 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 9.57' @ 12.09 hrs

Flood Elev= 13.35'

**Marriott Courtyard Portland Post Revised**

Type III 24-hr 2-yr Rainfall=3.00"

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Device	Routing	Invert	Outlet Devices
#1	Primary	8.79'	<b>18.0" Round Culvert</b> L= 137.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 8.79' / 7.83' S= 0.0070 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

**Primary OutFlow** Max=2.2 cfs @ 12.09 hrs HW=9.57' TW=8.81' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 2.2 cfs @ 3.42 fps)**Summary for Pond 36P:**

Inflow Area = 0.121 ac, 61.88% Impervious, Inflow Depth = 1.90" for 2-yr event  
 Inflow = 0.3 cfs @ 12.09 hrs, Volume= 0.019 af  
 Outflow = 0.3 cfs @ 12.09 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.3 cfs @ 12.09 hrs, Volume= 0.019 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 8.82' @ 12.09 hrs

Flood Elev= 13.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.99'	<b>12.0" Round Culvert</b> L= 16.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 7.99' / 7.83' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.3 cfs @ 12.09 hrs HW=8.81' TW=8.81' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 0.3 cfs @ 0.50 fps)**Summary for Pond 37P:**

Inflow Area = 0.186 ac, 77.04% Impervious, Inflow Depth = 2.16" for 2-yr event  
 Inflow = 0.5 cfs @ 12.09 hrs, Volume= 0.033 af  
 Outflow = 0.5 cfs @ 12.09 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.5 cfs @ 12.09 hrs, Volume= 0.033 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 8.61' @ 12.09 hrs

Flood Elev= 11.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.48'	<b>12.0" Round Culvert</b> L= 9.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 7.48' / 7.39' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.4 cfs @ 12.09 hrs HW=8.60' TW=8.59' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 0.4 cfs @ 0.53 fps)



**Summary for Pond 39P:**

Inflow Area = 0.280 ac, 71.03% Impervious, Inflow Depth = 2.07" for 2-yr event  
Inflow = 0.7 cfs @ 12.09 hrs, Volume= 0.048 af  
Outflow = 0.7 cfs @ 12.09 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.7 cfs @ 12.09 hrs, Volume= 0.048 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 9.84' @ 12.09 hrs

Flood Elev= 13.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.33'	<b>12.0" Round Culvert</b> L= 44.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 9.33' / 8.89' S= 0.0100 ' / Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.7 cfs @ 12.09 hrs HW=9.84' TW=9.57' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 0.7 cfs @ 2.41 fps)

**Summary for Link DP1:**

Inflow Area = 2.089 ac, 84.47% Impervious, Inflow Depth = 2.25" for 2-yr event  
Inflow = 5.2 cfs @ 12.09 hrs, Volume= 0.391 af  
Primary = 5.2 cfs @ 12.09 hrs, Volume= 0.391 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

**Summary for Link DP2:**

Inflow Area = 0.344 ac, 100.00% Impervious, Inflow Depth = 2.77" for 2-yr event  
Inflow = 1.0 cfs @ 12.08 hrs, Volume= 0.079 af  
Primary = 1.0 cfs @ 12.08 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

## **Proposed 10-Year Storm Event**

**Marriott Courtyard Portland Post Revised**

Type III 24-hr 10-yr Rainfall=4.70"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points x 3

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment10:</b>	Runoff Area=16,540 sf 76.80% Impervious Runoff Depth=3.49" Tc=6.0 min CN=89 Runoff=1.5 cfs 0.110 af
<b>Subcatchment10A:</b>	Runoff Area=12,940 sf 77.53% Impervious Runoff Depth=3.09" Tc=6.0 min CN=85 Runoff=1.1 cfs 0.077 af
<b>Subcatchment10B:</b>	Runoff Area=1,106 sf 100.00% Impervious Runoff Depth=4.46" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.009 af
<b>Subcatchment10C:</b>	Runoff Area=571 sf 100.00% Impervious Runoff Depth=4.46" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.005 af
<b>Subcatchment20:</b>	Runoff Area=14,969 sf 100.00% Impervious Runoff Depth=4.46" Tc=6.0 min CN=98 Runoff=1.6 cfs 0.128 af
<b>Subcatchment30:</b>	Runoff Area=6,682 sf 100.00% Impervious Runoff Depth=4.46" Tc=6.0 min CN=98 Runoff=0.7 cfs 0.057 af
<b>Subcatchment31:</b>	Runoff Area=8,082 sf 77.04% Impervious Runoff Depth=3.80" Tc=6.0 min CN=92 Runoff=0.8 cfs 0.059 af
<b>Subcatchment32:</b>	Runoff Area=5,262 sf 61.88% Impervious Runoff Depth=3.49" Tc=6.0 min CN=89 Runoff=0.5 cfs 0.035 af
<b>Subcatchment40:</b>	Runoff Area=7,991 sf 100.00% Impervious Runoff Depth=4.46" Tc=6.0 min CN=98 Runoff=0.8 cfs 0.068 af
<b>Subcatchment50:</b>	Runoff Area=19,662 sf 100.00% Impervious Runoff Depth=4.46" Tc=6.0 min CN=98 Runoff=2.1 cfs 0.168 af
<b>Subcatchment51:</b>	Runoff Area=12,178 sf 71.03% Impervious Runoff Depth=3.69" Tc=6.0 min CN=91 Runoff=1.2 cfs 0.086 af
<b>Pond 1P:</b>	Peak Elev=11.24' Inflow=2.8 cfs 0.201 af 15.0" Round Culvert n=0.012 L=15.0' S=0.0447 '/' Outflow=2.8 cfs 0.201 af
<b>Pond 2P:</b>	Peak Elev=9.62' Inflow=0.7 cfs 0.057 af 12.0" Round Culvert n=0.012 L=48.0' S=0.0056 '/' Outflow=0.7 cfs 0.057 af
<b>Pond 3P:</b>	Peak Elev=10.76' Inflow=4.4 cfs 0.322 af 18.0" Round Culvert n=0.012 L=47.0' S=0.0072 '/' Outflow=4.4 cfs 0.322 af
<b>Pond 5P:</b>	Peak Elev=7.08' Inflow=1.6 cfs 0.128 af 12.0" Round Culvert n=0.012 L=15.0' S=0.0153 '/' Outflow=1.6 cfs 0.128 af
<b>Pond 6P:</b>	Peak Elev=7.06' Inflow=2.1 cfs 0.168 af 18.0" Round Culvert n=0.012 L=75.0' S=0.0073 '/' Outflow=2.1 cfs 0.168 af

**Marriott Courtyard Portland Post Revised***Type III 24-hr 10-yr Rainfall=4.70"*

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<b>Pond 7P:</b>	Peak Elev=6.88' Inflow=8.8 cfs 0.674 af 24.0" Round Culvert n=0.012 L=44.0' S=0.0052 '/' Outflow=8.8 cfs 0.674 af
<b>Pond 8P:</b>	Peak Elev=9.58' Inflow=6.7 cfs 0.506 af 18.0" Round Culvert n=0.012 L=150.0' S=0.0010 '/' Outflow=6.7 cfs 0.506 af
<b>Pond 9P:</b>	Peak Elev=14.84' Inflow=1.2 cfs 0.091 af 12.0" Round Culvert n=0.012 L=32.0' S=0.0156 '/' Outflow=1.2 cfs 0.091 af
<b>Pond 10P:</b>	Peak Elev=17.20' Inflow=0.2 cfs 0.014 af 12.0" Round Culvert n=0.012 L=101.0' S=0.0272 '/' Outflow=0.2 cfs 0.014 af
<b>Pond 11P:</b>	Peak Elev=21.12' Inflow=0.1 cfs 0.005 af 12.0" Round Culvert n=0.012 L=34.0' S=0.1176 '/' Outflow=0.1 cfs 0.005 af
<b>Pond 12P:</b>	Peak Elev=8.72' Inflow=6.7 cfs 0.506 af 18.0" Round Culvert n=0.012 L=145.0' S=-0.0003 '/' Outflow=6.7 cfs 0.506 af
<b>Pond 22P:</b>	Peak Elev=10.47' Inflow=2.1 cfs 0.168 af 8.0" Round Culvert n=0.012 L=52.0' S=0.0075 '/' Outflow=2.1 cfs 0.168 af
<b>Pond 31P:</b>	Peak Elev=10.09' Inflow=6.0 cfs 0.449 af 18.0" Round Culvert n=0.012 L=3.0' S=0.0067 '/' Outflow=6.0 cfs 0.449 af
<b>Pond 32P:</b>	Peak Elev=10.49' Inflow=5.2 cfs 0.381 af 18.0" Round Culvert n=0.012 L=102.0' S=0.0072 '/' Outflow=5.2 cfs 0.381 af
<b>Pond 34P:</b>	Peak Elev=10.13' Inflow=0.8 cfs 0.068 af 12.0" Round Culvert n=0.012 L=26.0' S=0.0050 '/' Outflow=0.8 cfs 0.068 af
<b>Pond 35P:</b>	Peak Elev=11.04' Inflow=3.9 cfs 0.287 af 18.0" Round Culvert n=0.012 L=137.0' S=0.0070 '/' Outflow=3.9 cfs 0.287 af
<b>Pond 36P:</b>	Peak Elev=10.78' Inflow=0.5 cfs 0.035 af 12.0" Round Culvert n=0.012 L=16.0' S=0.0100 '/' Outflow=0.5 cfs 0.035 af
<b>Pond 37P:</b>	Peak Elev=10.54' Inflow=0.8 cfs 0.059 af 12.0" Round Culvert n=0.012 L=9.0' S=0.0100 '/' Outflow=0.8 cfs 0.059 af
<b>Pond 39P:</b>	Peak Elev=11.12' Inflow=1.2 cfs 0.086 af 12.0" Round Culvert n=0.012 L=44.0' S=0.0100 '/' Outflow=1.2 cfs 0.086 af
<b>Link DP1:</b>	Inflow=8.8 cfs 0.674 af Primary=8.8 cfs 0.674 af
<b>Link DP2:</b>	Inflow=1.6 cfs 0.128 af Primary=1.6 cfs 0.128 af

**Total Runoff Area = 2.433 ac Runoff Volume = 0.802 af Average Runoff Depth = 3.96"**  
**13.34% Pervious = 0.324 ac 86.66% Impervious = 2.109 ac**

## **Proposed 25-Year Storm Event**

**Marriott Courtyard Portland Post Revised***Type III 24-hr 25-yr Rainfall=5.50"*

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points x 3

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment10:</b>	Runoff Area=16,540 sf 76.80% Impervious Runoff Depth=4.25" Tc=6.0 min CN=89 Runoff=1.8 cfs 0.135 af
<b>Subcatchment10A:</b>	Runoff Area=12,940 sf 77.53% Impervious Runoff Depth=3.83" Tc=6.0 min CN=85 Runoff=1.3 cfs 0.095 af
<b>Subcatchment10B:</b>	Runoff Area=1,106 sf 100.00% Impervious Runoff Depth=5.26" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.011 af
<b>Subcatchment10C:</b>	Runoff Area=571 sf 100.00% Impervious Runoff Depth=5.26" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.006 af
<b>Subcatchment20:</b>	Runoff Area=14,969 sf 100.00% Impervious Runoff Depth=5.26" Tc=6.0 min CN=98 Runoff=1.9 cfs 0.151 af
<b>Subcatchment30:</b>	Runoff Area=6,682 sf 100.00% Impervious Runoff Depth=5.26" Tc=6.0 min CN=98 Runoff=0.8 cfs 0.067 af
<b>Subcatchment31:</b>	Runoff Area=8,082 sf 77.04% Impervious Runoff Depth=4.58" Tc=6.0 min CN=92 Runoff=0.9 cfs 0.071 af
<b>Subcatchment32:</b>	Runoff Area=5,262 sf 61.88% Impervious Runoff Depth=4.25" Tc=6.0 min CN=89 Runoff=0.6 cfs 0.043 af
<b>Subcatchment40:</b>	Runoff Area=7,991 sf 100.00% Impervious Runoff Depth=5.26" Tc=6.0 min CN=98 Runoff=1.0 cfs 0.080 af
<b>Subcatchment50:</b>	Runoff Area=19,662 sf 100.00% Impervious Runoff Depth=5.26" Tc=6.0 min CN=98 Runoff=2.4 cfs 0.198 af
<b>Subcatchment51:</b>	Runoff Area=12,178 sf 71.03% Impervious Runoff Depth=4.47" Tc=6.0 min CN=91 Runoff=1.4 cfs 0.104 af
<b>Pond 1P:</b>	Peak Elev=12.75' Inflow=3.4 cfs 0.246 af 15.0" Round Culvert n=0.012 L=15.0' S=0.0447 '/' Outflow=3.4 cfs 0.246 af
<b>Pond 2P:</b>	Peak Elev=10.38' Inflow=0.8 cfs 0.067 af 12.0" Round Culvert n=0.012 L=48.0' S=0.0056 '/' Outflow=0.8 cfs 0.067 af
<b>Pond 3P:</b>	Peak Elev=12.04' Inflow=5.3 cfs 0.393 af 18.0" Round Culvert n=0.012 L=47.0' S=0.0072 '/' Outflow=5.3 cfs 0.393 af
<b>Pond 5P:</b>	Peak Elev=7.15' Inflow=1.9 cfs 0.151 af 12.0" Round Culvert n=0.012 L=15.0' S=0.0153 '/' Outflow=1.9 cfs 0.151 af
<b>Pond 6P:</b>	Peak Elev=7.23' Inflow=2.4 cfs 0.198 af 18.0" Round Culvert n=0.012 L=75.0' S=0.0073 '/' Outflow=2.4 cfs 0.198 af

**Marriott Courtyard Portland Post Revised***Type III 24-hr 25-yr Rainfall=5.50"*

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<b>Pond 7P:</b>	Peak Elev=7.07' Inflow=10.5 cfs 0.810 af 24.0" Round Culvert n=0.012 L=44.0' S=0.0052 '/' Outflow=10.5 cfs 0.810 af
<b>Pond 8P:</b>	Peak Elev=10.33' Inflow=8.1 cfs 0.612 af 18.0" Round Culvert n=0.012 L=150.0' S=0.0010 '/' Outflow=8.1 cfs 0.612 af
<b>Pond 9P:</b>	Peak Elev=14.91' Inflow=1.5 cfs 0.112 af 12.0" Round Culvert n=0.012 L=32.0' S=0.0156 '/' Outflow=1.5 cfs 0.112 af
<b>Pond 10P:</b>	Peak Elev=17.22' Inflow=0.2 cfs 0.017 af 12.0" Round Culvert n=0.012 L=101.0' S=0.0272 '/' Outflow=0.2 cfs 0.017 af
<b>Pond 11P:</b>	Peak Elev=21.13' Inflow=0.1 cfs 0.006 af 12.0" Round Culvert n=0.012 L=34.0' S=0.1176 '/' Outflow=0.1 cfs 0.006 af
<b>Pond 12P:</b>	Peak Elev=9.09' Inflow=8.1 cfs 0.612 af 18.0" Round Culvert n=0.012 L=145.0' S=-0.0003 '/' Outflow=8.1 cfs 0.612 af
<b>Pond 22P:</b>	Peak Elev=11.27' Inflow=2.4 cfs 0.198 af 8.0" Round Culvert n=0.012 L=52.0' S=0.0075 '/' Outflow=2.4 cfs 0.198 af
<b>Pond 31P:</b>	Peak Elev=11.06' Inflow=7.3 cfs 0.544 af 18.0" Round Culvert n=0.012 L=3.0' S=0.0067 '/' Outflow=7.3 cfs 0.544 af
<b>Pond 32P:</b>	Peak Elev=11.65' Inflow=6.3 cfs 0.464 af 18.0" Round Culvert n=0.012 L=102.0' S=0.0072 '/' Outflow=6.3 cfs 0.464 af
<b>Pond 34P:</b>	Peak Elev=11.12' Inflow=1.0 cfs 0.080 af 12.0" Round Culvert n=0.012 L=26.0' S=0.0050 '/' Outflow=1.0 cfs 0.080 af
<b>Pond 35P:</b>	Peak Elev=12.45' Inflow=4.7 cfs 0.350 af 18.0" Round Culvert n=0.012 L=137.0' S=0.0070 '/' Outflow=4.7 cfs 0.350 af
<b>Pond 36P:</b>	Peak Elev=12.07' Inflow=0.6 cfs 0.043 af 12.0" Round Culvert n=0.012 L=16.0' S=0.0100 '/' Outflow=0.6 cfs 0.043 af
<b>Pond 37P:</b>	Peak Elev=11.71' Inflow=0.9 cfs 0.071 af 12.0" Round Culvert n=0.012 L=9.0' S=0.0100 '/' Outflow=0.9 cfs 0.071 af
<b>Pond 39P:</b>	Peak Elev=12.57' Inflow=1.4 cfs 0.104 af 12.0" Round Culvert n=0.012 L=44.0' S=0.0100 '/' Outflow=1.4 cfs 0.104 af
<b>Link DP1:</b>	Inflow=10.5 cfs 0.810 af Primary=10.5 cfs 0.810 af
<b>Link DP2:</b>	Inflow=1.9 cfs 0.151 af Primary=1.9 cfs 0.151 af

**Total Runoff Area = 2.433 ac Runoff Volume = 0.960 af Average Runoff Depth = 4.74"**  
**13.34% Pervious = 0.324 ac 86.66% Impervious = 2.109 ac**