

Design Memorandum

To: Rob Twombly, Casco Bay Quality Homes

From: Jason A Vafiades, PE LEED AP

cc: n/a

Date: December 4th, 2016

Re: 127 Bramblewood Drive, Portland, Maine – Residential Site Plan and Design

Rob,

With respect to the above-referenced project, we have designed your residential lot after a review of the City of Portland Land Use Ordinances and the design parameters as outlined in the City of Portland Level I – Minor Residential Development Review Application.

We have provided a design that meets the following criteria:

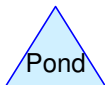
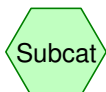
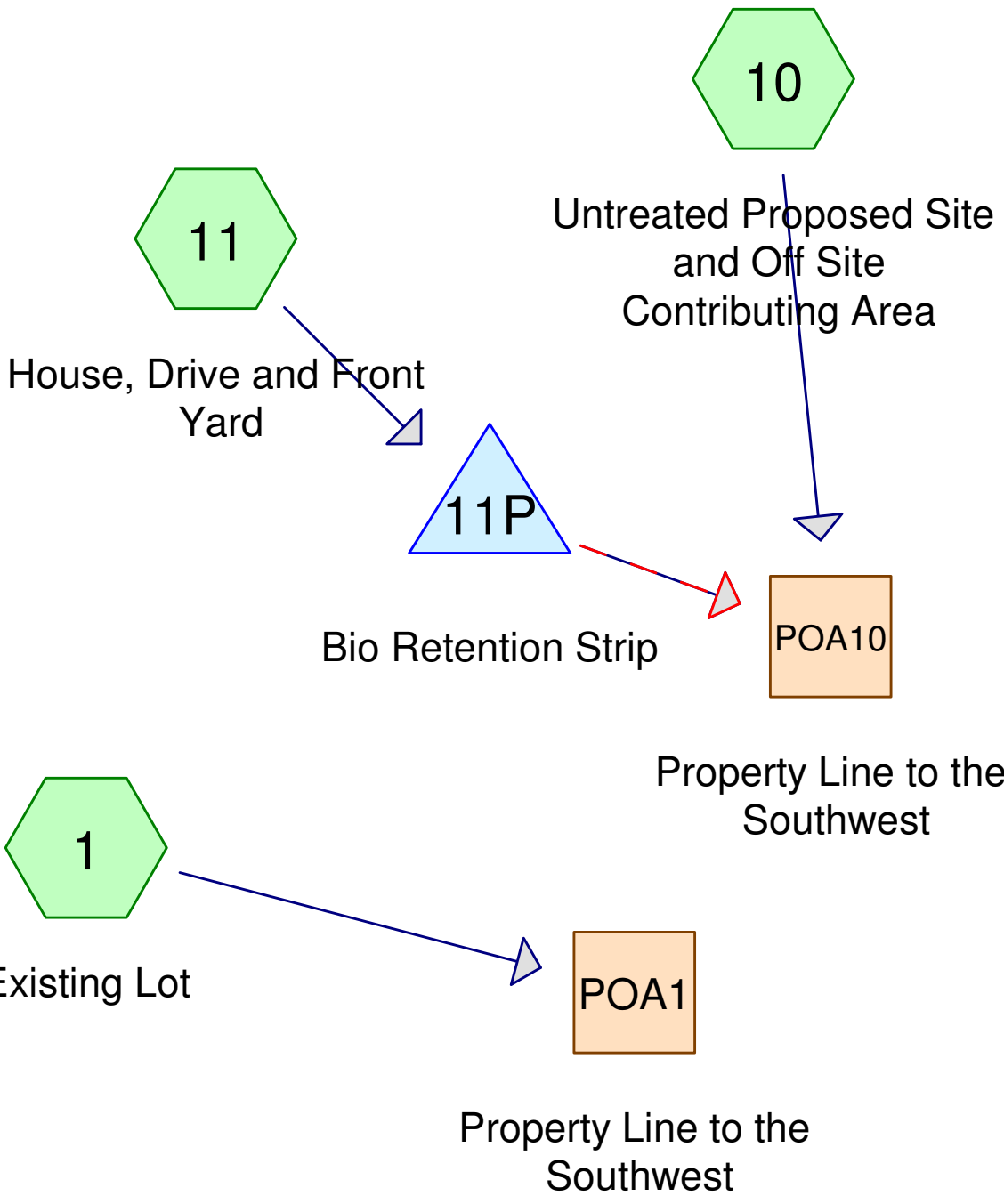
14-526(a) Transportation Standards – parking is sufficient for over 2 vehicles (2 car garage with room to turn around within property). A sidewalk is in existence and a new curb cut has been designed to the City's standard driveway entrance detail.

14-526(b) Environmental Quality Standards – The site has been designed to mitigate environmental impacts by providing for the MDEP's Basic and General standards, including BMP measures to treat 100% of the impervious area (a roof drip edge and bio-retention swale). The attached stormwater modeling and associated materials will be beneficial for the homeowner after construction for the use of mitigating the City's Stormwater Tax. Also, landscaping has been provided with two street trees.

14-526(c) Public Infrastructure and Community Safety Standards – all public utility mains were in existence within the Bramblewood right of way. We have endeavored to make the most logical connections possible, but the utility authorities will coordinate these services with the contractor.

14-526(d) Site Design Standards – The property does not lie within the Historic Zone and has been designed in accordance with the R-2 Zoning standards.

We trust the attached documents, when coupled with the Residential Site Plan is sufficient for the purposes of obtaining a building permit. Please do not hesitate to contact me at your earliest convenience should there be any questions.



Routing Diagram for Bramblewood Pre and Post Conditions
 Prepared by Atlantic Resource Consultants, Printed 12/5/2016
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Bramblewood Pre and Post Conditions

Type III 24-hr 1 INCH Rainfall=1.00"

Prepared by Atlantic Resource Consultants

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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 1: Existing Lot

Runoff Area=19,730 sf 5.35% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=42 Runoff=0.00 cfs 0.000 af

Subcatchment 10: Untreated Proposed Site and Off

Runoff Area=5,290 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=1,350' Tc=60.1 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment 11: House, Drive and Front Yard

Runoff Area=14,440 sf 22.37% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=52 Runoff=0.00 cfs 0.000 af

Reach POA1: Property Line to the Southwest

Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach POA10: Property Line to the Southwest

Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 11P: Bio Retention Strip

Peak Elev=133.99' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Total Runoff Area = 0.906 ac Runoff Volume = 0.000 af Average Runoff Depth = 0.00"
89.14% Pervious = 0.808 ac 10.86% Impervious = 0.098 ac

Bramblewood Pre and Post Conditions

Type III 24-hr 1 INCH Rainfall=1.00"

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Summary for Subcatchment 1: Existing Lot

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

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 1 INCH Rainfall=1.00"

Area (sf)	CN	Description
6,850	39	>75% Grass cover, Good, HSG A
* 875	98	Inground Pool
* 180	98	Pool House
11,825	39	>75% Grass cover, Good, HSG A
19,730	42	Weighted Average
18,675		94.65% Pervious Area
1,055		5.35% Impervious Area

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

Summary for Subcatchment 10: Untreated Proposed Site and Off Site Contributing Area

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

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 1 INCH Rainfall=1.00"

Area (sf)	CN	Description
* 2,500	39	Offsite >75% Grass cover, Good, HSG A
* 2,790	39	New Landscape and Lawn
5,290	39	Weighted Average
5,290		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	50	0.0200	0.07		Sheet Flow, A to B Woods: Light underbrush n= 0.400 P2= 3.10"
7.5	450	0.0400	1.00		Shallow Concentrated Flow, B to C Woodland Kv= 5.0 fps
40.1	850	0.0050	0.35		Shallow Concentrated Flow, C to D Woodland Kv= 5.0 fps
60.1	1,350	Total			

Summary for Subcatchment 11: House, Drive and Front Yard

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

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 1 INCH Rainfall=1.00"

Bramblewood Pre and Post Conditions

Type III 24-hr 1 INCH Rainfall=1.00"

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Area (sf)	CN	Description
* 4,350	39	OFFISITE >75% Grass cover, Good, HSG A
* 1,260	98	New House
* 1,970	98	New Driveway
* 6,860	39	New Landscaped Lawn
14,440	52	Weighted Average
11,210		77.63% Pervious Area
3,230		22.37% Impervious Area

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

Summary for Reach POA1: Property Line to the Southwest

Inflow Area = 0.453 ac, 5.35% Impervious, Inflow Depth = 0.00" for 1 INCH event
 Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach POA10: Property Line to the Southwest

Inflow Area = 0.453 ac, 16.37% Impervious, Inflow Depth = 0.00" for 1 INCH event
 Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 11P: Bio Retention Strip

Inflow Area = 0.331 ac, 22.37% Impervious, Inflow Depth = 0.00" for 1 INCH event
 Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 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= 133.99' @ 5.00 hrs Surf.Area= 980 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	133.99'	3,603 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Bramblewood Pre and Post Conditions

Type III 24-hr 1 INCH Rainfall=1.00"

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Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
133.99	980	0.0	0	0
134.00	980	15.0	1	1
134.99	980	15.0	146	147
135.00	980	10.0	1	148
136.49	980	10.0	146	294
136.50	980	100.0	10	304
137.00	1,250	100.0	558	861
137.50	1,595	100.0	711	1,573
138.00	6,525	100.0	2,030	3,603

Device	Routing	Invert	Outlet Devices
#1	Discarded	133.99'	3.00 cfs Exfiltration at all elevations
#2	Primary	134.50'	6.0" Round Culvert L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 134.50' / 133.70' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Secondary	137.50'	6.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.00 cfs @ 5.00 hrs HW=133.99' (Free Discharge)

↑1=Exfiltration (Passes 0.00 cfs of 3.00 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=133.99' (Free Discharge)

↑2=Culvert (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=133.99' (Free Discharge)

↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Bramblewood Pre and Post Conditions

Type III 24-hr 2 Year Rainfall=3.00"

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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 1: Existing Lot

Runoff Area=19,730 sf 5.35% Impervious Runoff Depth>0.00"
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Subcatchment 10: Untreated Proposed Site and Off

Runoff Area=5,290 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=1,350' Tc=60.1 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment 11: House, Drive and Front Yard

Runoff Area=14,440 sf 22.37% Impervious Runoff Depth>0.10"
Tc=5.0 min CN=52 Runoff=0.01 cfs 0.003 af

Reach POA1: Property Line to the Southwest

Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach POA10: Property Line to the Southwest

Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 11P: Bio Retention Strip

Peak Elev=133.99' Storage=0 cf Inflow=0.01 cfs 0.003 af
Discarded=0.01 cfs 0.003 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.003 af

Total Runoff Area = 0.906 ac Runoff Volume = 0.003 af Average Runoff Depth = 0.04"
89.14% Pervious = 0.808 ac 10.86% Impervious = 0.098 ac

Bramblewood Pre and Post Conditions

Type III 24-hr 2 Year Rainfall=3.00"

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Summary for Subcatchment 1: Existing Lot

Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Depth> 0.00"

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=3.00"

Area (sf)	CN	Description
6,850	39	>75% Grass cover, Good, HSG A
* 875	98	Inground Pool
* 180	98	Pool House
11,825	39	>75% Grass cover, Good, HSG A
19,730	42	Weighted Average
18,675		94.65% Pervious Area
1,055		5.35% Impervious Area

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

Summary for Subcatchment 10: Untreated Proposed Site and Off Site Contributing Area

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

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=3.00"

Area (sf)	CN	Description
* 2,500	39	Offsite >75% Grass cover, Good, HSG A
* 2,790	39	New Landscape and Lawn
5,290	39	Weighted Average
5,290		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	50	0.0200	0.07		Sheet Flow, A to B Woods: Light underbrush n= 0.400 P2= 3.10"
7.5	450	0.0400	1.00		Shallow Concentrated Flow, B to C Woodland Kv= 5.0 fps
40.1	850	0.0050	0.35		Shallow Concentrated Flow, C to D Woodland Kv= 5.0 fps
60.1	1,350	Total			

Summary for Subcatchment 11: House, Drive and Front Yard

Runoff = 0.01 cfs @ 12.45 hrs, Volume= 0.003 af, Depth> 0.10"

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=3.00"

Bramblewood Pre and Post Conditions

Type III 24-hr 2 Year Rainfall=3.00"

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Area (sf)	CN	Description
* 4,350	39	OFFISITE >75% Grass cover, Good, HSG A
* 1,260	98	New House
* 1,970	98	New Driveway
* 6,860	39	New Landscaped Lawn
14,440	52	Weighted Average
11,210		77.63% Pervious Area
3,230		22.37% Impervious Area

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

Summary for Reach POA1: Property Line to the Southwest

Inflow Area = 0.453 ac, 5.35% Impervious, Inflow Depth > 0.00" for 2 Year event
 Inflow = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach POA10: Property Line to the Southwest

Inflow Area = 0.453 ac, 16.37% Impervious, Inflow Depth = 0.00" for 2 Year event
 Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 11P: Bio Retention Strip

Inflow Area = 0.331 ac, 22.37% Impervious, Inflow Depth > 0.10" for 2 Year event
 Inflow = 0.01 cfs @ 12.45 hrs, Volume= 0.003 af
 Outflow = 0.01 cfs @ 12.45 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 12.45 hrs, Volume= 0.003 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 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= 133.99' @ 12.45 hrs Surf.Area= 980 sf Storage= 0 cf

Plug-Flow detention time= 0.0 min calculated for 0.003 af (100% of inflow)
 Center-of-Mass det. time= 0.0 min (923.4 - 923.4)

Volume	Invert	Avail.Storage	Storage Description
#1	133.99'	3,603 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Bramblewood Pre and Post Conditions

Type III 24-hr 2 Year Rainfall=3.00"

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Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
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134.00	980	15.0	1	1
134.99	980	15.0	146	147
135.00	980	10.0	1	148
136.49	980	10.0	146	294
136.50	980	100.0	10	304
137.00	1,250	100.0	558	861
137.50	1,595	100.0	711	1,573
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#3	Secondary	137.50'	6.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=3.00 cfs @ 12.45 hrs HW=133.99' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 3.00 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=133.99' (Free Discharge)
 ↑2=Culvert (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=133.99' (Free Discharge)
 ↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Bramblewood Pre and Post Conditions

Type III 24-hr 10 Year Rainfall=4.60"

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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 1: Existing Lot

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Tc=5.0 min CN=42 Runoff=0.02 cfs 0.007 af

Subcatchment 10: Untreated Proposed Site and Off

Runoff Area=5,290 sf 0.00% Impervious Runoff Depth>0.09"
Flow Length=1,350' Tc=60.1 min CN=39 Runoff=0.00 cfs 0.001 af

Subcatchment 11: House, Drive and Front Yard

Runoff Area=14,440 sf 22.37% Impervious Runoff Depth>0.55"
Tc=5.0 min CN=52 Runoff=0.16 cfs 0.015 af

Reach POA1: Property Line to the Southwest

Inflow=0.02 cfs 0.007 af
Outflow=0.02 cfs 0.007 af

Reach POA10: Property Line to the Southwest

Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Pond 11P: Bio Retention Strip

Peak Elev=133.99' Storage=0 cf Inflow=0.16 cfs 0.015 af
Discarded=0.16 cfs 0.015 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.16 cfs 0.015 af

Total Runoff Area = 0.906 ac Runoff Volume = 0.023 af Average Runoff Depth = 0.30"
89.14% Pervious = 0.808 ac 10.86% Impervious = 0.098 ac

Bramblewood Pre and Post Conditions

Type III 24-hr 10 Year Rainfall=4.60"

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Summary for Subcatchment 1: Existing Lot

Runoff = 0.02 cfs @ 12.42 hrs, Volume= 0.007 af, Depth> 0.17"

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
6,850	39	>75% Grass cover, Good, HSG A
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1,055		5.35% Impervious Area

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

Summary for Subcatchment 10: Untreated Proposed Site and Off Site Contributing Area

Runoff = 0.00 cfs @ 15.40 hrs, Volume= 0.001 af, Depth> 0.09"

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
* 2,500	39	Offsite >75% Grass cover, Good, HSG A
* 2,790	39	New Landscape and Lawn
5,290	39	Weighted Average
5,290		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	50	0.0200	0.07		Sheet Flow, A to B Woods: Light underbrush n= 0.400 P2= 3.10"
7.5	450	0.0400	1.00		Shallow Concentrated Flow, B to C Woodland Kv= 5.0 fps
40.1	850	0.0050	0.35		Shallow Concentrated Flow, C to D Woodland Kv= 5.0 fps
60.1	1,350	Total			

Summary for Subcatchment 11: House, Drive and Front Yard

Runoff = 0.16 cfs @ 12.11 hrs, Volume= 0.015 af, Depth> 0.55"

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"

Bramblewood Pre and Post Conditions

Type III 24-hr 10 Year Rainfall=4.60"

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

Summary for Reach POA1: Property Line to the Southwest

Inflow Area = 0.453 ac, 5.35% Impervious, Inflow Depth > 0.17" for 10 Year event
 Inflow = 0.02 cfs @ 12.42 hrs, Volume= 0.007 af
 Outflow = 0.02 cfs @ 12.42 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach POA10: Property Line to the Southwest

Inflow Area = 0.453 ac, 16.37% Impervious, Inflow Depth > 0.02" for 10 Year event
 Inflow = 0.00 cfs @ 15.40 hrs, Volume= 0.001 af
 Outflow = 0.00 cfs @ 15.40 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 11P: Bio Retention Strip

Inflow Area = 0.331 ac, 22.37% Impervious, Inflow Depth > 0.55" for 10 Year event
 Inflow = 0.16 cfs @ 12.11 hrs, Volume= 0.015 af
 Outflow = 0.16 cfs @ 12.11 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.16 cfs @ 12.11 hrs, Volume= 0.015 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 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= 133.99' @ 12.11 hrs Surf.Area= 980 sf Storage= 0 cf

Plug-Flow detention time= 0.0 min calculated for 0.015 af (100% of inflow)
 Center-of-Mass det. time= 0.0 min (856.6 - 856.6)

Volume	Invert	Avail.Storage	Storage Description
#1	133.99'	3,603 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Bramblewood Pre and Post Conditions

Type III 24-hr 10 Year Rainfall=4.60"

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Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
133.99	980	0.0	0	0
134.00	980	15.0	1	1
134.99	980	15.0	146	147
135.00	980	10.0	1	148
136.49	980	10.0	146	294
136.50	980	100.0	10	304
137.00	1,250	100.0	558	861
137.50	1,595	100.0	711	1,573
138.00	6,525	100.0	2,030	3,603

Device	Routing	Invert	Outlet Devices
#1	Discarded	133.99'	3.00 cfs Exfiltration at all elevations
#2	Primary	134.50'	6.0" Round Culvert L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 134.50' / 133.70' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Secondary	137.50'	6.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=3.00 cfs @ 12.11 hrs HW=133.99' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 3.00 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=133.99' (Free Discharge)
 ↑2=Culvert (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=133.99' (Free Discharge)
 ↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Bramblewood Pre and Post Conditions

Type III 24-hr 25 Year Rainfall=5.40"

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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 1: Existing Lot Runoff Area=19,730 sf 5.35% Impervious Runoff Depth>0.36"
Tc=5.0 min CN=42 Runoff=0.08 cfs 0.013 af

Subcatchment 10: Untreated Proposed Site and Off Runoff Area=5,290 sf 0.00% Impervious Runoff Depth>0.22"
Flow Length=1,350' Tc=60.1 min CN=39 Runoff=0.01 cfs 0.002 af

Subcatchment 11: House, Drive and Front Yard Runoff Area=14,440 sf 22.37% Impervious Runoff Depth>0.88"
Tc=5.0 min CN=52 Runoff=0.30 cfs 0.024 af

Reach POA1: Property Line to the Southwest Inflow=0.08 cfs 0.013 af
Outflow=0.08 cfs 0.013 af

Reach POA10: Property Line to the Southwest Inflow=0.01 cfs 0.002 af
Outflow=0.01 cfs 0.002 af

Pond 11P: Bio Retention Strip Peak Elev=133.99' Storage=0 cf Inflow=0.30 cfs 0.024 af
Discarded=0.30 cfs 0.024 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.30 cfs 0.024 af

Total Runoff Area = 0.906 ac Runoff Volume = 0.040 af Average Runoff Depth = 0.53"
89.14% Pervious = 0.808 ac 10.86% Impervious = 0.098 ac

Bramblewood Pre and Post Conditions

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Type III 24-hr 25 Year Rainfall=5.40"

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Summary for Subcatchment 1: Existing Lot

Runoff = 0.08 cfs @ 12.32 hrs, Volume= 0.013 af, Depth> 0.36"

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=5.40"

Area (sf)	CN	Description
6,850	39	>75% Grass cover, Good, HSG A
* 875	98	Inground Pool
* 180	98	Pool House
11,825	39	>75% Grass cover, Good, HSG A
19,730	42	Weighted Average
18,675		94.65% Pervious Area
1,055		5.35% Impervious Area

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

Summary for Subcatchment 10: Untreated Proposed Site and Off Site Contributing Area

Runoff = 0.01 cfs @ 13.43 hrs, Volume= 0.002 af, Depth> 0.22"

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 25 Year Rainfall=5.40"

Area (sf)	CN	Description
* 2,500	39	Offsite >75% Grass cover, Good, HSG A
* 2,790	39	New Landscape and Lawn
5,290	39	Weighted Average
5,290		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	50	0.0200	0.07		Sheet Flow, A to B Woods: Light underbrush n= 0.400 P2= 3.10"
7.5	450	0.0400	1.00		Shallow Concentrated Flow, B to C Woodland Kv= 5.0 fps
40.1	850	0.0050	0.35		Shallow Concentrated Flow, C to D Woodland Kv= 5.0 fps
60.1	1,350	Total			

Summary for Subcatchment 11: House, Drive and Front Yard

Runoff = 0.30 cfs @ 12.10 hrs, Volume= 0.024 af, Depth> 0.88"

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=5.40"

Bramblewood Pre and Post Conditions

Type III 24-hr 25 Year Rainfall=5.40"

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Area (sf)	CN	Description
* 4,350	39	OFFISITE >75% Grass cover, Good, HSG A
* 1,260	98	New House
* 1,970	98	New Driveway
* 6,860	39	New Landscaped Lawn
14,440	52	Weighted Average
11,210		77.63% Pervious Area
3,230		22.37% Impervious Area

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

Summary for Reach POA1: Property Line to the Southwest

Inflow Area = 0.453 ac, 5.35% Impervious, Inflow Depth > 0.36" for 25 Year event
 Inflow = 0.08 cfs @ 12.32 hrs, Volume= 0.013 af
 Outflow = 0.08 cfs @ 12.32 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach POA10: Property Line to the Southwest

Inflow Area = 0.453 ac, 16.37% Impervious, Inflow Depth > 0.06" for 25 Year event
 Inflow = 0.01 cfs @ 13.43 hrs, Volume= 0.002 af
 Outflow = 0.01 cfs @ 13.43 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 11P: Bio Retention Strip

Inflow Area = 0.331 ac, 22.37% Impervious, Inflow Depth > 0.88" for 25 Year event
 Inflow = 0.30 cfs @ 12.10 hrs, Volume= 0.024 af
 Outflow = 0.30 cfs @ 12.10 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.30 cfs @ 12.10 hrs, Volume= 0.024 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 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= 133.99' @ 12.10 hrs Surf.Area= 980 sf Storage= 0 cf

Plug-Flow detention time= 0.0 min calculated for 0.024 af (100% of inflow)
 Center-of-Mass det. time= 0.0 min (843.2 - 843.2)

Volume	Invert	Avail.Storage	Storage Description
#1	133.99'	3,603 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Bramblewood Pre and Post Conditions

Type III 24-hr 25 Year Rainfall=5.40"

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Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
133.99	980	0.0	0	0
134.00	980	15.0	1	1
134.99	980	15.0	146	147
135.00	980	10.0	1	148
136.49	980	10.0	146	294
136.50	980	100.0	10	304
137.00	1,250	100.0	558	861
137.50	1,595	100.0	711	1,573
138.00	6,525	100.0	2,030	3,603

Device	Routing	Invert	Outlet Devices
#1	Discarded	133.99'	3.00 cfs Exfiltration at all elevations
#2	Primary	134.50'	6.0" Round Culvert L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 134.50' / 133.70' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Secondary	137.50'	6.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=3.00 cfs @ 12.10 hrs HW=133.99' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 3.00 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=133.99' (Free Discharge)
 ↑2=Culvert (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=133.99' (Free Discharge)
 ↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Bramblewood Pre and Post Conditions

Type III 24-hr 50 Year Rainfall=5.80"

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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 1: Existing Lot Runoff Area=19,730 sf 5.35% Impervious Runoff Depth>0.47"
Tc=5.0 min CN=42 Runoff=0.12 cfs 0.018 af

Subcatchment 10: Untreated Proposed Site and Off Runoff Area=5,290 sf 0.00% Impervious Runoff Depth>0.31"
Flow Length=1,350' Tc=60.1 min CN=39 Runoff=0.01 cfs 0.003 af

Subcatchment 11: House, Drive and Front Yard Runoff Area=14,440 sf 22.37% Impervious Runoff Depth>1.06"
Tc=5.0 min CN=52 Runoff=0.38 cfs 0.029 af

Reach POA1: Property Line to the Southwest Inflow=0.12 cfs 0.018 af
Outflow=0.12 cfs 0.018 af

Reach POA10: Property Line to the Southwest Inflow=0.01 cfs 0.003 af
Outflow=0.01 cfs 0.003 af

Pond 11P: Bio Retention Strip Peak Elev=133.99' Storage=0 cf Inflow=0.38 cfs 0.029 af
Discarded=0.38 cfs 0.029 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.38 cfs 0.029 af

Total Runoff Area = 0.906 ac Runoff Volume = 0.050 af Average Runoff Depth = 0.66"
89.14% Pervious = 0.808 ac 10.86% Impervious = 0.098 ac

Bramblewood Pre and Post Conditions

Type III 24-hr 50 Year Rainfall=5.80"

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Summary for Subcatchment 1: Existing Lot

Runoff = 0.12 cfs @ 12.27 hrs, Volume= 0.018 af, Depth> 0.47"

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 50 Year Rainfall=5.80"

Area (sf)	CN	Description
6,850	39	>75% Grass cover, Good, HSG A
* 875	98	Inground Pool
* 180	98	Pool House
11,825	39	>75% Grass cover, Good, HSG A
19,730	42	Weighted Average
18,675		94.65% Pervious Area
1,055		5.35% Impervious Area

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

Summary for Subcatchment 10: Untreated Proposed Site and Off Site Contributing Area

Runoff = 0.01 cfs @ 13.27 hrs, Volume= 0.003 af, Depth> 0.31"

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 50 Year Rainfall=5.80"

Area (sf)	CN	Description
* 2,500	39	Offiste >75% Grass cover, Good, HSG A
* 2,790	39	New Landscape and Lawn
5,290	39	Weighted Average
5,290		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	50	0.0200	0.07		Sheet Flow, A to B Woods: Light underbrush n= 0.400 P2= 3.10"
7.5	450	0.0400	1.00		Shallow Concentrated Flow, B to C Woodland Kv= 5.0 fps
40.1	850	0.0050	0.35		Shallow Concentrated Flow, C to D Woodland Kv= 5.0 fps
60.1	1,350	Total			

Summary for Subcatchment 11: House, Drive and Front Yard

Runoff = 0.38 cfs @ 12.10 hrs, Volume= 0.029 af, Depth> 1.06"

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 50 Year Rainfall=5.80"

Bramblewood Pre and Post Conditions

Type III 24-hr 50 Year Rainfall=5.80"

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Area (sf)	CN	Description
* 4,350	39	OFFISITE >75% Grass cover, Good, HSG A
* 1,260	98	New House
* 1,970	98	New Driveway
* 6,860	39	New Landscaped Lawn
14,440	52	Weighted Average
11,210		77.63% Pervious Area
3,230		22.37% Impervious Area

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

Summary for Reach POA1: Property Line to the Southwest

Inflow Area = 0.453 ac, 5.35% Impervious, Inflow Depth > 0.47" for 50 Year event
 Inflow = 0.12 cfs @ 12.27 hrs, Volume= 0.018 af
 Outflow = 0.12 cfs @ 12.27 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach POA10: Property Line to the Southwest

Inflow Area = 0.453 ac, 16.37% Impervious, Inflow Depth > 0.08" for 50 Year event
 Inflow = 0.01 cfs @ 13.27 hrs, Volume= 0.003 af
 Outflow = 0.01 cfs @ 13.27 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 11P: Bio Retention Strip

Inflow Area = 0.331 ac, 22.37% Impervious, Inflow Depth > 1.06" for 50 Year event
 Inflow = 0.38 cfs @ 12.10 hrs, Volume= 0.029 af
 Outflow = 0.38 cfs @ 12.10 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.38 cfs @ 12.10 hrs, Volume= 0.029 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 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= 133.99' @ 12.10 hrs Surf.Area= 980 sf Storage= 0 cf

Plug-Flow detention time= 0.0 min calculated for 0.029 af (100% of inflow)
 Center-of-Mass det. time= 0.0 min (838.1 - 838.1)

Volume	Invert	Avail.Storage	Storage Description
#1	133.99'	3,603 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Bramblewood Pre and Post Conditions

Type III 24-hr 50 Year Rainfall=5.80"

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Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
133.99	980	0.0	0	0
134.00	980	15.0	1	1
134.99	980	15.0	146	147
135.00	980	10.0	1	148
136.49	980	10.0	146	294
136.50	980	100.0	10	304
137.00	1,250	100.0	558	861
137.50	1,595	100.0	711	1,573
138.00	6,525	100.0	2,030	3,603

Device	Routing	Invert	Outlet Devices
#1	Discarded	133.99'	3.00 cfs Exfiltration at all elevations
#2	Primary	134.50'	6.0" Round Culvert L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 134.50' / 133.70' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Secondary	137.50'	6.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=3.00 cfs @ 12.10 hrs HW=133.99' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 3.00 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=133.99' (Free Discharge)
 ↑2=Culvert (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=133.99' (Free Discharge)
 ↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Bramblewood Pre and Post Conditions

Type III 24-hr 100 Year Rainfall=6.60"

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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 1: Existing Lot Runoff Area=19,730 sf 5.35% Impervious Runoff Depth>0.73"
Tc=5.0 min CN=42 Runoff=0.26 cfs 0.027 af

Subcatchment 10: Untreated Proposed Site and Off Runoff Area=5,290 sf 0.00% Impervious Runoff Depth>0.51"
Flow Length=1,350' Tc=60.1 min CN=39 Runoff=0.02 cfs 0.005 af

Subcatchment 11: House, Drive and Front Yard Runoff Area=14,440 sf 22.37% Impervious Runoff Depth>1.46"
Tc=5.0 min CN=52 Runoff=0.56 cfs 0.040 af

Reach POA1: Property Line to the Southwest Inflow=0.26 cfs 0.027 af
Outflow=0.26 cfs 0.027 af

Reach POA10: Property Line to the Southwest Inflow=0.02 cfs 0.005 af
Outflow=0.02 cfs 0.005 af

Pond 11P: Bio Retention Strip Peak Elev=133.99' Storage=0 cf Inflow=0.56 cfs 0.040 af
Discarded=0.56 cfs 0.040 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.56 cfs 0.040 af

Total Runoff Area = 0.906 ac Runoff Volume = 0.073 af Average Runoff Depth = 0.96"
89.14% Pervious = 0.808 ac 10.86% Impervious = 0.098 ac

Bramblewood Pre and Post Conditions

Type III 24-hr 100 Year Rainfall=6.60"

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Summary for Subcatchment 1: Existing Lot

Runoff = 0.26 cfs @ 12.12 hrs, Volume= 0.027 af, Depth> 0.73"

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 100 Year Rainfall=6.60"

Area (sf)	CN	Description
6,850	39	>75% Grass cover, Good, HSG A
* 875	98	Inground Pool
* 180	98	Pool House
11,825	39	>75% Grass cover, Good, HSG A
19,730	42	Weighted Average
18,675		94.65% Pervious Area
1,055		5.35% Impervious Area

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

Summary for Subcatchment 10: Untreated Proposed Site and Off Site Contributing Area

Runoff = 0.02 cfs @ 13.13 hrs, Volume= 0.005 af, Depth> 0.51"

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 100 Year Rainfall=6.60"

Area (sf)	CN	Description
* 2,500	39	Offsite >75% Grass cover, Good, HSG A
* 2,790	39	New Landscape and Lawn
5,290	39	Weighted Average
5,290		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	50	0.0200	0.07		Sheet Flow, A to B Woods: Light underbrush n= 0.400 P2= 3.10"
7.5	450	0.0400	1.00		Shallow Concentrated Flow, B to C Woodland Kv= 5.0 fps
40.1	850	0.0050	0.35		Shallow Concentrated Flow, C to D Woodland Kv= 5.0 fps
60.1	1,350	Total			

Summary for Subcatchment 11: House, Drive and Front Yard

Runoff = 0.56 cfs @ 12.09 hrs, Volume= 0.040 af, Depth> 1.46"

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 100 Year Rainfall=6.60"

Bramblewood Pre and Post Conditions

Type III 24-hr 100 Year Rainfall=6.60"

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Area (sf)	CN	Description
* 4,350	39	OFFISITE >75% Grass cover, Good, HSG A
* 1,260	98	New House
* 1,970	98	New Driveway
* 6,860	39	New Landscaped Lawn
14,440	52	Weighted Average
11,210		77.63% Pervious Area
3,230		22.37% Impervious Area

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

Summary for Reach POA1: Property Line to the Southwest

Inflow Area = 0.453 ac, 5.35% Impervious, Inflow Depth > 0.73" for 100 Year event
 Inflow = 0.26 cfs @ 12.12 hrs, Volume= 0.027 af
 Outflow = 0.26 cfs @ 12.12 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach POA10: Property Line to the Southwest

Inflow Area = 0.453 ac, 16.37% Impervious, Inflow Depth > 0.14" for 100 Year event
 Inflow = 0.02 cfs @ 13.13 hrs, Volume= 0.005 af
 Outflow = 0.02 cfs @ 13.13 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 11P: Bio Retention Strip

Inflow Area = 0.331 ac, 22.37% Impervious, Inflow Depth > 1.46" for 100 Year event
 Inflow = 0.56 cfs @ 12.09 hrs, Volume= 0.040 af
 Outflow = 0.56 cfs @ 12.09 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.56 cfs @ 12.09 hrs, Volume= 0.040 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 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= 133.99' @ 12.09 hrs Surf.Area= 980 sf Storage= 0 cf

Plug-Flow detention time= 0.0 min calculated for 0.040 af (100% of inflow)
 Center-of-Mass det. time= 0.0 min (830.1 - 830.1)

Volume	Invert	Avail.Storage	Storage Description
#1	133.99'	3,603 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Bramblewood Pre and Post Conditions

Type III 24-hr 100 Year Rainfall=6.60"

Prepared by Atlantic Resource Consultants

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Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
133.99	980	0.0	0	0
134.00	980	15.0	1	1
134.99	980	15.0	146	147
135.00	980	10.0	1	148
136.49	980	10.0	146	294
136.50	980	100.0	10	304
137.00	1,250	100.0	558	861
137.50	1,595	100.0	711	1,573
138.00	6,525	100.0	2,030	3,603

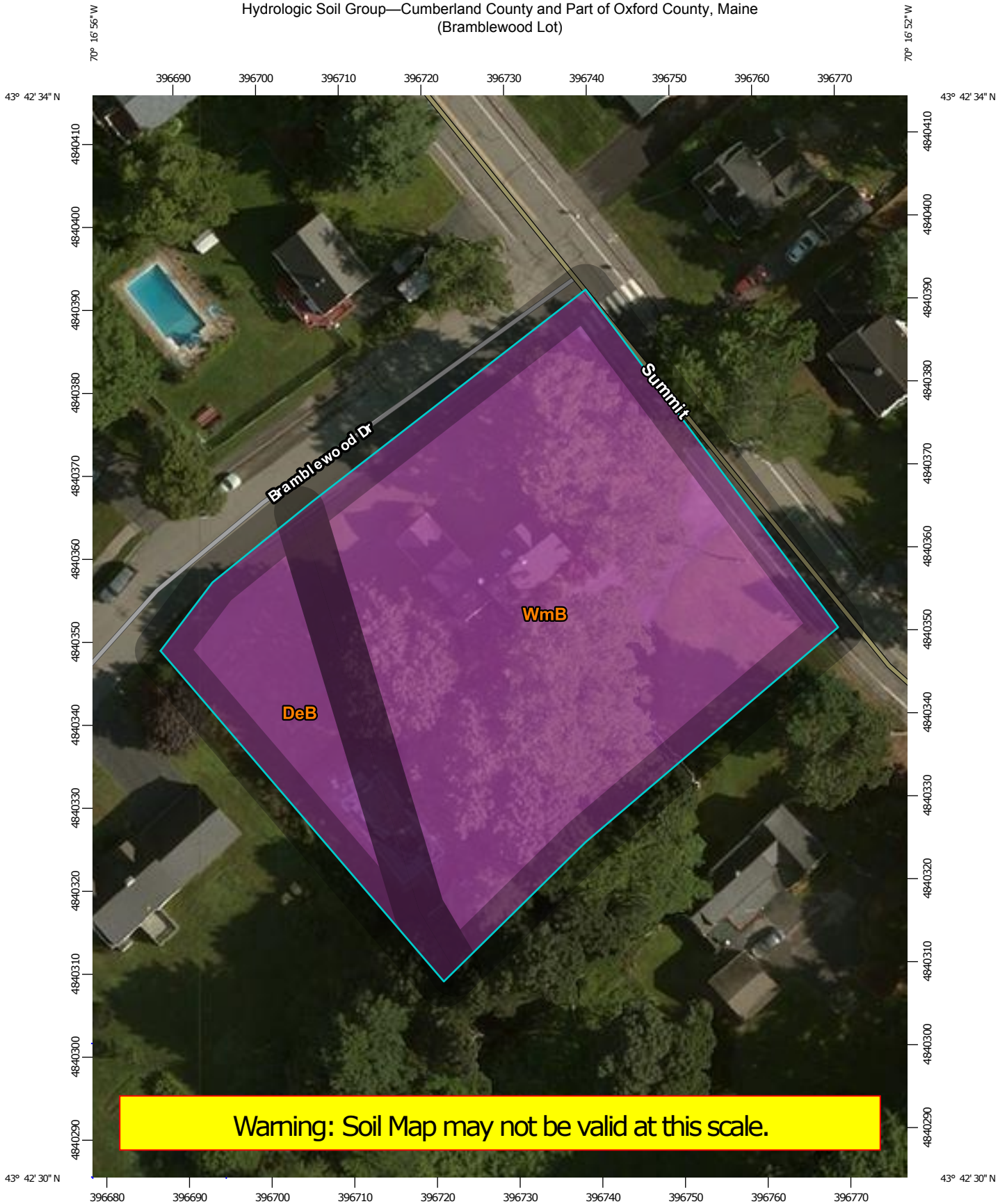
Device	Routing	Invert	Outlet Devices
#1	Discarded	133.99'	3.00 cfs Exfiltration at all elevations
#2	Primary	134.50'	6.0" Round Culvert L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 134.50' / 133.70' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Secondary	137.50'	6.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=3.00 cfs @ 12.09 hrs HW=133.99' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 3.00 cfs)

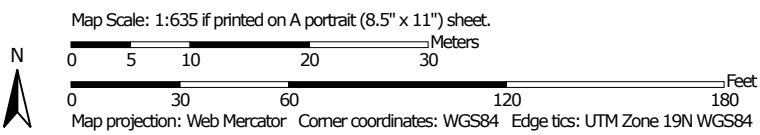
Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=133.99' (Free Discharge)
 ↑2=Culvert (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=133.99' (Free Discharge)
 ↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Hydrologic Soil Group—Cumberland County and Part of Oxford County, Maine
(Bramblewood Lot)




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



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines


 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points






 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available


Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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 map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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 12, Sep 15, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 31, 2013—Aug 11, 2013

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.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Cumberland County and Part of Oxford County, Maine (ME005)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DeB	Deerfield loamy sand, 3 to 8 percent slopes	A	0.2	18.5%
WmB	Windsor loamy sand, 0 to 8 percent slopes	A	0.7	81.5%
Totals for Area of Interest			0.9	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher