FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.06)

Type/Node Name: **Rain Garden Pond 3**

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable

		Have you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.06(b)?	
0.76	ac	A = Area draining to the practice[1]	
0.50	ac	A_I = Impervious area draining to the practice	
0.66	decimal	I = percent impervious area draining to the practice, in decimal form	
0.64	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.49	ac-in	WQV= 1" x Rv x A	
1,771	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
443	cf	25% x WQV (check calc for sediment forebay volume)	
1,328	cf	75% x WQV (check calc for surface sand filter volume)	
	-	Method of Pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = sediment forebay volume, if used for pretreatment	← ≥ 25%WQV
-	sf	A_{SA} = surface area of the practice	
-	iph	I_{DESIGN} = design infiltration rate[2]	
n	Yes/No	If I_{DESIGN} is < 0.50 iph, has an underdrain been provided?	
-	hours	T_{DRAIN} = drain time = V_{PP} / (A_{SA} * I_{DESIGN})	← ≤ 72-hrs
168.50	feet	E_{FC} = elevation of the bottom of the filter course material	
167.50	feet	E_{UD} = invert elevation of the underdrain (UD), if applicable	
167.50	feet	E_{BTM} = elevation of the bottom of the practice (i.e., bottom of the stone reservoir).	
169.00	feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
166.50	feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.00	feet	$D_{FC\ to\ UD}$ = depth to UD from the bottom of the filter course[3]	← ≥ 1'
2.00	feet	$D_{FC\ to\ ROCK}$ = depth to bedrock from the bottom of the filter course[3]	← ≥ 1'
(0.50)	feet	$D_{FC\ to\ SHWT}$ = depth to SHWT from the bottom of the filter course[3]	← ≥ 1'
(1.50)	feet	$D_{BTM\ to\ SHWT}$ = depth to SHWT from the bottom of the practice[3]	← ≥ 2'
170.45	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
171.00	ft	Elevation of the top of the practice	
YES		10 peak elevation ≤ Elevation of the top of the practice	← yes

If a surface sand filter is proposed:

YES	ac	Drainage Area check.	← < 10 ac
	cf	V = volume of storage[4, 5] (attach a stage-storage table)	← ≥ 75%WQV
	inches	D_{FC} = filter course thickness	← 18"
Sheet		Note what sheet in the plan set contains the filter course specification	
	Yes/No	Access grate provided?	← yes
		The filter shall not be covered in grass. What is covering the filter?	

If an underground sand filter is proposed:

YES	ac	Drainage Area check.	← < 10 ac
	cf	V = volume of storage[4, 5] (attach a stage-storage table)	← ≥ 75%WQV
	inches	D_{FC} = filter course thickness	← 24"
Sheet		Note what sheet in the plan set contains the filter course specification	
	Yes/No	Access grate provided?	← yes

If a bioretention area is proposed:

YES	ac	Drainage Area no larger than 5 ac?	← **yes**
2,044	cf	V = volume of storage[4, 5] (attach a stage-storage table)	← **≥ WQV**
18.0	inches	D_{FC} = filter course thickness	← **18"**
Sheet	R101	Note what sheet in the plan set contains the filter course specification	
2.0	:1	Pond side slopes	← **≥2:1**
Sheet	R101	Note what sheet in the plan set contains the planting plans and surface cover	

If porous pavement is proposed:

		Type of pavement proposed (concrete? Asphalt? Pavers? Etc)	
	sf	A_{SA} = surface area of the pervious pavement	
-	:1	ratio of the contributing area to the pervious surface area	← **5:1**
	inches	D_{FC} = filter course thickness	← **12"**
Sheet		Note what sheet in the plan set contains the filter course spec.	← **304.1 sand**

1. If the practice is a tree box filter, the drainage area shall be < 0.1 acre

2. Rate of the limiting layer (either the filter course or the underlying soil). See Vol. 2 of the NH Stormwater Manual, Ch. 2-4, for guidance on determining the infiltration rate.

3. If not within a GPA or WSIPA: SHWT/Bedrock must be at least 1 foot below the filter course material (or an underdrain must drain the SHWT to at least one foot below the filter course material). If within a GPA or WSIPA: SHWT must be at least two feet below the bottom of the practice OR the filter course material must be at least twice as thick as required and the SHWT must be at least one foot below the filter course material.

4. Volume without depending on infiltration. The storage above the filter media shall not include the volume above the outlet structure, if any.

5. The volume includes the storage above the filter but below the invert of the outlet structure (if any), the filter media voids, and the pretreatment area.

Designer's Notes: