

**Steve and Bonnie Sherod**  
**1723A Tanglewood Trail**  
**Long Lake**

## **Runoff Reduction Plan**

The Runoff Reduction Plan Set provides aerial views and cross sections of the practices to be installed. The plan includes the following:

### **Rain Garden**

### **Rock Pit**

Silt fence must be installed below any areas of excavation or where excavated or construction materials are placed.

All areas disturbed during construction to be seeded with a lawn grass mix suitable for shade.

Rain garden and rock pit locations are indicated on the site diagrams.

- **Confirm utility locations with owner and/or Diggers Hotline prior to beginning construction.**
- Be sure to avoid the use of heavy equipment in the proposed rain garden location; it will compact the soil and decrease infiltration.
- Rain garden and rock trench sizes, cross sections, planting layouts and plant lists are found in the plan set.
- The bottom of the garden is 8 feet wide and 15 feet long with additional area to create the downslopes and berm.

## **Installing rain gardens**

The process for installing the rain garden is outlined in detail in the *Rain Gardens: A how-to manual for homeowners* publication. The basic steps are as follows:

1. **Locate Utilities.** The only know potential utility concern is with the driveway diversion. Excavation is not expected to be deep enough to cause a problem. But, in any case, they should be re-located to be sure.
2. **Dig the rain garden** (page 12) The rain garden will be 8 inches deep and level at its base. An extra foot is excavated then filled with a 70/30 sand compost mixture. The edges of the garden will slope from ground level to the garden's base.
3. **Level the rain garden** (page 12). It is essential that the base of the rain garden is flat in order to prevent uneven pooling of water within the garden. To maximize infiltration



capacity, the water must soak into the ground evenly throughout the garden's base. The top edge of the berm should be level as well; a low spot could cause channelization of the overflow.

4. **Making the berm** (page 14). See the cross-section diagram. The berm (downhill side only) is covered with erosion control fabric then planted to grass.
5. **Create driveway diversion and swale to carry runoff from the driveway to the garden.** A cross section for this diversion is included with the rain garden placement diagram. Dig a gradual trench and berm in the driveway to direct water to the rain garden. Continue the trench with a swale to the rain garden. A swale is a shallow depression. Yours will be about 3 feet wide. To construct the swale dig the depression, seed to shady lawn grass and cover with erosion control fabric. Stake the erosion control fabric in with 6" metal staples.
6. **Plant the rain garden** (page 16). Plant the garden with species from the lists and table provided.

Begin by laying down 4 inches of shredded bark or wood mulch. To plant, separate the mulch, dig a hole, sprinkle organic soil amendment, and place the plant in the hole. Press the soil gently around the plant roots and replace the mulch, being careful to keep mulch ½ inch from the stem of plants. Plant recommendations and spacing are included in the tables. You may make substitutions from the Polk County Maple Forest list if desired.

7. **Water immediately after planting.** Plan to water daily for the first few weeks or until the plants are well established. If plants wilt or droop, a repeated watering during the day may be necessary. Once plants are established, water only if prolonged dry periods occur.

Information for maintaining your rain garden is also included in the rain gardens publication (page 17). Like all gardens, it will require some weeding and watering. This is especially important during the first year or so after the garden is installed. Since the plants are native, however, they should require minimal care once established.

## Rock Infiltration Pit

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The rock infiltration pit is sized to capture the water from the roof area that drains here. The spaces between the rocks hold runoff water following a rain event, which then soaks slowly into the soil beneath the trench. The filter fabric prevents sediment from filling the pore spaces and thus reducing storage capacity. It also allows the pit to be covered and grass planted above. Only the sides and top of the excavated area are covered with filter fabric.

The pit should be 5 X 5 feet at the surface and about 4.5 feet deep. If necessary, excavate more deeply to reach sand and gravel.

Because the pit will overflow with large rain events, and overflow pipe is installed on the downhill side.

### Constructing a rock infiltration pit

1. Dig a pit of the specified size. In your case, the dimensions should be 5 by 5 by 4.5 feet deep.
2. Connect the rain gutter downspout to the pit with a 4" PVC pipe. The pipe will enter near the top of the rock on the uphill side of the pit, so the top of the pipe will be about 7 inches below the surface.
3. Construct an outlet for the rock chamber with a 4" PVC pipe installed on the downhill side of the rock chamber. The PVC pipe will outlet at the surface of the slope.
4. Line the sides of the pit with filter fabric allowing for the PVC pipe to enter and exit the rock chamber of the pit.
5. Fill the pit with clean, ¾ to 2 inch washed rock, stopping approximately 6 inches from the top.
6. Add a horizontal layer of filter fabric on top of the rock.
7. Cover the filter fabric with topsoil to the surface.
8. Plant grass seed and cover with erosion control fabric.

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1723 A Tanglewood Trail  
Rain Garden Placement

← 10ft →

dip  
bump

oak

elm

50

oak



maple

ash 30

oak

oak 20

maple 10

rock

grass

Driveway Diversion  
Downhill Cross Section

5"

3" new gravel

0

1

2

3

4

5

6

← 1ft →

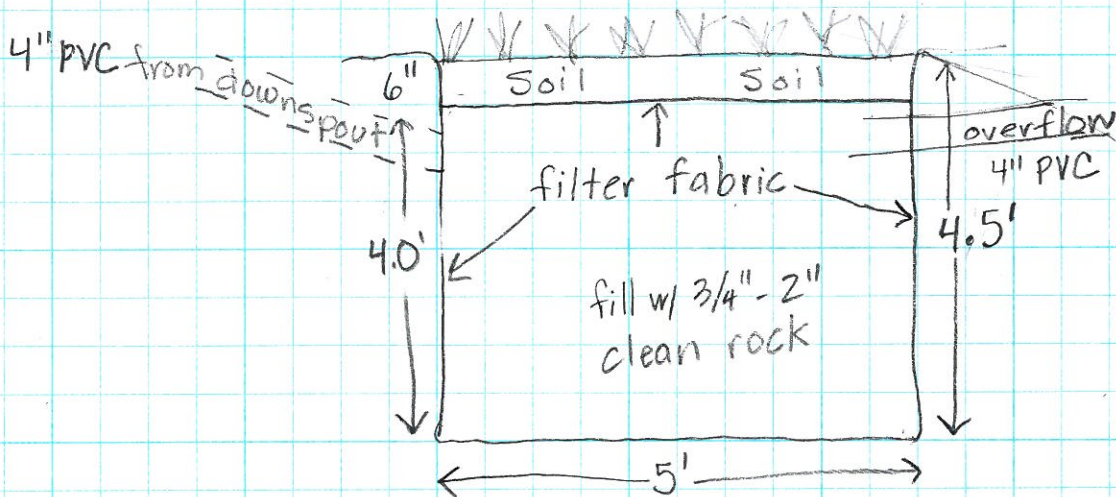




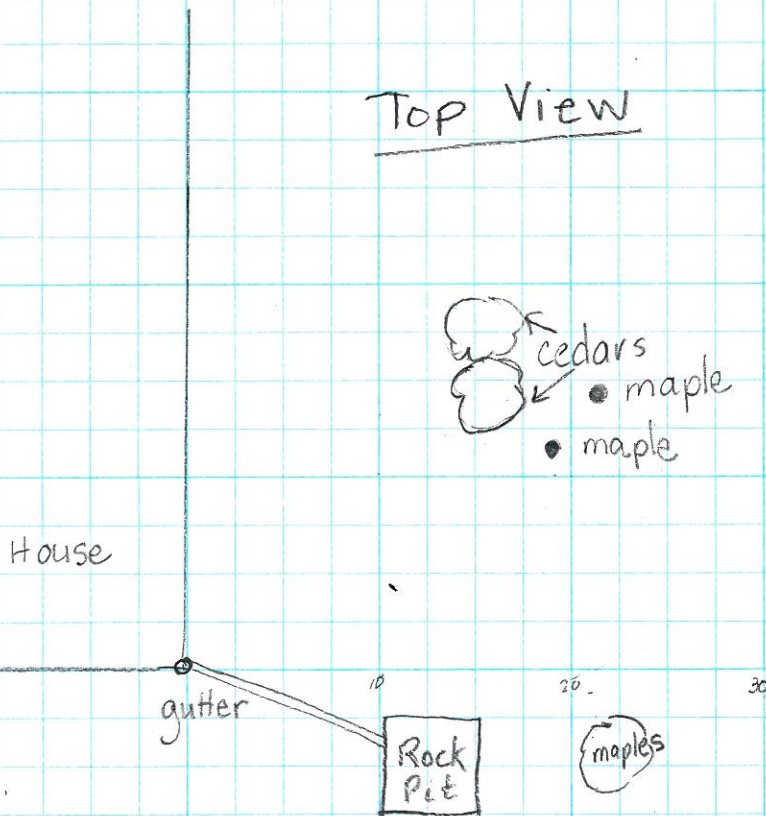


Steve and Bonnie Sherrod  
Side Rock Pit

Cross Section



Top View



8/26/13

## Rain Garden Plant List - Sherod

	Common Name	Scientific Name	Height	Bloom Time	Bloom Color
Flowers					
WGR	Wild ginger	<i>Asarum canadense</i>	4 to 8 in	May to June	Red
CL	Columbine	<i>Aquilegia canadensis</i>	8 to 24 in	May to June	Pink
WG	Wild geranium	<i>Geranium maculatum</i>	18 inches	May to June	Pink
SS	False solomon's seal	<i>Smilacina racemosa</i>	36 inches	May to July	White
JL	Jacob's ladder	<i>Polemonium reptans</i>	18 inches	May to June	Blue
HB	Harebell	<i>Campanula rotundifolia</i>	4 to 20 inches	June to September	Lavender
JP	Jack-in-the-pulpit	<i>Arisaema triphyllum</i>	18 to 30 in	May to June	Green
Ferns					
CF	Cinnamon fern	<i>Osmundo cinnamomes</i>	36 in	None	None
LF	Lady fern	<i>Athyrium filix-femina</i>	24 in	None	None
OF	Ostrich fern	<i>Matteuccia struthiopteris</i>	24 in	None	None
Sedges and Grasses					
CS	Sprengles Sedge	<i>Carex sprengelii</i>	to 18 in	NA	NA
PN	Pennsylvania sedge	<i>Carex pensylvanica</i>	6 to 18 in	NA	NA
Shrubs					
BH	Dwarf bush honeysuckle	<i>Diervilla lonicera</i>	4 feet	June to August	Yellow
ROD	Red osier dogwood	<i>Cornus stolonifera</i>	4 to 10 feet	May	White

## Rain Garden Plant Quantities - Sherod

			Rain Garde			
	Common Name	Scientific Name	Seedlings	3" Pots	4.5" Pots	1 gal
Flowers						
WGR	Wild ginger	<i>Asarum canadense</i>		7		
CL	Columbine	<i>Aquilegia canadensis</i>		8		
WG	Wild geranium	<i>Geranium maculatum</i>		4		
SS	False solomon's seal	<i>Smilacina racemosa</i>			3	
JL	Jacob's ladder	<i>Polemonium reptans</i>		3		
HB	Harebell	<i>Campanula rotundifolia</i>	0			
JP	Jack-in-the-pulpit	<i>Arisaema triphyllum</i>			3	
Ferns						
CF	Cinnamon fern	<i>Osmundo cinnamomes</i>			4	
LF	Lady fern	<i>Athyrium filix-femina</i>				
OF	Ostrich fern	<i>Matteuccia struthiopteris</i>			3	
Sedges and Grasses						
CS	Sprengles Sedge	<i>Carex sprengelii</i>	0	6		
PN	Pennsylvania sedge	<i>Carex pensylvanica</i>	32			
Shrubs						
BH	Dwarf bush honeysuckle	<i>Diervilla lonicera</i>				2
ROD	Red osier dogwood	<i>Cornus stolonifera</i>				1
			<b>32</b>	<b>28</b>	<b>13</b>	<b>3</b>

Plant seedlings with 12" spacing

Plant 3 inch pots with 14" spacing

Plant 6 inch pots with 18" spacing

Pot sizes can be substituted with spacing indicated



# Project Quantities

Sherod  
1723A Tanglewood Trail

Materials	Quantity	Cost per unit	Total Cost
<b>Rain Garden - 120 ft2 + 40 ft2 (slopes)</b>			
Seedlings	32	\$ 1.00	\$ 32.00
3" Pots	28	\$ 3.00	\$ 84.00
4-6" Pots	13	\$ 6.00	\$ 78.00
1 Gal Shrubs	3	\$ 15.00	\$ 45.00
Wood mulch (4") (yd)	2	\$ 34.00	\$ 68.00
70/30 Sand/compost (yd)	4.5	\$ 35.00	\$ 157.50
compost delivery	1	\$ 75.00	\$ 75.00
Soil amendment	1	\$ 6.00	\$ 6.00
Erosion blanket and staples	200 ft2		\$ 25.00
Landowner labor	30	\$ 12.00	\$ 360.00
Equipment rental (hours)	2	\$ 100.00	\$ 200.00
Gravel for driveway	1	\$ 32.00	\$ 32.00
Silt fence	1		\$ 32.00
Shady grass seed	1	\$ 15.00	\$ 15.00
			<b>\$ 1,209.50</b>
<b>Rock Infiltration Pit</b>			
filter fabric (8 oz.) 6 ft wide	14 lin feet		\$ 150.00
3/4" - 2" rock (yds)	3.7	\$ 20.00	\$ 74.00
Rock delivery	1	\$ 50.00	\$ 50.00
4" PVC pipe	15 ft		\$ 25.00
Landowner labor	10	\$ 12.00	\$ 120.00
			<b>\$ 419.00</b>