



Homeowner's Guide to Rain Gardens



Image courtesy of Rivertowns.net

Everyone can help clean and control stormwater

Rain Gardens are a fantastic way for homeowners to reduce stormwater runoff and improve water quality. These Best Management Practices (BMPs) also provide an aesthetic value to your property.



Enhancing the Beauty of Yards
Adding landscaping results in higher property values, increased health and improved human behavior.



Provides Habitats

Rain Gardens provide habitats for birds, butterflies and many beneficial insects.



Reduces Runoff

Rain Gardens allow about 30% more water to soak into the ground than a traditional lawn. This reduces the chance of soggy yards and flooding.



1 Location and Sizing

Find a spot where water currently flows and drains.

Is my Location Acceptable?

1. Dig a 12" deep, 6" to 8" round hole
2. Fill with water and allow it to drain
3. Fill again and prepare for measuring
4. After 30 minutes, measure the distance the water fell. If it fell 0.25", your location is acceptable.

How to Size my Storage Area

The size of a rain garden depends on the amount of water that will drain to it. To determine the length and width, you will need to know how much water you plan to capture.

Lets say you wanted to put a rain garden in your front yard. There are three steps to calculating the size.

1. Calculate the area draining to the rain garden in square feet.
2. Multiply the area by 2"
3. Divide by 12 to convert to cubic feet



Tip #1:

Rain Gardens should be a minimum 10' from the foundation and should not be in areas of standing water, full shade or over a septic system.

Example: You have 500 square feet of rooftop you plan to capture.

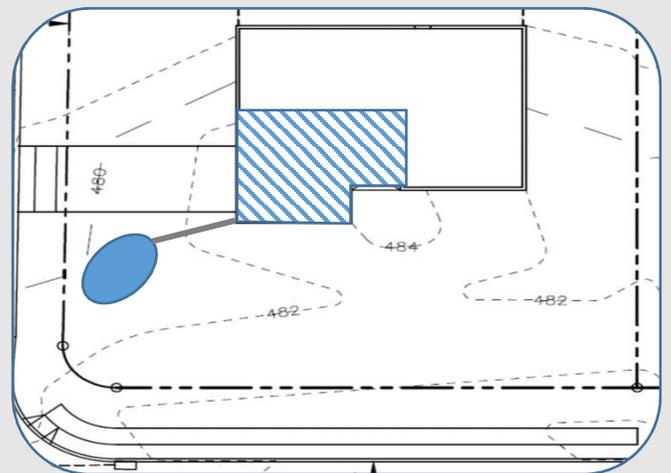
$$\text{Volume} = 500 * 2 / 12 = 83 \text{ cf of runoff}$$

Now you need to determine the length, width and depth of storage. A recommended storage depth is 6".

$$\text{Area} = \text{Volume} / \text{Depth} = 83 / 0.5 = 166 \text{ sf}$$

Lets assume you will make it 10 feet wide. That means your length is area divided by 10, or 16'-8".

Another option is to use the Three Rivers Rain Garden Alliance's Garden Calculator: <http://raingardenalliance.org/right/calculator>



2 Preparation

Installation is the key to a great rain garden. Plan enough time to complete your work before the next rainfall.



Image courtesy of EarthCorps

Before you start

1. Mark the area you plan to dig
 - a. You will need to dig larger than that to create the hole and allow for your rain garden soil and plants.
 - b. Add 12" to the length and width to account for slopes
 - c. Add 12" (18" recommended) to the depth for the soil.
2. Call PA One Call (811) to locate underground utility lines

Example: So lets go back to our example from the previous page. You need a storage area that is 16'-8" long x 10' wide x 0.5' deep.

Area to dig:

$$\text{Length} = 16'-8'' + 1' = 17'-8''$$

$$\text{Width} = 10' + 1' = 11'$$

$$\text{Depth} = 0.5' + 1.5' = 2'$$

This means you need to mark your perimeter at 17'-8" x 11'. This establishes the outside perimeter of your rain garden.

Shovels Ready!

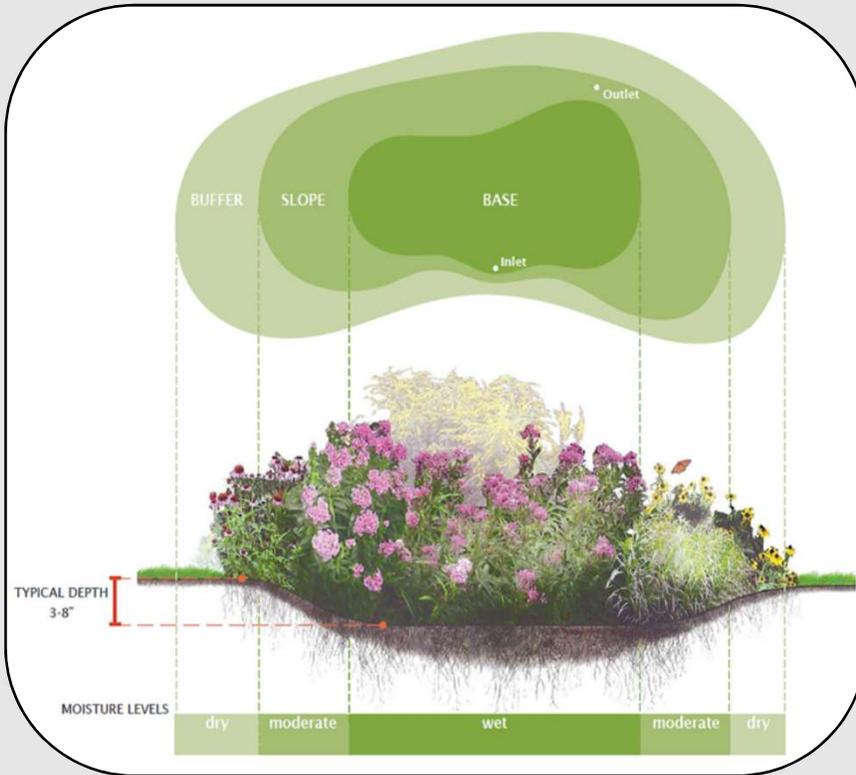
1. Remove the grass
2. Dig to the desired depth, within the storage area. Slope the top 6" back to the edge of your existing grass
3. Use the extra soil to build a small hill "berm" on the bottom side. Berm material should be tamped to compact.
4. Loosen any hardened and compacted soil along the bottom with a rototiller
5. Fill to the edge of the slope with a 2 part sand to 1 part topsoil mix, fill the area with at least 12" (18" recommended)
6. Begin planting and stabilization



Image courtesy of DIY Network

3 Planting and Finishing Your Rain Garden

Long-term functionality is based on selected the right quantity and specifies for your rain garden. Native species require less fertilizer, use less water, reduce air pollution and provide shelter and habitat for wildlife. We have included a list below of some common native plants.



Tip #2

How Many Plants?

- Take the total area of the rain garden in square feet and divide by 2.25
- Or use: <http://raingardenalliance.org/right/calculator>

Tip #3

Immediately after planting, stabilize the bare soil with 2"-3" of shredded bark mulch

Zone 1 - Wet (Base) Zone

This zone will hold the most water for the longest time. The plants can tolerate standing water for a period of time.

Shrubs

Buttonbush (*Cephalanthus occidentalis*)
Elderberry (*Sambucus canadensis*)
Winterberry (*Ilex verticillata*)

Perennials

Soft rush (*Juncus effusus*)
Switchgrass (*Panicum virgatum*)
Tussock sedge (*Carex stricta*)

Trees

Birch (*Betula lenta*, *Betula nigra*)
Black willow (*Salix nigra*)
Sycamore (*Plantanus occidentalis*)

Zone 2 - Moderate (Slope) Zone

This zone is likely to hold several inches of water during and immediately after a rain event.

Shrubs

Ninebark (*Physocarpus opulifolius*)
St. Johnswort (*Hypericum densiflorum*)
Silky dogwood (*Cornus amomum*)

Perennials

Goldenrod (*Solidago patula*, *S. rugosa*)
New England aster (*Aster novae-anglia*)
White turtlehead (*Chelone glabra*)

Trees

Ninebark (*Physocarpus opulifolius*)
Red maple (*Acer rubrum*)
Serviceberry (*Amelanchier arborea*, *A. canadensis* and *A. laevis*)

Zone 3 - Transition (Buffer) Zone

This zone between the rain garden and the non-garden area. It will be the most similar to typical garden areas.

Shrubs

Cranberry bush (*Viburnum trilobum*)
St. Johnswort (*Hypericum densiflorum*)
Witch hazel (*Hammamelis virginiana*)

Perennials

Butterfly weed (*Asclepias tuberosa*)
Evening primrose (*Oenothera speciosa*)
Mistflower (*Eupatorium colestinum*)

Trees

Buckeye (*Aesculus pavia* and *A. parviflora*)
Carolina silverbell (*Halesia carolina*)
Staghorn sumac (*Rhus typhina*)

Visit [PennState Extension \(extension.psu.edu/rain-gardens-the-plants\)](http://PennState Extension (extension.psu.edu/rain-gardens-the-plants)) for a complete list

3 Maintenance

Want to make sure your rain garden looks beautiful? During the first few years, while the native plantings establish, maintenance is key. So take time to weed invasive plants a couple times a year. This will ensure your selected plants will grow than thrive.

Tip #4

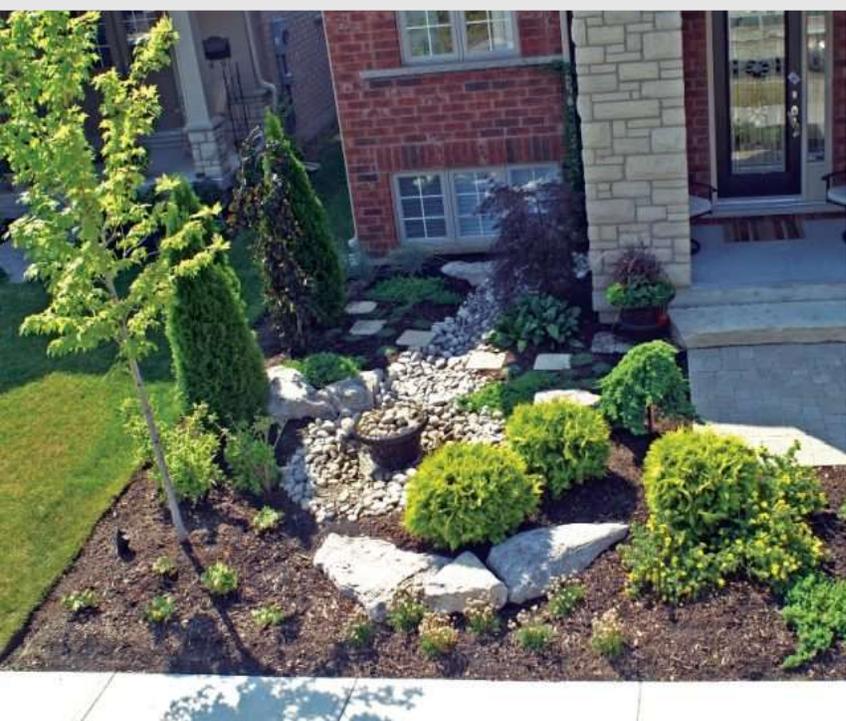
Label the plantings in order to decipher the difference between them and the invasive species.

Maintenance includes ensuring a fresh and uncompacted mulch layer is always provided. Therefore, a rain garden should be mulched just like your flower beds, ensuring the mulch is never greater than 3 inches deep.



Image Courtesy of Toronto and Region Conservation Authority

Ongoing Maintenance	
Remove litter, debris and weeds	
Check for deer damage and implement a repellent, if needed	
Spring Maintenance	Fall Maintenance
Replace any diseased or dead plants	Prune and weed for appearance
Freshen up or replace mulch	Check area for erosion



Images Courtesy of TRCA and Sustainable Ballard

Helping You Make Informed Decisions

Visit all-county-assoc.com or contact us at 610-469-3830