

# Rain Gardens

(Difficulty: Easy      Cost: \$3 ~ \$4 per ft<sup>2</sup>)

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- **What is a rain garden?**

Another way to capture excess stormwater runoff is to build a rain garden. Rain gardens are designed to contain and naturally drain stormwater runoff. They give stormwater a chance to slowly seep into the groundwater instead of rushing into storm drains all at once. In addition, rain gardens help to reduce the amount of sediment and other pollutants that runoff typically carries into drainage systems. Other than stormwater management, rain gardens provide an aesthetically pleasing native habitat for small animals like birds and butterflies.

- **Choosing a location**

Before beginning a rain garden project, identification of the best location is a must. Typically, rain gardens are located downhill from a large impervious surface such as a downspout from a roof or a large driveway. The goal is to use the rainwater from your roof or driveway to water the garden. This is the location that can benefit the most from a rain garden.

Not all places are fit for rain gardens. It is important to keep rain gardens at least 10 feet away from the foundation of a home. This is to prevent the water that seeps into the ground through the garden from seeping into an existing basement. Also, do not try to put a rain garden into an area with a water table close to the surface or there will be nowhere for the stormwater to go. To make sure the water table in your yard is not too high, dig four feet down into the ground. If you do not see water, then your water table is low enough to have a rain garden. Lastly, do not install a rain garden behind a retaining wall because it can cause the wall to collapse.

- **Testing the soil**

One of the first things necessary to begin is figuring out the soil composition. Sandy soils will allow rainwater to infiltrate more quickly. This means you will not have to dig very much to build a rain garden! On the other hand, clay soils will drain much slower and require a little more work to make a rain garden.

1. Dig a round hole 6" deep x 6" across.
2. Fill the hole with water and let it sit.
3. After an hour, refill the hole with water. Measure the depth of the water with a ruler.
4. After another hour, measure the water depth again.
5. If the water level went down more than 5/8", your soil has enough loam or sand for good infiltration. If the water level went down less than 5/8", you are going to need to fix it by digging your garden an extra 3" deeper. Then fill in 3" with a mixture of 50% sand, 25% topsoil, and 25% mulch.



- **Sizing a rain garden**

In order to know how big to build a garden, accurately calculate the surface area of the impervious surface that is draining into the garden. As a general rule, the garden should be about 25% of the size of the impervious surface. If the soil drains more quickly, make the garden a little smaller. If your soil takes longer to drain, make the garden a little bigger.

- **Start digging**

Remember not to place the garden in a place that might compromise the integrity of an existing structure (e.g. driveway, retaining wall, or within 10 feet of your home's foundation). Also, make sure the garden is directly downhill of the drain from which you are capturing rainwater. Dig a flat-bottomed pit about 3" deep in the size and shape that you need. Use the excavated dirt to form a berm that will not allow water to flow out the back of your garden.

**Place berm downhill of downspout or runoff source**



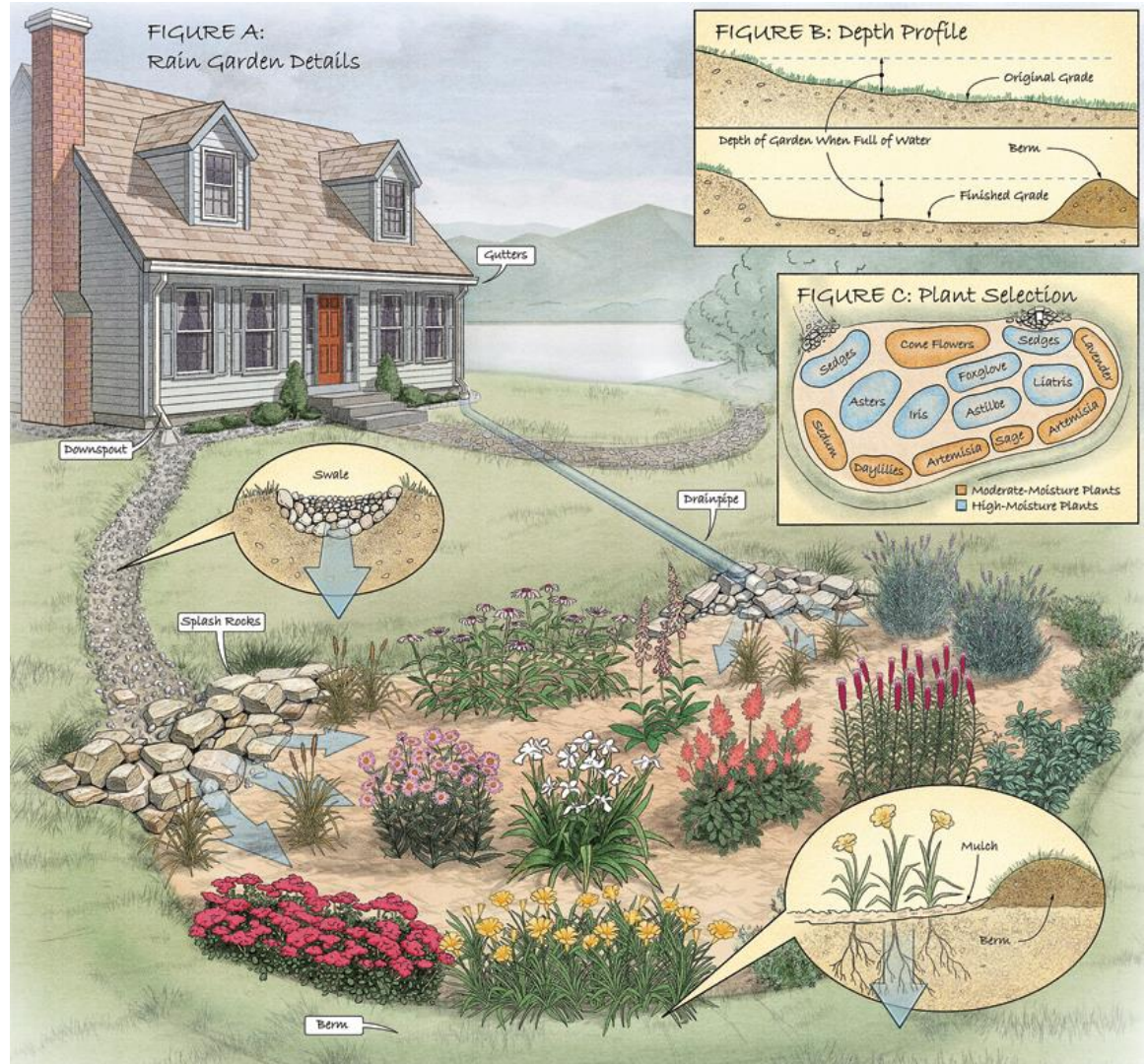
[http://www.duluthstreams.org/stormwater/toolkit/images/raingarden\\_berm.jpg](http://www.duluthstreams.org/stormwater/toolkit/images/raingarden_berm.jpg)

Next, make sure the bottom of the garden is relatively flat so that water will be evenly distributed throughout the garden (a level may be used to do this). Place the level on the ground of the pit and check to make sure the bottom is level.

It is also a good idea to test the hydrology of the base of the garden. Use an outdoor faucet and hose to run some water from the source expected to use and see what happens. Make the necessary adjustments to ensure the water flows into the garden and disperses evenly. A small channel to direct the water flow may be necessary. If a channel is used, be sure to reinforce it with some gravel so it will last.

#### **Diagram of home rain garden**

Note the fortification of the channel from the downspout to the rain garden.



- **Planting and maintenance**

Before choosing the plants to install, keep in mind the garden will be very wet at times and dry at others. Plants that are durable should be considered. Native plants are best adapted to your area and have deeper root systems that will absorb water better. Also consider how much sun the garden is going to be exposed to and choose plants accordingly. Lay out a design of the plants to be planted, leaving enough space in between each one so they have space to grow. Below is a table of plants that are native to the Chesapeake Bay region and should do well in a garden if you are in the area. Use a variety of different plants to see what will work best for the garden and what will look most attractive. Weeding while your plants are still young might be necessary. Just monitor the garden periodically and make adjustments when needed.

**Rain garden plants for Chesapeake Bay region**

# Native Plants for Rain Gardens

☀ = sun or part sun    🌑 = part sun/part shade    🌙 = shade

## Ferns

- 🌙 rattlesnake fern
- ☀ hay-scented fern

## Grasses

- 🌑 blue wood sedge
- ☀ Canada wild rye
- ☀ bottle brush grass
- 🌑 Virginia wild rye

## Perennials

- 🌑 butterflyweed
- 🌑 New England aster
- ☀ joe-pye weed
- 🌑 wild snakeroot
- ☀ cardinal flower
- 🌑 wild bergamot
- 🌑 blue-eyed grass

- 🌑 Solomon's seal
- 🌑 black-eyed Susan
- 🌑 wild pink
- ☀ purple coneflower
- 🌑 yellowflag iris
- 🌑 St. John's wort
- ☀ early goldenrod
- 🌑 daylily

- 🌑 hosta
- 🌑 grass-leaf blazingstar

## Shrubs

- ☀ mountain laurel
- ☀ highbush blueberry
- ☀ spicebush
- ☀ inkberry
- ☀ sweet pepperbush

- **Examples of finished rain gardens**



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