



Image courtesy of Rain Dog Designs

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## Rain Gardens Help Protect Streams and the Chesapeake Bay

### *Slow it Down and Soak it In*

Hard impervious surfaces such as roofs, driveways, sidewalks and roads, prevent rain water from being absorbed into the landscape. As the amount of impervious surfaces rises, more untreated stormwater runs off the landscape into local streams and rivers.

In rain events, stormwater runoff carries pollutants such as nitrogen, phosphorous, suspended sediments, organic chemicals, heavy metals, and oil are washed directly into storm systems and local waterways. Large amounts of stormwater can also cause flooding and stream bank erosion which

Rain gardens absorb stormwater and enhance landscapes



Image courtesy of Rain Dog Designs

harms aquatic insects, fish and animals that depend on the stream for their food and habitat.

It is critical to find solutions to stormwater pollution in a way that enhances the natural environment

and promotes healthy ecosystems. One method to slow down and soak in stormwater runoff is to install a rain garden.

## What is a Rain Garden?

A rain garden is a planted depression in the landscape that collects and allows rainwater runoff from hard surfaces to be absorbed. Rain gardens are planted with native plants, and include a soil media and mulch.

Rain gardens typically are used to reduce residential rooftop runoff or impervious surfaces on residential property.

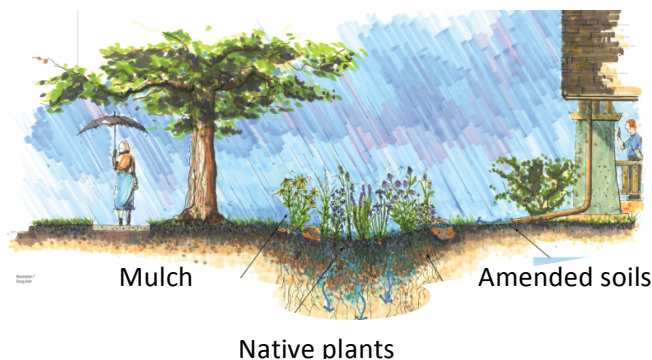


Image courtesy of Iowa NRCS

### **Rain Gardens Allow about 30% More Rainwater to Soak into the Ground than Traditional Lawns**

Rain gardens offer multiple benefits to the community and the local environment, including:

- Reduced flooding and erosion;
- Pollution prevention;
- Groundwater recharge;
- Enhanced wildlife habitat;
- Improved aesthetics; and
- Increased property values.

However, the most important reason to install a rain garden is to do your part to help protect your local streams and the Chesapeake Bay.

## How Do You Install a Rain Garden?

### **Step 1: Assess Your Property by Taking a Walk in the Rain**

Consider:

- Are there places on your property where rain regularly runs off of a hard surface?
- Where does the rainwater go? Is the runoff directed to your lawn, the street, or a storm drain? The key is to place the rain garden in the “pinch point” where rain falls on your property (i.e. your roof, driveway, or patio, etc.) and where runoff water would leave your property (i.e. a stream, storm drain, etc.).

### **Step 2: Assess Your Soil.**

Since rain gardens depend on water soaking through the ground, it is important that the soil drain well. Water in rain gardens should soak into the soil within 24 to 36 hours.

To test your soil:

1. Dig a hole in the potential rain garden location that is about one foot in diameter and two feet deep.
2. Fill the hole with water.
3. Wait until the water drains completely.
4. Within twelve hours, refill the hole with water and record the time it takes for water to drain. This should not take longer than 36 hours.
5. If it takes longer than 24 to 36 hours for water to drain, consult with your Watershed Restoration Specialist (<http://extension.umd.edu/watershed>) or a qualified professional.

### **Step 3: Size Your Rain Garden**

The amount of rainfall that will fill a rain garden depends on its size compared to its drainage area.

- a. Estimate the rooftop area draining to each of your downspout(s).
- b. Determine minimum surface area for the rain garden. Assume that the ponding area of your garden will be at least 6 inches



deep, and will capture the first inch of rainfall that lands on your roof.

- c. Compute the minimum surface area for your rain garden using the following equation:

**Table 1. Two simple calculations will help you determine the ideal size for your rain garden**

Surface area draining to the rain garden	"Engineering factor*" (multiply by 0.12)	Minimum surface area for rain garden =(Surface area draining to rain garden x.12)
530	0.12	64 square feet
*The engineering factor computes how much surface area is needed in your rain garden to capture one inch of rainfall that falls on your roof.		



**Step 4: Planting Plan**

Choose the right plant for the right place. A rain garden will need to tolerate both extreme wet and dry periods. Use native plants to make your garden functional and beautiful. Native plants are adapted to the ecosystem and provide deep fibrous roots that improve drainage. Also consider seasonal interest, color scheme, sun/shade conditions, and plant maintenance when designing a your garden plan.

**Step 5: Installing Your Rain Garden**

*\*Before any digging Call "Miss Utility": 1-811-257-7777 or submit an Internet Locate Request for homeowners: <http://www.missutility.net/>*

If the yard is fairly level, you can simply dig out the bowl for the rain garden to the proper depth using the size determined in step 3. If the yard is sloped, you may need to construct a small berm (mound) at the down-slope side of the garden to prevent the soil from washing away after a storm. Use the soil removed from the up-slope side of the garden and add it to the down-slope side to create the berm. Gradually slope the edges of the garden so you do not create any steep slope erosion. The bottom of the garden should be fairly level to maintain the garden's rainwater storage area.

**In a sloped yard, constructing a berm will prevent runoff from the rain garden**



**Step 6: Plant and Mulch Your Rain Garden**

Plant in groups of odd numbers to improve the garden aesthetics and cover the garden soil with 2"-3" of hardwood mulch.

Sample rain garden plants:

- Amsonia hubrichtii*- Narrow Leaf Blue Star (sun-part shade)
- *Asclepias incarnata*- Swamp Milkweed (sun-shade)

- *Aster novae-angliae*- New England Aster (sun)
- *Carex stricata*- Tussock Sedge (sun-part shade)
- *Chelone glabra*- White Turtlehead (sun-shade)
- *Clethra alnifolia* 'Ruby Spice'- Sweet Pepperbush (sun)
- *Echinacea purpurea*- Purple Coneflower (sun)
- *Iris fulva*-Copper Iris (sun)
- *Iris versicolor*- Blue Flag Iris (sun -part sun)
- *Rudbeckia hirta*- Black-eyed Susan (sun)

**Native plants such as Black-eyed Susan, have deep fibrous roots that improve drainage**

#### **Step 7: Maintenance**

- Water the plants until they are established. Water in the first planting season and in times of drought.
- Remove weeds, litter, and sediment that may have entered the rain garden.
- Remove and re-mulch (annually) with shredded hardwood mulch to maintain 2-3 inches of cover.

#### **Additional Resources**

Slattery, Britt E., Kathryn Reshetiloff, and Susan M. Zwicker. 2003. *Native Plants for Wildlife Habitat and Conservation Landscaping: Chesapeake Bay Watershed*. U.S. Fish & Wildlife Service, Chesapeake Bay Field Office, Annapolis, MD. 82 pp.  
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Low Impact Development Center. *Rain Garden Design Templates and Resources*. 2008.

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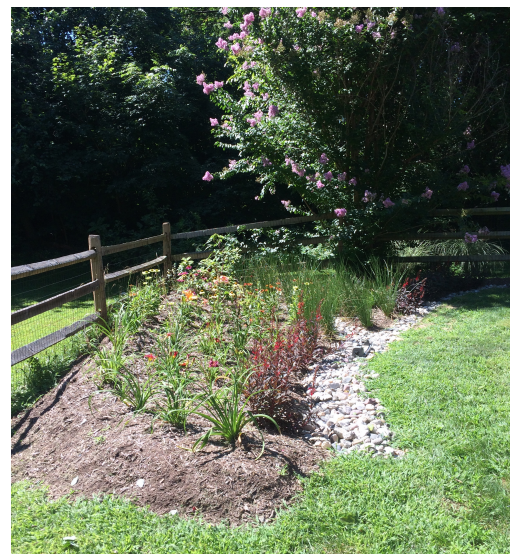
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Montgomery County Rainscapes Program. *Rain Gardens for RainScapes: Technical Design Manual*. 2015.

[http://www.montgomerycountymd.gov/DEP/Resources/Files/downloads/rainscapes/fact-sheets/RG4RS\\_Tech\\_Manual\\_Web.pdf](http://www.montgomerycountymd.gov/DEP/Resources/Files/downloads/rainscapes/fact-sheets/RG4RS_Tech_Manual_Web.pdf)

Chesapeake Stormwater Network. *Homeowner Guide For a More Bay-Friendly Property*. 2014.

<http://chesapeakestormwater.net/2013/04/homeowner-bmp-guide/>



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