

How to Build a Rain Garden



Produced by University of Wisconsin – Extension
& Wisconsin Department of Natural Resources

Places to Use Rain Gardens



Below roof downspouts

Places to Use Rain Gardens



Down-slope of any lawn area

Places to Use Rain Gardens



Places to Use Rain Gardens



Before



After

Road shoulder right-of-ways

Places to Use Rain Gardens



**Parking lot planter islands
(bioretention)**

Places to Use Rain Gardens

Even industrial locations can have a rain garden



Deciding on the best spot to site your rain garden:

Your rain garden

- Should be at least ten feet from a foundation
- Integrate with your landscaping
- Sunny or partly sunny locations are best, but a shade garden is possible
- Should not be located where water ponds
- The flatter the site the better: less than 12 % slope
- Do not locate over septic system

How to Size a Rain Garden



Questions to ask yourself:

What type of soil do I have?

How big is the area draining to the rain garden?

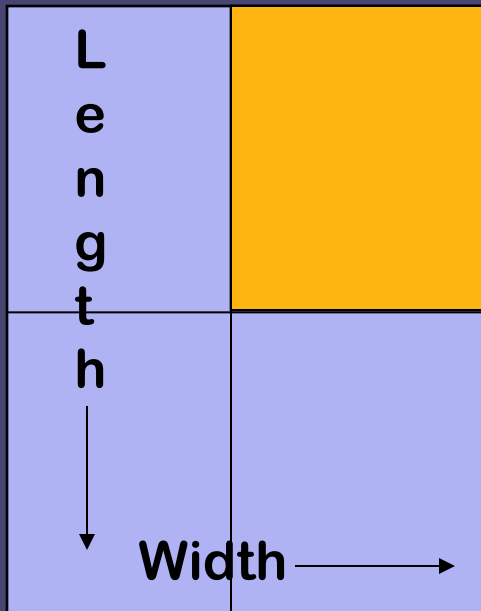
What is the slope?

What is the best size to fit my yard?

(smaller means deeper to hold the same amount of water)

Calculating Drainage Area

Area of roof going
to down spout



- Length of house 100 feet
- Width of house 20 feet
- $L \times W = 2000 \text{ sq ft}$
- $2000 \text{ sq ft} \div 4 = 500 \text{ sq ft}$ draining to rain garden

Determining Your Soil Type

- Some hints:
 - Soil feels gritty and coarse = sandy
 - Soil feels smooth not sticky = silty
 - Soil feels sticky and clumpy = clayey
- Have soil analyzed
- Use perc test

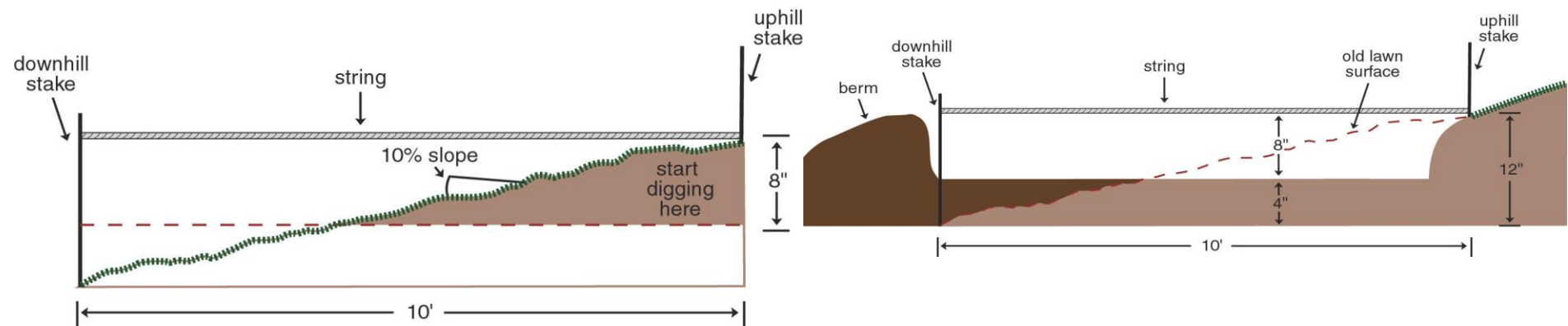
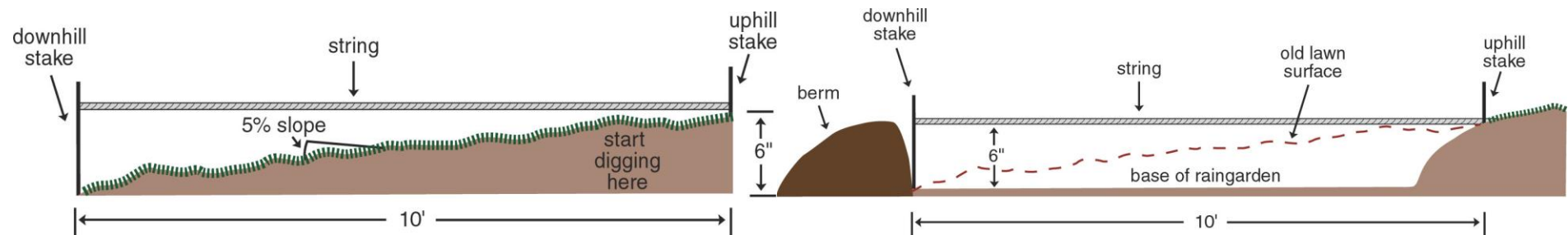


Importance of Soil Type

The higher the infiltration rate the smaller the rain garden can be:

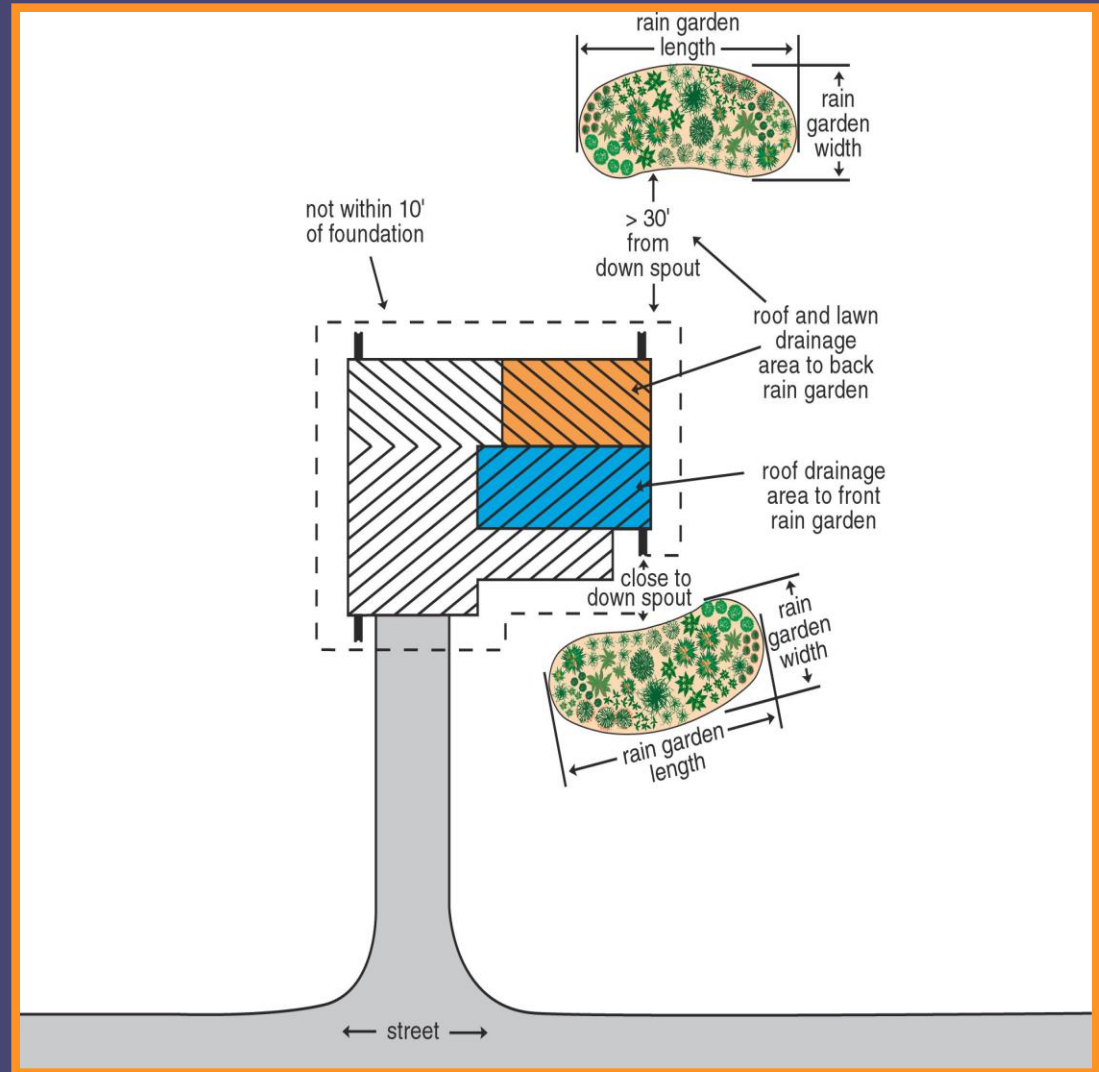
- Infiltration Rate of Sandy Soils: 2.5 in/hr
- Infiltration Rate of Silty Soils: 0.5 in/hr
- Infiltration Rate of Clayey Soils: 0.3 in/hr

Slope Important: Bottom must be flat



Determining Size of Drainage

1. If less than 30 feet use Table 1
2. If greater than 30 feet use Table 2



Using Size Factor and Depth to Determine Final Rain Garden Size with 100% Control

Type of Soil	3 to 5 Inches Deep	6 to 7 Inches Deep	8 Inches Deep
Sandy	0.19	0.15	0.08
Silty	0.34	0.25	0.16
Clayey	0.43	0.32	0.20

Less than 30 feet
from downspout

Soil Type	All Depths Between 3 and 8 inches
Sandy	0.03
Silty	0.06
Clayey	0.10

More than 30 feet
from downspout

Example 1: 500 sq ft x .25 = 125 sq ft rain

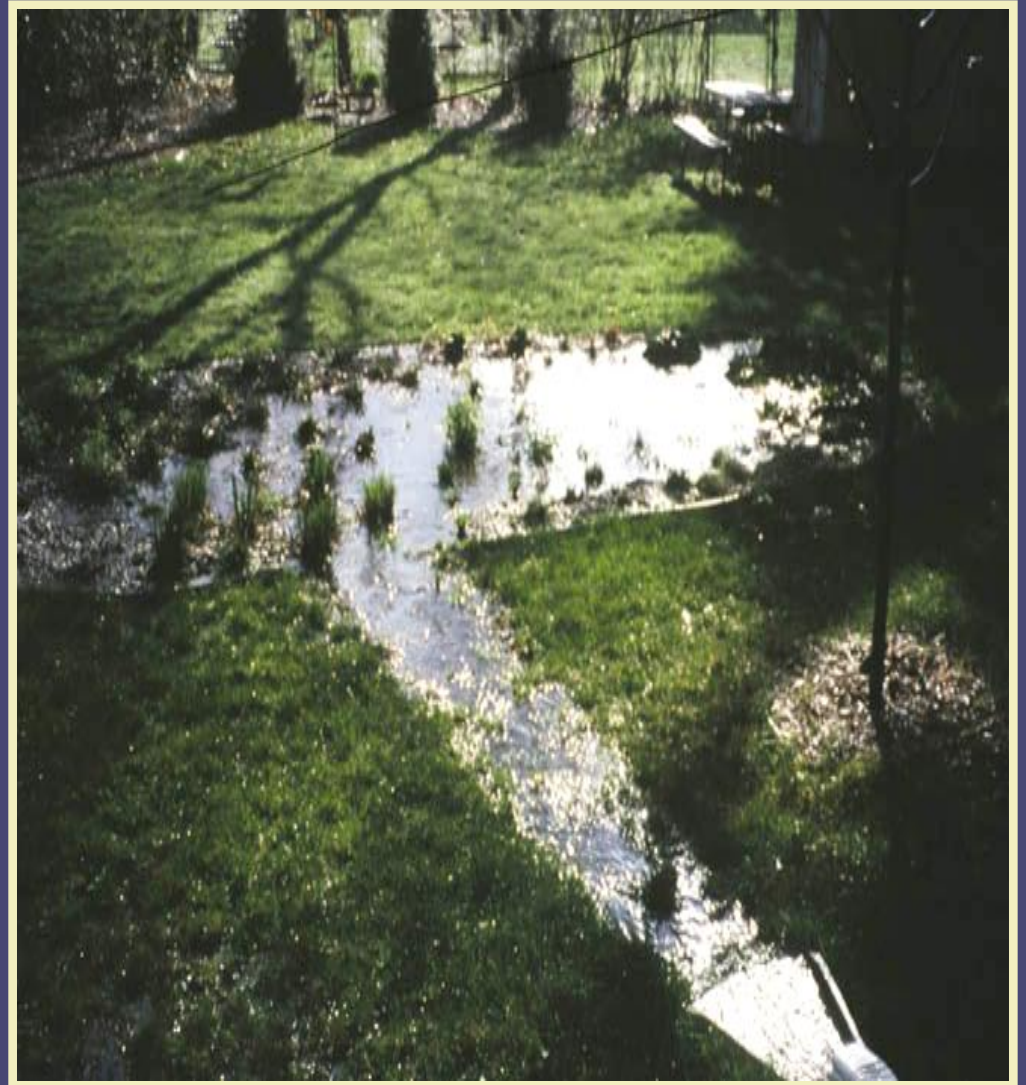
Example 2: 500 sq ft x .43 = 215 sq ft rain

garden

Rain Garden Depth & Size

Balance between:

- drainage area
- slope
- soil
- desired garden size



Picking the Plants

- Decide on formal or informal look
- Choose plants for conditions:
 sunny – shady
- Choose plants for year-round interest





Time to get to work – a family affair!

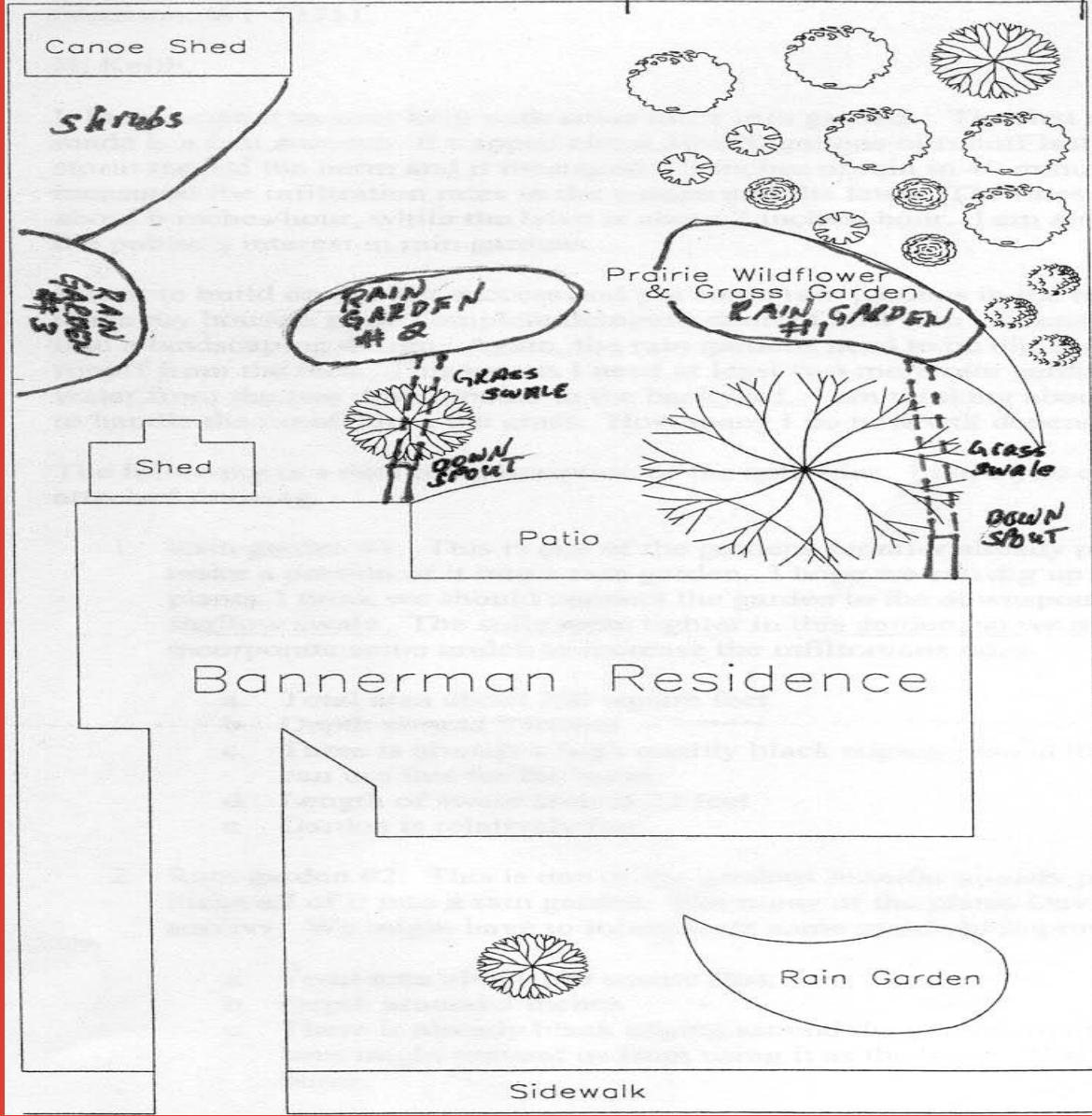
From Start to Finish



Roger Bannerman's rain gardens






PROPOSED PLANTING PLAN FOR THE BANNERMAN RESIDENCE

32'



SCALE

1" is approx. 17'

-  Hawthorne
-  Serviceberry
-  Vernal Witchhazel
-  Highbush Cranberry
-  Dogwood



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↑
uphill

Down spout

↑
uphill



berm

←
downhill









Plant List for Backyard Rain Gardens

Middle & Big Garden

- Blue Flag Iris
- Purple Cone Flower
- Shooting Star
- Sweet Black-eyed Susan
- Smooth Penstemon
- Heartleaf Blue Aster
- Ohio Goldenrod
- Fire Pink
- Silky Wild Rye
- Northern Sea Oats

Shade Garden

- Jacobs Ladder
- Celandine Poppy
- Short's Aster
- Zig-Zag Goldenrod



Add a weed barrier and mulch









Edgewood College, Madison



Formal
look,
integrated
with
existing
perennials



Willy Street Co-op, Madison



© John Gishnock III



Informal and formal looks



Cost of Rain Gardens

If you do the work but purchase plants, cost is about \$3 to \$5 per square foot.

Cost of landscape consultants in Wisconsin is about \$10 to \$15 per square foot.

Includes design, construction, plants, and planting.

A 300 square foot rain garden costs between \$1,000 and \$4,500.

Remember These Steps

- Determine size and location
- Design shape and select plants
- Talk to neighbors
- Call diggers hotline **1-800-242-8511** before you dig!

Oops!



Answering Neighbors' Concerns

Mosquitoes?

- There shouldn't be any if the garden is properly sited and designed. Rain gardens should drain in no more than five days.
- Mosquitoes have a 7 to 12 day life cycle from egg to adult.
- Mosquitoes that carry most diseases don't live in ponds. They prefer small amounts of standing water such as holes in trees, old tires or bird baths.

Other Things to Consider

- **Weed ordinances**
 - Check the web, most communities have them under nuisances
 - Many communities use DNR noxious weed list
 - Sample language for modifying weed ordinances at Wild Ones: <http://www.for-wild.org/weedlaws/weedlaw.html>
- **Downspout disconnect ordinances**

Thank You!

For more information:

<http://clean-water.uwex.edu/pubs>

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