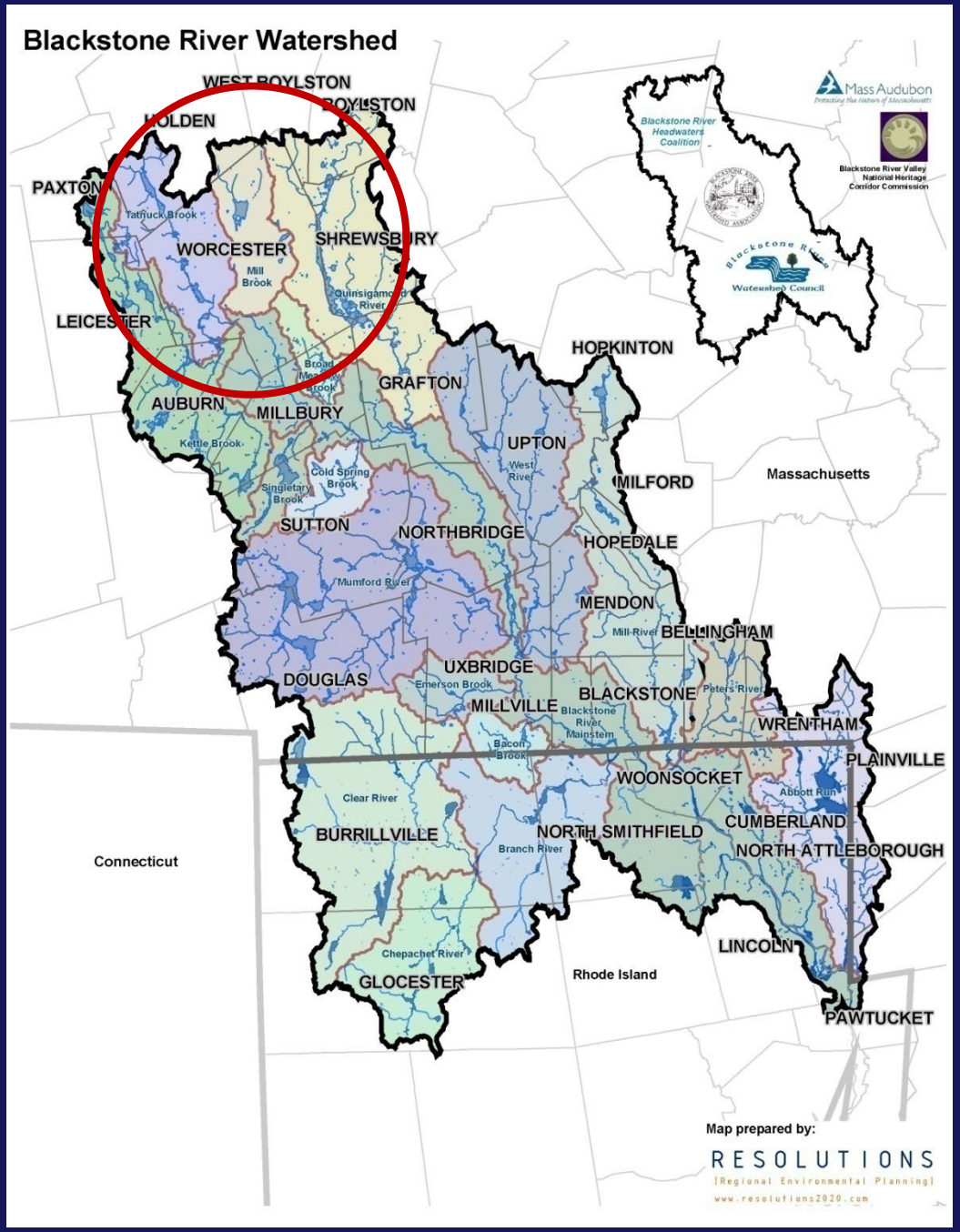
Rain Gardens to the Rescue!

Green Worcester Summit
May 11, 2024

The Blackstone River Watershed:

Worcester to Pawtucket

and then to Narragansett Bay



The Blackstone River Coalition

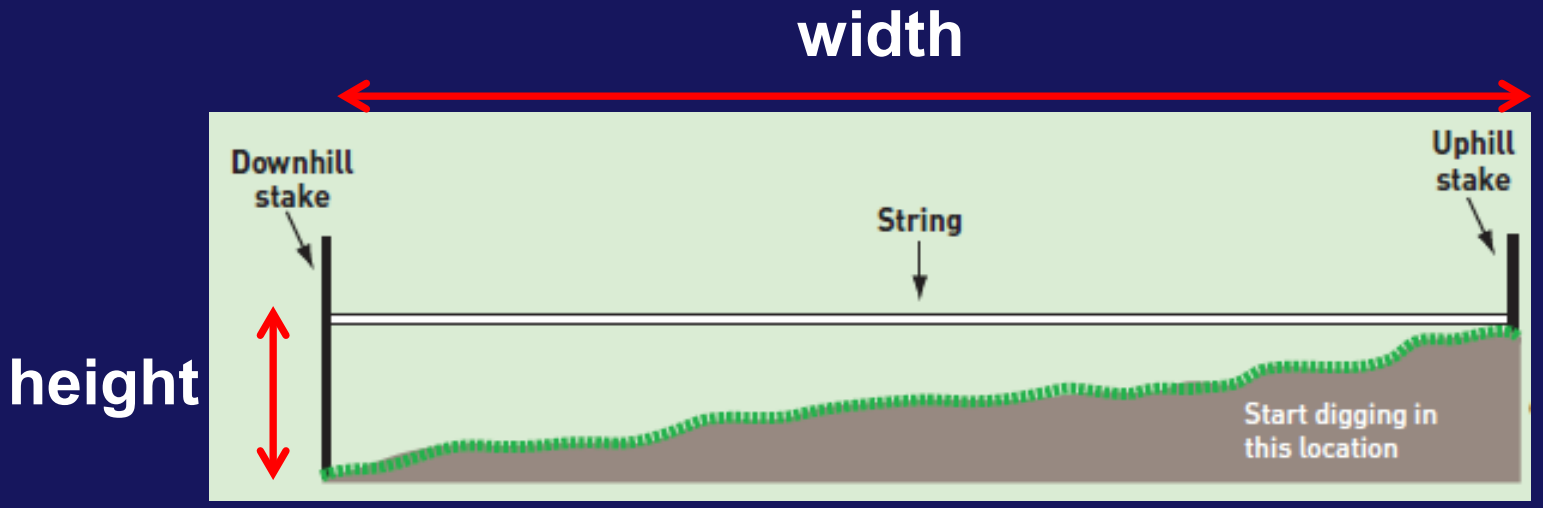
What is a Rain Garden?

- A shallow, constructed depression planted to native vegetation to attract wildlife
- Designed to slow, capture, and infiltrate rain water, mainly from the roof of a house or other building, often from downspouts
- Designed with a dip in the center, garden fills with a few inches of water after a storm and then drains quickly

Rain garden placement

- Must be at least 10 feet from foundation with basement or where top of foundation is below ponding level
- Avoid placing within 15ft of septic system or 25 ft to private drinking well
- Avoid placing in wet areas of yard- a rain garden IS NOT a water garden!
- Site to most effectively catch storm runoff
- Consider overflow

Slope



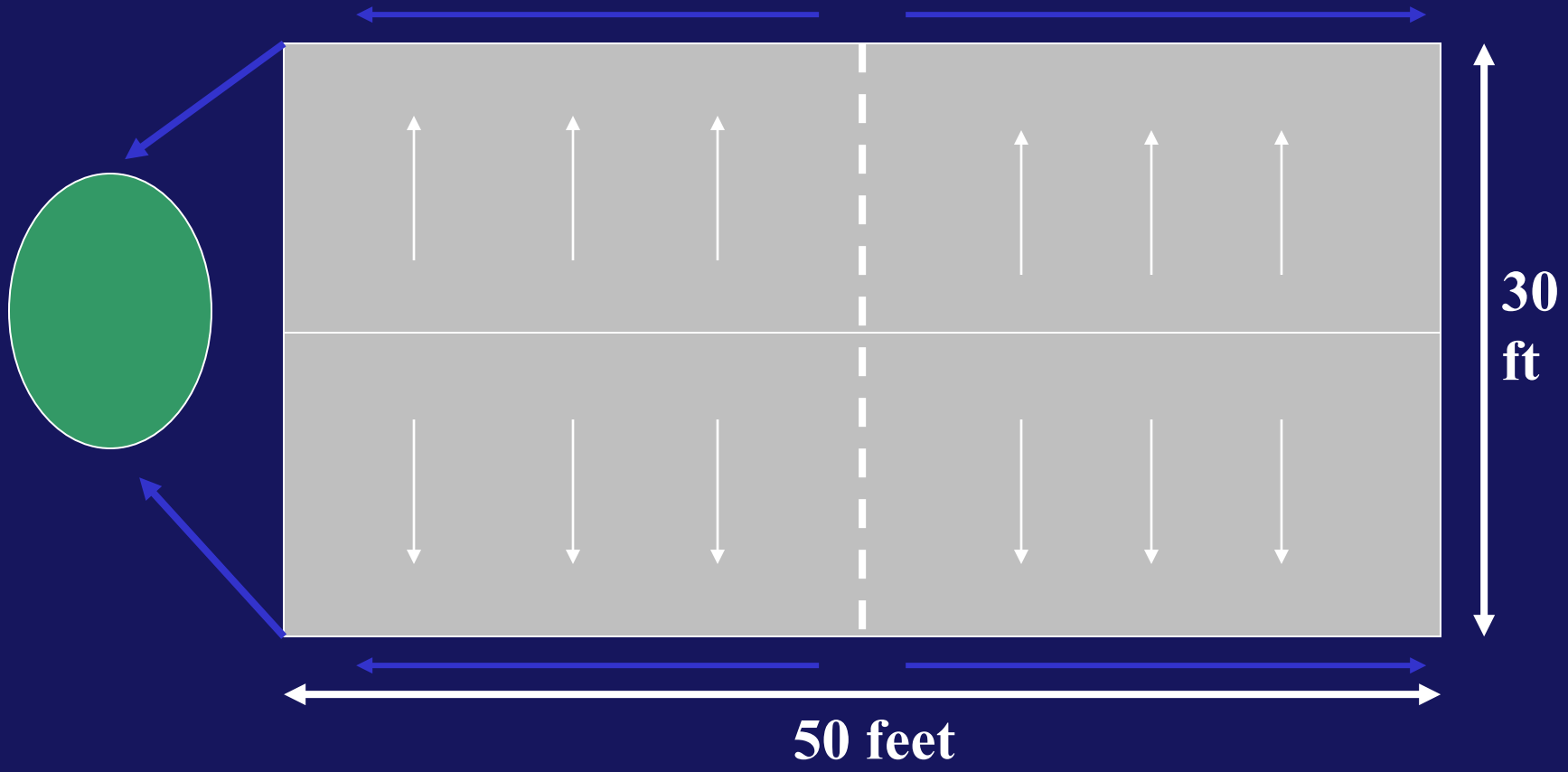
- Surface must be level, bottom level with sloped sides
- For flat areas, no berm needed
- Moderate slopes, use berm
- Heavier slopes, use retaining wall design
- **More than 12% slope, look for another location**

How Big Should it Be?

- Simple method
  - Sized to store 1 inch of runoff from 100% impervious watersheds
  - 6 inches deep
  - Drain within 24 – 36 hours

Simple Sizing

- Calculate area of roof feeding to garden

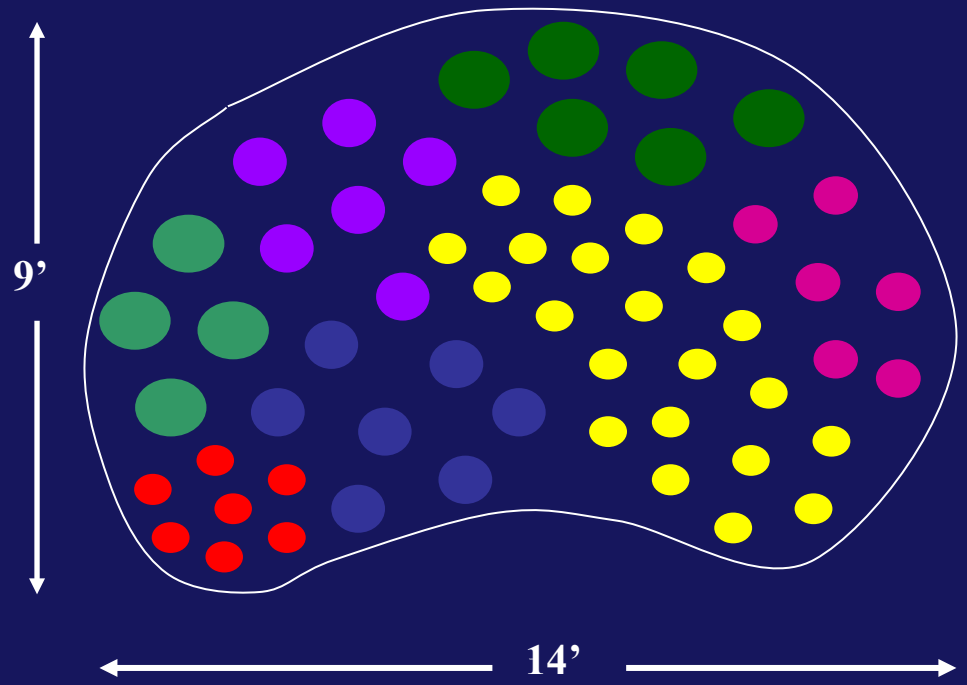


Simple Sizing, continued

- 50 feet x 30 feet = 1500 square feet
- 1500 feet / 2 = 750 square feet
  - This is because only half the roof contributes to the garden
- 750 square feet / 6 = **125 square feet**
  - This just sizes the garden to hold 1 inch of water from the roof in a 6 inch deep rain garden

Sizing, continued

- 125 square feet
  - Garden can be shaped in a variety of ways



Why 1 inch?

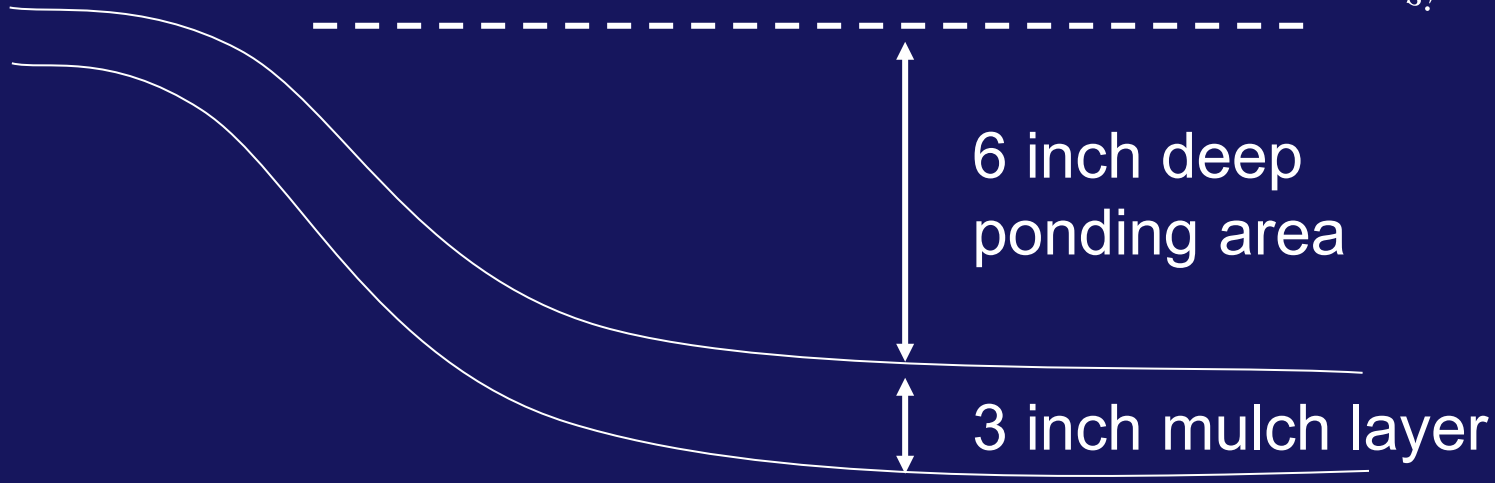
- In the East and Midwest, around 90% of storms are 1” or less
- Wisconsin design guide
- UConn design guide
- Bioretention manual

Soils

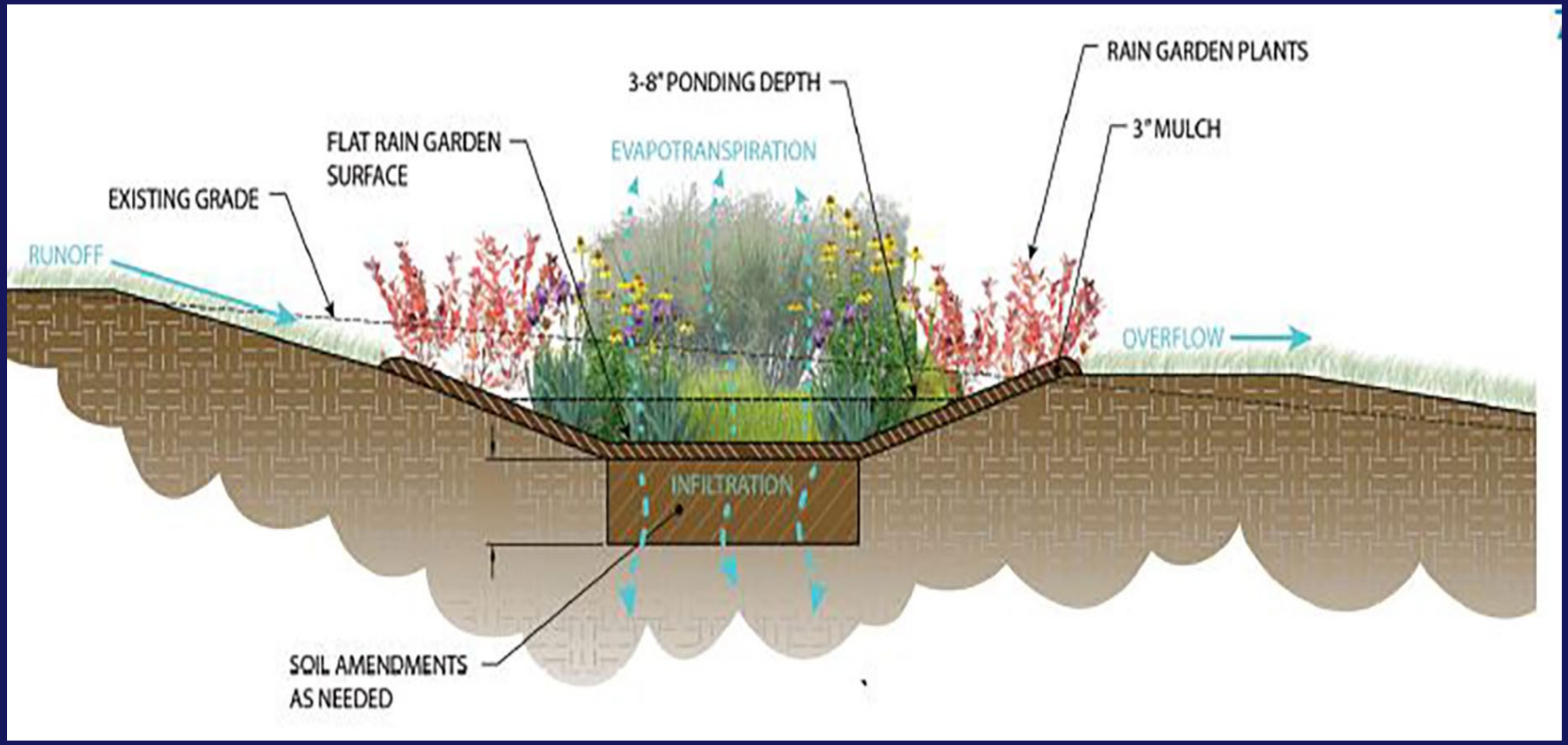
- Simple percolation test
  - Dig hole 6 inches deep, and fill with water.
  - If there is still water in the hole after 24 hours, the site is **not suitable** for a rain garden

Depth

Dig Safe - At least 3 days before you plan to dig even a small hole in your yard, call Dig Safe at 811 for professional assistance in determining the location of underground utility lines!



****May need to add compost if soils aren't great *****


RAIN GARDEN PLANTS
3-8" PONDING DEPTH
3" MULCH
FLAT RAIN GARDEN SURFACE
EVAPOTRANSPIRATION
EXISTING GRADE
RUNOFF
OVERFLOW
INFILTRATION
SOIL AMENDMENTS AS NEEDED

Building Your Rain Garden

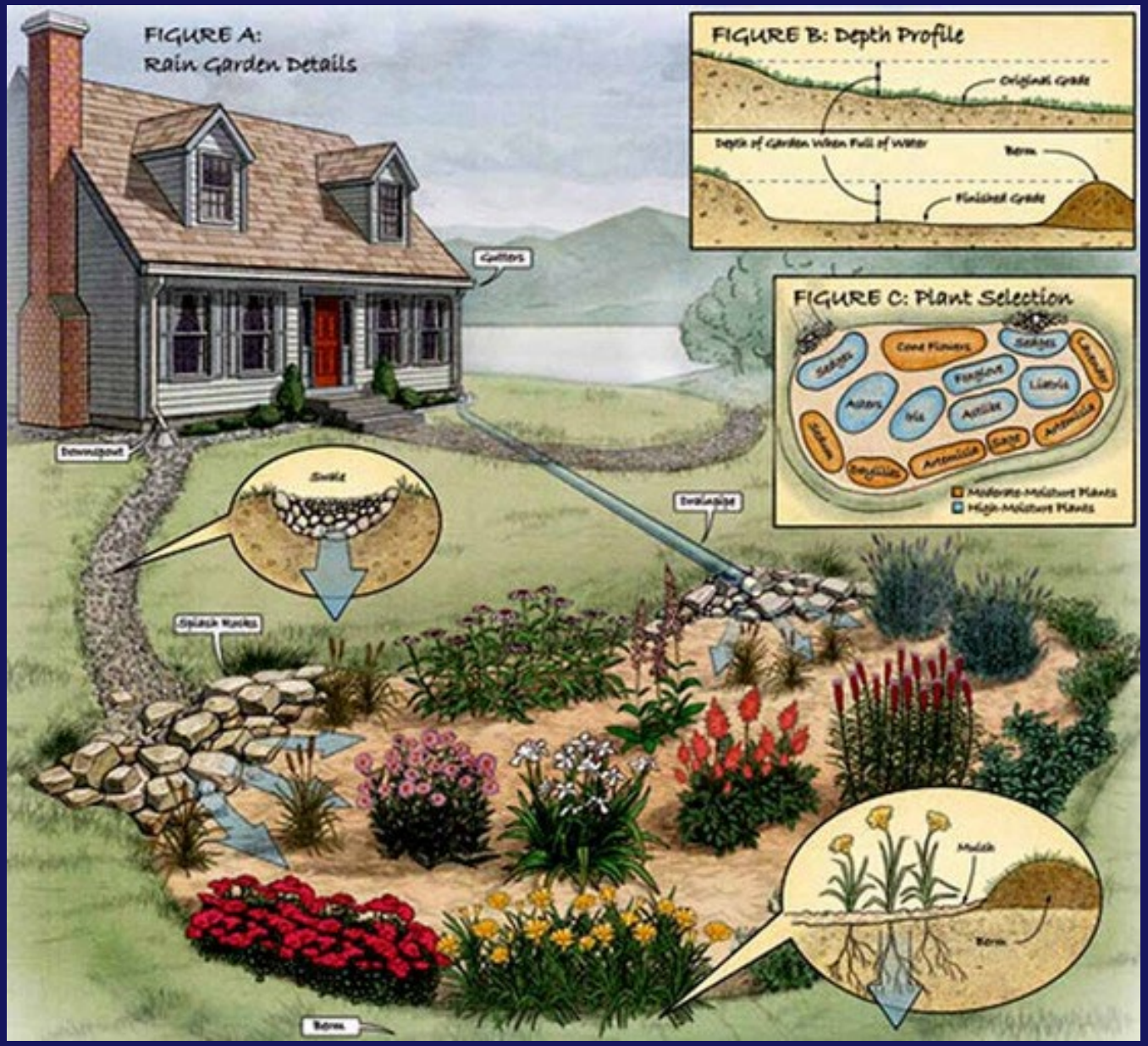
Plants and Maintenance:

- plant at a density of about 1 plant per square foot
- tallest plants, water-loving plants in deepest part of garden
- 3 inches of mulch, replace as needed

What to plant

- Native species
- Combine shrubs, wild flowers and grasses.
- Berry and nectar producers for wildlife

- Plant the center of the garden with perennials and native plants that tolerate wet feet.
- Around these, place plants that tolerate occasional standing water.
- At the outer edges, set plants that prefer drier soil.



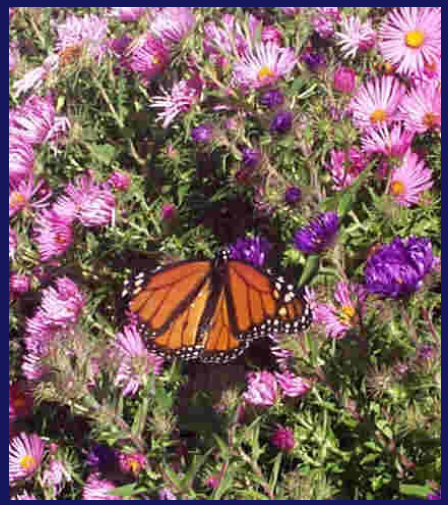
Plants for Sun:

Center:

Great Blue Lobelia	(Lobelia siphiltica)
Joe Pye Weed	(Eupatorium maculatum)
Blue Flag Iris	(Iris versicolor)

Slope/Outer Edge:

New England Aster	(Aster novae-angliae)
Butterfly weed	(Asclepias tuberose)
Bee Balm	(Monarda didyma)



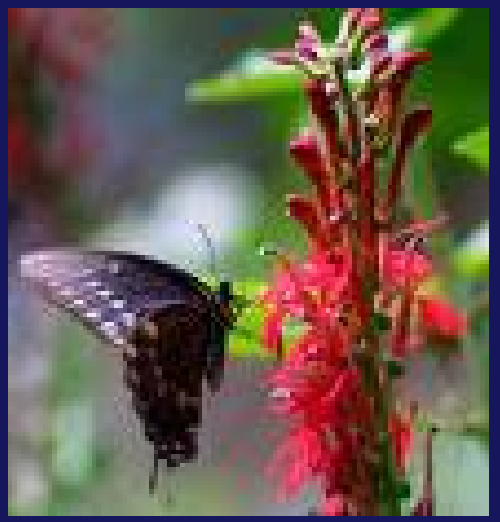
Plants for Partial Shade:

Center:

Cardinal Flower	(Lobelia cardinalis)
Pink Turtlehead	(Chelone lyonii)
Purple Meadow Rue	(Thalictrum dasycarpum)

Slope/Outer Edge:

Foam flower	(Tiarella cordifolia)
Wild Columbine	(Aquilegia canadensis)
Zigzag Goldenrod	(Solidago flexicaulis)



Shrubs:

(Size matters!)

Red Twig Dogwood	(Cornus Sericea)
High Bush Blueberry	(Vaccinium corymbosum)
Inkberry	(Ilex glabra compacta)
Winterberry	(Ilex verticilatta)
Black Elderberry	(Sambucus canadensis)

Mulch

- Best is aged, shredded hardwood bark mulch
  - about 3 inches in depth
- NOT pine bark nuggets!
  - they float

Maintenance

- **Water:** water regularly until plants' roots are established.
- **Weed:** as necessary.

Resources

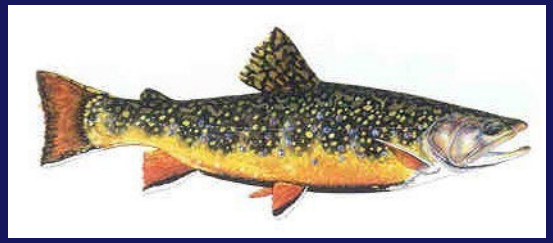
Worcester State University Rain Garden Guide

Vermont Rain Garden Manual

UConn Extension
https://nemo.uconn.edu/raingardens/
https://nemo.uconn.edu/raingardens/installation/

UNH Native Rain Garden Plant List

Campaign for a Fishable/Swimmable Blackstone River



The Blackstone River Coalition