

BUILDING YOUR RAIN GARDEN



BEFORE



AFTER

SECTION 1A: Steps for Rain Garden Installation:

Project Timeline: 60 Days, Minimum

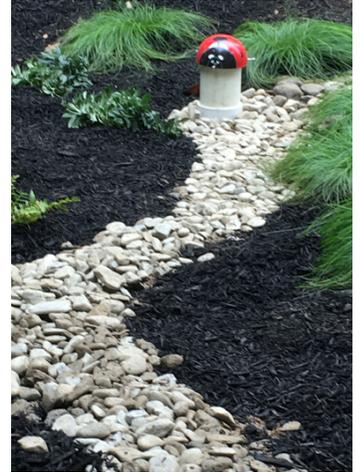
- Determine location for rain garden.
 - Determine budget (see page 4).
 - Search for grants, scholarships, and/or sponsors.
 - Use infiltrometer to ascertain soil type and permeability.
 - Apply for permits— Permits are almost always required for any kind of earth disturbance (digging). It is important to check with your local township or city to find out what the requirements are.
 - For example, Lancaster City requires a “Very Small Projects Application for under 100-square feet new impervious area under 1,000-square feet of land disturbance.” *Apply one month in advance to ensure approval.*
 - Call PA One before you dig, call 811.com or dial 811.
 - Allow 14 days for the company to inspect the area.
 - Measure roof area and slope of land to determine the size of your garden (in square feet and depth)
 - Remove unwanted plants from proposed site. You can cover the area with newspaper and cardboard and let that sit for 2 to 3 weeks to kill the weeds. Rake up the detritus when done. Newspaper can be composted (*check the ratios in your compost bin, depending on the amount of paper, you may not want to put it all in the compost at once*).
 - Outline rain garden with spray paint.
 - Cover and stake rain garden area with tarp (in lieu of Roundup®) two weeks prior to construction to keep weeds from returning.
 - Create planting layout and schedule. *Always use native plants in your layout.*
 - Order native plants.
 - Layout line level starting at high gradient to low gradient to determine excavation levels. To do this create 3 line levels spaced evenly across the rain garden— use line level at surface and measure inches to bottom. This will vary from the middle of the garden to the sides.
 - Excavate the remainder of the rain garden (*Lancaster city regulations require the rain garden to be at least 10-feet away from the building’s foundation*).
 - In the event that you have plumbing to rework, do that now prior to planting.
 - Use a portion of the excavated soil to create a perimeter berm with a 2:1 slope.
 - Purchase native plants.
 - Check rain garden for proper grade using the line levels.
- Install plant material in accordance with plant schedule and layout.
- Spread rain garden with 2” of hardwood mulch. Some areas may not be conducive to using mulch; check with your local nursery. Once mulch is spread, water plants.
- Once construction is complete, monitor plants every two weeks until they are well-established.
 - Weed, water, mulch, and monitor to keep your rain garden healthy for years to come.

OPTIONAL ACTIVITIES

SECTION 1B:

To enhance understanding and enrich the experience of building a rain garden:

- Complete wastewater treatment plant field research so students can see where their stormwater is currently being routed.
- Students may want to create a step-by-step video of their work or create a multimedia presentation and/or Facebook page or webpage.
- Promote and conduct a community workshop on site to showcase your rain garden.



MATERIALS- *Not all equipment listed will be needed at each site.*

SECTION 2:

Equipment and Supply List:

- Shovels
- Rakes
- Pick
- Line levels (3+)
- Carpenter level
- Cordless drill and bits
- Gloves
- Wheelbarrow
- Stakes/surveyer line
- Caution tape
- Measuring line/tape
- Infiltrometer *(see right)*
- Large tarp
- Angle grinder/blade
- Hack saw blade
- PVC piping
- Volunteers!

Construction Materials:

- Hardwood mulch *(undyed is preferable, but black tea mulch is okay)*
- Plant material *(according to plant schedule and configuration)*
- 3" - 5" Cobblestone— *(only if burying pipe)*
- 2" - 3" Cobblestone— *(only if burying pipe)*

Plumbing Supplies:

As needed (hire a professional if you need to reroute plumbing, but if you are just extending the downspout you can get supplies at Home Depot)

Infiltrometer example



Directions on how to create your own infiltrometer can be found online at phillywatersheds.org/whats_in_it_for_you/residents/infiltration-test.

PLANTS

SECTION 3A:

Local nurseries in Lancaster County:

Stauffers of Kissel Hill
120 West Airport Road, Lititz, PA

Ken's Garden
2467 Old Philadelphia Pike, Lancaster, PA

Tudbinks
610 Stone Hill Rd, Conestoga, PA

Henry's Farm & Greenhouse
9760, 1258 Oregon Hollow Rd, Holtwood, PA



SECTION 3B:

Examples of plants native to Lancaster, PA:

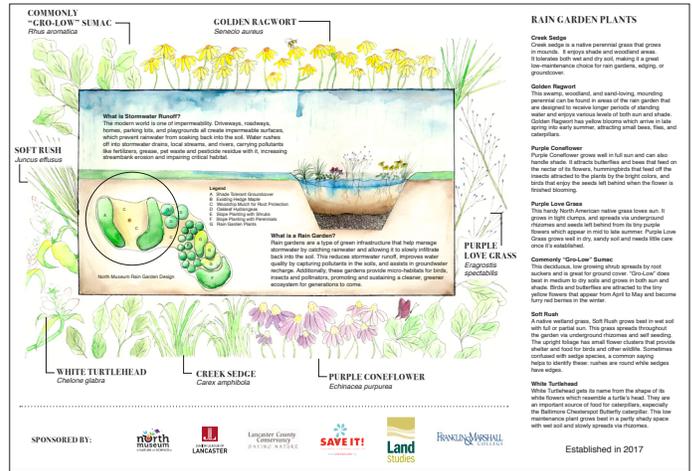
- Asclepias incarnata* - Swamp Milkweed
- Aster novae-angliae* - New England Aster
- Rhus aromatica* - Gro Low Sumac
- Carex amphibola* - Creek Sedge
- Eragrostis spectabilis* - Purple Love Grass
- Packera aurea* - Golden Ragwort
- Echinacea purpurea* - Purple Coneflower
- Iris versicolor* - Blue Flag Iris
- Pennisetum* - Fountain Grass
- Brandywine Red Maple

What is a native plant?

Native plants are an indigenous bunch, naturally occurring in an ecoregion, evolving over time with the soils, the climate, the fauna, and other plants. Once established, native plants don't need as much water and generally require less maintenance, including little to no need for fertilizer. Native plants preserve biodiversity and give native insects a place to feed and pollinate which keeps the birds coming back. By planting natives, not invasives, we ensure the vitality of our natural history and ecosystems remain. What you plant today will determine the Pennsylvania landscape of tomorrow.

Notes:

SIGNAGE



SECTION 4: LABELING YOUR RAIN GARDEN:

How to share your rain garden with others- things to consider when promoting your rain garden.

- What kind of story do you want to tell?
- Virtual signage or in ground (or both)?

- Do you have local artists in your school or community that would assist in creation?
- Located at the North Museum in Lancaster City, this is one example of a rain garden sign. Look at signs around the County and decide the best look for your rain garden. Consider the story you want to tell.

BUDGET

SECTION 5: COSTS AND EXPENSES:

All estimates and depend on the size of garden.

- Engineering /landscape architect design— \$1,500 - \$2,000
- Plants— \$400 - \$750
- Mulch— \$75 - \$150
- Sand— \$25 - \$50
- Cobblestone— \$25 - \$50
- Plumbing supplies— \$20 - \$100
- Permit— \$15 - \$50
- Excavator (if not digging by hand)— \$0 - \$1,000
- Shovels, rakes, gloves, etc.— \$0 - \$150
- TOTAL— \$2,060 - \$3,800



EXAMPLES



North Museum:
400 College Ave, Lancaster, PA



Stone Independent School:
480 New Holland Avenue Suite # 7101 Lancaster, PA



Pineapple Manor:
417 Manor Avenue Millersville, PA