

# Stormwater Management & Watershed Protection: What YOU can do for our streams!

## Maiden Creek Watershed Association

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# Workshop Overview

- Maiden Creek Watershed Association (MCWA)
- Problems with Stormwater Runoff
- Rain Barrels
- Rain Gardens
- Native Plants

**Rain Garden at Maidencreek Township Building**



Funded in part by a Department of Environmental Protection Environmental Education Grant

# Maiden Creek Watershed Association Mission

*To promote awareness of the Maiden Creek Watershed as a valuable resource through community education and citizen water quality monitoring.*



# The Maiden Creek Watershed



Between Lenhartsville & Virginville



Photo by J. Keen Holland  
<http://keensphotos.blogspot.com/>



Maiden Creek Watershed



# Maiden Creek Watershed Association Activities

- Chemical monitoring
- Streamside clean-ups
- Community outreach & education
- Invasive species removal
- Riparian planting
- Stormwater management



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# Stormwater Runoff and Stream Flow



Results in:  
flashy flows  
bed scour  
bank erosion





# Detention Basins:

## Focus on Minimizing Stream Flooding and Erosion

### Improvements:

- sediment and pollutants detained
- reduce peak flows

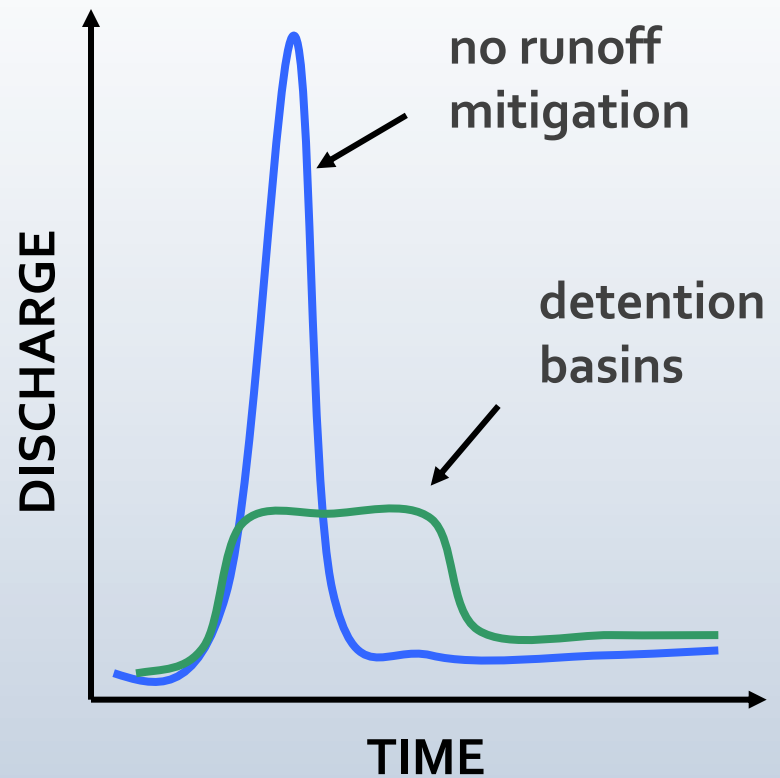




# Detention Basins: Streams Remain Impaired

## Problems:

- volume unchanged
- rise & fall rate unchanged
- groundwater recharge unchanged
- minimal ecological improvement



# Other Options for Reducing Runoff





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# What are Rain Barrels?

A RAIN BARREL is a rainwater collection system that stores rooftop runoff that can be used for irrigating gardens and lawns---*and conserves water!*





# Benefits of Rain Barrels

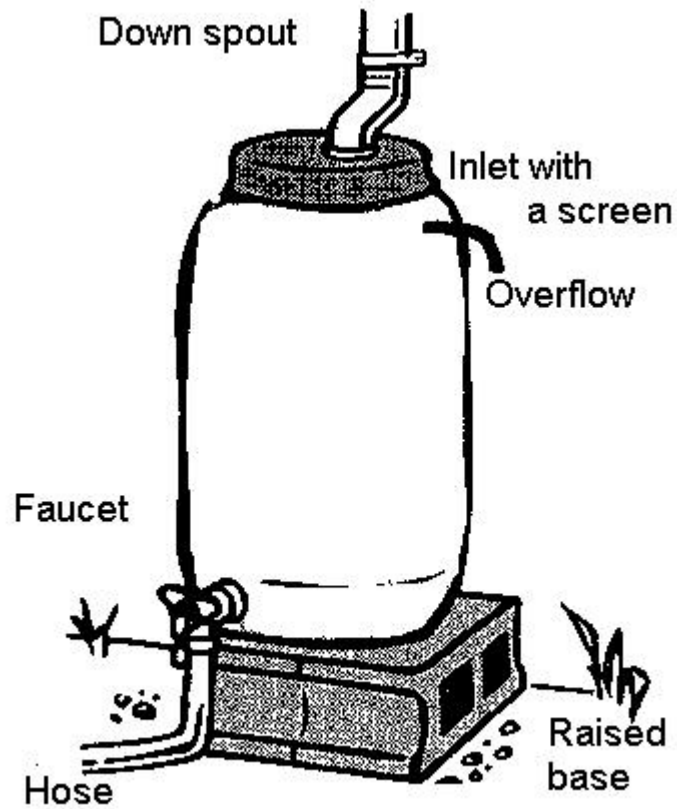
- Conserves water use
- Clean water for gardens, lawns, washing cars, filling pools, etc.
- Reduces roof runoff
- Reduces pollutants from entering streams



***Water from barrel should NEVER be used for drinking, cooking, or bathing!***



# Rain Barrel Components





# Rain Barrel Installation



Rain barrel to  
soaker hose



Multiple rain  
barrel connection



# Rain Barrel Maintenance

- Clean gutters regularly
- Don't let rainwater sit in your barrel longer than a month.
- Use fine mesh screen to cover any openings to prevent mosquitoes
- Make sure overflow valves drain away from structures
- During the winter months, open the spigot so that water flows out or disconnect the barrel from the downspout





# Purchasing Rain Barrels

## Berks County Conservation District

- \$75 each
- Proceeds go to college scholarship fund
- In Partnership with Berks County Prison



BERKS COUNTY  
CONSERVATION DISTRICT

The Berks County Conservation District is offering  
hand-made, custom-crafted rain barrels!

Each rain barrel is a 55 Gallon Plastic Drum with a spigot,  
drain hole, and inlet.

Fill out your order below to purchase your  
Rain barrel\*

**Benefits for You:**

- 80 Reduces roof runoff
- 80 Conserves water use
- 80 Reduces pollutants from entering streams
- 80 Clean water for gardens, lawns, washing cars, etc.!

**Maintenance:**

- 80 Keep openings covered with a fine-mesh screen to prevent mosquito breeding; You can also use "dnunks", a non-toxic bacteria to kill larvae.
- 80 Empty barrel frequently to keep stored water from developing odors.
- 80 Check barrel and connections frequently to remove debris.
- 80 Drain barrel and connections and place in storage during winter to avoid freezing damage.
- 80 *Water from barrel should NEVER be used for drinking, cooking, or bathing!*

A RAIN BARREL is a rainwater collection system that stores rooftop runoff that can be used for irrigating gardens and lawns, and conserves water!



Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Number of Rain Barrels (\$75.00 each) \_\_\_\_\_ Amount enclosed \_\_\_\_\_

Choose your rain barrel color: \_\_\_ Blue \_\_\_ Green \_\_\_ White

Please detach and mail this order form to:  
Berks County Conservation District  
1238 County Welfare Road / Suite 200  
Leesport, PA 19533  
Phone: 610-372-4657

Please make all checks out to *Berks County Conservation District*.

Proceeds support  
Berks County  
environmental  
education and  
College Scholarships

*\*Please allow for 15-20 days to fulfill your order. You will receive a phone call or email when your rain barrel is ready to be picked up.*

[www.berkscd.com](http://www.berkscd.com)



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# Rain Gardens

A shallow, constructed depression designed to soak up rainwater and hold water for <48 hours



# Rain Garden Benefits

- Reduce flooding and erosion of stream banks
- Filter and purify rainwater
- Provide wildlife habitat for beneficial insects, birds, and small animals.
- Enhance the natural beauty of properties and neighborhoods.





# Rain Garden Design & Construction

- Select a location & check soils
- Determine the size (20% of roof)
- Excavate to 6-24"
- Install pipe (optional)
- Amend soil with mulch, peat, & sand
- Plant
- Mulch (seed & straw banks)





# Rain Garden Design & Construction

Rain Garden Alliance

<http://raingardenalliance.org>

The screenshot shows the website's navigation menu with links for Home, What is a Rain Garden?, Is a Rain Garden Right for Me?, Planting a Rain Garden, Registering my Garden, Rain Garden Performance, and About the RGA. Below the menu is a section titled "What size garden do I need?" which includes a paragraph of introductory text, a rain gauge diagram, and a summary table of metrics. At the bottom, there are four input sections: Surface area (with length and width fields), Downspouts (with a dropdown menu), Soil quality (with radio buttons and soil texture icons), and Slope (with radio buttons and slope diagrams).

## What size garden do I need?

Before using our garden calculator below, read these guidelines to get you started. The size of your garden is determined by a number of variables. Some of these are established by the conditions of your yard (such as soil type and yard slope), while others are determined by you (such as amount of roof top to be addressed or rainfall to prepare for). Enter information for the four items across the top (surface area, downspouts, soil type, and slope) then slide the rain gauge up and down to see how rainfall capacity influences the size and cost of your garden.

0	SOFT	GARDEN SIZE
6	IN.	Depth of Garden (per rain event)
0	GALS	RAINFALL CAPTURED (per rain event)
0		NUMBER OF PLANTS (18" between plants)
0		GARDEN COSTS (approximate)

**Surface area**

ft. Length     ft. Width

OR

sq. ft.

**Downspouts**

**Soil quality**

Sandy     Silty     Clayey

**Slope**

Flat    Moderate    Steep  
4 in.    6 in.    8 in.  
Deep    Deep    Deep



# Rain Garden at the Maidencreek Township Building



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# Native Plants

Plants that were here before the settlers arrived in North America

## Benefits:

- adapted to our climate and weather changes
- require less maintenance than non-natives
- provide food and habitat for birds, bees, butterflies and other critters





# Selecting Native Plants

## Considerations:

- Tolerance to water
- Height
- Bloom time
- Bloom color



## Local Sources of Native Plants

Sugarbush Nursery, Mohnton

Edge of the Woods Nursery

Hawk Mt. Sanctuary, Sale 3<sup>rd</sup> Weekend of May

Master Gardners, spring and fall sales



# Reducing Runoff, Protecting Streams



# Thank you!

## Financial Support & Donations:

- Department of Environmental Protection Environmental Education Grant
- Maiden Creek Township
- Systems Design Engineering
- East Coast Erosion Blankets, LLC
- Maiden Creek Watershed Association

## Suppliers:

- Berks Soil & Stone
- Exeter Supply Company
- Zwicky Processing & Recycling
- Environmental Concern

## Volunteers:

- MCWA
- Lions Club of Blandon
- Fleetwood Middle School
- Kutztown University Biology Students
- Berks County Conservation District