

## ***What happens to rain after it falls?***

Rainwater, or snow melt, either soaks into the ground to become groundwater, evaporates, or flows over the surface of the land. The water that flows over the ground is called stormwater or runoff. Areas with buildings, roads, parking lots, or other hard surfaces tend to have more stormwater than undeveloped areas.

## ***Where does stormwater go?***

Because excess stormwater can increase the potential for flooding and property damage, it is collected into a drainage system. Storm sewer systems collect stormwater runoff and carry it away from roads and buildings to a discharge point, often into a stream or river. Pollution, such as oil from cars, road salt, eroded soil, and trash picked up by the stormwater is then deposited into our waterways affecting aquatic life and increasing the risk of flooding.

Many older communities have combined sewer systems, which carry sewage and stormwater runoff in the same pipes. When it rains, the extra stormwater causes the combined sewers to fill to capacity and some of the stormwater and raw sewage mixture directly overflows into our rivers. These events are called combined sewer overflows (CSOs). They pollute our waters and can be hazardous to human health and safety.

## ***What can I do if I cannot disconnect my downspout?***

Consider planting a tree to offset the impacts from stormwater. A single mature oak tree can consume 40,000 gallons of water per year! If you live in a CSO community, try to avoid adding more water into the sewer system during a rain storm. Wait to wash clothes or dishes until after it rains.

## ***Where can I get more information?***

Rain Gardens: [www.raingardenalliance.org](http://www.raingardenalliance.org)

Rain Barrels: [www.ninemilerun.org](http://www.ninemilerun.org)

Tree Selection: [www.patrees.org](http://www.patrees.org)

Green Projects:  
<http://www.alleghenycounty.us/alleghegreen/>

Pennsylvania's Stormwater Best Management Practices Manual (see "Appendix C—Site Evaluation and Soil Testing"): <http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-8305>.

Funding for this project was provided to the Pennsylvania Environmental Council, in partnership with Allegheny County, Audubon Society of Western PA, Etna Borough, Nine Mile Run Watershed Association, Pittsburgh Water and Sewer Authority, and The Penn State Center—Engaging Pittsburgh.

This factsheet has been funded by the League of Women Voters of Pennsylvania Citizen Education Fund through a Section 319 federal Clean Water Act grant from the Pennsylvania Department of Environmental Protection, administered by the US Environmental Protection Agency.



# Keep the rain out of the Drain!

*A Guide to Disconnecting  
Your Downspout*

## ***This sounds like a big problem—what can I do?***

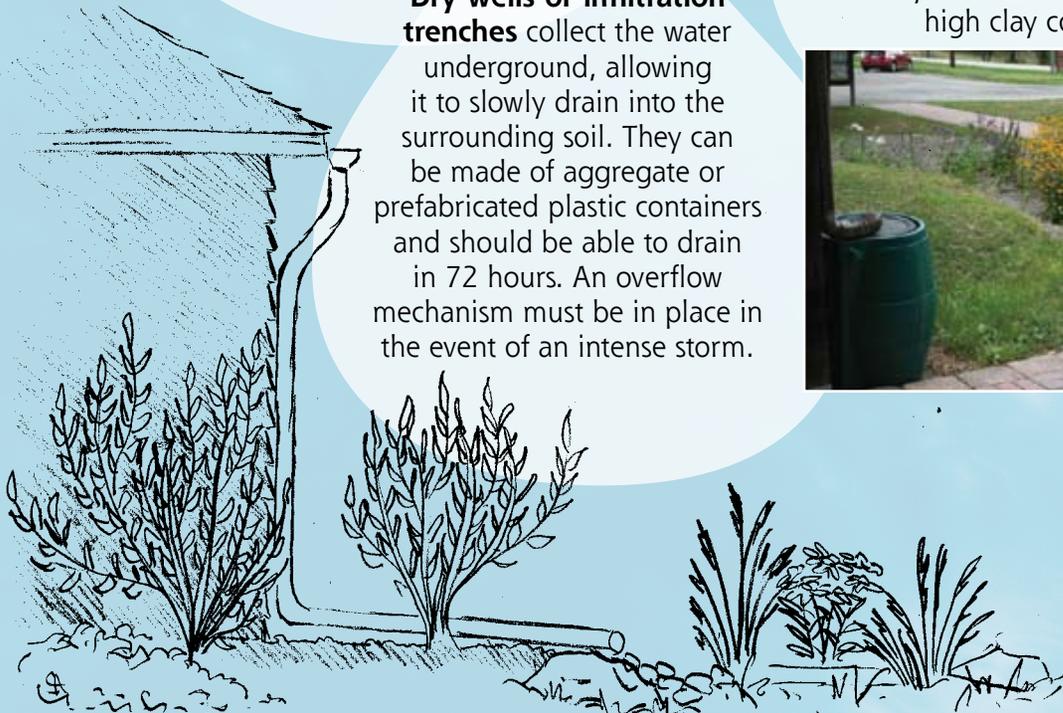
Every home creates additional stormwater when rain flows off the roof. By disconnecting the downspouts, you break the link between your roof and the storm or combined sewer system—keeping the rain out of the drain! Less water flowing into the system means less pollution and reduced risks of flooding.

### **Homeowners have several options for dealing with the water flowing from the roof.**



**Rain barrels or cisterns** collect and store water for later use in landscape irrigation. They can be purchased from a variety of outlets or they can be homemade. It is important that they are made of sturdy materials, have a cover that is difficult to remove and include an overflow system.

**Dry wells or infiltration trenches** collect the water underground, allowing it to slowly drain into the surrounding soil. They can be made of aggregate or prefabricated plastic containers and should be able to drain in 72 hours. An overflow mechanism must be in place in the event of an intense storm.



#### **Rain gardens**

rely on plants to soak up the water. They provide an attractive landscape feature and can be integrated into most yards. However, it is important that your rain garden drain properly within 48 hours (the time frame in which mosquitoes may breed). To improve drainage, soil amendments may be necessary in areas where the soil has high clay content.



## ***Am I allowed to disconnect my downspout?***

**Check with your local municipality to see if it is permitted in your area.**

Even if it is permitted, there are some locations where disconnection is not recommended. Avoid:

- Steep slopes
- Soils with poor drainage (high clay content)
- Septic systems, drain fields, underground oil tanks
- Public sidewalks
- Retaining walls
- Building foundations

If the downspout disconnection is done correctly, the water will not cause harm to any structure on your property or a neighbor's property.

**Deciding what option to use depends upon your lot size, shape, and slope; soils; budget; and any other benefits you would like to see from the investment. For example, rain collected in a barrel can be used to water outdoor plants—saving you money on your water bill.**

# How do you disconnect your downspout?

**Tools needed:** hacksaw, drill, needle-nose pliers or crimpers, tape measure, screwdriver, sheet metal screws, downspout elbow and extension, cap and clamps for sewer standpipe, splash block or rain barrel.



Using a hacksaw, cut your downspout approximately 9 inches above the sewer standpipe, or if installing a rain barrel, make your cut above the barrel according to the manufacturer's instructions.

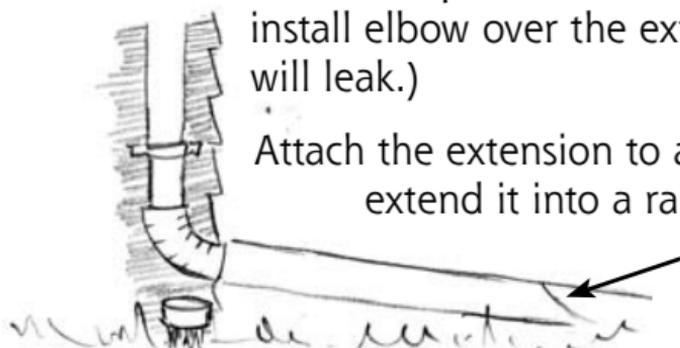
**STANDPIPE**

Plug or cap the standpipe using an over the pipe cap secured by a hose clamp. (Do not seal the standpipe with concrete!)



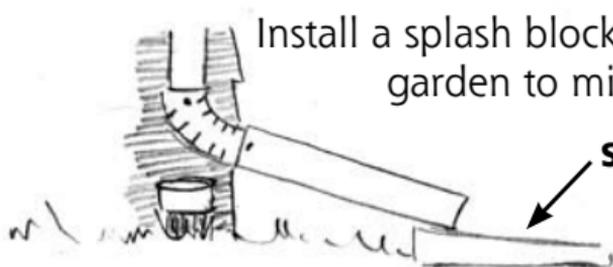
Insert downspout INTO the elbow and attach using sheet metal screws and predrilled holes. (Do not insert the elbow up inside the downspout or it will leak).

Insert the elbow into the extension and attach using sheet metal screws and pre-drilled holes. (Do not install elbow over the extension or it will leak.)



Attach the extension to a rain barrel or extend it into a rain garden.

**EXTENSION**



Install a splash block in your rain garden to minimize erosion.

**SPLASH BLOCK**

# How do I determine if I can disconnect my downspout?

**First, check with your local municipality about any special rules or regulations they have about installing stormwater management structures on your property.**

Look where your downspouts flow. If they are not connected to a sewer system, then you may not need to disconnect them.

Examine your yard to see if you have enough space. Stormwater discharge points must be:

- 2 feet from a building without a basement
- 6 feet from a building with a basement (10 feet if you are installing a dry well)
- 5 feet from a neighbor's property
- 10 feet from a neighbor's building
- 10 feet from a retaining wall.

The slope of your property must be less than 10% and drain away from any structure. Visit [www.raingardenalliance.org](http://www.raingardenalliance.org) for step-by-step instructions to calculate the slope of your yard.

Avoid: public sidewalks, septic systems, drain fields, or underground storage tanks.

## **SAFETY CONSIDERATIONS**

Decide how you are going to manage your stormwater and have all the materials ready for installation *before* you disconnect.

Use only durable, gutter grade materials.

Clean gutters twice per year and monitor downspouts and extensions for clogging.

Maintain your rain barrel, rain garden, or dry well as instructed.

Funding for this project was provided to the Pennsylvania Environmental Council, in partnership with Allegheny County, Audubon Society of Western PA, Etna Borough, Nine Mile Run Watershed Association, Pittsburgh Water and Sewer Authority, and The Penn State Center—Engaging Pittsburgh.

This factsheet has been funded by the League of Women Voters of Pennsylvania Citizen Education Fund through a Section 319 federal Clean Water Act grant from the Pennsylvania Department of Environmental Protection, administered by the US Environmental Protection Agency.