

# GREEN HOMES Sample Projects



Green City, Clean Waters

[www.phillywatersheds.org](http://www.phillywatersheds.org)

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A rain barrel or cistern is a structure that collects and stores stormwater runoff from rooftops. The collected rain water can be used for irrigation to water lawns, gardens, window boxes or street trees. By temporarily holding the stormwater runoff during a rain event, more capacity can be added to the city's sewer system. However, rain barrels and cisterns only serve an effective stormwater control function if the stored water is used or emptied between most storms so that there is free storage volume for the next storm. Rain barrels are designed to overflow into the sewer system through the existing downspout connection in large storm events. Although these systems only store a small volume of stormwater, collectively, they can be effective at preventing large volumes of runoff from entering the sewer system

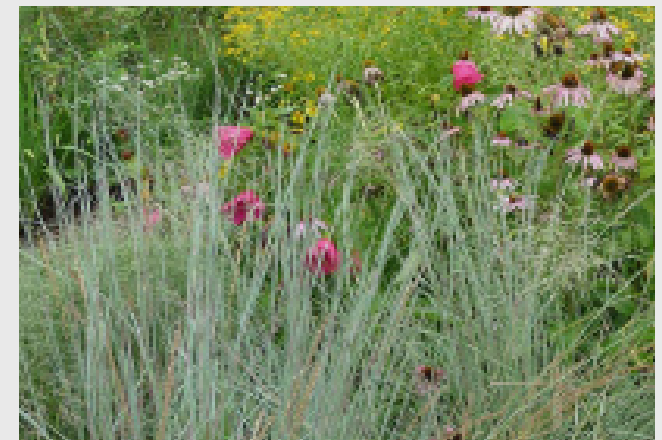
Residential Rain Barrel  
Philadelphia, PA

Rain Barrel/Cistern



A flow-through planter is a structure that is designed to allow stormwater from roof gutters to flow through and be used by the plants. Flow-through planters are filled with gravel, soil, vegetation and a connection to the roof downspout to let water flow in. They temporarily store stormwater runoff on top of the soil and filter sediment and pollutants as water infiltrates down through the planter. They are typically waterproofed, and the bottom of the planter is normally impervious. Thereby, planters do not infiltrate runoff into the ground, rather they rely on evapotranspiration and short-term storage to manage stormwater. Excess water can overflow into the existing downspout connection. Flow-through planters can be constructed in many sizes and shapes, and with various materials, including concrete, brick, plastic lumber or wood.

Flow-Through Planter Philadelphia, PA



A rain garden is a garden designed to collect runoff from impervious surfaces such as roofs, walkways, and parking lots, allowing water to infiltrate into the ground. The garden is typically moderately depressed (lower than the surrounding ground level), with the bottom layer filled with stone, so runoff can collect and pond within it. The site is graded appropriately to cause stormwater to flow into the rain garden area from the nearby impervious area. The water ponds on the surface, is used by the vegetation in evapotranspiration, and infiltrates into the subsurface stone storage and soil. Rain gardens can be connected to sewer systems through an overflow structure, but usually they are sized to infiltrate the collected stormwater runoff within 72 hours. Flexible and easy to incorporate into landscaped areas, rain gardens are suitable for many types and sizes of development and retrofits. Rain gardens are effective at removing pollutants and reducing stormwater runoff volume.

Wissahickon Charter School  
Philadelphia, PA

Rain Garden

# Maintenance and Monitoring



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## Rain Garden

Water plants immediately after planting the rain garden. Then, while they are becoming established for about six to eight weeks some supplemental water may be needed during dry periods. Supplemental watering may also be required during extended or severe drought periods over the life of the rain garden. Once the rain garden has become established maintenance is minimal and will generally only include periodic mulching, weeding, pruning, thinning, and plant replacement.

### GENERAL MAINTENANCE CHECKLIST

**Weeding:** Weeding should be performed three to four times a year for first two years. By the third year most plants will be larger and can out-compete weeds. You will still want to weed twice a year (spring and mid-summer) for appearance of the garden. Spring weeding eliminates early weeds then another weeding in mid-summer helps keep down a second round of warm weather weeds.

**Mulching:** Add mulch in spring to maintain two to three inches of coarse hardwood mulch layer.

**Pruning:** Prune and thin plants in spring or fall. Plants differ in their needs so read up on your specific plants.

**General cleanup:** Clean up dead vegetation and fallen leaves. These materials can be used to make compost. Mature compost can be added to the rain garden's soil to improve the soil's nutrients and texture.

### MONITORING

Be sure to inspect your rain garden periodically during and/or immediately after rainfall events to be sure the rain garden is working as designed. This means that water that has ponded in garden should soak into the soil in 24 to 48 hours after a given rain storm. You may also need to rake the mulch that may have been moved so that it is spread out and level after a heavy rain. Take pictures during the installation and over the seasons along with some notes on the plants and materials you've used. This way you can see which plants are performing the best and determine if any need to be replaced.

Enjoy! Butterflies and birds will visit your rain garden for nourishment from native plants.

## Flow-Through Planter

### MAINTENANCE

1. Water vegetation immediately after planting and then weekly if it does not rain for the first six to eight weeks.
2. Water vegetation during extended droughts otherwise stormwater flow through planter should not require any watering. A good rule of thumb is if plants appear to be wilting then water as you would any garden or planter.
3. Keep the overflow free and clear of debris, checking it periodically after rain storms.
4. Keep the downspout connection (diverter) connected to and directed into planter.
5. Weed if needed.

### MONITORING OF STORMWATER FLOW THROUGH PLANTER

1. Check stormwater flow through planter after rainstorms to make sure that the water soaks into the soil or evaporates within 24 hours. If water is not draining, ensure that your underdrain valve is open sufficiently.
2. Recheck downspout connection into stormwater flow through planter to ensure that nothing is dislodged following an intense storm.
3. Inspect plants to evaluate health and replace if necessary.
4. Cut back or remove dead vegetation in fall and remove all dead organic material from the stormwater flow through planter. Keep soil and debris off of the top of the stone mulch so floatable material does not clog the overflow device.
5. Check to ensure your roof gutters that lead to the downspout are free of leaves and other debris.
6. Check all plumbing connections and the overall box for any potential leaking. Caulk connections or replace parts if leaking persists.

## Rain Barrel/ Cistern

### MAINTENANCE

1. Water vegetation immediately after planting and then weekly if it does not rain for the first six to eight weeks.
2. Water vegetation during extended droughts otherwise storm water flow through planter should not require any watering. A good rule of thumb is if plants appear to be wilting then water as you would any garden or planter.
3. Keep the overflow free and clear of debris, checking it periodically after rain storms.
4. Keep the downspout connection (diverter) connected to and directed into planter.

### MONITORING

1. Check to make sure downspout and diverter in place after every storm.
2. Check the screen and clean of any debris.
3. Ensure faucet is closed for next storm.
4. Ensure overflow is not causing any flooding to your property or neighbor's property.