

Managing Stormwater

through Downspout Disconnection



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Benefits of downspout disconnection.

Disconnecting downspouts from the sewer system and redirecting stormwater runoff to permeable surfaces or rain gardens can offer several environmental benefits:

1. Reduced Pollution: When rainwater flows off roofs into downspouts and then into the sewer system, it often picks up pollutants like oil, fertilizers, pesticides, and other contaminants along the way. Redirecting this water to permeable surfaces allows it to filter naturally through the soil, which helps to remove pollutants and protect water quality.

2. Decreased Flood Risk: By diverting stormwater away from the sewer system and directing it to areas where it can be absorbed into the ground, the risk of urban flooding can be reduced. This can help prevent damage to property and infrastructure caused by excess runoff during heavy rain events.

3. Groundwater Recharge: Allowing rainwater to infiltrate into the soil helps to replenish groundwater supplies. This is especially important in areas where groundwater levels are declining due to overuse or drought conditions.

4. Improved Soil Health: Rainwater absorbed into the soil can contribute to soil moisture levels, promoting healthier vegetation and microbial activity. This can help support biodiversity and ecosystem resilience.



5. Enhanced Habitat: Creating rain gardens or other green infrastructure features to capture stormwater runoff can provide habitat for wildlife, including birds, insects, and small mammals. These habitats contribute to urban biodiversity and can enhance the overall ecological value of an area.

6. Conservation of Potable Water: By capturing and using rainwater for irrigation or other non-potable purposes, disconnecting downspouts can help reduce the demand for potable water resources, especially during dry periods or in regions facing water scarcity.

Overall, disconnecting downspouts and implementing strategies to manage stormwater runoff can play a significant role in promoting sustainable urban development and mitigating the environmental impacts of urbanization.

Cautions for downspout disconnection.

What is involved with disconnecting a downspout.

You can disconnect your downspouts from existing standpipes and let it flow into landscaped areas or lawns. Disconnection can be a low-maintenance option to help move water away from building foundations and allow it to soak into the ground. Disconnecting includes cutting the downspout; using elbows, extensions, and/or splashblocks to direct the water to flow away from the house; plugging the standpipe; and securing the materials to existing structures.



Safety Concerns

There are safety and location considerations to verify before disconnecting your downspout.

1. **Slope:** Add or remove soil to make sure that the slope of the ground allows water to drain away from structures. However, do not disconnect downspouts on slopes over 10%.
2. **Drainage:** Avoid disconnecting downspouts on an area too small for good drainage (See page x for guidelines).
3. **Access:** Avoid disconnecting downspout extensions across a walkway, stairs, patio, driveway, or in front of a gate because of possible tripping hazards.

4. **Extensions:** Disconnected downspouts must be extended to discharge water at least 6 feet from a structure's basement and 2 feet from a structure's crawl space or slab foundation.



Downspout extensions and surrounding landscape surface areas must drain water away from any structures. Do not disconnect within 10 feet of a retaining wall.

5. **Property Lines:** The end of your downspout extension must be at least 5 feet from your neighbor's property line and 3 feet from the public sidewalk. You may need more room if your yard slopes towards your neighbor's property or the sidewalk.

Don't disconnect if:

- Do not disconnect a downspout directly over a septic system, drain field, or an underground oil tank unless they have been decommission.
- You are within 500 ft. of steep slopes or landslide-prone areas.
- You have high groundwater or poor drainage in winter (springs, soggy lawns).
- Runoff may flood neighboring properties or sidewalks.
- The ground around your house slopes back toward the foundation.

Design your disconnection.

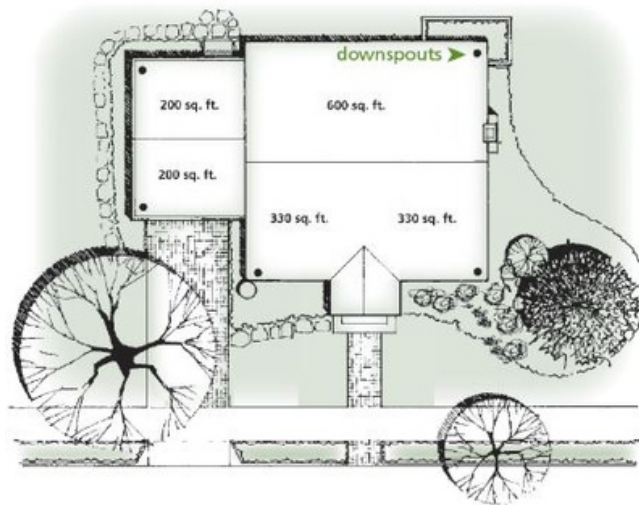
Observe Your Site

Find out where runoff from your downspouts goes. Water that drains into a standpipes may drain into the public sewer system, a curb cut (a hole in the curb at the sidewalk), a soaking trench, a drywell, or other stormwater drainage system. Check your house, garage, and other covered surfaces. Are your downspouts draining to your lawn or are they connected to the sewer system or to drywells?

If your downspouts drain into soakage trenches or drywells on your property and they are in good working order, you do not need to disconnect the downspouts.

Draw what you see

Sketch a site plan. You can print an aerial view of your property from Google Earth as a starting point.



Contact Myrtle Creek Planning Department

Once the design is created contact the Myrtle Creek Planning Department at 541-863-3171 to have the plan inspected. This is done to ensure that the disconnect will not affect neighboring properties.

Mark the locations of downspouts and roof lines. Estimate the square footage of your roof areas. Map out areas in your yard – downslope of structures or buildings – where the runoff can flow and soak into the ground safely.

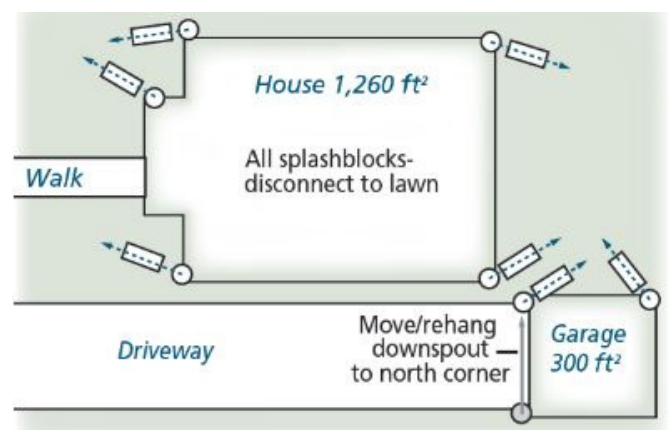
Design Your Disconnection

Mark downspouts to be disconnected on your existing site plan. Mark where you might pitch gutters, move downspouts, remove walkways or other impervious areas, or add extensions or elbows to get around plants or other obstructions.

Make sure you have enough landscaped area for rain to soak safely into the ground. The ground area must be at least 10% of the roof area that drains to the downspout you are disconnecting.

For example, to drain 500 square feet of rooftop, there should be at least 50 square feet of landscape.

roof area	sizing factor	landscaped area size
500 sq.ft.	x 10%	= 50 sq.ft. (or 5'x10')



images provided by @City of Portland, courtesy Bureau of Environmental Services

Creating your disconnection.

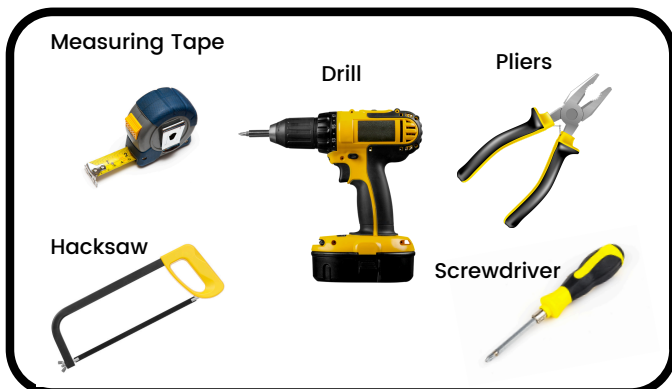
Materials

Make a list of the parts and materials needed. Downspout elbows and extensions come in a few standard shapes, sizes, colors, and materials to fit your gutters. Ask if the materials you choose can be painted to match your paint color or blend into your landscaping. Sewer standpipes must be sealed with a rubber cap secured by a hose clamp or with a wind-nut test plug. Most standpipes are between three and five inches wide. Measure the outside diameter of yours before shopping.

Some downspouts are attached only to the gutter and the sewer standpipe. If so, you may need to secure your downspout to your house with a bracket or strap to keep in place when you disconnect.

Use durable, gutter grade materials such as aluminum, steel, copper, vinyl, and plastic. Black ABS SCH 40 plastic is a durable option found in most hardware stores and home centers. Do NOT use corrugated black plastic (ADS), roll-out-hose, PVC pipe, dryer hose, swivel or open trough materials because of their limited durability.

Tools you will need



Project Supplies

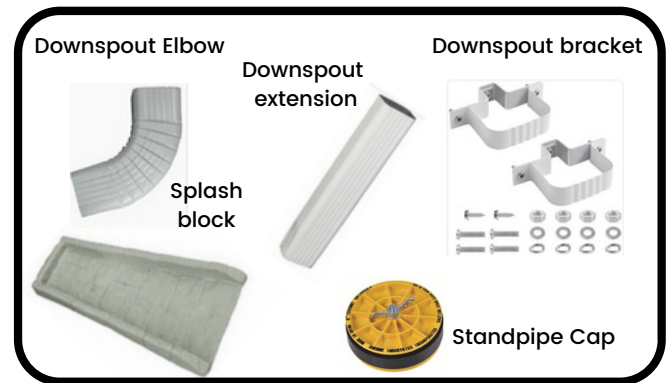


image from: Milwaukee Metropolitan Sewerage District

Disconnection process.

All disconnections should meet the safety considerations found on page 3 and the water should flow away from all structures.

STEP 1 Measure the existing downspout from the top of the standpipe and mark it at about 9 inches above the standpipe. You may need to cut the downspout higher depending on the length of your extension.

STEP 2 Cut the existing downspout with a hacksaw at the mark. Remove the cut piece.

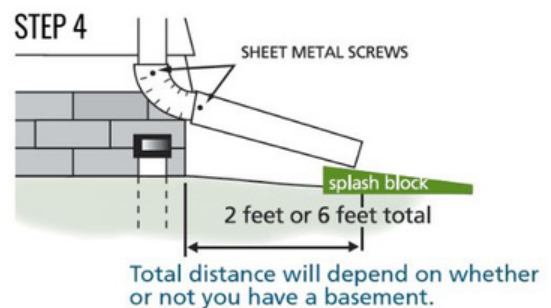
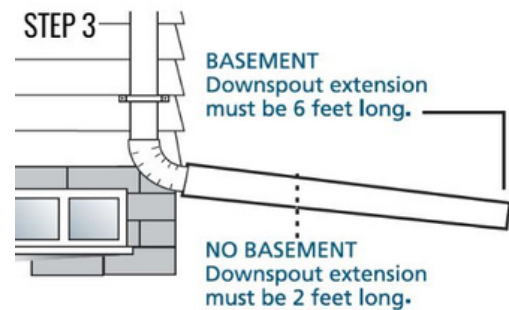
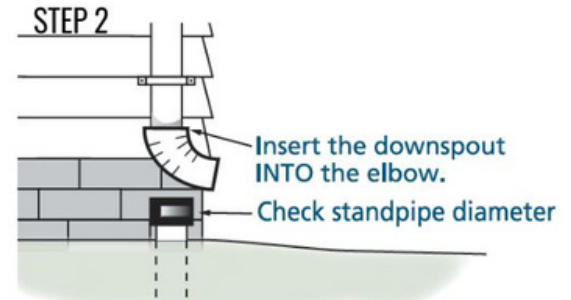
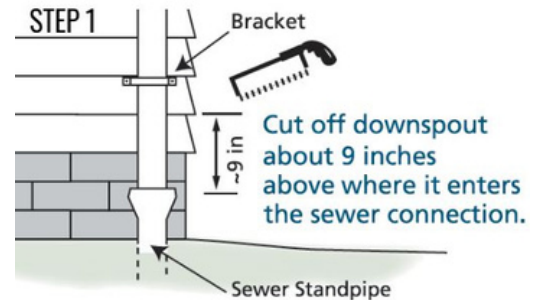
STEP 3 Plug or cap the standpipe using an in-pipe test plug or an over-the-pipe cap secured by a hose clamp. Do NOT use concrete to seal your standpipe.

STEP 4 Attach the elbow. Be sure to attach the elbow OVER the downspout. Do NOT insert the elbow up inside the downspout or it will leak. If the elbow does not fit over the downspout, use crimpers or needle-nose pliers to crimp the end of the cut downspout so it slides INSIDE the elbow. It helps to predrill holes for the screws at the joints where the downspout, elbow, and extension will connect.

STEP 5 Measure and cut the downspout extension to the desired length. Attach the extension to the elbow by slipping the extension OVER the end of the elbow. Do NOT install the elbow over the extension or it will leak.

STEP 6 Secure the pieces with sheet metal screws at the joints.

STEP 7 Using a splash block at the end of the extension is optional, but will help prevent soil erosion.

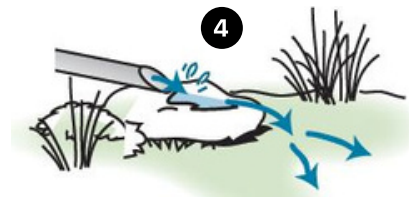
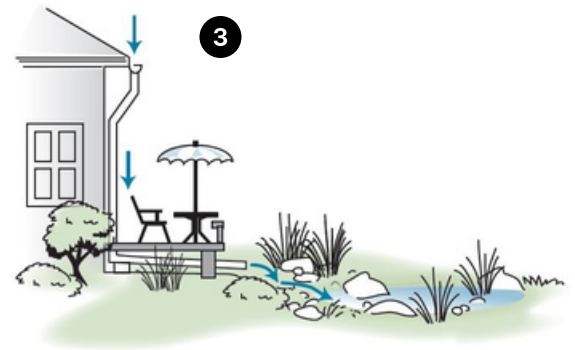
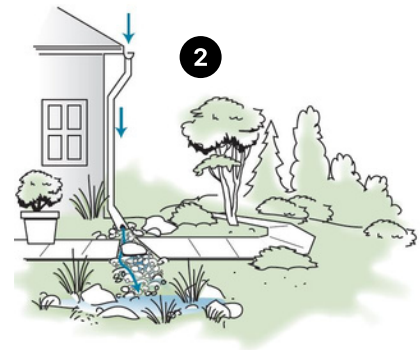


Images and information from @capitalregionwater

Other disconnection options.

Disconnection Options

- 1 Consider installing a hinged downspout elbow and enclosed extension that you can flip up against the house during dry weather or lawn mowing. The extension must be enclosed, not an open trough (See Diagram 1).
- 2 Think about creating a space to disconnect by removing paved surfaces such as concrete pathways, patios, or unused driveway area.
- 3 Replace pavement or concrete with pavers or gravel where appropriate to allow for infiltration (See Diagram 2).
- 4 Extend downspouts underneath a deck or raised patio to get runoff to a landscaped area (see Diagram 3).
- 5 Use plastic or concrete splashblocks, rocks, flagstone, or boulders at the end of downspouts to control erosion, help direct runoff, and visual interest (See Diagram 4).
- 6 Incorporate other stormwater management systems into your downspout disconnections, such as a rain garden, soakage trench, or rainwater harvesting system.



images provided by @City of Portland, courtesy
Bureau of Environmental Services

Rain barrels.

Rain Barrel Benefits and Uses

- Rain barrels cut down on the amount of water that enters the sewer system.
- Using rain water for watering lawns and flowers can help reduce water bills.
- A rain barrel is not a standalone stormwater management system. You will need to have additional means to divert water runoff.

Rain Barrel Benefits Safety

- Install your rain barrel on a solid level surface.
- If small children or pets will be around the rain barrel it can be attached to a stable structure to prevent tipping.
- Do not use rain barrel water for drinking, cooking, or bathing.
- It is a good rule of thumb to use water in a rain barrel within a week of rainfall.

Installing a Rain Barrel

- Prepare a solid, level, raised location for your rain barrel.
- Place the rain barrel.
- Mark the rain gutter downspout where you will be attaching a downspout elbow to divert water into the rain barrel.
- Cut the downspout and attach the elbow.
- Make sure the rain barrel has a screen to prevent insects and debris from entering.
- Install a hose spigot at the base of the rain barrel.
- If your rain barrel does not have an overflow, install one and divert the overflow away from any structure foundations.

Rain Barrel Maintenance

Rain barrels require little maintenance.

- Occasionally check for debris and clogs in the hose.
- Prevent mosquitoes by keeping a tight cover on your rain barrel. Adding a tablespoon of vegetable oil will help with mosquitos as well.



Image: Philadelphia Homeowner BMP Manual

Rain Barrel Maintenance cont.

- If you live where there is a chance of freezing during the winter, you will want to decommission your rain barrel for the season. Disconnect hoses, clean, and dry the barrel. Storing the barrel upside down for the winter will keep it dry and relatively clean.
- It is also recommended to disconnect and clean your rain barrel inside with warm soapy water once a year. Allow to fully dry before reconnecting.

Rain gardens.

Rain Garden Benefits

Rain gardens offer a sustainable and environmentally friendly solution to various water management challenges, while also being aesthetically pleasing. Aside from the natural beauty they provide rain garden benefits also include:

- **Stormwater Management:** Rain gardens help to mitigate stormwater runoff by absorbing and filtering rainwater. They reduce the amount of water flowing into storm drains and nearby water bodies, which helps prevent erosion, flooding, and water pollution.
- **Water Conservation:** By capturing rainwater, rain gardens promote water conservation. They allow water to infiltrate into the soil, replenishing groundwater supplies and reducing the need for irrigation.
- **Improved Water Quality:** Rain gardens act as natural filters, trapping pollutants such as sediment, nutrients, and chemicals from runoff. This helps improve water quality in streams, rivers, and other bodies of water downstream.

Rain Garden Planning

Rain gardens should be planned relatively close to a gutter downspout and should be placed at least 5 feet from a foundation. Plan the site of the garden to be a little higher than where the overflow water will naturally exit the garden.

Testing of soil infiltration is also important to verify how fast the soil will be able to absorb water when fully saturated.

As with any water management system consider where the overflow will be draining to avoid water draining onto neighboring property or onto sidewalks.



Rain Garden Resources

Below are available resources for designing your own rain garden:

- **The Oregon Rain Garden Guide:**
<https://emswcd.org/wp-content/uploads/2013/10/Rain-Gardens-Guide.pdf>
- **United States Environmental Protection Agency:**
<https://www.epa.gov/soakuptherain/soak-rain-rain-gardens>
- **Portland.gov:**
<https://www.portland.gov/bes/stormwater/managing-rain-your-property/rain-gardens>

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