

SMART WORDS *for* **SMART HOMEOWNERS**

Welcome to the experience of experts and their advice on relevant homeowner topics.

An Information eLetter

PROPER STORM DRAINAGE

Overview

A few things about drainage are knowable: without the proper slope and correct materials you risk water entry where water should not be. There no magic to ensuring good drainage. You need to lead water away from your house. It's common sense and back breaking labor.

Materials You'll Need

- 1) 4" flexible corrugated plastic drain pipe. Use black perforated corrugated flex-pipe where surface water needs to drain also. Measure what you need.
- 2) 4" PVC fittings of various types including a downspout adapter.
- 3) A "Pop-Up Drainage Emitter." It's a cheap, simple and effective end cap that almost vanishes when the water is gone and pops up when it has to drain. One for each final.
- 4) A can of PVC glue - to join PVC pipe and fittings.
- 5) A can of PVC primer.
- 6) A clothe sleeve (sock) that fits over the perforated sections of pipe and prevents silt from entering the perforations and clogging the pipe. Measure what you need.
- 7) A spray can of ground marker or you can use white flour sprinkled onto ground to outline the trench direction.
- 8) Bags of gravel or a delivery from a local stone yard.
- 9) Lots of cardboard to temporarily hold soil dug from trench on one side and the lawn/sod on the other side of the trench.
- 10) Masons line/string.
- 11) Sheet mettles screws - 1 1/2"
- 12) Wood or metal stakes to hold the line.



Tools You'll Need

- 1) A long tape measure,
- 2) A line level.
- 3) A shovel to dig the trenches.
- 4) A long level to check drainpipe for proper slope.
- 5) A small sledgehammer to pound in stakes.
- 6) Handsaw and hacksaw or to cut the PVC pipe.

The Steps You'll Take

- 1) Outline the direction of the trench, stake it and mark it.
- 2) Dig the trench to the right slope.
- 3) Add layer of gravel.

The center dome pops up when water lifts it. Otherwise it stays in this closed position.



- 4) Lay the pipe lengths and fittings next to the trench.
- 5) Attach and secure/screw a starter elbow to the downspout. Insert adapter or reducer if needed.
- 6) Continue the connections using the mesh sock where needed.
- 7) Finish with a Pop-Up Drainage Emitter.
- 8) Add more gravel, finish the job, backfill and add the sod.

Details:

- 1) Outline the direction of the trench, stake it and mark it. Use string and stakes to lay out the trench. Pound in your stakes, the first set a few inches from the first downspout then about 4 to 6 feet apart. End at the area that is lower on your property where the water can be carried further away on its own and Not onto your neighbors property. Tie the string to the downspout then around all the stakes. If you are planning to join two locations into a single outlet plan it now. This is your dig line. Spray mark it or sprinkle flour from a can along the string to mark the dig line. Lay cardboard along the edge of the dig line. Now you can remove the string and stakes.
- 2) Dig the trench to the right slope. Place the sod on one side to the cardboard and the dirt on the other side. Don't smother the sod that you are removing. Check the slope at the bottom of your ditch with your level. The bubble should be off center, indicating down hill, all the way from the house to the end point. The drain pipe will serve a few functions. It will carry (lead) the gutter water away from the house and on its way the pipe will also help to drain the "puddle" areas of your lawn. The pipe needs to be 4" to 6" below the surface of the lawn.
- 3) Add 2" thick layer of gravel to the base of the trench. This is a bed for the pipe.
- 4) Lay out the pipe lengths and the fittings along side the trench. Dry fit them together. If you need more parts send someone to get them now.
- 5) Attach, secure/screw a starter elbow (the adapter to the aluminum gutter downspout) to your downspout. Slip it onto the bottom end of the downspout and the other end will accept the drain pipe. Some come with a 90 degree turn.
- 6) Continue the connections from pipe to pipe. Be sure to cover any pipe that is perforated or has holes in it with the mesh sock. Failure to use this sock is a common mistake. Without it the pipe will fill with dirt and the entire system will fail to function properly.
- 7) The last attachment you make is the Pop-Up Drainage Emitter. You only need to use this device if your final point is a lawn or some area that needs "eye appeal." When all the sections are attached and secure place it all in the trench.
- 8) Add more gravel to the sides of the pipe. To complete the task and make it look good you have to back fill all the dirt. Compact it occasionally. Save the sod for last. Once all the dirt is in place water it. Compact it again. Let it sit for a day or two. Add the sod neatly and water it again. You can add seed where the slices show. They will fill in in a few weeks. The mound that you have will be reduced over time.



