



Using Under Drain System

To convey and infiltrate storm water

Why use an under drain system?

These systems can hold and/or slowly infiltrate roof, sump pump or driveway runoff as well as areas where runoff stands for long periods in locations that are too narrow for a rain garden, such as in-between houses, next to driveways or in back yard drainage areas. Rain gardens are better where there's room, because the plants and compost-amended soil in them clean runoff while enhancing your property's landscape.

Under drain systems can also be used in place of rock filled trench drain systems to help alleviate areas where standing water or saturation occurs for long periods (longer than 48 hrs). They can be covered by turf or decorative rock, incorporated to your property as a landscape feature or directed to a nearby storm drain.

Where to use an Under Drain system

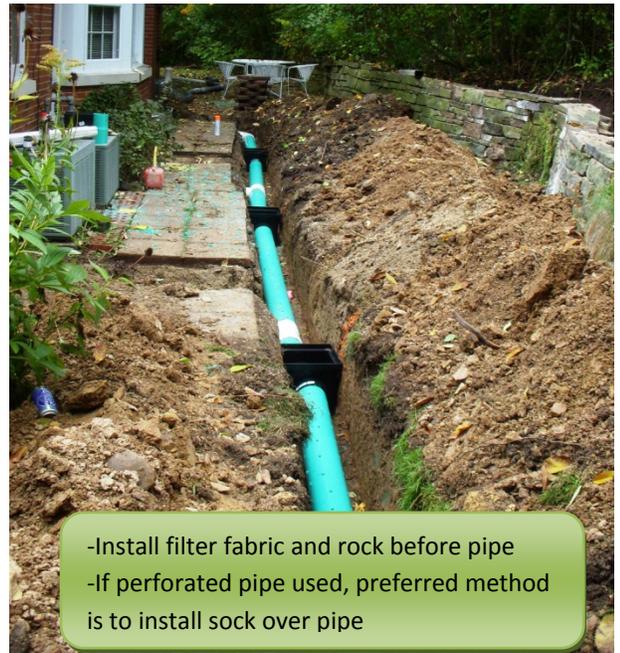
- ☔ **Don't install any infiltration measure within 500 feet of steep slopes or landslide-prone areas.** Check your address with the steep slope and known landslide-prone
- ☔ **Don't locate over underground utilities or major tree roots.**
- ☔ **These systems** should collect water from roofs, sump pumps, driveways, or patios and carry that water away from buildings and your neighbors' property, at no more than a 15% slope (1 foot drop in 7 feet). (Slopes greater than 4% require check dams.)
- ☔ **Located** at least 5 feet away from your side and back property lines, and **at least 5-10 feet away from any building.**
- ☔ For systems deeper than 24 inches, consult an Engineer.

Getting started on rock-filled conveyance or infiltration trenches

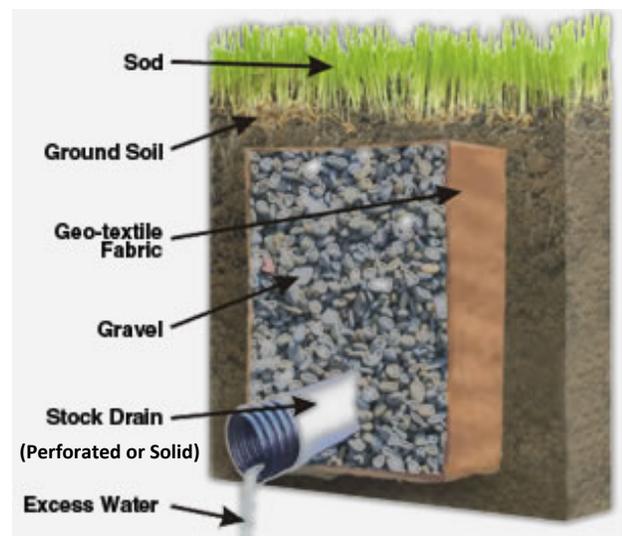
- ☔ **Determine where the water will flow.** Use a level or a running hose to determine which way the ground slopes from a driveway, roof downspout, sump pump or area with standing water or saturation you want to infiltrate into the system.
- ☔ **Determine the size of pipe diameter needed** to slowly carry runoff to a safe overflow area: to a storm drain, to a large lawn or landscape area, or to a rain garden or "dry well". The most popular pipe sizes tend to be 4-6 inches in diameter.
- ☔ **Determine the size needed For Deeper Trenches (>24 inches deep)** Consult an engineer for sizing information, or if uncertain about the suitability of your site. .

Suggested Private Drain System

Example-Grated System



Installation Diagrams-No Grates



Installing the trench

- ☔ **Choose type of under drain material you want to use.** There are many products on the market, a few examples are PVC, drain tile, perforated drain tile, socked perforated drain tile, Hydraway (perimeter/subsurface drain product)
- ☔ **Dig the trench, and line sides with non-woven filter fabric** to keep dirt outside from moving in and clogging the rock spaces.
- ☔ **Line the trench bottom with 1 inch washed gravel fill or “clean rock”.** Line the bottom of the trench landscape fabric, install more rock and a final layer of filter fabric then fill the last 6-8 inches with soil and vegetate with sod or seed. (See diagram page 1)
- ☔ **For a grated system,** the installation is the same as for non-grated however you will have to install the grates and connect to the system at your designated spots. (See photo on right)
- ☔ **Direct driveway, sump pump, downspout runoff, etc. to trench.**
- ☔ **Be sure to provide for a safe overflow route** from the lowest point on the trench to a large lawn or landscape area, “dry well”, storm drain or a rain garden without flooding your neighbor’s property.

Non-Turf Under Drain System

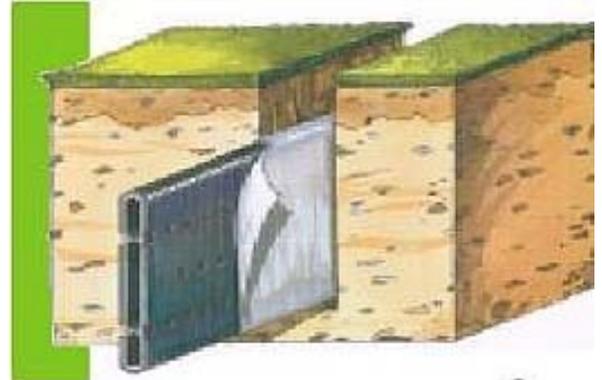


Installing A Subsurface Drain System

(Information Provided from Hydraway Drainage Systems)

- ☔ **Locate area that tends to gather water.** Map a drainage route for water to exit if covering a larger area, it is best to arrange an alternating arrow pattern.
- ☔ **Contact local utility providers** to ensure that not utility lines or pipes will not be compromised (call 1-800-dig-rite in Missouri)
- ☔ **Map a drainage route,** and then dig the linear trench along the path to allow proper drainage. The trench can be as narrow as 3” and up to 9 ft deep. It is recommended to save the dug grass patches in good condition or use a sod cutter to cover the fill after installation is complete.
- ☔ **Place material in the center of the trench,** stand upright (make sure spacing is even on the sides).
- ☔ **Cover with backfill consisting of sand and pea gravel blend.** Be sure to cover all sides but make sure to leave enough room on the top for some soil and grass removed

Subsurface Drain System



Disclaimer: This sheet contains general principles only, which may not be appropriate or safe for every property or project. Use good common sense. You assume the risk and are responsible for all consequences of your modifications to drainage flow or your property, for legal compliance, and for necessary permits and authorizations. The City of O’Fallon is not responsible for your modifications and disclaims liability for your actions.