Roger Williamson
FOUNDATION REPAIR
THE MOST TRUSTED NAME IN FOUNDATION REPAIR

What Are "French Drains"?

Unlike a surface drain, which is intended to channel off rain and sprinkler water, a French Drain alleviates the flow or build-up of sub-surface water, which if unchecked can lead to excessive foundation movements and/or retaining wall failure.

Foundations:

If excessive amounts of water flow under a home's foundation, it can create either a heaval (where the overly hydrated soil swells and raises portions of the slab), or in some cases interior settlement (central portions of a home sinking as the underlying soils are eroded away by the water flow). The French Drain collects sub-surface water flow before it extends under the foundation slab, and channels it around the home either through natural gravity flow, or the use of a sump pump.

Retaining Walls:

As excessive moisture builds in the soils behind a retaining wall, both from sub-surface flow and surface water saturation, the soil swell pressure combines with the hydrostatic pressure and pushes on the retaining wall with great force. If the wall is not designed to allow this moisture to drain and these pressures to "vent", then the wall will ultimately succumb and fail. A French Drain should be installed to drain off excess moisture from the soils, thereby relieving much of the hydrostatic pressure. Also, by reducing water levels in the soils, soil expansion is minimized and the expansive forces on the retaining wall are reduced. Additionally, the void spaces in the French Drain act as a "cushion" to minimize the effects of soils swell pressures on the wall.

Construction:

A French Drain is constructed by first digging a trench to varying depths, depending on the application. The trench should be lined with a geo-textile cloth to prevent soil and root penetration into the trench. At the bottom of the trench, a 4" (or larger in some applications) perforated pipe is installed with a slope to channel water in one direction. This pipe should also be wrapped in geo-textile cloth. The trench is then filled with rock (NOT pea gravel) which maintains the shape of the trench while still leaving a lot of vacant space. As water flows through the soil, it encounters the French Drain trench, falls through the air spaces between the rocks into the perforated pipe, where it is channeled away from the area and drained off either by natural gravity flow or through the use of a mechanical sump pump. Here is a basic design of a French Drain (this one is shallow and missing the geo-tech cloth):