

LANDSCAPE ORNAMENTAL SERIES

A Guide for Louisiana Landscape Professionals



Installing and Maintaining a French Drain

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Poor drainage in a landscape can cause uncomfortable conditions for plants, people and personal property. A French drain is a system that can help alleviate concerns of excess water by providing an avenue to evacuate water from saturated areas. Follow along for some thoughts and considerations for properly installing and maintaining a French drain in your landscape.

Site Analysis

Careful planning is critical to implementing a French drain into the landscape. Observe the entire property, identifying areas where saturation and ponding is most likely to occur, general pathways of water in storm events and a general topographic layout of the site. Identify crucial features where you want to prevent water from accumulating, such as near structures, foundations, foot-traffic pathways and sensitive plants. Where will the water be delivered? For larger properties, water can be sent to ponds, ditches, culverts and low-lying areas on site; on smaller, more urban properties, consult with local regulations and ordinances to determine appropriate destinations, and be mindful of respecting your neighbors by not making your excess water their problem. Determine if, and to what extent, surface grading can or should be performed to modify the overall topography of the site. With this information at hand, identify the general area that the French drain should be installed. Prior to breaking ground on any project, call 811 or visit www.louisiana811.com to submit a request to have a technician mark utilities. Knowing where electric, gas, water, telecommunications and other services are buried underground can prevent costly and dangerous issues.



Excavating a trench for a French drain.

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Installing a French Drain

French drains are a subsurface system where a trench (12" to 18" wide and 18" to 24" deep) is excavated and a perforated pipe (typically 4" in diameter) is laid into the base of the trench and covered with a washed gravel fill (typically 1" in size). Ensuring the width of the trench is in that range can allow for easier maintenance and a cleaner top surface for water infiltration. Take your time to make sure the trench is excavated in a way that the slope is sufficient to move water in the right direction. A geotextile fabric is often laid into the base of the trench, as well as up over the sides of the trench walls, prior to putting in the drainage pipe and gravel. The geotextile fabric prevents backfill from washed-in soil mixing into the gravel, clogging pore space and reducing drainage. Gravel can visibly extend to the surface, adding an aesthetic appeal to the boundaries of a building or cutting a noticeable path in the landscape and allowing rapid infiltration. If a more discrete look is desired, consider adding a slight layer of topsoil over the gravel and growing grass over the drainage path.

When rain events occur, water will come from a variety of sources. Rooftop drainage and impermeable surface flow can be readily directed into the drainage line from gutter to drain. In low areas particularly prone to flooding, installing a grate at the soil surface can allow rapid infiltration of water directly to the drainage pipe, keep large debris out of the line, and offer an easy point of access for maintenance. Where is the water going? It was previously mentioned that there are a variety of destinations where excess water can be sent, including water features, low-lying areas or drainage ditches; however, sometimes there is not a definitive single location that is best. It may be useful to develop a system that disperses water over a larger area. Pop-up drainage systems can be implemented into a drainage line, where when water builds up inside of a drain pipe the pressure pushes open a downstream apparatus that allows water to be spread over a large area such as a section of turf, a landscape bed or a rain garden. These systems open only when sufficient pressure builds up, and the lid closes when water is evacuated and the pressure dissipates. If installed properly, these systems will not impede foot traffic or mowing.

Maintenance and Debris Cleaning

Using proper installation practices can limit the amount of required maintenance down the line, but routine inspections and servicing can ensure the system works to its greatest capacity. Inspections of these systems at water inlet points (clearing debris and build up from grates and openings) and outlet points (pop-ups and drain pipes) should be performed regularly. If it appears that there are some blockages in the pipe, flushing the pipe with hose water to clear debris may be necessary. In situations where the blockage is creating



Lining a trench with geotextile fabric.



Installing perforated pipe and gravel.



Drainage grates, at left, allow water to flow into the French drain, while pop-ups allow water to drain out downstream when pressure in the drain builds up.

severe restrictions in water movement, using an electric snake to push debris out of the drain line may be necessary. When installing a French drain, it is a good idea to consider designing the system in a way that facilitates easy, quick maintenance to ensure the lifespan of the system.

Design Considerations

A French drain is a great tool for moving water from an undesired location to an area that is less problematic; however, consider using that excess water as an advantage for landscape features such as rain gardens. By diverting water towards low points and building a rain garden of plants that prefer saturated soils around these areas, an aggravation can be turned into an asset and may work effectively with the site. In public spaces with abundant impermeable surfaces, a French drain can serve as a safety feature by removing water that will pose problems for pedestrians. Furthermore, having French drains below designated gravel walkways can be an effective way of getting multiple uses out of a single installation feature.

French drains are a valuable tool in the Louisiana landscape, protecting properties from facing the pressures of excess water and saturated soil conditions. Keep these considerations in mind when planning to implement one in your landscape.



A smooth, orderly gravel surface provides a pleasing aesthetic feature in the landscape.

For more information on French drains, please contact your local LSU AgCenter extension office or visit www.lsuagcenter.com.

All photos courtesy of Dan Johnson (<https://greenmandan.com>).



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