

Locating PVC Pipes

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We occasionally get a question regarding the best practices for locating underground non-metallic pipe materials like PVC. Before we address this topic, let's start at the beginning.

The old-time locating devices were called witching wands and used dowsing or water-witching techniques to find buried pipes. The science of locating facilities with a witching wand utilizes the body – which is highly sensitive to electromagnetic fields – to detect a characteristic resonance or frequency associated with a metal pipe, plastic pipe, or flowing water. A great deal of information has been published by Lee Barnes (available on the internet) on the science of water witching. It discusses how to make a witching wand and how to develop the ability to locate pipes. Many people still use this technique today.

Fortunately for those of us that can't seem to make the witching wands work, another option is to install a tracer wire or magnetic locator tape with the pipe. The information that follows summarizes the best practices of tracing wire installation developed by long-time PVC pipe users.

First, there is no substitute for good field records and as-built drawings generated during installation. These measurements should include all appurtenances (hydrants, valves, bends, air release valves, laterals and service connections), depths of bury if it deviates from the standard, and service lengths from the curb stop or meter to the main. These measurements should be taken from fixed street centerlines or property lines that are unlikely to change with time and can be found at night or with snow cover. Some utilities use above ground markers for critical facility road crossings or for changes in direction as a visual indicator of the alignment. In most cases, the number of valves, hydrants, bends, and services on a water main gives the utility a general location of the facility.

Second, tracer wire should be installed during the initial pipe installation. It should be installed after the initial backfill is placed but before the final backfill. Much like a pressure test or water quality sampling, a post construction inspection of the continuity of the tracer wire provides the owner added assurance that the



Dowsing, as practiced today, probably originated in 15th century Germany.

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wire was installed properly. For trenchless applications, braided wire and two wires are often used for added strength and redundancy in the event one wire is cut during installation. If the tracer wire is cut, it should be repaired. If the wire was cut, but not repaired, in most cases it can be traced up to 50 feet of the break or closer. Some utilities install tracer wire inside a one-half or three-quarter-inch PVC conduit to give added protection against being unintentionally cut.