

# Aboveground Clues to Belowground Facilities

BY BOB NIGHSWONGER

**T**aking the time to perform a visual inspection of your excavation site is a key step in preventing unexpected encounters with unmarked underground facilities.

Prior to each departure, commercial airline pilots and their crew perform a detailed visual inspection of the aircraft inside and out. The pilot takes a walk around the outside of the aircraft as well, looking for any visual signs of damage, leaks or problems. The pilot and crew also check the operational controls and gauge settings. Flight attendants perform visual safety checks to ensure doors are closed and secure, all passenger seatbelts are fastened and all seats are in upright positions. The crew performs a safety briefing with passengers. The “all systems check” that is performed by the pilot and crew members reduce the chances of an unexpected surprise during the flight.

It is good to take the same care before you break ground on any excavation project. A close visual inspection of the planned dig site, by an excavator or excavation crew, can greatly reduce the chances of an unexpected surprise during excavation.

Your eyes and brain are very valuable damage prevention tools when both are applied before and during your excavation job. You can use them both to perform a topside visual survey to look for signs of buried utilities that are not identified by markings. Since



**OWNERSHIP TRANSFER POINTS**

A few visual signs of ownership transfer points would be any visible utility meter (Gas, Electric and Water Meters), and any communication demarcation point normally located at the house protector or the entrance point of a building. The lines that feed these metering or transfer points belong to the service provider and should be marked up to this point by member utilities responding to your 811 notification. Any lines buried beyond the ownership transfer points will most often belong to the property owner and go unmarked by the utility owner.

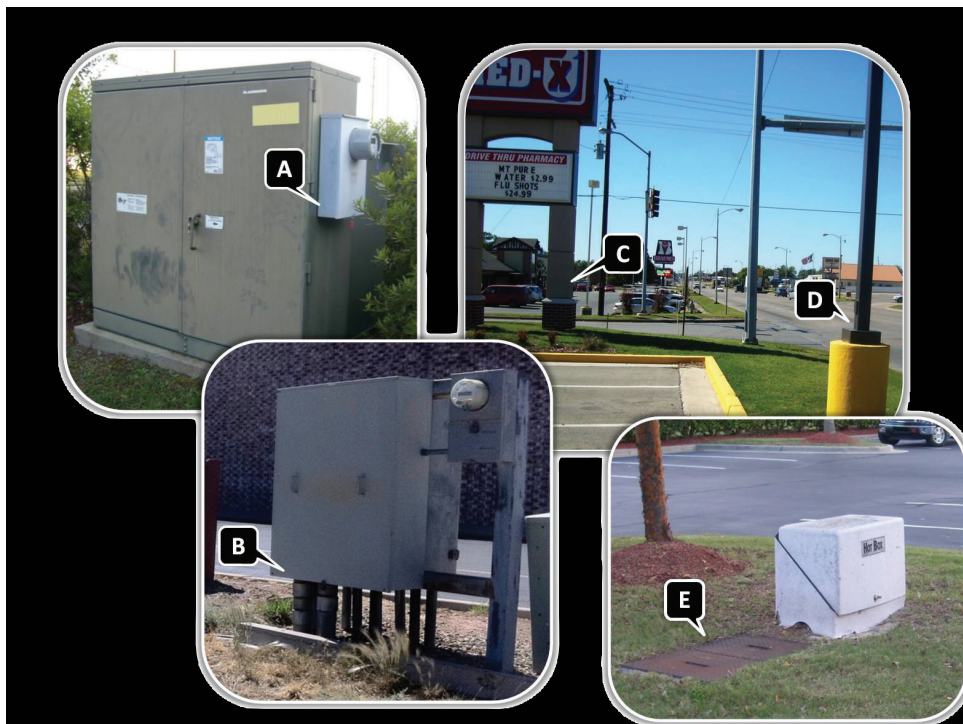


**“Visually identify** or otherwise determine the points of ownership transfer within each utility system on your planned dig site.”

the temporary markings are estimations of the path of buried lines, a visual confirmation is needed if digging near or across the marked line. This is done by safely exposing the marked lines and seeing them with your own eyes. In most states you are required to do this type of visual verification by using hand tools to expose the marked lines.

A good topside visual inspection of your dig site prior to breaking ground is key to preventing damage to public and private buried utilities.

Visually identify or otherwise determine the points of ownership transfer within each utility system on your planned dig



#### A. Meter on Transformer

The high voltage primary electric cable feeding this commercial should be marked up to the transformer. The high voltage secondary cables leaving the transformer normally will not be marked by the electric company's technician

#### B. Metered Electrical Panel

This specific electrical panel is located on the property line and is fed by a single underground power service line. From this point, six private electric lines are exiting and are buried throughout the property.

#### C. Commercial Business Sign

Fed by electric wire.

#### D. Parking Lot Light

Fed by electric wire.

#### E. Private Electric Splicing Box

Aboveground and lid to underground splicing vault. All of these lines are private and buried beyond the meter.

Here are a few signs of underground electric lines and a few points to consider when spotting these signs.



site. A few visual signs of ownership transfer points would be any visible utility meter (Gas, Electric and Water Meters), and any communication demarcation point normally located at the house protector or the entrance point of a building. These underground lines feeding the water, electric, natural gas and telecommunication networks belong to the service provider. The utility service providers mark the lines feeding these points in response to your call to 811. Any lines buried beyond the ownership transfer points will most often belong to the property owner and go unmarked by the utility owner.

#### Private Electric Cables and Wires

Keep an eye out for electric meters and any structures fed by underground electric wires. Look for electric meters near property lines, within the property, on the outside wall of a house or building or inside the building. The buried line feeding electricity to the meter points should be marked in response to your 811 call but the private electric lines buried "after the meter" will normally not be marked in response to your call to 811 notification.

#### Private Gas or Liquid Fuel Lines and Underground Fuel Tanks

Private underground fuel lines and fuel tanks are often located on residential and commercial properties that have a need for the product. The fuel line and fuel tank to the building, house or structure will most likely not be marked in response to your 811 call. The propane tanks and other fuel tanks may also be buried on your dig site and require extreme care when digging near the tank and the location of the fuel line should be identified. Look for signs of line entry to the house, basement or structure.

Propane Tanks are most often fed by delivery trucks and not a pipe. The tank itself being the source, the underground pipe placed from the tank to the house, building or structure is a service supply line. This line will most likely not be marked by the public utility locator. The tanks themselves are often buried so be on the lookout for metal lids or caps. These tanks are similar to underground fuel tanks at commercial gas stations that have buried pipes running from the tanks to the pumps.

#### Private Gas Service Lines

This particular set of gas meters is considered a multi-meter manifold. This metering point is fed by a single pipe from the gas company and has two separate private gas lines leaving this point to two different houses. Look for the round gas regulator. It will be placed on the supply side of the meter. Natural gas meters are located in the basements of buildings or houses, or on the outside wall, at the property line or at a master metering point of a multi-structure property.

#### Private Fire Protection Systems

The basic private fire water systems consist of water pipes buried from the municipal water tap or inlet point to the fire hydrants or other fire department connection points (FDC's) placed throughout the property. If your job is on commercial property, keep an eye out for fire hydrants and FDC points during your site inspection. The customer connection point will normally be located near the property line. The water pipe feeding this point will normally be marked by the public utility locator. Pipes that leave that point will not get marked.



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## Private Water Lines, Fire Protection and Irrigation Systems, Chilled Water and Steam Systems

Private water systems are most commonly buried from the water metering to the building or house, from an irrigation tap to locations throughout a property. Private chilled water and steam systems are most often located on commercial properties, schools and universities.

### Pipeline Markers

Keep an eye out for high-profile pipeline markers. There are approximately 2 million miles of hazardous material pipelines in the US which provide bulk transportation of gasses and liquid fuels across our country. Many state and federal regulations require that pipeline operators must have a company representative onsite during excavation over or near their pipelines. The operators of these specific high-profile pipelines will normally contact you to make arrangements to be onsite during your excavation. After calling 811, make sure to monitor your email, fax, phone or voicemails for a meet request notification from the pipeline owner.

### Excavating Near Pipelines

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If your job is on commercial property, keep an eye out for fire hydrants and FDC points during your site inspection.

A minimum clearance will normally be required between the pipeline and whatever is being installed. If heavy equipment or dump trucks will be crossing over the pipeline during your excavation, the pipeline operator may require the placement of large metal plates or

the addition of soil cover over the pipeline to prevent a potential hazardous damage caused by the extreme weight of the equipment.

### Reading The Landscape

On this page is a good example of how to read



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the landscape prior to planned excavation. In this scenario I'm planning my work prior to calling 811. I've identified several notable signs of underground utilities belonging to public and private property owner at this location as well as a pipeline buried on or near this dig.

**A. THREE LARGE WATER VALVES** placed in a tee configuration which often indicates a tee in the water main which also means the water company probably poured concrete support or thrush blocker in the area the mains are connected.

**B. ONE TELEPHONE PEDESTAL** Telephone and CATV lines will normally be marked along the public easement and on private property to the building or house demarcation point. Look for the phone protector in the house, conduit on the wall of a building or inside equipment room of a building for signs of telephone cables.

**C. SEWER CLEAN OUT PIPE** located near roadside. This is a large diameter cleanout pipe and may possibly be part of a public system. Sewer cleanouts are most often placed on sewer laterals for access to clear drainage problems. The clean out pipe curves towards the flow of the sewer just before it connects to the top of the sewer lateral pipe. Look for sewer laterals to be located near buildings or houses as well as near property lines and other meter points.

**D. GAS METER** The service line from

meter to building will not be marked by public utility locator.

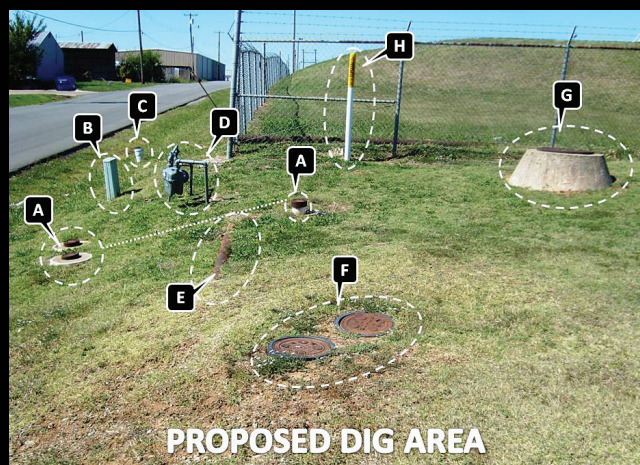
**E. EXPOSED PIPE ON SITE** may be an active line or may be an abandoned section of pipe. Further investigation will probably be necessary after the 811 call.

Other obvious signs of high-profile lines may be an electrical substation or water towers.

Look before you dig! A visual site inspection is a key part of any damage prevention plan. For safety's sake, take the time to inspect your dig site prior to excavation and daily during excavation activi-



How to read the landscape prior to planned excavation.



**F. TWO WATER METERS** The two service lines buried from water meter to building or house will not be marked by public utility locator.

**G. SEWER MANHOLE** This particular man-hole is placed over a public sewer main.

**H. PETROLEUM PIPELINE MARKER** This specific post indicates the presence of a petroleum transmission line and is considered a high-profile line. (Refer to page 18) Not pictured are nearby large petroleum storage tanks.

ties. Once the temporary markings are placed on the ground, it will be up to you to protect the integrity of the marks or call for a remark if your marks have been destroyed or are no longer reasonably visible for safe excavation. **ES6**

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