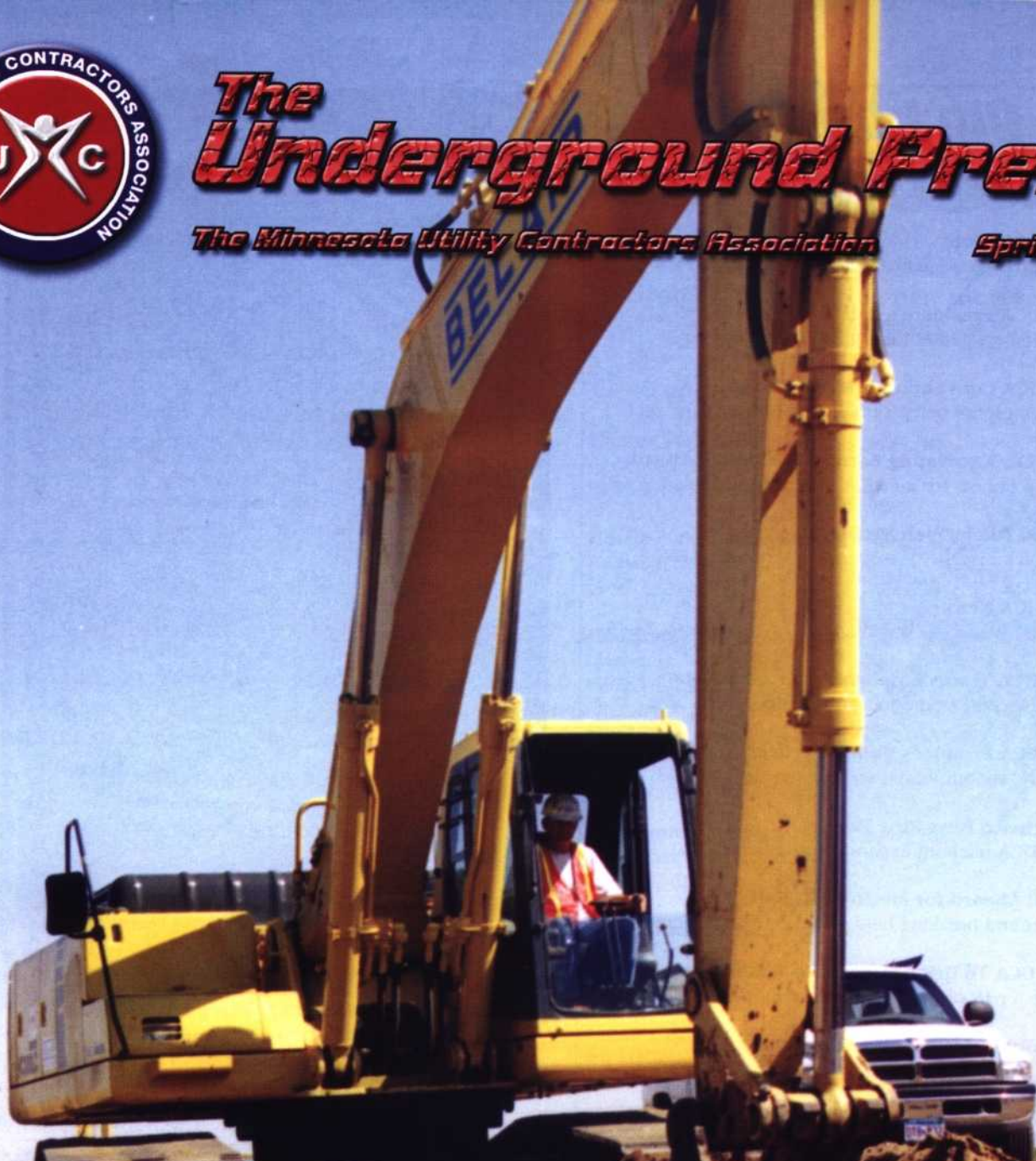




# *The Underground Press*

*The Minnesota Utility Contractors Association*

*Spring 2001*



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# Finding Unmarked Underground Utilities

By: Walt Kelly  
Walt Kelly & Associates



You have notified the call center of your intention to dig, waited for the paint to be put down, and verified the accuracy of the locates by exposing all marked utilities. But past experience tells you there may still be unmarked underground lines near your work. Although you may not be held liable for damages if you hit unmarked lines, you will have to defend yourself, and you will have the potential for injury from dangerous lines. What can you do to find those unmarked lines?

work during repairs, you will have to defend yourself, and you will have the potential for injury from dangerous lines. What can you do to find those unmarked lines?

Here are some tips from industry professionals. Some of them can be done by observation. Some of them require equipment and training. The last one works only for some people.

1. Make a work area visualization. Look for indications of the basic 5:

Gas: Vent pipes from casings near roads and meter sets near buildings; Electric: Power drops on poles; Phone/Cable TV: Pedestals; Water: Hydrants & valve boxes; Sewer: Manholes.

2. Verify there are markings for every utility. Look for the utility that should be there, but isn't marked.
3. Ask contract locators if they know of any non-member or private lines in the area.
4. Look for patches in pavement: larger patches can indicate where a service line was connected to a main. Smaller patches can indicate a "pothole" where a bored line crossed an older line.
5. Look for old paint marks from previous locates in the area.

*Unmarked, continued on page 42*

## Play it Safe!

Before You Dig Call  
Gopher State One Call

Avoid digging where you shouldn't. Call **Gopher State One Call** two days before you dig to avoid underground utilities in your area.

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Using locating equipment in the inductive mode allows a team to verify a locate or to find unmarked lines.

6. When digging, look for changes in soil composition that show where a trench was cut. Both the color and the compaction differ where soil was disturbed.

7. Look for changes in vegetation patterns that indicate where a trench was cut.

8. Purchase electronic locating equipment and training for doing passive and inductive locating of unmarked lines as well as normal locating. Many utilities will not locate privately owned lines. Passive locating is using a receiver to listen for electric signals emitted by a utility. Some locating equipment has a special setting for these frequencies. These tones can also leak onto other lines, such as water lines, and make their presence known.

Inductive locating usually requires two people. One person carries the transmitter. The second person carries the receiver. They stand some distance apart. When a metallic line is between them, it will carry the signal to the receiver. By moving the equipment to obtain the maximum signal, the line can be located very accurately. A full search should be done in two patterns at right angles to each other to maximize the chance of finding all lines.

9. Use electronic locating equipment to verify location and estimate depth. Some of the sneakiest unmarked lines are the ones hiding under a shallow abandoned line.

10. Run a sonde through a sewer cleanout to locate unmarked sewer laterals. A sonde is a transmitter tied on a line and moved through a sewer or duct. A receiver on the surface follows its movement, documenting the line location. It is pulled out on completion of the locate.

11. Use a "thumper" connected to a water line to acoustically locate plastic water lines. A thumper is a device hooked to a water hydrant or faucet. It contains a valve that abruptly turns a small flow of water on and off. The water-hammer effect causes the pipe to vibrate. An acoustic receiver can follow the pipe location.

12. Look at the utility company drawings for what is supposed to be installed. Compare the drawings to the markouts and to what you see when you look in man-holes. You may find what is really down there.

13. Use witching sticks and/or dowsing wires. Not everyone has the gift to effectively use dowsing equipment, but when all else fails, it is satisfying to have one last tool in the bag. (May the force be with you!)

As in all locates, the validation occurs when the target line is daylighted.

If you have a thorny damage prevention issue or a solution to one, please pass it along. Perhaps it can be answered or can help other MUCA members.

*Walt Kelly is a damage prevention consultant and a member of MUCA. He serves as an expert witness in damage lawsuits. He can be reached at 507/454-5147 or [walt@waltkelly.com](mailto:walt@waltkelly.com).*

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