

Keyhole & Pothole *from a* Contractor's Perspective



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Potholing Challenge

*"No potholing,
we just paved
this road!"*



*"I need to
pothole
before I auger
bore under
the road."*

Contractor Dilemma



Potholing- It's The Law

Most state laws require potholing before excavation within the tolerance zone.

“The excavator or land surveyor shall determine the precise location of the underground facility, without damage, before excavating within two feet on either side of the marked location of the underground facility. ”

MN 216D.04 Subd. 4(a)



So What's The Problem?

"The last guys to pothole messed up the road!"



"I will not damage the road with my pothole."

Common Pitfalls

- Poor records with inaccurate utility positions and/or depths.
- Many utilities are not recorded so the owner may not be contacted to provide a "locate."
- When marking their "own" utilities depth information is not provided.
- Many types of utilities, especially small non-conducting utilities at greater depths, are extremely difficult to locate and require expert interpretation.





Inadvertent Damage

- The ability to physically determine on-site, the location, nature, and depth of underground utility services is critical to reducing the risk and consequences of inadvertent damage during construction.
- Inaccurate locates and poor excavation practices are the major cause of inadvertent damage.



Advantages of using S.U.E.

- Fewer conflicts with utilities.
- Reduce delays in construction schedules because unforeseen conflicts with utilities have been eliminated.
- Elimination of added construction costs because unexpected utility adjustments are no longer needed.
- Fewer contractor claims based on utility delays.
- Chance of severing a utility line is greatly reduced and therefore the safety level is increased.



Vacuum & Keyhole Technology

Minimizes Objections to Potholing.

- Make a clean cut in pavement.
- Vacuum excavate in accordance with state law.
- Properly backfill the hole per MAG standards.
- Apply bonding agent.
- Replace the core and satisfy road agent expectations.



Basic Procedures

Use Keyhole Technology to Remove the core.



Basic Procedures

Safely Expose the Buried Utility.



- High pressure air lance
- Breaks up loose soil
- Creates pit of desired depth

Basic Procedures

Vacuum Excavate to Expose the Buried Utility.



- Vacuum loose soil
- Safely uncovers utility
- Process eliminates spoil
- Decreases size of excavation

Basic Procedures

Backfill According To MAG Standards.



Basic Procedures

Apply the Bonding Agent and Replace the Core.



Basic Procedures

Pavement Restoration.



Looks good and the road authority will approve.



Case Study

Sewer Line Installation Under Major Freeway Phoenix, AZ



Keyhole technology used to core 4 holes along Loop 101 Freeway prior to vacuum excavation.



Case Study



Utilized state-of-the-art vacuum technology to expose and map utility lines in the path of the new gravity fed sewer line.



Case Study



Installed 36" OD steel casing for new gravity fed sewer line.



