

Complex Crossbore Issue Presents Varied Concerns, Solutions

Efforts are accelerating to increase industry and public awareness of the need to require the location and marking of sanitary sewer laterals, prior to any type of construction that involves excavating or disturbing the ground in any way.

While it is important to protect the buried infrastructure of all types of utilities, in the view of many industry members, unmarked sewer laterals pose a more serious safety hazard to utility construction crews and also to the general public than accidental hits of other types of buried utilities.

Although excavation and drilling vertical holes pose damage threats to underground utilities, trenchless installations that could strike and bore through sewer laterals undetected are causing the most concern.

There are many confirmed incidents in which natural gas pipe and power cable installations made by horizontal directional drilling (HDD) and pneumatic piercing tools have passed through laterals without crews on the surface being aware it has occurred. The presence of a foreign pipe or cable can go unnoticed for months or even years. Then, when a sewer blockage occurs, a plumber's mechanical clean-out tool can rupture the gas pipe or cut a power cable.

Hitting an electrical cable that has passed through a sewer lateral poses a deadly threat to the operator of a plumber's tool, but a ruptured natural gas line can result in a major disaster when gas migrates to the building served by the pipe and into the sewer system itself where accumulated gas can be ignited by a pilot light or other source.

Questions

Accurately-marked sewer laterals are perceived as an important initial step to reducing such accidents. Even so, historically locating and marking sewer laterals has never been a priority, and efforts to require that often meet resistance from sewer service providers, many who take the position that because the laterals cross private property, the property owners are responsible for their maintenance and for identifying their location.

Questions facing sewer system owners/operators and contractors who serve them include:

- Who, in fact, owns the lateral pipes?
- Ownership aside, who should be responsible for locating and marking?
- Should marking and locating laterals be made mandatory?



Options For Addressing Crossbore Issues

Associate Professor Dr. Samuel Ariaratnam, Del E. Webb School of Construction, Arizona State University, is a recognized authority on underground utility construction. He is actively involved in efforts to require the locating and marking of sanitary sewer laterals. He has distinct views about problems caused by crossbores and ways of addressing them.

Dr. Ariaratnam says there are two basic issues:

- Legacy crossbores in which pipe or cable has been inadvertently placed through laterals, but no one knows where they are or even that it happened; and
- Properly locating and marking laterals before construction so that new crossbores do not occur.

"We know there are legacy crossbores," says Dr. Ariaratnam, "but not how many or where they are. There are a lot of discussions about how to find them and who will pay to find them. Typically, they are discovered when a plumber is called to unblock a clogged sewer lateral, but most homeowners and plumbers are completely unaware the blockage could be a gas line, and they have no idea of the potential danger. Increasing awareness of property owners and plumbers is a key, and to date little has been done to educate either group, although efforts are starting by initiating articles in plumbing publications.

"To prevent new crossbores from occurring, we must look forward to changing legislation requiring locating and marking of sewer laterals, and the industry is diligent in this effort. One-call laws in some states are ambiguous about sewer laterals, and some state laws even exempt marking non-pressurized lines which include sewer laterals.

"The debate continues about who actually owns the laterals, who is responsible for locating them and who will pay for it.

"It makes sense that locating and marking should be the responsibility of the party in the best position to do so. Is that the property owner? Clearly the answer is no. The contractor? Maybe. There are arguments pro and con, but the contractor is not in the best position.

"The municipal sewer owner/operator is the one that should be responsible. The owner/operator has – or should have – maps of its system and other information to make the locates. Locating and marking should be the responsibility of the party realizing income from the sewer system, and that is the owner/operator."

In conclusion, Ariaratnam adds that contractors must recognize that it takes time to properly locate and mark laterals, often more than the 48 hours notice traditionally required by one-call laws.

"In fairness, adequate time must be allowed," he says, "and we will need to have a compromise on how far in advance locate requests must be submitted.

- If so, who will pay the costs?
- What should be done about “legacy” laterals – existing pipes containing foreign gas lines or power cable that no one knows about?

In the past several months, there have been several significant developments:

- Two industry associations have released position statements supporting legislation requiring location and marking of sewer laterals;
- Another association has a standing committee investigating the issues;
- A committee of the organization that has become the primary advocate for protecting buried infrastructure continues to consider adding location and marking of sewer laterals to its Best Practices guidelines; and
- Many contractors and others in the industry are increasingly active and vocal about the seriousness of the issue.

“We have many groups, including associations, contractors and manufacturers working hard to raise the awareness about the importance of locating and marking sewer laterals,” says Dr. Samuel T. Ariaratnam, associate professor at the Del E. Webb School of Construction, Arizona State University. “Safety is the issue, and we have to understand that and work back from there. Education is a key, and we must look forward to changes in legislation to write better laws defining responsibility for marking sewer laterals.” Ariaratnam is a respected expert in underground construction technologies and is actively involved in efforts to draw attention to the issue and promote legislation to require lateral location and marking.

Position statements

Last November, the Distribution Contractors Association (DCA) announced adoption of a position statement advocating legislation that would require sewer system owners and operators to locate sewer laterals, saying that the association believes the presence of unmarked and unidentified sewer laterals is one of the most dangerous threats posed in the underground pipeline industry. Says the DCA position statement:

“Laws must be passed and then enforced requiring facility owners/operator to locate all underground utility lines – including sewer mains and sewer service laterals. In addition, the DCA officially supports laws requiring that all new sewer service lines be installed with a positive locating device.

“The DCA supports all efforts to change and enforce damage prevention laws requiring that all underground facility owners/operators locate and mark the underground lines including sewer lines.

“It is unrealistic to expect homeowners to fulfill the responsibility of locating and

marking their service laterals and, therefore, they must be marked by the facility operator.”

DCA is conducting panel discussions at industry trade shows, and the association is urging the underground pipeline industry to embrace these solutions. DCA members are also appealing to their state legislatures to address the issue.

The National Utility Contractors Association (NUCA) position paper recognizes there is an ongoing debate about who is responsible for sewer service laterals from mains to structures that in many cases are on private property.

States the NUCA paper: “It is unrealistic to expect property owners to fulfill the responsibility of locating and marking their service laterals . . .

“Excavators are responsible for notifying their one-call centers prior to excavating and employing safe digging practices; underground facility owners/operators are responsible for accurately locating and marking the facilities according to their state one-call laws . . .

“NUCA supports all efforts to change state damage prevention laws so that they require underground facility owners/operators to locate and mark all underground service laterals . . .”

Sensitive issue

The North American Society of Trenchless Technology (NASTT) recognizes the seriousness of the crossbore issue and established an ad hoc Crossbore Committee to investigate options to best address it. To date NASTT has not taken a position related to this issue.

“Addressing the crossbore issue is complex and multifaceted. It will involve the resolution of responsibility for service locates and ownership to identification of procedures to eliminate the risk of crossbores,” says NASTT Executive Director John Hemphill. “Being an educational organization, training and education is logically the focus of our society’s efforts. Other critical issues are more appropriately the responsibility of other organizations, and we are glad to see many are involved. On the educational front, we may need to strengthen construction good practices to more explicitly address the crossbore issue, and we need to continue to advocate and advance the acceptance and use of good construction practices, such as those outlined in the HDD Consortium’s Good Practice Guidelines.”

The Common Ground Alliance (CGA), the private, nonprofit organization that has emerged as a leading advocate for developing and implementing a comprehen-

sive damage-prevention program to protect underground utilities, and its Best Practices Committee is considering a proposal dealing with locating and marking sewer laterals, says CGA President Bob Kipp. He adds that the subject is very controversial, and that consensus among all stakeholders is necessary to add a proposal to CGA best practices.

The position statement of NUCA, a CGA member, states the association supports the proposal being considering by the CGA committee, but emphasizes that NUCA’s official position is that facility owners/operators should be required to locate and mark all service laterals.

Legacies We Could Do Without

Legacy sewer laterals containing a power or communications duct and cable or a gas pipe inadvertently placed through the sewer line by a directional drill or pneumatic piercing tool are accidents waiting to happen.

And, those most likely to discover a crossbore are the property owner or a plumber called to clear a clogged sewer and probably neither understands the potential danger.

“It is safe to say that homeowners are unaware such a thing as a crossbore exists, as are most plumbers,” says Dr. Samuel Ariaratnam, associate professor at the Del E. Webb School of Construction, Arizona State University. “Property owners and plumbers could be the first line of defense to take action to prevent explosions resulting from crossbore incidents, but they don’t know a problem even exists.”

It’s a matter of education, Ariaratnam says. Plumbers belong to a specific trade and members of the utility construction industry can band together to bring them information.

To reach the broader audience of property owners, Ariaratnam envisions a consumer education program similar to the familiar Smoky the Bear public-service campaigns.

While not diminishing the importance of the legacy issue, some in the industry urge caution about how information is brought to the public. A big part of the problem, they point out, is that no one knows how big the problem really is. Too dramatic a focus on potential dangers brings the risk of overreaction, including consideration of limiting the use of trenchless construction procedures.

Responsibilities

Speaking on behalf of DCA, Dan Weaklend, senior vice president of safety and quality at utility contractor NPL Construction Co. (NPL), a DCA member, says that regardless of ownership and with few exceptions, utility owners and operators of utilities are responsible for maintaining and locating service lines, including sewer laterals.

Indeed, the belief that sewer and water utilities are exempt or exclude sewer laterals from state one-call laws is incorrect, except in fewer than 10 states.

Mike Kemper, NPL chief executive officer, says that it is unreasonable to expect property owners to be responsible for having buried utilities located and marked. "Every legal ruling on the issue," he continued, "has sided with the position that homeowners do not have the expertise to maintain or locate utility service lines. That is also true of gas, electric and communications services."

One proposed solution is to make contractors responsible for location and marking laterals before beginning excavation. Contractor personnel could either do it themselves or hire contract locators.

"It's only a part of the solution, but it isn't the best solution," says Kemper. "Sewer system owner/operators need to be involved just as are other utility owner/operators, because the contractor doesn't always know where the laterals are supposed to be or if there are laterals present at all. Ultimately, it is more cost effective for all system owners to be responsible for their locates and mapping. Otherwise, it may be necessary to locate the same lateral again and again, every time there is a project."

Kemper believes the DCA statement effectively states the issues and proposes the logical conclusion.

"A goal of the position statement is also to focus attention on the problem," he stressed. "We believe lateral crossbore issues are gaining attention – we just hope it doesn't take more explosions to get new legislation passed and existing legislation enforced." ■

Crossbore Video Production To Be Broadcast Soon

To draw attention to the potential dangers of crossbores through sewer laterals, the Asset Management Source for North America (AMSNA) has produced a video on the subject for broadcast on the internet and on public access television channels.

Taped in Tempe, AZ, in January, broadcast dates of the completed production are scheduled to be announced soon. AMSNA is a non-profit organization dedicated to information sharing among public agencies and utilities. For more information, the AMSNA web address is: amsna.org.



Not As Bad As It Seems?

Regarding legislation requiring locating and marking sewer laterals, there is a perception among many proponents that a primary roadblock is municipalities and other owners and operators of sewer systems, many claiming not to have funds and personnel to take on the task or simply not wanting to accept the responsibility.

Walt Kelly is the former director of pipeline safety for the state of Minnesota and now is a consultant who is an advocate of marking laterals. Kelly has made numerous presentations to groups and committees considering legislation proposing lateral locating and has been an expert witness in trials following crossbore incidents.

Kelly says recent developments indicate sewer operators required to make lateral locates are finding it's not as bad as they feared.

He offers his home state of Minnesota as an example.

"In 2004, Minnesota passed an updated one-call statute developed after months of work by a committee composed of stakeholders," says Kelly. "Sewer laterals were included in the original bill, but the Minnesota League of Cities threatened to work to kill the bill unless the lateral provision was removed, and it was."

The next year, the state office of pipeline safety, with the backing of a study committee with representatives of interested parties, decided to address the lateral provision and other issues that had been excluded from the legislation as rules made necessary by changes in the statute. Under new rules adopted, locating laterals is required.

"In February this year," Kelly continued, "the state's one-call agency held a meeting and invited stakeholders to comment on how the rule changes were working out. In three hours of discussion, there was not a single comment about locating laterals. It turned out not to be a problem. You could say concerns proved to be much ado about nothing."

Kelly recently conducted an informal telephone survey of individuals in states where legislation has been enacted to require locating of laterals. Exerts of responses from three states include:

Arizona – Eleven months after lateral locating was mandated, no comments about problems. Three months after locating became required for mobile home park and apartment laterals, there also were no negative comments.

Wisconsin – No major problems since enactment of the locating requirement, although some cities have had questions about what is necessary to comply. Installation of locating wire on new laterals became effective Jan. 1, 2007, and is being enforced as part of the state's plumbing code. One-call legislation is scheduled for review following an LP explosion that caused several fatalities and injuries.

Virginia – No significant problems following legislation requiring laterals to be located. The original plan was to require locates to property lines, but following large numbers of lateral hits on private property, the state corporation commission is requiring lateral location to building walls.