

Maps Are Only Guidelines: The Shocking Truth

There is an old adage in the contract locating business: “Maps are only guidelines.” Why is this? Well, it is sad but true that the quality of utility maps and records varies greatly. Some utilities pride themselves in the completeness and accuracy of their maps, while others see them only as a necessary business expense.

Even those utilities who take pride in their maps will freely admit that they are not perfect. After all, some map data could be 100 years or more old. As maps were drawn and redrawn over the decades and transitioned from paper systems to GIS computer maps, there are multiple points where errors can creep into the system. There also is the nagging issue of how facilities are “designed” to be installed versus the actual “as-built” version.

Further complicating the issue is the history of how utility maps developed. For the pipe-type systems, such as natural gas and water/sewer, the need for reasonably accurate “as-built” data has always been high. After all, once you bury something in the ground, how can you find it quickly when you need to add a new customer or to repair it if it fails?

Electric and telecommunications maps developed quite differently. Engineers saw the need for system records more like “schematic” drawings—how the system went from point A to point B and how it was interconnected. “As-built” type records were simply not needed. Why? Because to see the system as it was constructed, all you needed to do was to walk outside and look at the poles! However, this changed in the 1960s with the development of conductors which were designed to be buried directly in the ground. Unfortunately, old habits die hard and most electric and telecommunications mapping systems today are still depicted schematically, even in GIS mapping systems.

There is another sad fact of life adding to this mapping conundrum: All facilities are not of equal importance. The service pipe or wire to a residence is a classic example. Services can be perceived to be of such little value that they are not mapped at all. Why? Simple business economics: it costs more to maintain the maps than it does to repair the facility when it is accidentally damaged.

So, how does a self-respecting field damage prevention specialist cope with all of this? First, one must accept total responsibility for every facility that enters or leaves an equipment enclosure—whether or not the enclosure can be opened for inspection. Second, one must develop and adhere to locating practices (such as the 360 degree sweep around every equipment enclosure) that will trap mapping errors. Lastly, one must adopt a total intolerance of known mapping errors and unintentional omissions of facilities.

If “maps are only guidelines,” why should I be so concerned about correcting map errors? The answer: because it is all about damage prevention. A properly mapped facility has a much higher probability of being marked. The successful marking of a facility mapped in error (or not at all) relies solely on the skill, focus and available time of the field technician. While some field technicians are legendary for their ability to remember every unmapped or miss-mapped facility, this is a recipe for a damaged utility in the making. What happens when that technician is on vacation or sick leave? What about an after-hours call-out when a different technician is covering the area?

Here is a recent example of what can happen when maps are considered only “guidelines”:



Original Map



Corrected Map

A homeowner calls for marks to install a fence in the backyard at 8333 Oak Street. The locator checked the map as shown on the facing page (**Original Map**) and marks the service to the home, the secondary main from the pedestal back to the transformer and the primary line which runs across the rear of the property. As an experienced field technician, the locate could not have been more routine. The homeowner starts digging post holes being very mindful of the marks. As he is digging along the west lot line, well away from the marks, he senses something in the hole which also happens to be filled partially with water. He reaches into the hole and receives a painful electric shock. The utility first responder quickly determines that the service to 8341 (the home next door) has been severed. He also notes that it was not marked.

The locating contractor investigates and determines that they are not responsible because the service to 8341 took an “unusual and unpredictable” route from the transformer to the home rather than the pedestal as shown on the map (**Original Map**). Further investigation by the utility revealed that a proper sweep around the transformer would have detected a signal on the missed service. Mistake number one? Not really. Take a look at the photo below taken on a locate at 8341 Oak Street a little more than a year prior to the damage. Yes, that’s the service being marked running to the transformer on the property at 8333. Clearly, the map error should have been caught and corrected. Not only that—the same field technician marked both tickets. So much for that legendary memory I mentioned earlier because it appears that, at least this field technician, is mortal.



Looking Southeast from backyard of 8341 Oak Street.

So, what’s the moral of the story? Is this simply a sloppy, careless field technician? Probably not. Was the technician rushing because of workload? Not likely. Or, was the technician merely reflecting a value of his/her employer that maps are only “guidelines” and, therefore, correcting map errors has little or no value? You be the judge, but consider this: On average, every new home constructed requires at least 15 separate calls to the one-call center. There were

literally dozens of opportunities to identify and correct the error (see **Corrected Map** on facing page).

From a damage prevention perspective, both the facility owners and the field technicians (whether they are in-house or contracted services) bear responsibility:

1. Underground facility owners should place a high value for creating and maintaining accurate facility maps. Contract locating services should hold the facility owner accountable for providing current and accurate facility map records.
2. Construction crews must be trained to accurately report as-built data and about the consequences of failing to report variances from engineering drawings.
3. Together, facility owners and field locating technicians must eradicate the erroneous notion that maps are only “guidelines.” Facility maps are repositories of information vital to the field locating and marking process. In essence, map data is no different from the electronic feedback being given by the receiver. When a proper signal is detected (verifying expected facility depth) and this data coincides with the map records along with visual verification of the worksite, the field technician can feel confident that the target buried facility has indeed been detected and marked. If any of these pieces of information are not congruent, additional steps must be taken to assure that the target facility has been identified. Yes, these additional steps may reveal errors in the map records, but they also may reveal deficiencies in the locating equipment and/or the skills of the operator as well. **UF**

Damage Prevention Pub Quiz

The answer for each question must be one of the four most populated cities in the United States.

Which city is not under the auspices of the agency charged with enforcing the state’s damage prevention law?

Which city is not a member of one call?

In which city does the power company not track outages caused by excavation?

In which city are homeowners digging on their own property not required by law to notify the one-call center?