




2015 SUBSURFACE UTILITY ENGINEERING (SUE) SEMINAR – PANEL DISCUSSION/Q&A

**PROVIDED BY
DELDOT UTILITY SECTION
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1. **Q: Why is SUE important?** **A:** Utilizing SUE will typically provide more accurate information on underground utilities than relying on records and mark-ups from utility companies or relying on Miss Utility mark-outs. SUE can provide horizontal and vertical locations of underground utilities through designation and test holes respectively. Studies and DelDOT's experience have proven that performing these services reduces unneeded utility relocation costs, reduces construction delays and damages, and reduces the overall project costs.
2. **Q: How is SUE designation different from Miss Utility or One Call marks?** **A:** SUE is an engineering practice that is signed, and sealed by a PE. The work is performed in accordance with ASCE standards. The designation is performed by one firm responsible to document all known and unknown utilities that can be electronically detected or are shown on utility record information. Miss Utility is a risk based system that was designed for use in construction and excavation related activities to assign responsibility to owners and excavators. The accuracy of one-call marks varies and differs greatly from SUE. The Miss Utility System was originally put in place for "Damage Prevention". Marks were placed on the ground to protect the underground facilities and assign blame when a utility is damaged. The "Design One-Call" ticket system is inconsistent and for some utility companies, a very low priority is given to their response.
3. **Q: What information do SUE consultants need from the Department to perform their work?** **A:** Digital file of project (dgn/dwg), digital file of controls, plans, any utility record information that has been collected, and proposed test hole locations.

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4. Q: What types of information do SUE consultants rely on to determine what utilities may exist in a project limit so they can perform designation/test holes? A: SUE consultants perform records research on all projects. As part of this they will put a ticket in with Miss Utility to determine potential companies in the area; they will review any information provided in the DeIDOT plan set and provided by the DeIDOT utility section; and will reach out to companies for any records available on their facilities in the area.
 5. Q: What do the SUE consultants do if the field search is turning up odd results? A: Refer back to records; reach out to utility companies to discuss; and/or reach out to DeIDOT utility section to discuss, and provide any suggestions to resolve the issue.
 6. Q: What should DeIDOT take into consideration when requesting designation of utility facilities (Quality Level B)? A: Type of project and risk associated with not having accurate horizontal location of utility facilities; what proposed design/work consists of; how congested a site may be with other utilities; sizes, depth, composition and types of facilities. Costs of obtaining designation during project design are much cheaper than the costs of conflicts/delays during construction and claims/change orders associated with this.
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7. Q: Are there limitations on the accuracy of designation based on things like utility depth, types, material and size facilities? A: Yes, the deeper the utility the less accurate. Likewise, the material composition of a utility and the amount of other utilities in the area can affect accuracy. Best results will be obtained if a utility is conducive and can be connected to directly with electronic detection equipment.
8. Q: What is done to find a nonconductive facility, such as a plastic pipe without tracer wire, on a project? A: There are different methods that may be utilized to try and find the facility but it is going to be very difficult if there is no way to trace or induce a signal onto the facility. If the line is accessible (ie: communications/electric conduit, gravity sanitary sewer) a conductor will be inserted into the line from the access point. The signal will be introduced at that point and traced out. One method to designate non-metallic water pipes is to induce a pulse on the fluid within the pipe but this depends on many conditions and will not provide as accurate of information as if the facility was traceable. Another method is GPR which again is limited by depth, soil composition, and water table. Another option could be to trace as far as possible then test hole to get positive identification. Continue test holing to get a good record of utilities location moving forward.

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9. Q: Please explain how designation information is depicted in plans to ensure proper interpretation and what do the various QL linetypes identify (QL B, QL C, QL D)? A: Designers should pay attention to notes on the SUE plans and to the line types utilized in SUE deliverables. Line types and depictions will delineate the Quality Level of the information, such as “QL C”, or “QL D” to document how the information was collected. This information should be supplied in contract documents so contractors have clear understanding.
10. 12. Q: Are there things that can affect designation work and results provided to the Department? A: See response provided previously. Things like facility material, size, and depth can affect results. Additionally, site conditions such as groundwater level and soil composition could affect results.
11. Q: What should DeIDOT take into consideration when requesting test holes on utility facilities (Quality Level A)? A: Type of project and risk associated with not having accurate vertical location of utility facilities; what proposed design/work consists of and types of potential conflicts; how congested a site may be with other utilities; sizes, depth, composition and types of facilities. Costs of obtaining test holes during project design are much cheaper than the costs of conflicts/delays during construction and claims/change orders associated with this.

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12. Q: Are there limitations on the depth test holes can be excavated to and are there certain types and size facilities that might be more easily found? A: SUE equipment can typically go as deep as needed. Water table, soil structure/stability, rocks, and size and composition of the utility facility often become the factors that limit the depth of exploration.
13. Please elaborate on some field issues that you commonly encounter on projects, how that impacts the SUE services we might request and what would be done to work around them while still providing us with useful information. A: The most common issue that creates problems for both the SUE provider and the Department are non-conductive (*plastic gas/water/FM sewer*) lines that have been directional bored without a tracer wire or extremely deep – 15+'. Not only does this prohibit the SUE firm from designating the line but Miss Utility has to mark the line from records instead of electronic detection methods. Another issue is no access to area of requested SUE work or work is requested in a wetland or a location where SUE work is not practical.

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14. What suggestions would you give to the audience to keep in mind for future projects? **A: SUE consultants are in professional practice and will advise/work with the utility section for the most economical and practical SUE study to meet project goals. The most efficient use of SUE services is performed early in the Design process. If the utilities are accurately shown on the plans early in the project life, they can be dealt with and conflicts can be addressed and mitigated. Incorrect or insufficient utility information that is determined to late in the design process causes delays, cost overruns and is always less efficient than addressing the conflicts earlier when changes to the design can reduce or eliminate the conflict.**