



## EXCAVATION AND REPAIR OF WATER MAINS AND SERVICES

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Ok, you have located the leak and narrowed it down to a likely location to excavate and repair. Now it's time to take a moment and give a little thought as to how to proceed. Number one on this short list is to call 811 / Dig Safely/NY or New York/811 and get all the utilities marked out. Standard operating procedure is 48 hours or two full working days. If it is an emergency, let them know when you place your call for faster response time. Once the utilities are marked those marks are good for ten days from the first request. Once you have made that 811 call it is time to consider weather conditions, personnel, and material needs. Obviously, if it is not a catastrophic break, it would be better if you could wait for a weather window that presents optimum conditions for you, your men/women, and traffic control. If you are going to be working in a busy, high traffic area, you may need to schedule to work after hours or early morning. How many men/women if any, are needed for traffic control. Consider asking a neighboring village or town for assistance if necessary. The next items to consider is your equipment needs. Will you need a pump and or a generator? If so, have these items been fueled and serviced? If not, someone needs to get them ready and be sure they are in working order. Suction and discharge hoses along with a strainer basket need to be located and readied for transport to the site. Many systems I work with now have either a dedicated truck or trailer with these items loaded and ready to go when necessary. Some items you might consider for these specialty vehicles are:

- Pumps
- Hoses
- Fuel Cans
- Lightweight shoring or plywood
- Generator / Power cords
- Wooden blocking
- Chains or straps w/shackles
- Buckets
- Cones and Barriers
- Pipe Wrenches and necessary hand tools
- Pipe Saw and/or Road Saw w/blades

If you have your own excavator or backhoe, is it fueled and serviced? Do you have a way to handle spoils from the excavation (Dump Truck)? In many cases it is preferable to use fresh gravel and stone instead of placing the saturated material back in as

backfill. If you do not have these materials stockpiled, you may have to order a load prior to commencing your repair. Most municipal systems keep a small inventory of repair clamps, dressers, and pipe sizes on hand for emergencies. If you don't know for certain what size pipe has been used in the area to be excavated, now is the time to take a look at the available prints, drawings, and records to verify what you may encounter. While planning your excavation and repair, keep in mind you might need to contact one or more of your suppliers to get the necessary parts or appurtenances to complete the repair. Therefore, you should keep the vendors contact information and hours of operation in mind when planning your project. Once everything is in place you are ready to proceed. Common practice would be to excavate parallel with the pipe, but keep in mind that if there are known services in the area to proceed with extreme caution as to not hook a service or corporation with the bucket. Most modern location equipment has a feature that will give an estimated depth. If possible use this depth as rule of thumb, measuring and hand digging often when you get down to the estimated depth of bury. Once you have located the pipe by hand, carefully expose enough pipe to implement the repair as well as digging below the pipe on one side to assist with dewatering the excavation. It may or may not be necessary to restrict the flow within the pipe to facilitate the repair. It is always wise to operate and exercise control valves prior to excavating to check that these are functioning properly. Count the turns necessary for the corresponding pipe size is a good way to determine fully closed or fully open. Also keep in mind that when implementing repairs on drinking water mains it is always recommended to maintain positive pressure and flow whenever possible. Rags, carpet, or plywood are all good for controlling spray from the break until flow can be controlled. Be sure to clean the surface thoroughly before installation of the repair clamp. Reed Pipe Descalers work excellent for removing scale and carbuncles from cast iron, ductile iron, and steel pipe. Once the repair clamp is in place and properly tightened (torqued to specifications), return the main to full pressure and check for leaks. If all is good, it is time to re-bed the pipe in fresh gravel. Re-chink the pipe as backfill is added and compact with a ▶▶▶

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plate tamper or ground-pounder if possible.

A little pre-planning goes a long way when excavating and repairing water mains and services in a municipal setting. Unfortunately, I have witnessed many of these type excavations over the years that have not gone as smoothly as desired. Mainly because of a failure of those in charge of not following a standard operating procedure (SOP) or doing a simple walk through of the intended repair. It is almost certainly easier to do it right the first time, especially with a little pre-planning.

I hope this article provides some of you with some food for thought as you go about your daily mission of providing “Quality on Tap”! 💧💧💧

