

Subsurface Utility Engineering (SUE) Location Surveys

The Method

Most line locating equipment operates through principles of electromagnetics (EM), designed to detect underground utilities constructed of electrically conductive materials. An active signal is applied to the underground utility by means of a radio frequency (RF) transmitter and then traced with a receiver. With direct coupling, an RF signal is applied to a cable or pipe where there is access to a contact point. With no access to the utility, the indirect mode is used. A transmitter is placed or walked along the ground surface above the conductor and the signal is induced through earth onto the pipe or cable. For non-conductive pipes and conduits, a plumber's snake can be inserted into the line and a signal induced along its length. If electromagnetic methods will not detect a particular utility, ground penetrating radar (GPR) can be employed to image the subsurface feature.

Equipment Used

Pipe and Cable Locators

Ditch Witch Electronics Subsite 950 R/T

3M Dynatel 2200 series cable locator

Fisher TW-6 pipe and cable locator / metal detector

Ground Penetrating Radar Units

Sensors & Software Noggin SmartCart (250 MHz, 500 MHz)

Sensors & Software Conquest 1000 MHz

MALÀ Geoscience 350 MHz

GSSI StructureScan Mini HR 2,600 MHz

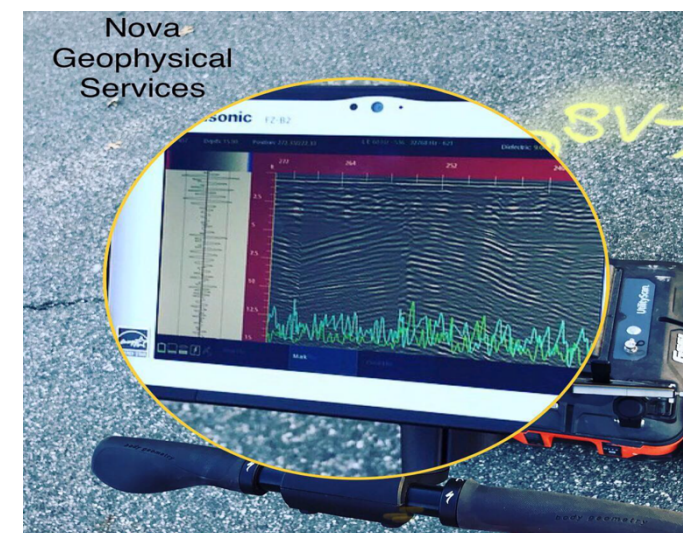
GSSI UtilityScan DF 300/800 MHz

Field Procedures

NOVA Geophysical Service's approach to utility location begins with a highly experienced and motivated crew equipped with a variety of state-of-the-art utility location instruments. Our personnel, without exception, are all geophysicists and geologists with a strong understanding of geophysical principles and how they are effectively applied to utility location. Utility location is an exacting science. When a complete and accurate utility mark-out is desired, NOVA Geophysical Services provides geophysicists, geologists & consultants, not service technicians.

Applications

- Mapping the surface trace of buried utilities Electric
- Telephone
- Fuel
- Water
- Sewer
- Providing mark-outs where subsurface utilities are an issue
- Generate or update subsurface utility maps for future planned development
- Clear drilling / borehole location for subsurface interferences
- Map utility pathways that may be related to contaminant migration
- Accurately mark-out utilities scheduled for repair or replacement



Data Processing and Presentation

Utility location equipment is designed for direct detection and recognition of targets, real-time in the field. The surface traces of underground utilities are marked directly on the ground as they are identified, using the color code established by the American Public Works Association.

