Locating Underground Gas Pipes with High Precision GPR

Subsurface utility mapping with real-time data visualization

Overview

- The team at District Heating Solutions needed to find an aging underground gas pipe in Germany, without causing any damage.
- The GS8000 subsurface mapping GPR was used to scan the area to locate the missing pipe.
- The exact location and position of the pipe was revealed rapidly in 3D with high accuracy

District Heating Solutions provides eco-friendly, cost effective and dependable heating solutions for homes, businesses, and industries as a substitute for conventional heating techniques.

Challenge

In Europe in the 1980's and 1990's, many underground utility networks were installed with an average lifespan of around 30 years. The time has now come for many of these utilities to be located and replaced. To add to the challenge, many of the networks were also poorly documented over time, so asset owners often know nothing about what is going on beneath the ground.

In this case, the team at District Heating Solutions were tasked with locating the main underground gas pipe located near a retirement home. There was little documentation of the utilities onsite, so the location was not sufficiently well known. The pipe needed to be cut off from the network fast, so it was crucial to find the exact position.

Solution

The GS8000 subsurface mapping GPR was chosen to scan the area and locate the exact position of the gas pipe. With its real-time 3D visualization of the underground as you walk, the GS8000 makes a perfect solution for this application. The main advantage of using a ground penetrating radar like the GS8000 is that when no documentation is available, no time and money is wasted on digging up the ground to investigate and filling it back up again. It is simply too expensive to do.

Imagine, each hole can cost around 10k euros, and sometimes three, four, or even more holes may need to be dug to find what you are looking for. This gives an idea just how expensive it can get without using a solution like the GS8000 to give you the exact location.

Results

The team scanned the area and located the gas pipe in less than one hour. Using the GPR data as guidance, they opened up the ground and the gas pipe was exactly where the data said it would be. Time and money was saved onsite with no need to dig up and refill unnecessary ground.

“With this new technology we are able to optimize our planning processes and make things happen that were not possible before. Being able to localize pipes without digging saves us time and our clients money.”

This targeted approach also enables 3D planning for the new pipe networks being installed. First the existing network needs to be located and mapped with the GS8000, then 3D planning for new pipes can begin. This is crucial for successful thermal planning as the pipes must be ordered in a certain way to prevent stresses or snaps.

With the German Government planning huge network expansion and upgrades of current heating works, the demand for subsurface utility mapping is expected to increase substantially.

Luckily with subsurface GPR solutions from Screening Eagle, you can tackle any utility challenge with ease.

Check out our Tech Hub for more customer case studies and application notes on utility detection and subsurface mapping.

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