

Improving Accuracy of Mobile Underground Infrastructure Locator



InfraRadar, a mobile ground-penetrating radar infrastructure locator developed and manufactured by GT Frontline, recently switched to the Spectra Precision SP80 GNSS receiver. Company president Dick van der Roest said this was done because a good position is essential for a good survey and the SP80 performs significantly better than alternative systems.

The InfraRadar, integrated with the SP80, is used to map underground infrastructures, including pipes, conduits and cables, as well as archaeological or geological features, and unexploded ordinance. According to Van der Roest, a significant number of GT Frontline customers require centimetre-level accuracy at X, Y and Z, which the SP80 achieves – even under tree canopy and urban environments with significant multipath. The SP80,

which offers advanced communication options, transmits its NMEA, GGA, GSA and GST string data to the InfraRadar via a Bluetooth connection.

A recent project requiring centimetre accuracy involved replacing valves and parts on an underground high-pressure gas pipeline system. The pipeline owner employs a 3D building information modelling (BIM) system to design and build the replacement parts that are prefabricated off-site to be later installed on location. To accurately build the model, the BIM requires centimetre-accurate data on the exact location of the pipeline, the fittings to be replaced, and all third-party pipes and cables in the vicinity. BIM and prefabrication are an efficient maintenance and parts replacement method. However, the required centimetre-level data accuracy is challenging but necessary, as installation adjustments on site are limited to a maximum of two centimetres.

To collect the data, the mobile InfraRadar GPR, with integrated SP80, was deployed in a very dense grid to survey the existing layout. Using the centimetre-level accurate data acquired through the InfraRadar with the SP80 GNSS, the pipeline owner was able to prefabricate precisely the replacement parts offsite, transfer them onsite, and successfully install the replacements on the pipeline.

For more information on the SP80 GNSS receiver [see here](#).