



## **Optimised Radar to Find Every Utility in the Street**

### **Deliverable D16**

## **Artificial test site final report**

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### **EXECUTIVE SUMMARY**

When the new generation of GPR surface radar is available from the ORFEUS project, the first phase of the testing programme will be carried out on a site where the disposition of buried plant and other objects is known, and the soil conditions are defined and controlled.

The purpose of the test site is to allow the performance of the surface radar to be tested in compliance with the User Requirements Specifications, as defined in Document D 4.1 of the project. In addition, the test site must allow the test programme to be carried out with due regard to the safety of personnel. It must also be maintained in a stable condition so that measurements of radar performance parameters can be made with sufficient consistency to allow comparisons with tests on previous generations of equipment.

The site to be used for ORFEUS prototype testing already exists, but modifications are required to accommodate the project aims. Although the test site contains a wide range of well documented plant, buried in a range of soil types designed to represent realistic operation conditions, it was designed for the purpose of testing for the specific needs of locating gas distribution networks. Equipment developed under the ORFEUS project is intended to address wider location requirements and, therefore, the addition of more items of plant is necessary.

The artificial test site in GDFSUEZ R and D facility has existed since 1993. During all this time, the it has been used by GDFSUEZ to test, and evaluate the average performance of several ground probing radars intended for gas network identification. The test site, in its original definition, is the a European standard that has been used for testing the evolution GPR systems for 15 years. To retain the ability of the test site to compare the ORFEUS GPR with past generation systems, only 3 areas (out of total of 8) were modified. The total surface involved is, approximately 60m<sup>2</sup> out of a total of 200m<sup>2</sup>.



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To comply with the various requirements defined in D4, the following modifications were implemented:

- Gas, electricity, water, sewers and optical fibre networks were added in a new area in a depth range varying from 0.45m (optic fibre) up to 3.00m (sewer).

The diameters of the installed pipes were in the range 20mm to 300mm.

The nature of the various materials used are: steel (gas pipe) PE (gas and water pipes), PVC (sewer pipes).

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