



## NJUG CASE STUDY

### **CASE STUDY 45: Virtual Trialholes** ***Winner of the NJUG 2009 Avoiding Damage Award***

The National Joint Utilities Group (NJUG) is the UK industry association representing utilities on street works issues. The 39 companies<sup>1</sup> we represent work to deliver gas, electricity, water and telecommunications to both individual consumers and UK plc.

NJUG members need to continue to drive forward further improvements. We have therefore developed the NJUG Vision for Street Works, which revolves around six main principles:

1. Safety is the number one priority
2. Damage to underground assets is avoided
3. Utilities work together and in partnership with local authorities to minimise disruption
4. Utilities deliver consistent high quality
5. Utilities maximize use of sustainable methods and materials
6. Street works in the UK are regarded as world class

This case study is an example of NJUG delivering on these principles and turning the vision into reality.

#### **Overview:**

Infotec have always been associated with some of the largest and most complicated site surveys around the UK. The information is relied upon to ensure safe site working, accurate and reliable designs, and the ability to determine effective routing for new laid services amongst a veritable maze of existing infrastructure. However using advanced technologies and systems, Infotec have developed a service called Virtual Trialhole, which has the ability to provide accurate information within a small area. This service avoids the need to excavate Trialholes, a technique that is increasingly regarded as unacceptable, particularly within the public highway. Virtual Trialholes are designed to provide a cost effective guaranteed alternative to any existing invasive methods.

Infotec have launched their Virtual Trialhole service to Utilities, Highways Authorities and to major Public Works Contractors, already undertaking several thousand of these surveys over the past year.

#### **Case Study:**

Reliability and more importantly, accountability, in the form of a Professional Indemnity Guarantee can only be achieved by obtaining certainty in the data obtained. Infotec rely not just on one process, but on a range of processes and an appropriately considered cross referencing system, that eradicates the potential for error or omission.

Electromagnetic Tracing, Sewer Route Probing, PipeTrack 3D Gyroscopic Mapping, ground penetrating radar utilising Analytic 3D Block Software and Magnetometry are just some of the systems used for each survey. Close proximity scanning allows Infotec to analyse data from every perspective, not least progressively from ground level deeper and deeper into the surveyed area. "Ground Truthing" uses physically measured data to calibrate ground radar signal frequency through the soil conditions present

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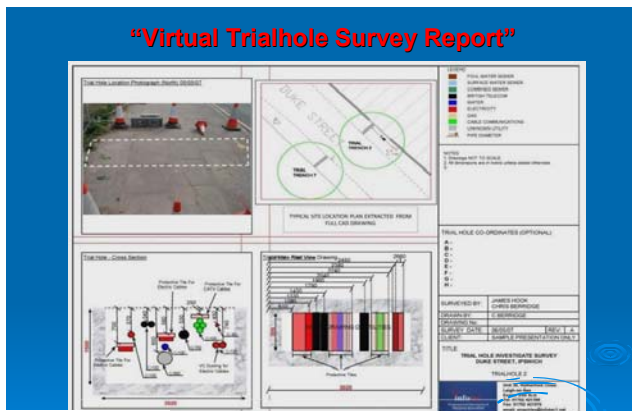
<sup>1</sup> NJUG's current members are Energy Networks Association (representing electricity and gas), Water UK (representing all water and wastewater companies), National Grid, Openreach, and Virgin Media. Our associate members are Clancy Docwra, Skanska McNicholas, Balfour Beatty, Morrison Utility Services, Morgan Est, NACAP, PJ Keary, First Intervention, Carillion, Enterprise, Laing O'Rourke and AMEC. Including members through trade associations, NJUG represents thirty-nine utility companies, and twelve utility contractors.

on each individual site. This process significantly speeds up the ability to produce final data much more quickly, whereas surveyed drawings are normally supplied within 5 working days.

All surveyed information is recorded topographically to ensure centimetre accuracy is achieved. Data is presented in any CAD or GIS format. Drawings are designed to be clearly understood not just by engineers and surveyors but just as importantly by the man on the jackhammer or operating the JCB. Each site pack provides an Ordnance Survey plan, a site photograph, a detail plan showing plant positions and identification, and a sectional detail showing the depth and layout of the trench.

Each surveyed location is identified uniquely using an RFID Tag that provides an ability to easily relocate the surveyed area without GPS or Total Station. Where prevailing soil conditions prevent successful tracing, Infotec adopt an immediate client notification system, avoiding the problems associated with delay and a lack of information provided on the day the client had intended starting work.

Recommendations may be made to offer the services offered by Infotec's partner contractors to utilise Core-Vac solutions for verification of plant position or depth, or to identify if trenches house, unseen targets, where prevailing soil or groundwater conditions prevent clear targets being proven using other techniques.



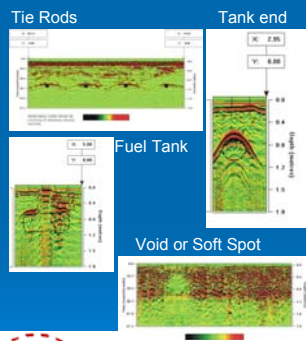
### Multifunctional approach needed to achieve Guaranteed results

- A Combination of appropriate techniques
- Utility Record Assessment
- Visual Site Assessment
- RFL Electromagnetic Tracing
- Magnetometry
- Manhole Surveys & Pipe or Duct Route Probing
- Ground Penetration Radar
- Topographic Survey
- CAD Preparation
- QC Composite Data



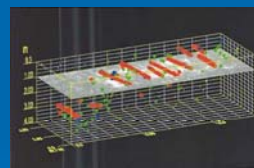
### Radar Scanning – The Infotec Way

#### Conventional – Radar Time Slices



#### Area Scanning The Infotec Method

➢ Conversion of a series of scans into a 3D block of data



A 3D Analytical block which can be observed from any perspective revealing services one by one

