



## NJUG CASE STUDY

### CASE STUDY 3: Underground Mapping and Minimum Dig Technology

The National Joint Utilities Group (NJUG) is the UK industry association representing utilities on street works issues. The thirty-eight 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 maximise the 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 a reality.

#### Overview:

The utilisation of minimum-dig technology as well as improving the recording of underground assets has a major role to play in meeting NJUG's Vision. The large volume and extent of underground assets in the UK has a major impact on delivery of essential services. The following statistics demonstrate the extent of the UK's underground assets:

- 275,000 km of gas mains
- 353,000 km of sewers
- 396,000 km of water mains
- 482,000 km of electricity cable
- Estimated 2,000,000 km of telecommunication cables
- Highway drains and surface water sewers
- Traffic management cabling lights, signals etc
- Utility service connections to domestic and commercial consumers' property
- Network rail assets
- Nationally-important oil pipelines

(Source: M Farrimond, UKWIR 2006)

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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, Virgin Media and THUS, a Cable and Wireless Business. Our associate members are Clancy Docwra, Skanska McNicholas, Balfour Beatty, Morrison, Morgan Est, NACAP, PJ Keary, First Intervention, Carillion and Enterprise. Including members through trade associations, NJUG represents thirty-eight utility companies.

## Case Study:

NJUG members often conduct street works using minimum dig technology, such as inserting new pipes inside existing pipes, thereby negating the need for an open trench the length of the street. In support of this drive, utilities and their contractors have continued to innovate with technology and best practice. Some industries can now boast that over 90% of assets get replaced using minimum dig technology.

NJUG is also heavily involved with the National Underground Assets Group (NUAG). NUAG is promoting a framework that will allow all utilities to work towards a more consistent records process for underground apparatus. In September 2006 NUAG published a report 'Capturing, recording, storing and sharing underground asset information – A review of current practice and future requirements'.

Not only is NJUG working with NUAG, but it is also working on a number of other initiatives that improve the location and identification of buried assets. One of these is the VISTA project, which involves the collaboration of 21 organisations to develop an integrated framework that will then enable the data sharing for all buried assets across Great Britain.

Whilst continually improving records, ultimately, the "augmented reality" that this technology will be able to provide, will allow the user to see a three-dimensional projection of existing buried assets, superimposed onto, and under, the surrounding surface features. This will help to reduce costs in asset investigation, potentially reduce the size of excavations and avoid damage to other assets, but more significantly, will reduce the potential risk of injury to workers.

Collectively, these initiatives bring together knowledge and data integration with the aim to make street works safer and more efficient whilst delivering enhanced security of supplies.

The image displays two overlapping web browser windows. The top window is titled 'NUAG - Welcome - Microsoft Internet Explorer' and shows the homepage of the National Underground Assets Group (NUAG). The page features a navigation menu on the left with links to Home, Aims & Objectives, News & Information, Events, Steering Group, Working Groups, and Links. The main content area includes a 'Welcome' message, a description of the group's purpose, and a section titled 'The NUAG Vision'. A photograph of green and grey pipes is visible on the right side of the page. The bottom window is titled 'UKWR & DTI - VISTA Project: Home - Windows Internet Explorer' and shows the VISTA project website. The page has a blue header with the VISTA logo and the tagline 'Visualising Integrated information on buried assets to reduce streetworks'. Below the header, there is a navigation menu, a search bar, and a 'VISTA Latest' section. The main content area contains a 'Welcome to the VISTA Project Website' message, followed by a detailed description of the project's goals, funding, and benefits. The project aims to create a three-dimensional map of buried pipes and cables using satellite and ground-based positioning systems. The total project costs are around £2.2m, with £630k for work at Leeds and £270k for Nottingham. The project is funded through the Technology Programme by the Department of Trade and Industry. The website provides general information and access to project-related data.