Work instruction:	Date Raised
Avoiding danger from underground services	18.6.12

Work Description

Correct use of CAT Scanner for the avoidance of danger from buried services

Instruction

Refer to W0001 & W002.
Refer also to the HSE's Guidance notes on 'Avoiding Danger from Underground Services – HSG47'

1. The ground must be CAT Scanned prior to any excavations being undertaken.
2. Walk through the proposed area of work holding the CAT scan vertically above ground with **POWER** mode selected gently sweeping and tracing across the ground in a grid pattern.
3. When a signal is detected adjust the sensitivity control for exact location of services. Be mindful that plastic pipes / services cannot be located with CAT scanner so always excavate with caution.
4. If services are identified use your ground marking spray to mark these up in order to make the location of these known to all operatives.
5. Repeat steps 2,3 & 4 in **Radio** mode. Any metal services in the ground are conductors so should still give off a slight signal even with no signal induction through the use of a Genny *(see WI – 016 if applicable)*.
6. Should one of these services run through the proposed area of excavation, the excavation may need to be moved/adapted in order to still complete the proposed works. If for any reason you are unsure about excavating due to services, please call the office for next steps.
7. Excavations should be CAT scanned once again at 300mm deep intervals to check for services that may not have been detected at the time of the original sweep.

N.B. – Be aware of the limitations of CAT Scanners in Power Mode.

- Street lighting cables. When the lights are off, no current flows and so no power signal is created
- Supplies to buildings or plant using very little or no electricity will not have a detectable power signal.
- Pot-ended or capped cables. These will never have any current flowing through them but are possibly still live.
- A few high voltage electricity cables. These can be "well balanced", electrically and therefore radiate little or no Power signal.
- Direct current cables (such as those found on railway systems). These do not create their own Power signals.
- Cables more than 3 metres deep

N.B. – Be aware of the limitations of CAT Scanners in Radio Mode.

- Not all services will be detectable in Radio mode.
- A strong Radio signal present on one service may be masking a weaker Radio signal present on an adjacent service.
- It is not normally possible to determine WHAT the service is in Radio mode, only it's position.
- Radio signals do not favour one utility over another
- The depth of the buried service CANNOT be judged by the strength of the radio signal alone.
- Normally it is only possible to detect Radio signals present on services up to 2 metres deep.

A short service may not have enough signal to be detected.

Responsibilities

Site Investigation Engineer

Key Objectives

Avoidance of buried services / location of defects