Policy on Utility Detection

I. Survey Strategies

1.1 In theory, there are two basic survey approaches for the detection of buried utilities, namely
   a) The use of a dense grid of orthogonal data which is then processed and interrogated back in an office environment; and
   b) On-site interpretation where the radar data is interrogated by the field surveyor during data collection.

1.2 In the former case, the lines of utilities are established and incorporated into final CAD drawings. In the latter case, the radar data is interrogated by the field surveyor during data collection and the lines of utilities are marked on the ground for possible later topographic survey and incorporation into CAD.

1.3 In reality, these two apparently radically different approaches extend into a range of survey strategies, based primarily on one or the other of these two approaches.

1.4 For all survey strategies, the density of the survey data collected has a direct effect on the likelihood of detection. The less dense the data set, the greater the risk of non detection.

2. Advantages of Off-Site Interpretation

2.1 This approach offers an increased potential to resolve multiple targets which is of increasing importance in urban contexts.

2.2 Quality control, in terms of probability of detection can be appraised in a more rigorous manner.

2.3 This strategy allows the use of different grades of personnel to collect and to interpret the data, although this may not always be appropriate.

3. Advantages of On-Site Interpretation

3.1 Interpretation in-situ limits the cost of the survey.

3.2 This method also allows the detection of utilities within their context at the time of the survey.

3.3 This approach should minimise potential loss of location information.

3.4 The operator is strongly motivated to monitor data quality during the survey.

4. Disadvantages of Off-Site Interpretation

4.1 This approach potentially involves a greater input of time both in data collection and in post survey processing and hence is potentially more costly.

5. Disadvantages of On-Site Interpretation

5.1 It is difficult to ensure all utilities are detected reliably in a complex
environment containing multiple services.

5.2 There is a risk of misinterpretation in a complex environment containing multiple utilities.

5.3 There is a potential for loss of quality control which is heavily dependent upon the experience of the GPR surveyor.

6. **Guidance to EuroGPR Members**

6.1 The Association recognises the importance of adequate data collection. Survey parameters such as sampling intervals and area coverage will vary from one site to another. It is therefore important to adopt an approach which recognises the risk and outcomes of non-detection within the context of each individual survey.

6.2 While recognising that it may not be either practical, or, possibly, cost effective to adopt rigorous full area coverage with off-site post processing in all cases, it is essential for both the GPR survey provider and the survey client to be aware of the potential risks of curtailment. The important underlying principle of the survey method adopted should be to set out the level of service and any inherent risks resulting from that method. For this reason, some members may choose to offer a tiered service.

6.3 The Association also recognises that survey clients may tend to focus on the cost of the survey at the expense of the potential risks of the survey method. There is a need for good detailed technical advice to those commissioning a GPR survey. EuroGPR will co-operate with the Survey Association and other professional bodies who also interact with our client groups in order to draw up and distribute this advice.

6.4 It is essential that the GPR survey provider is capable of demonstrating professional competence. The Association expects that its members will be capable of justifying their approach to the survey. They should also be capable of substantiating any technical claims that they make for equipment or specialist software by demonstration or other appropriate means.

**Drafted: EU/Full Committee**

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