

Solution Feature Investigation

The site, which extended to about 6ha, comprised a former Hospital. The proposed redevelopment envisaged 2 and 4 storey blocks of residential apartments, including one block with semi-basement garages.

Geological records indicated that the site was underlain by Winter Hill Gravel, (a Lacustrine delta gravel), over Upper Chalk. There were indications that one area had the Lambeth Group overlying Chalk beneath the gravels.

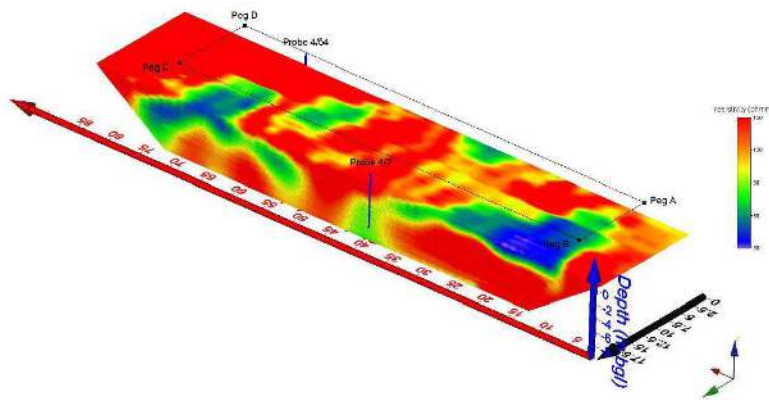
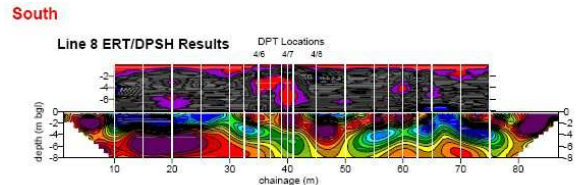
Based on preliminary desk study research, we perceived a risk from solution features on the site.



Investigation

We designed and undertook a detailed ground investigation, comprising a geophysical survey, trial pits and dynamic probing across the site to delineate the presence of dissolution features. This was followed by a second phase of dynamic probing where anomalies were encountered along proposed foundation lines.

The soils comprised sand and gravel, with some clay and gravelly clay in places, over chalk. Areas of probable dissolution features were identified. The extensive probing also found localised loose zones in the sands and gravels and zones of softer clays.



Recommendations

Recommendations made in order to achieve the required design bearing capacities included:

- Compaction grouting of deeper loose zones in chalk.
- Vibro compaction of shallower loose zones in gravels.
- Reinforced Raft Foundations.
- Borehole soakaways used for disposal of surface water runoff to reduce subsidence risks.

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