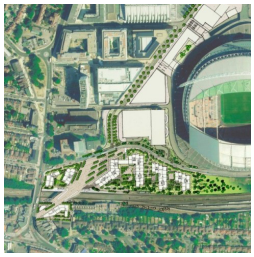
CASE STUDY

harrisongroup
GEOTECHNICAL & ENVIRONMENTAL ENGINEERS

PROJECT: GROUND INVESTIGATION FOR URBAN REGENERATION SITE
LOCATION: WEMBLEY
VALUE: £130K

BACKGROUND

The proposals for the South West Lands are the next stage in Quintain's investment and development programme for Wembley Park. The plans extend the already visible regeneration projects further south, creating 850 new homes, hotel and office accommodation with affordable workspace, retail units, green spaces and improved links through to Wembley High Road.



Harrison Group are very pleased to be involved with this prestigious project in London, having been awarded the ground investigation contract for the site to provide geotechnical and environmental information. This will be used to aid the planning and design of many aspects of the new development.

SCOPE OF WORK

In order to minimise risk of problems during the ground investigation works on this sensitive site, initial screening and clearance were required where necessary, prior to breaking ground. This included:

- Site clearance and enabling works to allow access to the exploratory locations
- Location and identification of services
- Location and identification of potential unexploded ordnance (UXO) using a down-hole CPT push magnetometer (magcone), undertaken by specialist subcontractor, Lankelma, with additional clearance and UXO supervision by MACC International Limited

Harrison Group used a variety of ground investigation methods. These included:

- **Trial pits** - machine excavated pits were undertaken across the site, to investigate the near surface soils

- **Cable percussive boreholes -** were drilled to 40mbgl into the Lambeth Group and to 8mbgl in order to determine in-situ permeability of the shallow deposits

- **Rotary boreholes -** 112.5mm diameter - were drilled to approximately 50mbgl to prove the top of chalk using traditional coring methods, with a water/ air mist flush. Borehole cores were logged on site, which included detailed unit assignment (Chris King - 2009) for the London Clay formation and the Lambeth Group

In both cable percussive and rotary boreholes, vibrating wire piezometers were installed along with 50mm diameter shallow gas and groundwater monitoring wells, as part of a nested monitoring system.

- **Static cone penetration testing (CPT) -** After screening for UXO, specialist subcontractor Lankelma was employed to carry out CPTs using a piezocone. In-situ pressuremeter tests and dissipation tests were also carried out at various depths within the London Clay. These were undertaken to provide data to aid in the design of the planned basement structures. Lankelma used a procedure that is currently in the early stages of development. Using a 'lubricated piezocone', where the rods are lubricated to achieve greater depth of penetration (up to 40m), data was successfully collected at depth within the London Clay

- **Sampling -** Soil, rock and water samples were taken during the trial pitting, cable percussive and rotary drilling works, for subsequent analysis and testing

- **In-situ testing -** Within the machine dug trial pits, plate bearing and soakaway testing was undertaken to provide data for road and drainage design

Post fieldwork activities included gas monitoring from the shallow wells over a period of 6 weeks, using a GA500 portable gas analyser and Tiger PID monitor. On review of the gas data, a gas clam was placed into one of the wells, to allow for continual gas monitoring over a 6 month period.
Water sampling was carried out using a low-flow pump connected to a Smartroll meter, to monitor in-situ chemical parameters (temperature, pH, conductivity, dissolved oxygen and redox potential) of the groundwater. When the readings stabilised, water samples were collected for analysis. Water levels were monitored in the wells using a dipmeter, and readings collected from the vibrating wire piezometers over a 6 month period using installed dataloggers.

OUTCOME

All site works were carried out successfully over a 4 week period with subsequent monitoring over the following 6 months.

At the time of publishing, further phases of the site investigation are yet to proceed. The timing and scope of work of future investigation is dependent on the successful progression of the development plans.

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