Dynamic sampling crew set up over geoenvironmental borehole location

Open section of slit trench, excavated to confirm presence and location of utilities along the scheme route

Ground Investigation

Sydenham Stormwater Interceptor – Phase 1 Ground Investigation

Causeway Geotech were appointed by Atkins to complete ground investigation works to provide geotechnical and environmental information for the input to the preliminary design of a proposed flood alleviation scheme in East Belfast.

The scope of works included boreholes by dynamic sampling, using a Dando Terrier, and light cable percussion boring, using a Dando 2000, as well as CPTs and a single slit trench. Geotechnical and environmental sampling and testing were carried out in accordance with the direction provided by Atkins.

Works were carried out under the supervision of a Site Engineer from Causeway Geotech who liaised with the Client accordingly. Working adjacent to live highways and across public parklands, the selection of appropriate rigs was paramount in limiting the impact on the public while not compromising the standard of information returned. Applying our extensive knowledge of the local ground conditions, it was possible to employ dynamic sampling techniques by means of compact Dando Terrier rigs, where appropriate, to carry out boreholes of 10m depth through lacustrine deposits in accordance with the requirements of the specification where access restrictions existed.

A Dando 2000 light cable percussion boring rig was deployed to carry out the deeper geotechnical borehole which was taken to 20m depth.

In advance of intruding the ground by drilling techniques, all locations had to be cleared for the presence of underground utilities.

A single slit trench was excavated across a live highway under full traffic management to uncover and record subterranean utilities present. This trench, covering a total length of circa 20m, was excavated, surveyed and subsequently reinstated within half a day, thus minimising local disruption.

Project Summary

The site operations were carried out under the supervision of an experienced Site Engineer from Causeway Geotech who directed the drilling crews on site. A representative from Atkins maintained a presence on site to oversee the execution of works and ensure they were being carried out in accordance with the specification.

The work site extended along the route of the proposed flood alleviation scheme in a largely residential area of East Belfast, in the shadows of Ravenhill Stadium. Exploratory holes were put down through both hard and soft-scaped areas, with ground guard boards emplaced where required to limit disturbance to the ground surface.

The ground conditions encountered were typified by lacustrine deposits that lent themselves to relatively easy drilling conditions. With our experience of drilling in the locality, we were able to confidently deploy Dando Terrier rigs with the knowledge we could achieve depth with the 10m boreholes, with alternating UT100/U100 and SPTs down to their bases. Where deeper boreholes were required, a traditional light cable percussion boring rig (Dando 2000) was used.

Causeway Geotech's impeccable safety record was furthermore boosted by completing the works with zero incidents.

The subsequent reporting phase, comprising a factual report, was also completed on schedule, thus completing another successful contract to the Client's satisfaction.

Putting down CPTs along the proposed route

Project Summary

• Geo-environmental ground investigation completed over February to April 2013

• 7 no. boreholes by dynamic sampling to 10m depth using a Dando Terrier

• 2 no. boreholes by light cable percussion boring up to 20m depth using a Dando 2000

• Installation of combined ground water and ground gas monitoring instruments

• 8 no. CPTs using a 20t lorry mounted rig

• 1 no. slit trench by combined hand digging and tracked mechanical excavators

• Geotechnical and environmental