CASE STUDY

THE CHALLENGE

ISO Energy contracted ADP Group to drill, supply and install 8nr x 135m GHSP collector loops on a large residential project near Andover.

ISO's client, the owner of the property, was actively involved in the renovation of their family home and were particularly keen that the formal grounds, which were chosen as the best location for the borehole array, did not suffer long-term damage as a result of the drilling work.

The site was predominantly underlain by chalk, with 3-5m of superficial formations and around 10m of weathered chalk.

The water supply onsite was poor, and the local network not capable of supplying enough water if flush was lost in to the chalk.

The main contractor onsite had a tight programme for the drilling work, with the impending RHI deadline acting as a backstop (drilling was programmed for February 2022).

The site was accessed via a tight gateway, and situated at the end of a narrow, winding driveway. The work area was to be shared with several other trades, who all had their own deadlines to meet.

THE CONSIDERATIONS

ADP Group set about writing a method statement that would allow the boreholes to be drilled with the minimum amount of disturbance to the site, whilst preventing the loss of any arising cuttings or drill flush to ground, and retaining the maximum amount of fluid recirculation, negating the need for excessive fresh water.

The boreholes would need casing, screening out the both the superficial formations present above the chalk, and the weathered chalk that we would likely encounter before reaching competent chalk; it was important that these formations were cased in order to prevent both hydraulic connectivity between adjacent boreholes and reduce flush loss.

The use of a traditional rig would require stillages of casing and rods to be moved to each of the 8nr borehole locations, resulting in a high volume of telehandler traffic and concentrated personnel movements around each position.

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THE SOLUTION

The final plan addressed the desire to reduce plant movements as much as was possible, and minimized the presence of equipment and personnel working and present around each borehole.

ADP Group chose to assign the project to DR13, a Comacchio GEO909GT, supported by an Elgin tracked mud-recycling plant and Norcar tracked, low ground-pressure telehandler.

The Comacchio GEO909GT carries 128m of rods and casing in an onboard carrousel, this allows a single driller to drill, and case as required, a borehole to a depth of 128m without the safety cage being opened or the rig being attended by an assistant driller.

The Elgin KT200SGT, equipped with an impressive auto-transfer pump, was positioned some 60m from the drill site and manned by the assistant driller who was able to top up the fluid from a 20,000L storage tank located 120m back on the access road.

Arising fluid was captured by the rigs' internal diverter and pumped, by the onboard mud pump, back to the mud recycling plant, without loss to ground.

Drill times were in the region of 6 hours per borehole, giving sufficient time for the loop and grout plant to be prepared, away from the garden, reducing the time that each item of plant, carried on and off by the tracked telehandler, spent at the borehole location.

By reducing the movements to just a handful of tracked telehandler trips and one rig movement per borehole, our method negated the need for excessive ground guards, and preserved the sites' condition.

THE FEEDBACK

The project had several exacting demands, not least of all the fact that the site, accessed via a narrow, winding drive, flanked by a grade 2 listed gatehouse, plays home to a Georgian manor house set in exquisite grounds that the owners were very keen to see unharmed.

ADP Group provided a competitive proposal to drill and install the boreholes using state-of-the-art machinery, designed to drill efficiently whilst capturing all arising drill flush.

Despite the equipment weighing up to 30 tonnes, ADP Group produced and implemented a method statement designed to reduce the ground pressure exerted on the site, ensuring that the formal lawns were left as close to the condition in which they were found, as possible.

The drilling rig arrived on time and completed the works inside the initially allotted 3-week programme, spending just 10 days onsite from start to finish.

ADP's project team were courteous and conscientious, and communication thorough and forthcoming.

Edward Levien

Commercial Director, ISO Energy