



Simons Building, Manchester

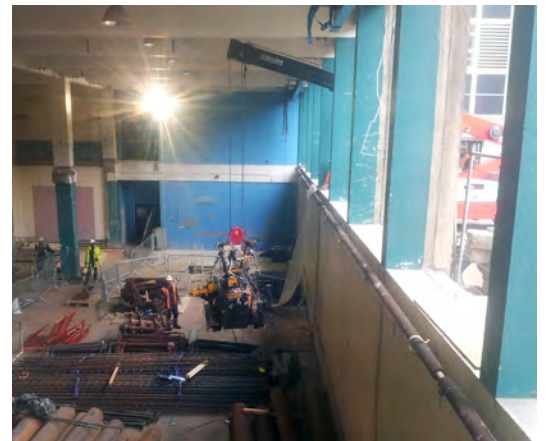
LOCATION	Simons Building, University of Manchester
REQUIREMENT	Restricted Access Bearing Piles
TECHNIQUES	Cased, Rotary Bored
MAIN CONTRACTOR	Graham Construction Limited

Project Overview

Technik Ground Solutions Ltd (TGS) was awarded the contract for the design and installation of the permanent bearing piles to facilitate the replacement of columns within the Nuclear and Hydraulic Laboratories of the existing university building.

The piling was carried out within a multi-level basement inside the existing building. Access to the work area was through a window and a crane was used to lift the minipiling rig into the working area.

The works included the installation of 64 bearing piles for safe working loads of up to 1150kN in compression and 490kN in tension.



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Project Challenges

- Restricted access and limited working space requiring detailed project logistics plan.
- Groundwater conditions requiring the site batched grout to be placed using a hollow-stem augers.
- Stringent criteria for the permissible deflection at the pile head.
- Logistical issues whilst working in conjunction with follow on trades to ensure an already very tight programme was met.

Solution Delivered

TGS provided a solution comprising 300mm diameter piles installed using high power minipiling rig. The Klemm 702 rig had to be craned through a window prior to being lowered into the basement areas.

Multiple rock-ripping attachments were used to penetrate weathered sandstone ensuring consistent and efficient augering.

Site batched grout was placed using the hollow-stem in the augers during extraction. Grout was mixed at site level using sonic mixers powered directly from the university 3 phase power supply. Cube test results for the grout confirmed the design strength was reached well before the 28 days. All piles were reinforced using threaded Dywidag bars and 6 bar cages.



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