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ABI EQUIPMENT LIMITED

In the spring of 2020 ABI Equipment Ltd were pleased to provide DWM Civil Engineering with a Mobilram TM 13/16 SL leader rig, plus associated piling attachments and tooling, for a construction project in Wilmslow, Cheshire.

The project took place at the site of a Grade II listed building dating as far back as the early 1600's. Although predominantly used as a private residence, this historic building has also spent a number of years as a boarding school and then as the offices of a major insurance company. It was during this latter time, in the 1970's, that an extension to the main building was constructed. When the house was purchased by it's current owners in 2006 it was returned to being a private residence, and plans were made to remove the existing extension and replace it with a building offering more space, as well as being more in keeping with the original structure.

For planning purposes the new extension has retained the same footprint as it's previous incarnation, but has been designed to provide a lot more space - this is being achieved by the excavation of a new basement level below ground, which will contain a pool and car parking.

The site sits within a residential conservation area of Wilmslow in Cheshire; access is necessarily constrained both inside and outside of the grounds, and the presence of further historic buildings within the immediate locale added to the need for care during the construction process.

The Mobilram rig was required for the installation of a sheet piled cofferdam

Basement Construction, Wilmslow, Cheshire

Client: DWM Civil Engineering

Equipment Used:

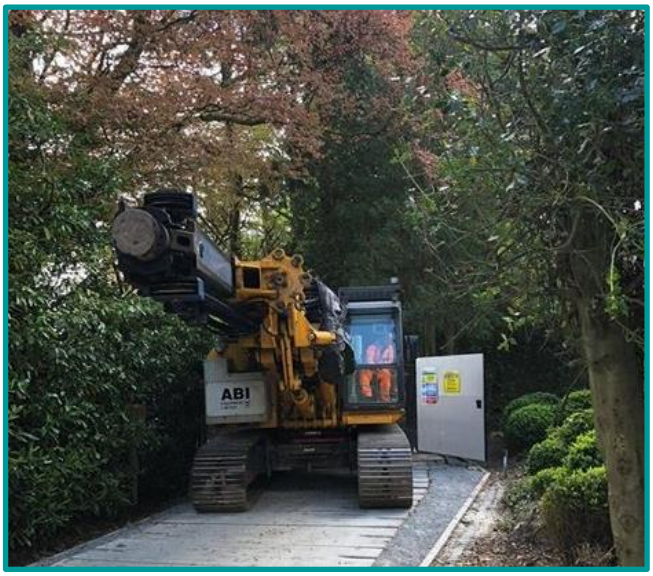
ABI Mobilram TM 13/16 SL

+ MDBA 4500 Auger Drive

+ MRZV 17 VV Vibro

+ HPU600 Hydropress

Application: Sheet Piling



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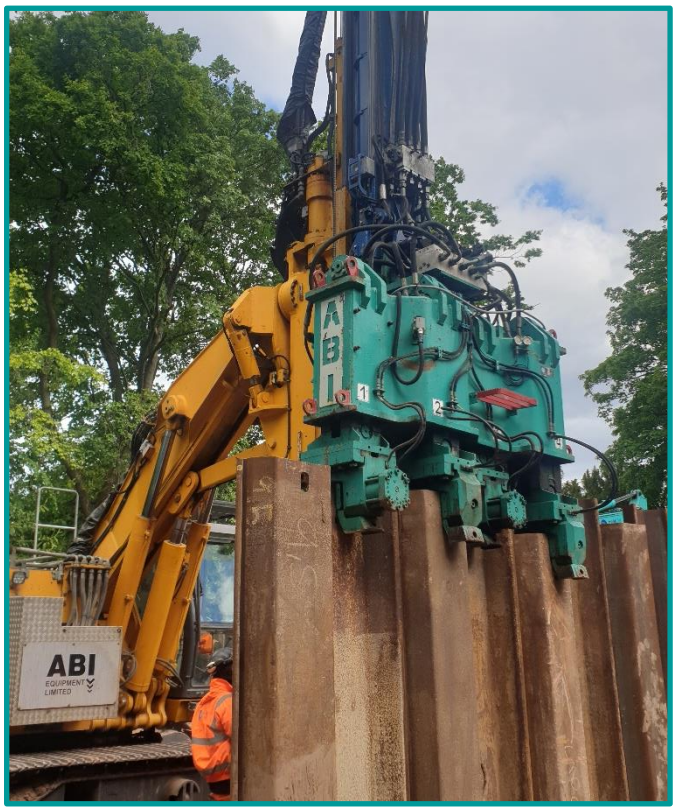
structure prior to the basement excavation, which would then be propped so that the ICF basement structure could be safely constructed. The work began by pre-augering the piling line, using a Ø450mm auger attached to an MDBA 4500 auger drive to prepare the ground and break through any remaining underground obstructions. The auger drive was then swapped for the MRZV17VV vibro attachment which was used to pitch and drive the sheet piles.



Each pile was installed to a depth of up to 10m, and in total 167No. GU12 piles were installed. The benefit of using the ABI vibro with it's variable speed, variable frequency technology is that it operates above the natural frequency of the soil – which means that only minor negative resonances are generated, and there was less disturbance of the surroundings. Given the sensitive historical nature of the site, and indeed the area as a whole, vibration monitoring and structural monitoring were employed for both the original building and the existing garden walls.

Piling with vibration is a very versatile method of sheet piling, being applicable to most soil types - in this case the site was of mixed geology with sands overlying clay, as well as having a high water table – and the patented technology of the ABI MRZV-VV range means that vibration frequencies can be tailored to the specific ground conditions of each project.

Due to the age and characteristics of the listed building it was decided to complete the final section of piling closest to the existing structure using a Mobilram HPU 600 Hydropress attachment. This method uses hydraulic power to press the piles into place rather than vibration – and is often called upon for use in the most sensitive areas.

The major considerations in selecting the most appropriate equipment for this project were the fact that it is a residential area, with conservation status, access to the site was restricted, and once on site the works were constrained to a very tight footprint. The TM 13/16 SL rig is both diminutive in size (relatively speaking) as well as being highly agile, and proved an excellent choice for this job – and the Mobilram's ease of switching between attachments made this even more economical.