

# ABI Equipment Limited

## Piling Equipment Specialists

Sales - Hire - Parts and Service - Project Support



ABI Equipment Ltd was asked to supply specialist equipment consisting of a Delmag RH34 drilling rig, complete with Ø1800mm drilling tools by piling contractor BAM-Nuttall Ltd.

The piling works were carried out over a 24 week period between June and November 2017.

### Kirtling Street - Thames Tideway Tunnel

**Main Contractor:** Ferrovial / Laing O'Rourke JV

**Client:** Thames Tideway

**Piling Sub contractor:** BAM-Nuttall Ltd

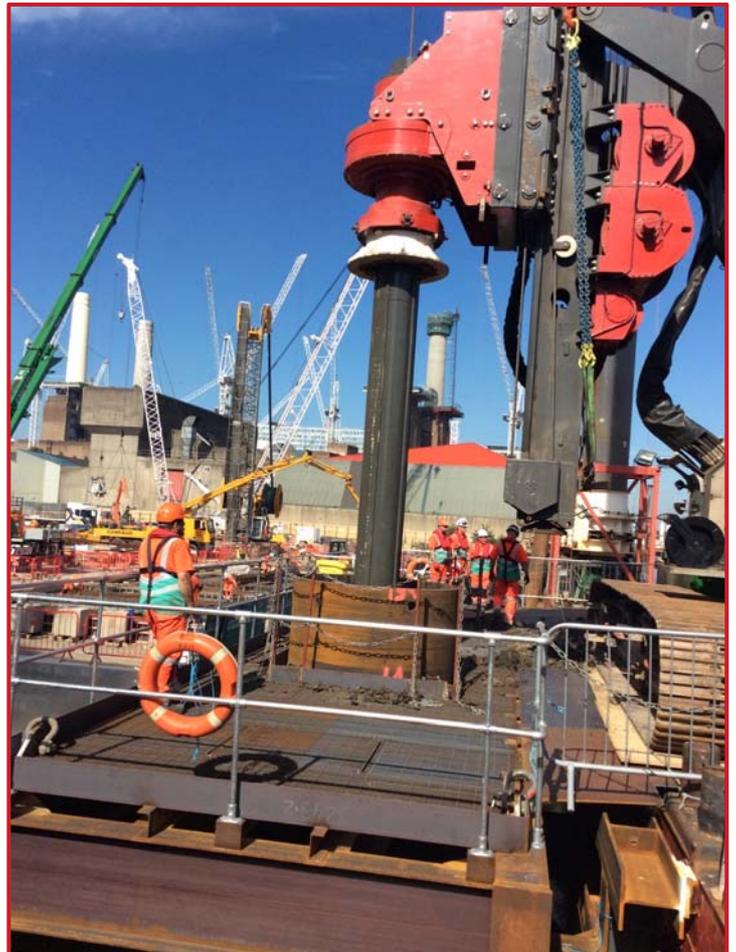
**Piling Equipment supplier:** ABI Equipment Ltd

### The Project

The Thames Tideway project involves constructing a 15 mile long, 7m wide and up to 65m deep tunnel to the Thames Water treatment works in Beckton. This is the biggest infrastructure project ever undertaken by the UK water industry. In order to facilitate the works a temporary site has been constructed at Kirtling Street which will be in operation for 5 years. This is to facilitate the delivery of the tunnel boring machine and tunnel segments to the project and also to enable the excavated spoil from the tunnel to be removed by river, thereby reducing the road traffic associated with the project. All the temporary structures including the piling are to be removed at the end of the project.

### Project Features

The Delmag RH34 was used to install the piles for the marine phase of the project. This included the construction of a jetty, mooring and fender piles and conveyor system support structures. The project required BAM-Nuttall Ltd to install 39No. Ø1219mm steel piles of various lengths up to 27.25m long with a flat base plate.



### ABI Equipment Limited

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### Project difficulties and restrictions

The 39No. Ø1219mm piles were installed in oversized holes formed inside the temporary Ø2000mm conductor piles and backfilled with sand to enable easier removal at the end of the project. The piles were seated on 6A rock within the socket to improve their load capacity. The unusual method was used as the piles have to be removed from site at a later date and the noise restrictions meant that standard tubular piles could not be driven.

### Piling Method

To provide a stable platform for the marine piles to be installed the Delmag RH34 was positioned on a 250 tonne jack-up barge. A piling gate was fitted to the barge and the piles were guided through this to their correct position. The barge was repositioned for each pile that was installed. The piling process was as follows:-

- Install a Ø2000mm conductor casing through the pile gate into the river bed.
- Vibrate the casing into the river bed to seal against water ingress.
- Pump river water out of casing.
- Drill out material to the required depth using the Ø1800mm rotary tools.
- Install hydraulically compacted class 6A stone plug.
- Lift steel pile into place and vibrate to level.
- Back fill annulus between pile and conductor casing with sharp sand.
- Remove conductor casing using crane suspended vibrator.

The ground conditions were river silt and gravel over London clay.



Andrew Pointon-Bell, Project Manager for BAM-Nuttall Ltd commented, "We found the Delmag rig easy to use, with its extended reach capability greatly assisting our work over the side of the jack-up. The rig coped extremely well with the challenges of the project. It is a robust piece of equipment and performed reliably as expected. We received attentive service from ABI Equipment Limited and were able to complete the marine phase of our project on time."

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