

ABI Equipment Limited

Piling Equipment Specialists

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ABI Equipment Limited was chosen as the preferred piling equipment supplier by BAM Ritchies to construct a 120 meter retaining wall and bridge abutment as part of the Heads of Valley A465 road widening project in South Wales.

BAM Ritchies were appointed by Carillion plc to drill and install 73 No 864mm diameter piles to form a 120m long retaining wall and bridge abutment as part of the Heads of Valley A465 road widening project. The piles were drilled up to 18m deep through made ground and into underlying bedrock. The rock comprised coal measures including extremely hard quartzitic sandstone and grit stone with a uniaxial compressive strength in excess of 200MPa.



Heads of Valley A465 road widening project in South Wales

Main Contractor: Carillion plc

Piling Sub contractor: BAM Ritchies

Piling Equipment supplier: ABI Equipment Limited



ABI Equipment Limited

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Project Manager, Kenneth Henderson, comments "with the very hard and abrasive rock it would not be possible to drill these piles using traditional rotary piling techniques. We therefore decided to drill the 14m deep rock sockets using a Numa 240 'Down The Hole Hammer' complete with 864mm button bit".

ABI supplied a Mobilram TM16/20B drilling rig with a special 'DTH' hammer installation kit and monitoring equipment. This set up permitted the rig operator to have precise control of the drilling parameters for DTH drilling. In particular, it is important to have close monitoring and control of both the 'weight on bit' and the rotational speed of the DTH. Without this, bit wear can be excessive and the drilling process is not efficient. The 20m stroke on the drilling rig enabled the piles to be drilled in a single pass without the requirement to add or remove drill rods as drilling progressed.

Due to the proximity of the existing A456 road a calyx basket system was used to collect drill cuttings within the hole rather than ejecting them from the top of the hole. This allowed for the control of the spoil and ensured the safety of road users and the piling operatives undertaking the works.

The DTH was set up with five large air compressors delivering 80m³ /min (2800cfm) at 10.2 bar (150 psi) . This ensured good DTH performance and hole cleaning.



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