

Cable Percussive Drilling

A common form of land drilling, this practice involves setting up an 'A'-frame structure over a borehole location which is then excavated by repeatedly dropping a cabled cutting shoe into the ground – hence the percussive title. This drilling method is sometimes called “Shell and Auger”. A Cable Percussive rig comes equipped with many different cutting shoes which enable this method of drilling to be used in many different soil strata. Depending on the ground conditions, Cable Percussive boreholes can be excavated to depths more than 50m if necessary. However, the presence of shallow groundwater can drastically limit the attainable depth using this method of drilling. The presence of very hard strata, such as limestone, can halt excavation entirely.

The rig frame is an 8m long trailer that is towed onto site using a four-wheel drive truck. While the boreholes excavated vary in diameter, from 150mm to 450mm, the rig frame extends to a height of approximately 7m when in position. The workspace around the rig when in operation is similarly sized and is approximately 4m by 2m. These space requirements can indicate access is a concern if space on site is limited. Any borehole locations must be accessible by truck as the rig cannot be moved into position manually. The rig is operated by two workers for safety and efficiency purposes.

The samples recovered via this form of drilling are suitable for both geotechnical and geo-environmental testing regimes. In-situ testing can be carried out to determine several parameters, such as soil strength and cohesion. These tests are carried out in the same percussive fashion as the borehole excavation. Due to the method of drilling employed the operation of the rig is quite noisy, particularly when drilling in harder or more difficult to drill strata or when casing must be employed.

Any boreholes are fully reinstated in a like-for-like fashion using soil arisings, or if required in the project's scope have a monitoring standpipe installed. If this is the case, a discrete metal cover is fitted flush with the ground surface over the borehole's location. Further information regarding the standpipe and its installation is available in a separate datasheet, which can be provided upon request if not already done so.



Figure 1: Cable Percussive Rig set up and ready for operation