Robin Rigg Horizontal Directional Drill

The Robin Rigg Horizontal Directional Drill further extends the company's experience in the industry, working as mechanical designers for Stockton Drilling Ltd. We were responsible for the development of the route and profile for a drill to install a cable duct under a railway line and environmentally sensitive beach. The cable duct was to house one of two export cables for a 180MW wind farm off the Cumbrian coast. A different contractor had successfully installed the first cable duct, but ran into difficulty with the second. Our team had to succeed where they had failed, with only a few months before the cable was required and the wind farm came online.

As well as the mechanical design of the duct, ensuring that it could be installed successfully without damage, Atkins were also responsible for the coordination of the design, taking into account information from the geotechnical specialists and Stocktons' site management to develop the route and profile of the drill. In addition, we provided survey support to set out the route of the drill on the ground and performed the temporary works design.

The biggest challenge with this project was that the drill exit point was close to the low tide mark, and only exposed for a few hours at a time. In order to minimise the geotechnical risks and environmental contamination associated with the drill, we designed a sleeve that could be installed over the exit point to contain the bentonite drilling fluid during the reaming and pulling operations. This spanned from the exit point on the sea bed up to the deck of a jack up barge that provided a working platform and was further supported by steel trestles driven into the seabed.

Due to the time constraints, the supporting structure was installed prior to completion of the pilot hole, and had to be easy to assemble during the low-tide periods. It also had to be highly adjustable so that the sleeve could accommodate any misalignment of the drill centreline, and still stand up to wind and wave action for the duration of the works. We undertook the conceptual and detail design for these works, producing manufacturing drawings for the steelwork fabricator, and were able to generate a design that Stockton Drilling could install on the beach without any specialist piling equipment.

Despite poor weather making the jack up barge inaccessible for several days at a time, the drill was completed and the duct pulled successfully. At the time of writing, the wind farm is in its commissioning phase, and the first of the turbines have already started to generate power.