

Isle of Grain 24" Pipeline Horizontal Directional Drill

Bennett Associates has a long history working in the Horizontal Directional Drilling industry. As well as the mechanical design of drilling rigs, we also carry out design work related to specific drilling projects all over the world. The Isle of Grain Horizontal Directional Drilling provides a good example, where Bennett Associates performed the following services for Stockton Drilling Ltd:

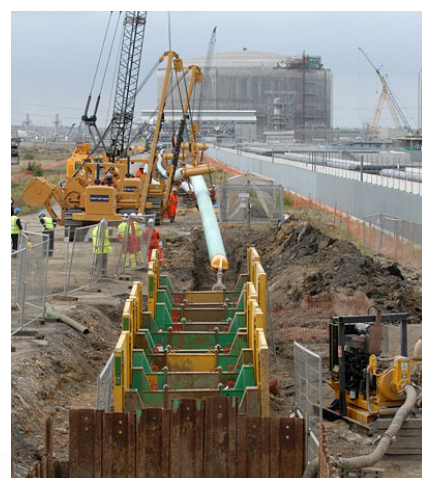
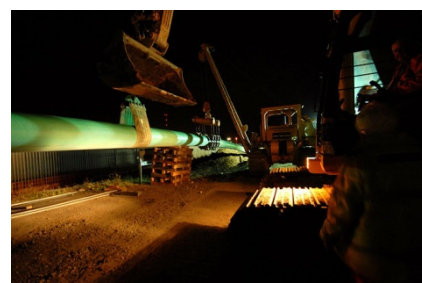
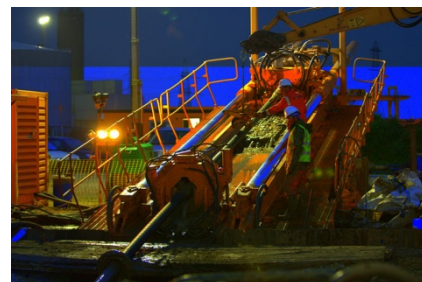
- Conceptual design for the drill route and profile for a 24" gas pipeline crossing 2.5km of disused industrial wasteland.
- Topographical survey of the area.
- Development of the drill route and profile through various iterations as new information came to light on the soil conditions and the presence of buried structures.
- Calculations produced to prove the feasibility of the drilling and pullback operations, and to design the temporary works necessary to support the drilling rig against significant horizontal forces.
- Settlement calculations generated to satisfy the landowners that there would be no damage to surface structures.
- Strip plans drawn for planning consent purposes, and detailed construction drawings made.
- Survey work to set out entry and exit points on the ground, and the line of the drill on the surface.
- Continuing advice and support during the drill.

This project was unusually complex due to the large number of buried structures on the site. The poor soil on the Grain peninsula means that nearly all structures have piled foundations, which the drill must steer underneath or around. The most significant of these is a cryogenically cooled LNG pipeline, which is very sensitive to ground settlement.

The location of buried structures and the arrangement of the wayleave made the routing of the drill difficult, and it was necessary to introduce a horizontal curve into the drill and also to string the pipe out in two sections prior to pullback.

Though not a straightforward drill, the surface structures, vast number of buried services, contaminated ground and ecological significance of the site meant that Horizontal Directional Drilling was still a preferable technique to traditional pipe laying methods. Bennett Associates' ability to react quickly to changing requirements and new information were invaluable to the success of the project.

Bennett Associates (originally founded in 1984) was acquired in 2008 by Atkins; bringing their proven technical expertise to the UK's leading engineering consultancy.



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