

Briefing Note: Application's Proposed Use of Horizontal Directional Drilling – An Engineer's View

Horizontal Directional Drilling (HDD) has been proposed for three sections of the onshore cable routing from a landfall at Saunton beach to a substation at Yelland. The use of HDD would in theory avoid the disturbance of burying the cable in trenches across designated areas of conservation. NDC planning application 77576 is somewhat vague about what is intended, seemingly because:

- the contractor to undertake the work has not been identified
- full Site Investigations have not been completed
- related Method Statements/Risk Assessments not made available

However, it is still important to consider the basic method and implications of HDD.

The aim is to install one or two 600mm diameter ducts between 5m and 18m below existing ground levels and then install high-voltage cables through them.

Typically, a 100mm diameter pilot hole is first drilled. This uses drilling mud (a mixture of Bentonite clay and fresh water) which is pumped down the centre of the drill rod to lubricate the drill bit and flush out the arisings (drilled material) back along the drilled hole to the drilling rig where the arisings are filtered out and the mud re-used, with more mud added as the operation progresses.

The drilling mud also helps to seal the sides of the hole that may be very porous as the ground material is expected to be mainly sand.

On completing the pilot hole, the drill bit is exchanged for a reamer bit and the process reversed back towards the rig, enlarging the hole to about 650mm, flushing out the arisings in the process and simultaneously installing the cable duct.

Risks of HDD

It is of note that Natural England has identified a risk to natural groundwater migration from having large plastic ducts buried in areas with a high water table. This risk is highly likely to be considerably increased where large amounts of Bentonite have been used, as the natural waterways in the existing ground material surrounding the ducts will be effectively sealed.

In addition, any loss of pumped drilling mud into the surrounding formations introduces the risk of it finding its way to the surface. Whether in an SSSI, prestigious golf course, popular beach or major river, this would probably cause long-term or irreversible damage.

Other considerations are the source of the fresh water, the final disposal of the drilling mud and contaminated arisings and the leakage of drilling mud into the sea when drilling towards it.

Horizontal Directional Drilling carries a high risk of being a pollution source within the sensitive landscape where it is proposed to be used.