## CROSSING THE SOLENT: UNDERSTANDING EIA CHALLENGES FOR UTILITY PROVIDERS

Over the last decade, there has been an increasing need for utility providers to install new or replacement pipelines and cables across the Western Solent between Hampshire and the Isle of Wight, as the demand for supply rises and existing services deteriorate or become threatened by natural and manmade hazards. A combination of ground movement and land slips on the island, and damage by vessel anchors in the Solent has led to the damage of some services. Various utility companies have therefore recently installed services across the Solent (e.g. Southern Water in 2005; Southern Gas Networks in 2011) or are currently seeking environmentally and socially acceptable routes with the objective of maintaining their utility supply to residents on the island.

The Solent is a major shipping route and important recreational area of high ecological and landscape value, predominantly due to the presence of internationally designated coastal and estuarine habitats. The installation of services within this sensitive environment presents numerous challenges in developing an Environmental Impact Assessment (EIA) during the design of a scheme. Key challenges, which influenced route selection and/or construction methodology, included the following:

- **Geomorphology, geology and hydrodynamics of the Solent:** a good understanding of variations in composition and thickness of superficial soil deposits overlying the solid geology is crucial in determining an appropriate installation methodology. The feasibility of techniques such as horizontal directional drilling (HDD) can be compromised by the presence of deep superficial soils at drill exit points in the Solent.

- **Presence of European sites:** the designated Solent Maritime Special Area of Conservation (SAC) and the Solent and Southampton Water Special Protection Area and Ramsar site encompass the intertidal areas on both sides of the Solent and the SAC extends offshore. These sites comprise coastal/intertidal habitats that support Annex 1 bird species, migratory and wintering wildfowl, rare or vulnerable plants and invertebrates. The use of HDD beneath the sensitive intertidal areas can avoid affecting the integrity of these European sites and other nature conservation interests such as eelgrass beds.

- **Presence of services:** existing services including live electricity cables, telecom cables, water and gas pipelines cross a 3km wide zone of the seabed in the Western Solent, as indicated on the Admiralty Chart. Numerous other disused services cross this zone with over 20 known crossings. Any scheme therefore needs to ensure that it avoids existing services but remains within the designated crossing zone for ‘Cable and Pipelines’.

- **Presence of important fisheries:** as an important mixed sea fishery and significant shellfishery, the Solent raises challenges for utility providers to identify installation techniques that avoid adverse impacts on fisheries or reduces direct disturbance to the seabed.
• Presence of nationally important landscapes and amenity areas: designated landscapes and amenity areas lie adjacent to the Western Solent and include the New Forest National Park, Lepe Country Park, the Isle of Wight Area of Outstanding Natural Beauty (AONB) and the Hamstead Heritage Coast.

• Social factors: some installation methodologies create problems for local communities arising from noise, visual, access, spoil disposal, and traffic movements.

• Existing hazards: there is a need to avoid known hazards in the selection of a new route; notably areas of ground movement on the Isle of Wight coastline and known land slips on the cliffs at West Cowes and Gurnard, busy shipping areas in the Western Solent and avoid construction methodologies that expose cables or pipelines to potential anchor strike and the need for ongoing maintenance work.

Various engineering options each come with their own list of installation constraints and challenges which need to be overcome. For example, issues associated with tunneling involve spoil disposal, adverse public opinion, technical and economic viability, safety, and technical feasibility due to adverse ground conditions. Trenching options involve large areas of land-take for stringing pipes together and impacts on the sea bed.

The Cross-Solent schemes illustrate the challenges and opportunities faced by utility providers in marine environments. Identifying a solution that avoids environmental constraints while being technically viable is challenging.

The most environmentally acceptable solutions comprised options that drill under the Solent, thus avoiding negative impacts on marine nature conservation, fisheries, water quality and navigation. However, this installation methodology is not without environmental impacts, may not be always be technically possible and is not without construction risks, which need to be balanced against cost and social acceptability.

Of considerable importance during the development of a crossing is the need to reconcile conflicting environmental interests and stakeholder expectations in the coastal zone. While there is difficulty in fulfilling the aspirations of all stakeholders, constructive engagement with a wide range of consultees is essential to build an understanding of the coastal issues, support for the proposed scheme and ultimately consent for construction.