

# Helix Performance Profile

## ROVDrill Mk.2 Offshore Geotechnical Survey



### Quick Stats

**Project duration:** 16 days

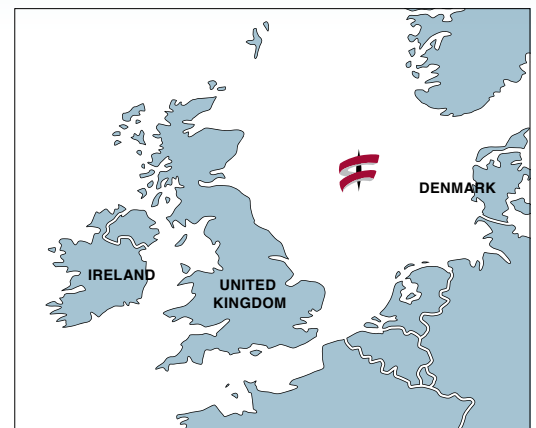
**Sites surveyed:** 6

**Total downtime  
for weather:** 8 hrs

**Total downtime  
for maintenance:** 27 hrs

### OBJECTIVE

In March 2012, Helix Energy Solutions Group, Inc.'s robotics subsidiary, Canyon Offshore Limited (U.K.), carried out offshore geotechnical services in advance of a subsea installation project using the seabed drilling unit ROVDrill Mk.2 (ROVDrill). The operation was performed in approximately 75 m depths in two blocks of the Central North Sea.



### SCOPE OF WORK

The scope of work entailed surveying subsurface soil conditions and establishing engineering properties and characteristics of the seabed, in preparation of mooring pile foundation design and installation analysis.

*Project Location Map*

<b>Total Number of Locations Surveyed</b>	6
<b>Total Surveyed Borehole Depth</b>	270 m
<b>Total Length of Casing Installed</b>	228 m
<b>Total of CPT Data Acquired</b>	143.5 m over 28 tests
<b>Total of Samples Acquired</b>	33 Push samples



## GEOTECHNICAL SUMMARY

The geotechnical conditions in the field consist of a veneer of sands (Holocene and Forth Formation Whitehorn Member) up to approximately 5 m depth. This soil overlies sandy clays of Forth Formation Fitzroy Member. This in turn overlies stiff to hard clays of Fisher Formation and Ling Bank Formation.

## PROJECT SUMMARY

The geotechnical data was obtained by performing Cone Penetration Testing (CPT) and soil sampling to a nominal target of 45 m below mud line, at each of the three mooring pile locations. The ROVDrill system was mobilized onto the *MSV Stril Explorer*, a vessel of opportunity with a large open rear deck and a 60 ton active heave compensated crane. Mobilized equipment included:

- ROVDrill Mk.2 seabed drilling, sampling and in situ testing system
- 30 ft ROV control van
- Seabed drilling tools, including rods, casings, bits, samplers, and adapters
- Integrated umbilical management system
- Deck Hydraulic Power Unit (HPU)
- Workshop container, heavy stores container, drill stores container
- Geotechnical soils laboratory

The ROVDrill system, a fully automated remotely operated seabed drilling, sampling and in situ testing unit, performed downhole cone penetration testing along with complementary push sampling. Casing was run as needed in loose soils to maintain the integrity of the boreholes.





## CONCLUSION

Canyon Offshore completed the project on time and on budget over a 16-day period in March 2012. The overall length of casing installed was 228 m, this was the first ever ROVDrill project for Canyon Offshore in the oil and gas sector, and the first such project to produce a Factual Laboratory Testing Report. The site requirements were not fixed, allowing the flexibility to modify the subsurface soil survey based on the efficient geotechnical data acquisition by the ROVDrill. Offshore and onshore laboratory testing were executed on the samples in accordance with industry rules and regulations. The project was completed successfully with acquired data being of high quality with no incidents, accidents, injuries or reportable safety events occurring.

## OPERATIONS TIME BREAKDOWN

Working	225:13
Maintenance	27:12
Standby	46:57
Mob / Demob	10:37
Waiting on Weather	8:10
Infield Transit	5:24





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