

Belwind 6MW Turbine Jacket Grouting the Alstom Haliade™ 150-6MW Test Turbine



FoundOcean secured the foundation for the 6MW offshore turbine at the 165MW Belwind II wind project, 45km off the Belgian coast. The large-scale turbine is housed on a 900 tonne four-legged jacket, stands at a height of 100m and has a rotor diameter of 150m.

The steel jacket structure was secured using a tried-and-tested method via jacket leg pins inserted into pre-driven piles. A pan mixer was used to mix and pump Masterflow® 9500 Exagrout which was drawn off from the mixer by a pump. The grout was then pumped down a flexible high pressure grout hose into the annuli via the primary inlet. Grouting continued until good quality grout returns were observed overflowing from the top of the pile.

While attempting to grout two of the annuli, pressure in the grout lines was observed as being too high, resulting in grouting operations being stopped. To commence grouting a stinger was deployed to each annulus and inserted directly into each pile. Grout mixing and pumping then resumed until good quality grout returns were observed.

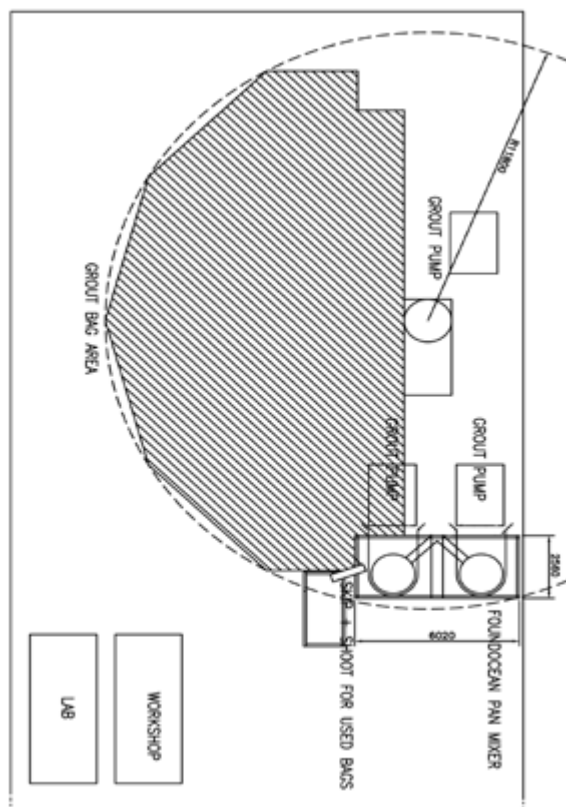
FoundOcean has completed many pre-driven pile grouting projects for offshore wind farms, including the award winning Ormonde offshore wind farm in 2010 and Thornton Bank Phases 2 and 3 in 2011.

A total of 237 tonnes of Masterflow® 9500 Exagrout was used in the foundation connections.

PROJECT FACTS

Industry	Offshore Wind
Region	Belgium, Europe
Services	Pile grouting
Project year	2013
Operator	Alstom
Contractor	Alstom
Water depth	34 m
Material type	BASF Masterflow® 9500
Total material	237 tonnes
Mixer type	Pan Mixer
Material specification	130 MPa
Mixing rate	Up to 12m ³ /hr

TYPICAL PAN MIXER DECK PLAN



The Alstom Haliade 150-6MW Test Turbine on site at the Belwind II wind project