



RAMBOLL

DETAILED DESIGN OF BURBO BANK WIND FARM

Client: MT Højgaard
Project: Burbo Bank UK
Scope: Detailed foundation design (2006)

Burbo Offshore Wind Farm is constructed at a water depth of 3.5-7.5 m on Burbo Flats in Liverpool Bay, 4 miles from the Sefton Coast line.

25 3.6 MW turbines

The wind farm consists of 25 Siemens 3.6 MW wind turbines connected to shore by 3 buried submarine cables. The foundation works is carried out by MT Højgaard as a subcontractor and Ramboll was chosen to carry out the detailed design of the turbine foundation structures.

Pile installation challenges

The foundation structures are monopiles with grouted transition pieces made ready for mounting of the WTG tower structures once installed. At most positions the monopiles were driven, however, for a few positions, where the pile tip is below bedrock level, the piles were driven and drilled. The monopiles with OD=4.700 m were installed in

water depths ranging from to relative to LAT/CD.

The foundation structure is a monopile with a grouted transition piece similar to the foundation structures installed by MT Højgaard at Horns Rev.

Cost-efficient design solution

The design was carried out as 25 individual foundation designs based on the actual site conditions at the individual positions, i.e. the actual soil profile and water depth at each location.

In comparison with the tender design based on five standardised foundation types, the detailed design of the monopile and transition piece as well as the grouted joint included a number of design innovations and advanced analyses, which lead to an overall weight reduction as well as substantial savings on steel and grout material quality.

Our services

The services by Ramboll included:

- Project manager for the detailed design of offshore wind turbine foundations
- Design briefs for certification and certification of the design
- Detailed design of secondary steel for foundations such as boat landing, external and internal platforms, J-tubes and anodes (DDPS)
- FEM analysis of grouted connection between the transition pieces and the monopiles

CONTACT

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