

Case Study

AN **idom** GROUP COMPANY

Project

Fujin Drive Train Test Facility

Date

2012-2013

Client

National Renewable Energy Centre (NaREC), Blyth, Northumberland

Budget

£549k fees

Contractor

Shepherd Construction

Project Management

Turner & Townsend

Project

The Fujin project forms part of NaREC's development of facilities in Blyth to provide a world class testing facility to the off-shore wind power industry. Idom Merebrook's brief was to design and oversee construction of dedicated foundations and a support superstructure, upon which the 15MW drive capacity test rig mechanical and electrical equipment could be mounted.

Services provided

Idom Merebrook provided on site construction management and third party liaison and Idom provided the vibration analysis and both basic and detailed engineering design services.

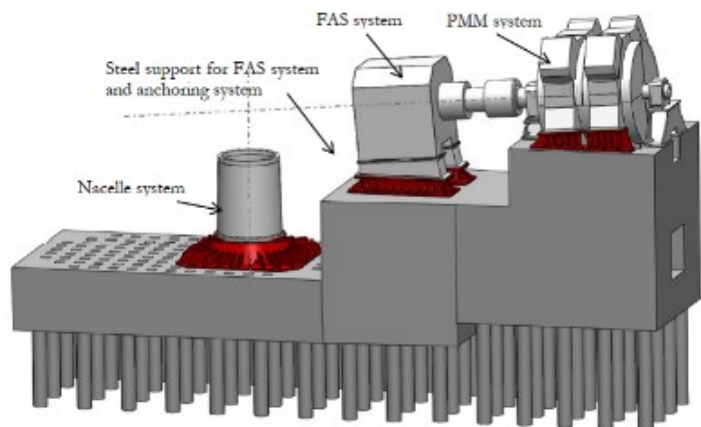
Description of project

The objective of the project was to design and construct dedicated foundations and a support structure on which the test rig mechanical and electrical equipment could be mounted. The works included piling, pile cap, concrete superstructure, anchoring system, FAS (Force Application System) steel support, and PMM (Permanent Magnet Motor) system support.

Sixty 19m length and 900mm diameter piles were installed with an additional H beam for extra reinforcement. The concrete superstructure sits on a pile cap which is 4m x 12m x 40m. This was completed in one continuous pour (1800cuM). The FAS superstructure is 3m x 8.4m x 10.5m and the PMM superstructure is 12.8m x 10.5m x 3m.

The Fujin test facility at NaREC has the ability to test turbine nacelles with a generation capacity of over 10MW. The PMM and FAS have a combined weight of 1075 tonnes and together with the associated equipment the overall load is in excess of 1600 tonnes.

The building that houses the structure has a footprint of 3,000m². Due to its scale the assembly of the test rig was completed in three phases on site. To aid in assembly two 250 tonne capacity cranes were installed in the building.



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