

# East Anglia Wind Farms

Driving precast concrete piles for three wind farms in East Anglia.



**AARSLEFF**

Aarsleff Ground Engineering has completed the installation of 700 No. precast concrete piles for three onshore wind farms in East Anglia, England. Aarsleff drove different sizes and various lengths of piles to support the bases of 22 wind turbines at Deeping St. Nicholas at Spalding, Red House Farm near Holbeach, and Glass Moor near Whittlesey. A French renewable energy company, EdF Energies Nouvelles in association with U.K. wind energy developer, Wind Prospect, developed the wind farms.

The contract to build the wind farm foundation and infrastructure was awarded to Anglo-German turbine manufacturer REpower Systems and U.K. engineering firm Peter Brotherhood. Repower U.K. sublet the civil and electrical works to McNicholas Construction Services, which in turn sub-contracted the £400,000 piling contract to Aarsleff.

“The scheme was originally based on bored piling, but Aarsleff suggested the precast concrete driven pile alternative, which was accepted and incorporated into the design by our designer, Gifford,” says McNicholas project manager, Tony Heaney.

The largest and longest piles were needed at the 12MW Red House Farm site, where Aarsleff used a Banut machine and a Junttan PM20 rig, both fitted with 6 tonne hammers, to install 36 piles, equally spaced on a 13m diameter area, for each of the six bases. The 350mm square-jointed piles were between 18m and 22m long.

Slightly smaller section and shorter piles were needed at the 16 MW Deeping St. Nicholas and 16 MW Glass Moor sites. Aarsleff installed 32 piles for each of the 16 bases. Piles were 300mm square, with single section piles up to 15m long and jointed ones up to 17m long – all the piles found in clay.

Aarsleff carried out static and dynamic pile testing at each of the three sites. The piles had to cater for cyclical loading ranging from a maximum compressive working load of 630 kilonewtons to 160 kilonewtons in tension. The piles contained extra steel reinforcement and earthing strips to maintain continuity across the mechanically interlocking full strength steel joints. The wind turbines, which have a hub height of 59.5m, and 82m diameter blades, were expected to be fully operational this spring.



**Scope of Works**

700 No. 300mm-350mm square precast concrete piles

**Locations**

Deeping St. Nicholas at Spalding, Red House Farm near Holbeach, and Glass Moor near Whittlesey

**Client**

EdF Energies Nouvelles in association with Wind Prospect

**Contractor**

REpower Systems, Peter Brotherhood, McNicholas Construction Services

**Equipment**

Banut & Junttan PMX20

**Construction period**

Winter 2006

Aarsleff Ground Engineering Ltd, is the UK trading arm of Danish contracting giant Per Aarsleff A/S, and is one of the UK's leading piling and geotechnical design and installation specialist contractors; actively promoting early consultation to ensure each scheme can be Value Engineered to give clients the best service, quality design, safety and value. Aarsleff's strategy and philosophy of investment into the future has resulted in its wholly owned subsidiary Centrum Pile Ltd having the most advanced precast pile production facilities in the UK, producing segmentally jointed precast concrete piles to BS En12794 to Class 1A.

**Contact**

Aarsleff Ground Engineering  
 info@arsleff.co.uk  
 Tel 01636 611140