Harburnhead Wind Farm

Concrete admixtures used in the installation of new turbines

Our reference in West Lothian (United Kingdom): Harburnhead Wind Farm

Project:
Harburnhead Wind Farm

Location:
West Lothian

Client:
LDV Harburnhead Ltd

Main contractor:
Farrans Construction

Concrete producer:
Aggregate Industries

Market sector:
Ready-Mixed Concrete

Products used:
MasterGlenium 126

The background

Harburnhead Wind Farm is a 52MW windfarm generated from 22no 2.35MW Enercon E82 turbines. The project was constructed in a challenging environment as the land was in an area with extensive historical mine workings and overlying peat depths of up to 8.5m.

The project involved the construction of 9km of access tracks, 22no crane hardstandings, 22no 480m^3 reinforced concrete foundations, a substation and control building.

The challenge

The site access was granted in December, with an extremely tight programme given the challenging ground conditions. Turbine deliveries were to commence in March, Civils works planned for completion by July, and turbine erection to be completed by August ready for the energisation date of September.

All aggregates had to be imported to site due to the lack of suitable on site materials, which introduced a huge logistical challenge in order to meet the key programme completion dates. Any substandard material imports or supply problems would have caused major site issues, but these potential problems did not arise, and the project was completed on programme.

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Our solution

Due to prohibited direct access on the site using the nearby A71 which added 10 miles to the journey to the Duntilland plant, the team faced a complicated logistics challenge. To overcome part of this challenge, Master Builders Solutions MasterGlenium 126 High range water reducing admixture was chosen to maintain the consistency level of the concrete mix, which guarantees to place the same concrete as specified and ordered from the ready-mix plant after such a long journey.

With the tight timetable 12 truckmixers and two plants were used to complete the turbine base pours in an allocated 12-hour window, whereby, for the bulk of the contract, with two turbine bases poured per week. In total, the team supplied over 10,436m^3 of concrete.

The customers benefit

- MasterGlenium 126 supported the production of a concrete with a low water/cement ratio that met the requirements of BS EN 206-1 without loss of workability.
- The admixture facilitated easier placing and improved concrete surfaces.
- Concrete could be delivered as specified even due to the long journey time.

Project facts at a glance

- MasterGlenium 126 admixture used in c. 10,500m^3 of concrete
- 480m^3 ready-mixed concrete needed for each of 22 turbines bases
- High quality ready-mixed concrete achieved
- Tight timescales
- Concrete delivered as specified even via a long journey.