

Harestanes Windfarm Extension

Concrete admixtures used in the installation of new turbines



Our reference in Dumfries (United Kingdom): Harestanes Windfarm Extension

The background

Consent for Harestanes Windfarm was granted in late 2007. Located in the Forest of Ae near Moffat in Dumfries, Harestanes Windfarm has the capacity to provide clean green energy for over 115,000 households. ScottishPower Renewables appointed Farrans, part of the Northstone (NI) Limited Group, to deliver the infrastructure for the project. The £160 million project supported up to 150 jobs throughout construction and the facility is expected to have a generating capacity of more than 200MW.

The wind farm extension involved installing seven new turbines with a maximum height of 126.5 metres.

The challenge

The concrete specification required a DC-3 Class concrete with a water cement/ratio of 0.50 and a compressive strength of 35N/mm² for the principal base.

The team had to supplying concrete throughout the winter and overcome challenging weather conditions. Due to the remote location of the plant (15 km from the main road), concrete deliveries had to be made using 63 km of internal roads.

Project:

Harestanes Windfarm Extension

Location:

Dumfries

Client:

ScottishPower

Main contractor:

Farrans Construction

Concrete producer:

Barr Quarries

Market sector:

Ready-Mixed Concrete

Products used:

MasterGlenium SKY 903

MasterGlenium SKY 544

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Our solution

Concrete was supplied from November to August and Barr Quarries worked closely with Farrans Construction in order to produce 1400m³ of concrete per week.

The concrete specification for the principal base concrete was achieved using a CIII/B cement, crushed coarse aggregate from Barr's Tongland Quarry and sand from Barburgh Mill. The concrete mix design incorporated Master Builders Solutions' admixtures MasterGlenium SKY 903 and MasterGlenium SKY 544.

The customers benefit

- Modern polycarboxylic (PCE) polymer based superplasticisers provided a previously unachievable level of concrete performance tailored for a truly bespoke solution.
- MasterGlenium SKY 903 was specifically engineered to allow high levels of water reduction and long workability retention, without sacrificing early strength development performance – this avoided any negative effect on the construction programme.
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Project facts at a glance

- Concrete supplied for the installation of seven wind turbines.
- There were no disruptions to pours during the project and, on average; three foundation bases were poured per week.
- Out of the 35,000m³ of concrete produced, only 18m³ had to be imported from an external source.