

Combigrid® - Onshore enabling works for electrical cable installation, UK

Base course reinforcement

- **Project name**
Moray West Cable Route, Scotland, UK
- **Client**
Moray Offshore Renewables, UK
- **Contractor**
Nexans Power Accessories, UK
- **Installer**
JKR Contractors, UK
- **Product**
Combigrid® 40/40 Q1 GRK 4C





The Moray West Offshore Wind Farm, located in the outer Moray Firth, northeast of the Tarbat Peninsula in Easter Ross, Scotland, spans approximately 225 square kilometres. The 285m tall turbines are positioned around 50km north of the Aberdeenshire coast and 40km south of Wick. This 60-turbine project will contribute 882 megawatts of green energy to the National Grid, enough to supply electricity to about 1.3 million homes, equivalent to 50% of Scottish households.

Overcoming complex construction challenges

Onshore enabling works required the construction of two underground cable circuits from the landfall site at Sandend Bay to the new Whitehillock substation, 30km southwest of Sandend. The route necessitated the creation of a 30-metre-wide corridor to carry the cables, involving several strategic temporary compounds and laydown areas. Two main construction compounds were established at each end of the corridor, one near Sandend Bay and the other adjacent to the Whitehillock substation. Robust access tracks were needed to support the movement of personnel, heavy equipment, and materials along the entire route. The construction of these access roads presented several challenges. A key requirement was the removal and reinstatement of the access tracks post-construction, using the stockpiled soils and reseeding or replanting them. Excavated topsoil had to be stored on separation geotextiles until reinstatement. Additionally, geotextile materials needed to be installed where peat deposits or groundwater seepages were encountered to ensure separation between subsoils and imported aggregate, preventing track settlement. Another significant challenge was the low and variable bearing capacity (California Bearing Ratio) of the existing subsoils, ranging from 0.4% to 3%. This required careful planning to ensure the roadways could support the necessary loads without excessive deformation.

Innovative solutions with Naue's geosynthetics

Naue's geosynthetic materials provided an effective solution to these challenges. JKR Contractors, responsible for roadway construction and cabling works, consulted with Naue's engineering design team. They proposed the use of Combigrid® 40/40 Q1 GRK 4 C to meet the planning prerequisites and site conditions. This geocomposite combines the properties of Secugrid® geogrid and Secutex® geotextile, offering separation, filtration, stabilisation and reinforcement in a single product.

Key benefits of Naue Combigrid®

- **Strength and stability:** Combigrid® ensures the separation of fine subgrade soils from coarse aggregate base layers, maintaining long-term filter stability and enhancing load-bearing capacity.
- **Ease of installation:** Supplied in 100m rolls and 4.75m width, Combigrid® can be rolled out in situ with simple overlaps, requiring standard tools for cutting.
- **Environmental compliance:** The product meets the stringent requirements for storing excavated soils and removing construction aggregates post-project.

Client endorsement

Neil Ralston, Naue's Sales Engineer, highlighted the product's advantages: "Combigrid® offers best-in-class characteristics and significant savings on aggregate volumes due to its high tensile strength. Nexans appreciated the technical support and engagement from Naue's design team throughout the project."

Setting new standards in green energy infrastructure

The use of Naue's Combigrid® geocomposite in the Moray West Offshore Wind Farm project ensured a robust and sustainable solution for the construction challenges faced. Its effective combination of strength, ease of installation, and environmental compliance made it the ideal choice for this ambitious green energy project.

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