

Haul road & access tracks for installation of HVDC link

Base course reinforcement

- **Project name**
Kergord-Gremista Link, Shetland Islands, UK
- **Client**
SSEN Transmissions, UK
- **Designer/Consultant**
Baker Hicks, UK
- **Contractor**
Morgan Sindall, UK
- **Installer**
EMN Plant, UK
- **Products**
Secugrid® 40/40 Q1
Combigrid® 40/40 Q1 GRK 4 C
Combigrid® 60/60 Q1 GRK 4 C





Located 170 km northeast of mainland Scotland and 220 km west of Norway, Shetland is a group of around 100 islands, marking the most northerly region of the United Kingdom. With only 16 of these islands inhabited, the 23,000 islanders depend entirely on locally-generated power, in an area not yet connected to the main Great Britain electricity network. Despite being the UK's windiest area, about 80% of Shetland's electricity comes from fossil-fuel power stations, emphasizing the need for a greener future.

Turn the wind in your favour: SSEN's vision for a green future in Shetland

The "Shetland Renewable Connections" project intends to connect Shetland's wind farms to the Scottish mainland and the national grid by 2024. A pivotal part of this project is the 22 km connection between the HVDC Converter Station at Kergord and the Grid Supply Point at Gremista. This initiative, encompassing both overhead lines and underground cabling, will for the first time connect Shetland to the GB energy system, securing future energy supplies for the islanders.

Renewable energy: Leaping into the future with the Kergord-Gremista Connection

The cable installation required the construction of new haul roads, posing the challenge of substantially increasing the subgrade's bearing capacity to withstand the stresses of cable pulling operations and the weight of heavy construction equipment. EMN Plant was contracted to construct unpaved access and haul roads, minimising the volume of imported aggregate while adjusting construction depths to maintain consistent strength along the route.

Strength from below: Innovative pathways for Shetland's energy future

Naue provided preliminary designs for a reinforced base course using Naue geosynthetic products to significantly enhance the soft subgrade's bearing capacity. The construction design incorporated layers of aggregate as needed, sandwiched between layers of geogrid reinforcement of varying strengths, tailored to the in-situ ground conditions.

To date, Naue has supplied EMN Plant with approximately 15 kilometers of Naue Secugrid® geogrid and over 25 kilometers of Combigrid® geocomposite, demonstrating the products' ability to reduce the need for aggregate, thus lowering costs and carbon emissions.

Naue's solutions: Less material, more stability for Shetland's roads

All Naue products are manufactured to exacting standards, offering ease of installation and serving as the ideal solution for applications requiring high tensile strength over extended periods. Naue Combigrid® acts as an interlayer between the soft subgrade and the base course layer, enhancing bearing capacity and preventing material migration.

Employing Naue's geotextiles has significantly reduced the project's costs and ecological footprint, showcasing the efficiency and environmental benefits of modern construction technologies.

This approach encapsulates the essential balance between technological advancement and environmental stewardship, marking a significant step forward for Shetland's infrastructure and energy independence.

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