Shawfair Business Park Ground Stabilisation ParaLink® Geogrid Solution

SHAWFAIR - EDINBURGH - United Kingdom



TYPE OF PROJECT	YEAR OF CONSTRUCTION	CLIENT	CONTRACTOR	DESIGNER
Construction Over Soft Soils	**2022**	**BUCCLEUCH PROPERTIES**	**Mur Construction**	**Quattro Consult Ltd**

PROD. RELATED
MonoAxial GeoGrids (Null)

Challenge

Located five miles south of Edinburgh city centre, Shawfair Business Park is one of Midlothian's leading commercial developments, attracting major occupiers such as the Scottish Qualifications Authority, Spire Private Hospital, David Lloyd Leisure, and Danfoss. Designed with sustainability and connectivity in mind, the site benefits from direct access to the Edinburgh City Bypass, an on-site Park & Ride, and a dedicated rail station offering fast links to Edinburgh Waverley in under fifteen minutes. A flagship development within the park is the Danfoss Low Carbon Innovation Centre, set to become the company's first carbon-neutral building worldwide.

Despite its strategic advantages, the site presented significant geotechnical risks. A detailed site investigation identified abandoned mine workings beneath the development area, with borehole records noting "coal and air loss" between depths of 12.80m and 14.90m below ground level. These voids were linked to the Diamond Coal and Musselburgh Jewel Coal seams, both of which lie within 30 metres of the surface. Such conditions posed a serious risk of ground instability, including potential subsidence and collapse, which could impact buildings, car parks, and heavy-duty loading areas. As a result, a comprehensive ground stabilisation solution was required to ensure long-term safety and structural integrity across the entire site.



DANFOSS FACTORY



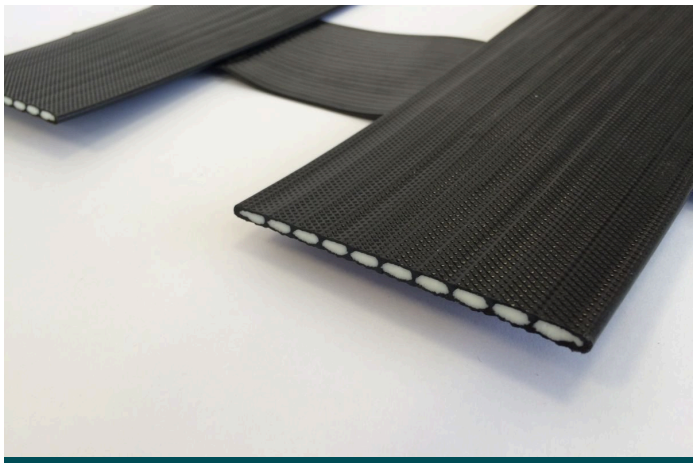
ParaLink® is easy to install around structures

Solution

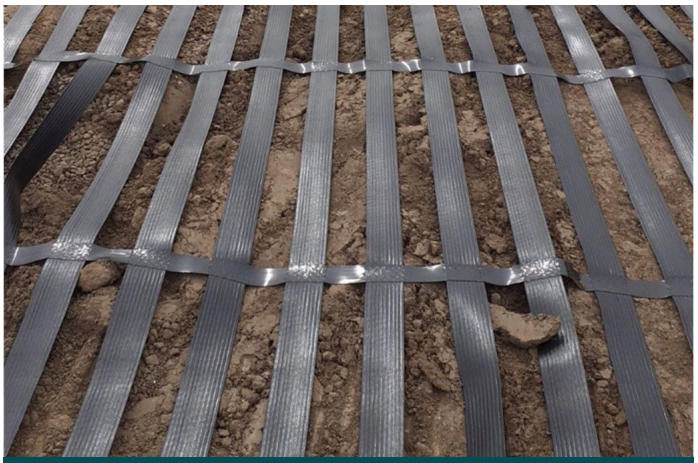
Maccaferri was appointed by Quattro Consult Limited in July 2021 to deliver an effective ground stabilisation solution for the Danfoss development. The proposed system utilised ParaLink®, a high-strength geogrid specifically engineered for basal reinforcement applications in challenging ground conditions.

ParaLink® geogrid plays a critical role in mitigating the risks associated with abandoned mine workings. In the event of subsurface void formation or mine collapse, the geogrid acts as a reinforcement platform, distributing loads and limiting the extent of surface deformation. This helps prevent catastrophic ground failure by reducing the depth and severity of any subsidence, ensuring that surface-level infrastructure such as hardstanding areas, access roads, and industrial platforms remain stable and operational.

The ParaLink® solution was supplied in February 2022 and successfully installed by RJ McLeod in April 2022. By incorporating advanced geosynthetic reinforcement, the project team was able to safely develop the site while effectively managing subsidence risk. This solution highlights the importance of geogrid reinforcement in brownfield developments affected by historic mining activity, supporting safe, sustainable construction in complex ground conditions.



Layers of ParaLink® can be installed perpendicular to



ParaLink® enables 120yr design with low reduction factors

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