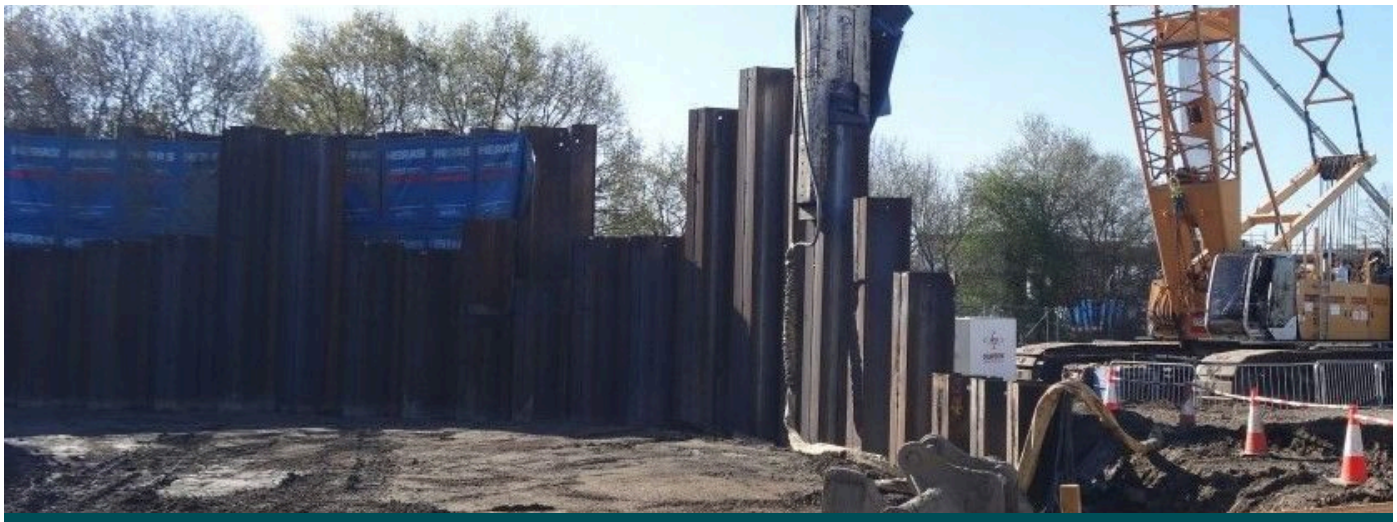
Flood Risk Reduction at Grove Farm with Geogrid Ground Stabilisation

Fleet, Hampshire



TYPE OF PROJECT	YEAR OF CONSTRUCTION	CLIENT	CONTRACTOR	DESIGNER
Sub-Grade Improvement	**2015**	**Thames Water**	**MGJV**	**Maccaferri Ltd**

PROD. RELATED
Biaxial Geogrids ()

Challenge

Thames Water identified a critical need to reduce flood risk at Grove Farm in the Fleet area of Hampshire, where existing drainage infrastructure was no longer capable of managing increasing volumes of stormwater. During periods of heavy rainfall, the system struggled to cope with peak flows, placing nearby properties at risk of flooding and highlighting the need for urgent infrastructure upgrades.

To address this issue, Thames Water invested £7.2 million into a flood alleviation scheme designed to improve network capacity and enhance long-term resilience. Central to the project was the construction of a new pumping station, intended to support and upgrade the existing drainage system.

However, the project site presented significant geotechnical challenges. The subgrade conditions were particularly weak, with a California Bearing Ratio (CBR) of just 1.50%, indicating very low load-bearing capacity. These poor ground conditions posed a major risk to construction activities, especially given the requirement to operate heavy plant machinery, including a 140-tonne Liebherr crane, piling rigs, and sheet piling equipment. Without effective ground stabilisation, excessive settlement and rutting could compromise both safety and construction efficiency.

MACCAFERRI LTD. 9 Blenheim Office Park Fenlock Road, Long Hanborough, Oxfordshire OX29 8LN, UK
PH:+44 1865 770555 E-mail: info.uk@maccaferri.com



During Construction



During Construction

Solution

Galliford Try & Morrison Construction Joint Venture (MGJV) was appointed as the principal contractor, responsible for delivering all aspects of the scheme, including drainage connections, pumping station construction, and associated mechanical and electrical services.

To ensure a stable working platform and enable safe construction on weak soils, a geogrid-reinforced ground stabilisation solution was implemented. The pumping station itself was designed with a piling foundation, while a reinforced granular platform was constructed to support heavy construction loads.

The solution incorporated two layers of MacGrid WG 5S geogrid within a well-graded, compacted granular material. This geogrid reinforcement system improved load distribution across the weak subgrade, significantly increasing bearing capacity and reducing the risk of deformation under high axle loads.

MacGrid WG 5S is a high-performance woven geogrid manufactured from high molecular weight, high tenacity polyester multifilament yarns. These yarns are woven under tension in the machine direction and coated with a protective polymer layer, ensuring durability and long-term performance in demanding ground conditions.

This geogrid ground stabilisation solution provided a cost-effective and reliable method for constructing a heavy-duty working platform on soft soils. It delivered long-term control of rutting and settlement, enabling safe operation of cranes and piling equipment throughout the construction phase.

By combining innovative geosynthetic technology with robust engineering design, the project successfully overcame challenging ground conditions and supported the delivery of critical flood defence infrastructure. The new pumping station will play a key role in reducing flood risk in Hampshire, helping to protect local properties and improve resilience against extreme weather events.



The Liebherr crane supported by the reinforced MacGrid WG



Piling rig crane supported by the reinforced MacGrid WG

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