

I54 DEVELOPMENT WOLVERHAMPTON, SOUTH STAFFORDSHIRE, UNITED KINGDOM

Reinforced Soil Walls and Slope Reinforcement

Problem

The i54 development on the outskirts of Wolverhampton in South Staffordshire is a 239 acre UK technology based business park and is located at junction 2 of the M54 motorway. The £67 million regeneration and development of the site commenced in 2011 as part of a joint venture between City of Wolverhampton Council, Staffordshire Council and South Staffordshire Council and notably saw the construction of a new Jaguar Land Rover engine plant in 2014.

In order to maximise the industrial space available within the new development and therefore increase revenues, the proposed 6m high bund needed to be constructed within a relatively narrow footprint so it was immediately clear that a traditional bund with shallow unreinforced slopes would not fit within such tight constraints.

Solution

Throughout 2019, Staffordshire Council and their engineering consultant Amey, engaged with Maccaferri to develop multiple proposals for a double-sided reinforced soil bund to meet the requirements of the planning and geometric constraints.

Maccaferri proposed the use of its Mineral Terramesh® reinforced soil retaining wall system, to create two retaining structures on either side of a central core to drastically steepen the sides of the proposed bund. The proposal consisted of a low-height Mineral Terramesh® wall of 1.5m retained height with an 80° slope angle on the western side of the bund and a taller 6m retained height Mineral Terramesh® wall with a 70° slope face on the eastern side. The crest slopes of the bund core could then be graded at 1:3 and 1:3.5 respectively and still produce a bund with a footprint to fit comfortably within the available 23m footprint.

The ground investigation report revealed that in the southwest corner of the site, there was a large amount of sandstone rock that would need to be excavated to reach the required level for the development platform. Maccaferri proposed that this material could be crushed to suit a class 1A grading (Series 600 of Specification for Highway Works) and used as structural fill to the Mineral Terramesh® reinforced soil structures.

Client: Staffordshire Council

Designer / Consultant: Amey Consulting

Contractor: AFS Earthmoving & Aggregates

Products used (Qty.)

Date of construction: 07/2020 - 04/2021

[Google Maps](#)

[Google Earth](#)



ParaLink basal reinforcement being installed



Mineral Terramesh bracing rods installed



Eastern side bund Mineral Terramesh reinforced soil retaining wall



Mineral Terramesh during construction - face detail



Mineral Terramesh structure reaching full height



Completed Mineral Terramesh structure