

Case Study Tenax LBO 370 Geogrid - Reinforcement Ekotex[®] 12 Geotextile- Separation

Location:

St Wilfrid's School Castle Bromwich

Client:

ISG PLC

Project:

St Wilfrid's RC Junior and Infant School. TR11-187



Contractor: ISG PLC



Consultant: R.W. Clarke Ltd



Geosynthetics Limited

Fleming Road Harrowbrook Ind. Est Hinckley LE10 3DU Tel. 01455 617 139 sales@geosyn.co.uk www.geosyn.co.uk St Wilfrid's RC Junior and Infant School is located in the Birmingham suburb of Castle Bromwich close to junction 5 of the M6. As part of a £2 million project ISG were contracted to build a one and two storey extension. The associated works included enabling works, infrastructure, sewer systems and landscaping.

As part of a piled foundation solution the site required the use of a Soilmec CM-50 piling rig to operate in areas with very weak soils. The Soilmec CM- 50 is a hydraulic CFA Rotary rig weighing 39 tons and capable of installing continuous flight auger (CFA) piles to a depth of 25m at diameters of 900mm.

To keep the use of imported granular materials to a minimum and provide a safe working platform, Geosynthetics were approached to provide a preliminary calculation for reinforcement of a Piling Mat incorporating a Geogrid and Geotextile. The initial proposal consisted of 970mm of class 6F2 material without reinforcement. Using the Tenax Reinforced soil raft concept and the case loadings according to BRE 470, the following considerations were used for calculations:

Foundation Soil:			
Average Dynamic Probe test Blows		DPT =2.0	
Assumed Undrained Shear Strength		Cu=15kPa.	
Unit Weight		18kN/m3	
Platform materials:			
Capping Class	6F2 nominal		



Piling Rig bearing pressures:		
BRE Load Case	Case 1	Case 2
Pressure	150 kPa	218 kPa
Equivalent length	2.43m	1.45m
Track Width	0.70m	0.70m
maximum particle size	125mm	
maximum particle size		

The proposed solution consisted of 2 layers of Tenax LBO 370 Geogrid with 700mm of class 6F2 material. LBO370 was selected due to it's large aperture size which provided a positive interaction with the larger particle sizes in the 6F2 material. In addition we recommended a layer of Non-Woven geotextile, Ekotex[®] 12, to be placed on the formation to prevent the

Geosynthetics have always provided me with an economic design for improving soft ground conditions and often at very short notice "

Rob Clarke, BEng, CEng, MICE, MIStructE, MIDE, R W Clarke Ltd





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