DRAINAGE, FILTRATION, SEPARATION  
Product: MacDrain® M1111 & MacGrid® WG15

Problem
The contractor had to install modular schools over a saturated soft soil along the 9th Road in Midrand – Johannesburg. The site is characterized by a soft soil with a water table being higher than the ground level which produces a spring. The in situ soil being a clayey soil would not allow a dissipation of the pore water pressure in a short term time.

Due to these conditions the site cannot take equipment to install the modular school and the school will settle over time as the pore water pressure dissipates. Due to time restriction the contractor could not use the common practice to drain the water to increase the bearing capacity. Any imported soil to provide a foundation would fail because under any load it will mix with the in situ soil.

Solution
The solution would be to avoid the contamination of any imported material with the in situ soil and to provide drainage for the excess pore water pressure. The product Macdrain® M1111 is a geocomposite for drainage, which offers both solutions providing a separation layer with the geotextile and drainage with the geomat core. This was placed on top of the in situ soil without any earthworks and covered with a 300mm imported material.

The solution to the long term settlement of the modular school was a ground stabilization solution using two layers of woven geogrids Macgrid® WG 15 (150kN/m) into the imported material.

The contractor finished the construction of the 2000m² foundation in 3 days. A general solution would have required an excavation and replacement of at least 1.5 m of in situ soil with imported material and a herringbone drainage system underneath the imported material. This would have increased costs and time.

Benefits
The contractor finished the construction of the 2000m² foundation in 3 days. A general solution would have required an excavation and replacement of at least 1.5 m of in situ soil with imported material and a herringbone drainage system underneath the imported material. This would have increased costs and time.