

As the economy takes its toll in the number of approved civil engineering and infrastructure projects and with close scrutiny of those that do make it past the planning stage, Tensar International's Ian Fraser discusses the need to minimise the cost of raw materials, which increasingly favours more sustainable recycled solutions.

“As well as being more sustainable, solutions which minimise the use expensive materials imported from off site will reduce transport, excavation and disposal costs. The confirmation of an increased aggregate levy in the emergency June Budget emphasises this. Environmentally friendly methods should be the first to be assessed for engineering projects, not just when traditional reinforced concrete or piled solutions are found to take too long or are too costly.

“The industry is coming full circle. Our first geogrid project – thirty years ago, a retaining wall at Silkstone colliery\* – used colliery spoil. Today, the extensive reinforced soil structures at Greater Bargoed in Caerphilly, for completion in 2010, also use mining waste as the fill material.

“With extensive experience since 1980, we feel that a majority of contracts use unnecessarily high and costly grades of aggregate, partly because this is enshrined in many national design codes. Stiff polymer geogrids, which are manufactured from the most inert polymers, have been shown to withstand the extremely aggressive chemical and abrasive environments that can often occur within fills generated as waste from ore and coal extraction and industrial processes; we could make immediate savings by utilising more of these difficult materials.

“It’s interesting that the Highways Agency, and highways authorities across the world, are allowing performance specification designs for roads which prove their long-term capabilities and enable the use of appropriate site-won materials to reduce cost and improve sustainability. WRAP have also demonstrated the material, construction and carbon cost savings in structural ground stabilisation with geogrids and site spoil.

“The civil engineering profession needs to embrace sustainability as a way of maintaining the work flow during these hard times; lower cost solutions with a high sustainability content are an excellent way to impress clients.”