Construction of Retaining Walls - Safeway Store, Baillieston, Glasgow 1995

Safeway Store, Baillieston, Glasgow

BENEFITS TO CLIENT

The Tensar Wall System provides a cost-effective and attractive solution for construction of retaining walls for a new Safeway store.

THE PROBLEM

Construction of the new Safeway store involved the development of a group of sites all built at differing levels. To allow access and ensure the store and car parks were at the same level, major filling of the site needed to be undertaken, with the subsequent need for retaining structures.

THE SOLUTION

The Tensar Wall System comprises a soil mass reinforced with Tensar geogrids and faced with easily handled, modular precast concrete units. Irrespective of the system chosen, the finish to all the walls had to exactly match the split-faced pigmented stone cladding of the store itself. The Tensar Wall System chosen, allows rapid, simple construction with the feature of having a stainless steel brick-tie inserted into the concrete facing units. These ties enable secure connection of the necessary stone cladding to the main body of the reinforced soil wall. A saving of 35% was achieved by using Tensar Wall System compared with the reinforced concrete wall design originally considered.

PROJECT DESCRIPTION

The main wall, 130 metres long and upto 4.5 metres in height was required around the boundary of the site. A lower wall, 46 metres long was also necessary around the perimeter of the petrol filling station.

Tensar International produced detailed calculations and drawings as part of their Design and Supply Service. As well as the walls, adjacent reinforced soil slopes were designed at 45 degrees incorporating Tensar geogrids. By adopting this slope angle, constructing the retaining structures was simplified and the actual face area of vertical wall minimised.

The facing chosen for this project is made-up of factory made precast concrete units, developed to be attractive and easily constructed.

They are manufactured in a range of colours and styles of finish, however, the one selected here has a plain face and a vertical side slot allowing stainless steel ties to be inserted during construction. The Tensar uniaxial geogrid is connected positively into the face providing a very high efficiency joint. This enables the designer to maximise the design strength of the geogrid in the calculations.

The first course of facing units was placed onto a cast in-situ footing designed to be wide enough to take the concrete blocks and the stone cladding.

Subsequent courses of concrete facing units were then systematically dry-laid, always staying 3 courses (450mm) above the level of the fill material behind. Placing of facing units, fill and geogrid at levels predetermined by the design were simultaneous operations. The project required the blocks to be laid to a horizontal curve, which is no problem for the Tensar Wall System.

On completion of the wall to the required height, facing –up of the wall with the masonry blocks could commence. The stainless steel ties may be adjusted vertically allowing them to be easily placed into the mortar bed, giving a secure anchorage.

Main benefits of Tensar Wall System are:-

- Rapid and economical construction
- Attractive range of styles and finishes
- Durable and maintenance free
- Often no specialist skills necessary
- Tolerance of differential settlement
- Possible use of low cost site won fill
- Low bearing pressure can avoid expensive ground treatment

Tensar Case Study

CONTRACT DETAILS

Specified by:	Contractor:	Client:
Crouch Hogg Waterman Glasgow	Dawn Construction Prestwick	Safeway Stores Limited Glasgow

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