

# **Modelling Limited Life Geotextiles for Reinforcing an Embankment on the Soft Soil**

*A. Mwashha*

## **ABSTRACT**

Increasing environmental awareness has led to the investigation/consideration of a substitute using Limited Life geotextiles for the man-made material in situations where there is a requirement for the short-term reinforcement. The overall aim of the paper is to develop a comprehensive model of the required strengthening behaviour of Limited Life Geotextiles which have a limited (but definable) working life. To achieve this aim an analytical model for soil reinforcement, which incorporates change of foundation soil strength with time due to consolidation, has been created. The tensile force to be provided by a geotextile to ensure specific Factor of Safety against potential embankment failure as a function of time and soil properties has then been determined. A backanalysis method has been developed to estimate a global factor of safety representing the Factor of Safety of soil alone and that of the reinforcement. The analytical model has shown that geotextiles with limited life, e.g. 'Vegetable Fibre Geotextiles', can be used provided that the strength requirement decreases with time.