

Abstract

Maximising the Use of Sustainable, Green, Recycled and Low Energy Materials in High Specification Road Construction

Dr H L Robinson (*)

Tarmac Group, Wolverhampton, UK

The Scottish Executive Development Department, Trunk Roads - Design & Construction Division have funded the construction and testing of a trial section of experimental road pavement at Echline, South Queensferry, Edinburgh. The trial, completed in 2000, had a clear objective to maximise the use of sustainable, in-situ, recycled and cold lay materials and minimise the overall construction energy requirements. The trial site will not receive traffic in the short to medium term, however the project has demonstrated that all the materials used can be manufactured and laid in a controlled manner. Over the first year the in-situ performance has been monitored with encouraging results. This paper will review the materials used in a flexible composite pavement design, from production through to pavement construction and testing to validate performance. The paper also outlines the energy consumption data for each material installed in the road trial including aggregate and binder processing and final product mixing. A comparison is made between the construction energy requirements for the 'alternative recycled' pavement and that for a conventional pavement deemed to have similar design life. The environmental benefits of using recycled and industrial by-product materials in road construction are highlighted.

Reflecting the conference theme, particular emphasis in the presentation will be given to the use of a Slag Bound Material (SBM) roadbase and the use of Basic Oxygen Steel Slag and Blastfurnace Slag aggregates in a cold lay asphalt surface course.

(*) Visiting Professor at Liverpool John Moores University School of The Built Environment

Biographical Details

Dr Howard Robinson

Howard has been dealing off and on with asphalt, bituminous binders, concrete and secondary aggregates including Slag for about 17 years.

He joined Tarmac in 1988 and has held a number of senior technical management positions over the years. Now based in Wolverhampton, he is currently Head of Product Development for Tarmac Group.

Howard represents the Quarry Products Association Slag Group on the Euroslag Council plus two of the working groups and 3 BSI committees.

He has published over 25 papers related to; Chemistry, Concrete, Bitumen, Slag, Recycling and Asphalt and presented at numerous national and international conferences.

He was appointed Visiting Professor at Liverpool John Moores University in 2001.

Contact: howard.robinson@tarmac.co.uk