

The Use of Geosynthetics to Control Reflective Cracking in Pavement Maintenance Interim Advice Note

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Introduction

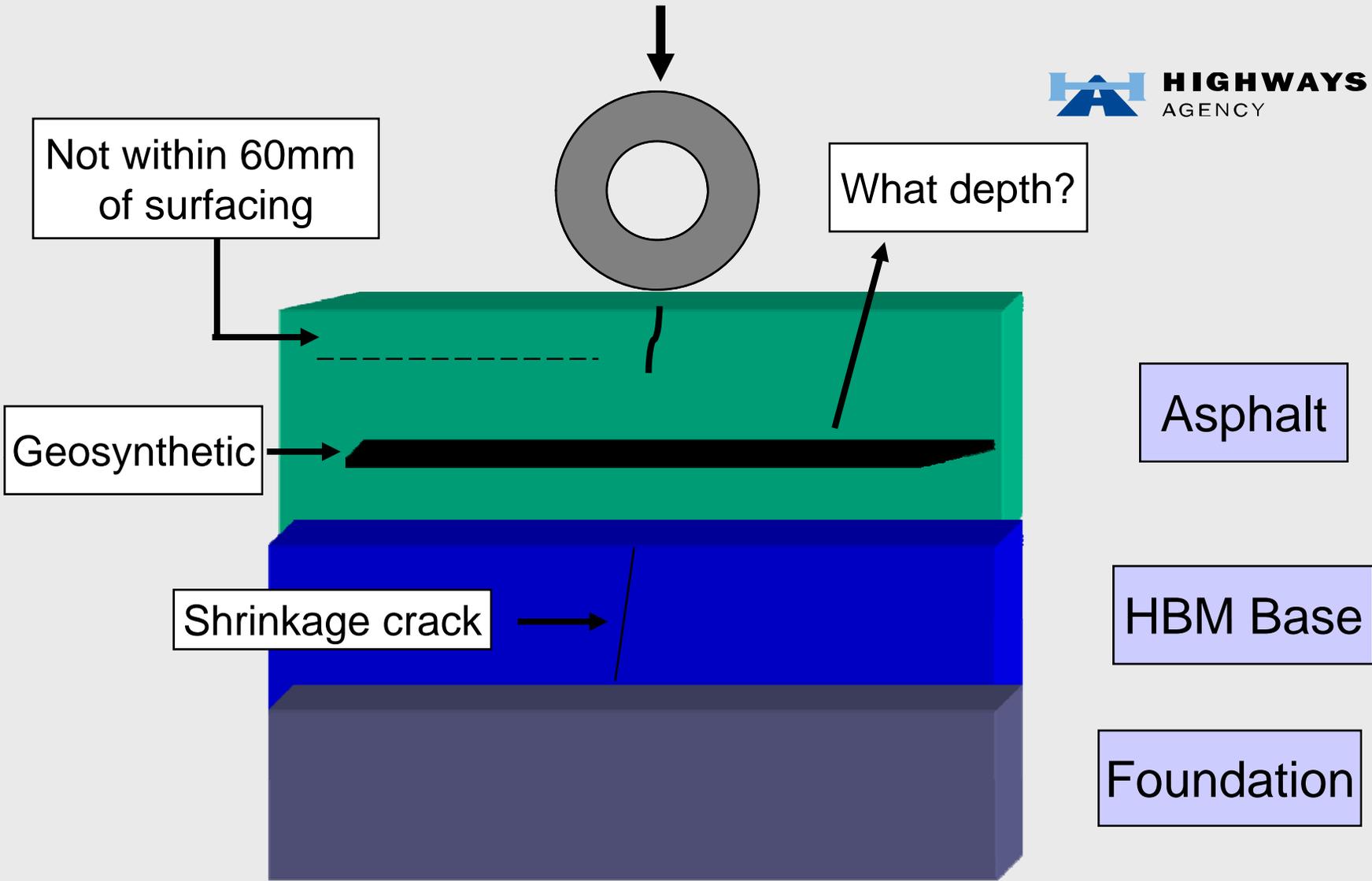
- This IAN is for designers who are considering the use of geosynthetics in asphalt pavements on the HA network
- To formalise the procedures for the use of geosynthetics to enable evidence to be gathered on their performance thus to facilitate a refinement of the specification in the future

Background

The use of geosynthetics is fairly widespread elsewhere in Europe. However, due to differing construction, materials and traffic loading, their applicability to the Highways Agency network is uncertain.

Background

Currently, the Design Manual for Roads and Bridges (DMRB) does not include a Standard or Advice Note with respect to treatment of transverse cracks in flexible pavements with hydraulically bound materials. Geosynthetic products are not covered in the Specification for Highway Works (SHW) and therefore require a Departure from Standards approval.



Background

- Time for appearance of reflection cracks is directly related to the thickness of the asphalt overlay. Cracks are typically transverse
- Based on extensive core surveys, cracks are in full depth of asphalt layer or are in the upper part of asphalt layer
- Reflection cracking is considered as top down

What does this IAN provide?

- Protocol for proposing the use of geosynthetics
- Generic specification for geosynthetics
- Requirements for Departures from Standards
- Requirements for future monitoring, assessment and reporting

What does the IAN not apply to?

- Treatment of cracks in rigid composite (overlaid pavement quality concrete) pavements
- Use of geosynthetics in the widening of pavement construction
- Use of indicator meshes on bridge decks

Protocol for proposing the use of a geosynthetic

In order to include a geosynthetic in a bound layer as part of a maintenance treatment, a detailed proposal must be prepared.



Protocol for proposing the use of a geosynthetic

- The proposal must be brought to a **Value Management Workshop** for appraisal by an HA Pavements Team representative
- The type of product to be used and depth and location that it is to be installed at must be identified

Protocol for proposing the use of a geosynthetic

- Provide supporting evidence of in-service performance to support the application
- Carry out cost benefit analysis that includes options with and without geosynthetics

Possible barriers

- Cost



Requirements for Departures from Standards

- A Departure from Standard is mandatory for any use of geosynthetics
- The provision for monitoring, assessment and reporting their performance is an essential requirement for an application to be considered.

Requirements for future monitoring and assessment

- For the first three years of service, an annual performance report must be provided to the HA
- A more detailed survey must be undertaken upon identification of any significant change in condition

Additional requirements

In order to future develop the SHW and DMRB for the use of geosynthetics on the HA network a “comparative section” with no geosynthetic must be incorporated into any works.

Contract-specific amendments to the SHW

- Geosynthetics for the control of reflecting cracking must comply with BS EN 15381
- Geosynthetics must be installed in the pavement so that they are covered by a minimum of 60mm asphalt.

Contract-specific amendments to the SHW

- A bond coat must be applied directly beneath the geosynthetic layer
- Geogrids and geocomposites must have a melt temperature greater than 160°C

Installation

Installation must be carried out by a company that is accredited to ISO 9001 and approved for this work by the manufacturer of the geosynthetic.



Timetable

- The IAN to be sent to Europe by July 2011
- IAN to be issued by October 2011

