Ringway

Quiet surfacing draws public praise

Complaints from local residents about road noise on a busy urban road in Kent have been replaced by compliments following resurfacing with Ringway's Ultraphone recycled asphalt.

Home owners living beside the A26 near Tonbridge in Kent have come out very much in favour of a new quiet asphalt surfacing material. Comments received from local residents via a questionnaire praise the reduced noise and vibrations from passing traffic after the road was relaid with Ringway's 'Ultraphone' thin surfacing.

The contract, carried out in October 2007, was the first to feature Ringway's new asphalt product, which gets much of its noise reducing properties from a recycled aggregate. Ultraphone was laid over a 500m stretch of carriageway that had suffered the effects of repeated excavations by utility contractors and persistent use by heavy vehicles.

"We are delighted with the performance of the surfacing and the reaction given by local residents following completion of the contract," says Divisional Manager Jonathan Core of Jean Lefebvre UK, which has overseen development of the material for Ringway. "Kent County Council asked its maintenance partner Ringway Infrastructure Services to demonstrate an innovative quiet surfacing material on the A26 and we were happy to put forward the new Ultraphone product."

Audio monitoring equipment set up beside the resurfaced carriageway showed road noise to be significantly reduced, when compared to a nearby section of recently laid conventional surfacing. A reading of 66.8dB was recorded from traffic passing over the Ultraphone material, compared with a noise level of 72.5dB on the adjacent stretch of stone mastic asphalt surfacing. This reduction in noise is equivalent to a 75% reduction in traffic flow.

The noise reducing properties of the Ultraphone surfacing are due largely to the choice of aggregate specified in the material, says Core. The asphalt mix contains a 6mm single size aggregate, derived from slag sourced from a steelworks in north Kent. The slag particles are sharp and angular, giving the asphalt a high void content and an open texture that helps to absorb road noise.

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Use of a locally sourced steel slag aggregate on the A26 is important for two further reasons. Ringway and Jean Lefebvre have helped the council meet its recycling targets and also dramatically reduced the cost and environmental burden of transporting virgin material long distances by road, rail or sea from quarries to the north and west of Kent, a county with a limited supply of natural aggregate.

Around 78% of the Ultraphone thin surfacing material content is steel slag, to which crushed rock fines are added, along

Application of a Gripclean bond coat ensured an optimum bond was achieved across the entire substrate

Ringway's 'Ultraphone' surfacing is laid on the A26 near Tonbridge in Kent to reduce noise the equivalent of a 75% reduction in traffic flow

with a polymer modified bitumen binder to provide the asphalt with added durability. "Tests carried out in France by our parent company Eurovia indicate that asphalt produced with nominal 6mm sized particles also provides an equivalent or better level of skid resistance compared to asphalts with 10mm or 14mm aggregates," says Core.

An earlier version of Ringway's 6mm thin surfacing material was laid on a section of the Oxford Ring Road seven years ago. Road noise dropped following completion of the resurfacing scheme there and led to research into ways in which further cuts to excessive traffic noise could be achieved. Use of steel slag in the latest generation of the material has, according to Ringway, had the desired effect.

Resurfacing on the A26 began with the planing out of all existing asphalt layers, to expose the road's concrete base. This was followed with an application of Ringway's 'Fibrovia' stone mastic asphalt binder course to reprofile the carriageway. This material contains a 14mm size aggregate and was laid and compacted to a depth of 60mm. "We needed to make sure that the substrate was level, because the Ultraphone surfacing is designed to be very thin," Core says.

A roller compacts the Ultraphone surfacing to a depth of 60mm

Conventional paving equipment is used to lay and compact the Ultraphone thin surfacing material to a depth of just 22mm. Ringway also specified its proprietary non pick-up bond coat Gripclean to ensure an optimum bond was achieved across the entire substrate. The contract was completed in four days and timed to avoid school opening and closing times. Results of the A26 trial indicate that ride quality "improved enormously" with no sign of previous reflective cracking problems.

In a report on the project, Kent County Council Project Officer Alan Ross has written: "The trial was a success and produced a very good finished product, which led to an excellent public perception of overall noise reduction".

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