

Modern Asphalts

Nynas

Excellent results achieved ahead of new Scottish standard

Refurbishment of the A90 near Aberdeen – whose skidding resistance results have fed into Transport Scotland’s compelling new surfacing standard – has featured use of a range of Nynas premium products.

Scottish contractor Leiths is proud of the job it has done, reconstructing a section of the south bound carriageway of the A90 between Findon and Porlethen in Aberdeenshire. The contract completed a week early, there was minimum disruption to the travelling public and the final running surface is excellent.

Both client Transport Scotland and its trunk roads operating company BEAR are sufficiently pleased to have expressed their satisfaction in writing.

And that is not all. Testing for skidding resistance has produced results in excess of the required scrim values despite use of stone

of moderate PSV and the absence of any high friction surfacing – which is just what Transport Scotland wanted to hear. The findings have added to a body of evidence and experience assembled by the agency to formulate TS2010, a new standard for stone mastic asphalt thin surfacings. Transport Scotland wants more durable SMAs, better general resistance to skidding and better value – but more of this later.

Getting back to the A90, the 3.5km long section referred to above was last year approaching the end of its serviceable life. The existing pavement had an hydraulically bound base with an overlying bituminous material. BEAR decided

on a course of remedial work involving removal of the bituminous layers, crack and seat of the concrete and an overlay made up of an EME2 mix plus a thin surfacing layer.

Leiths won the contract, with the crack and seat subcontracted to Antigo and planing the old carriageway to Markon. Work began in October last year: site hours were restricted to between 19.00 hours on Friday and 06.00 hours the following Monday, over seven weekends, including installing and subsequently removing crossovers. “In fact we managed to finish the job in six weekends – weather conditions were exceptionally good,” says Leiths Technical Director Neil Anderson.

A HANDY MEASURE

Findlay Irvine’s new Micro Grip Tester – a device to measure skid resistance which can be operated manually at walking pace – was also put to use on the A90; principally to see if correlations could be determined between the Micro and standard trailer mounted Grip Testers. The comparison of results indicated a fairly constant ratio of Micro to GT of 0.77. “In theory, the Micro is a very useful tool for contractors, especially as skid resistance is becoming an important parameter,” says Leiths’ Neil Anderson. “It means we can check work on site as it is being done, have confidence that we’re going to meet requirements, and allow us to make adjustments to mix proportions, if necessary.”





Leiths' reconstruction of the A90 in Aberdeenshire achieved excellent skidding results with high performance binders in lieu of high friction surfacing

Planing and crack and seat took place over the first 12 hour period of each surfacing weekend, with EME2 laid on the Saturday over a 16 hour period. "Two asphalt plants were used to produce the same target grading by using the same aggregates," says Leiths' project manager Robert Bremner. "The manufacturing and delivery operation was critical within this timeframe." The surface course was laid on Sunday, with white lining and studs installed on Sunday evening. "Each weekend the road was generally open some four hours before the deadline on Monday morning." A total of 7000t of EME2 asphalt was laid, and 3000t of thin surfacing. The EME2 was

bound with Nynas Nypave FX20; the bond coat was another Nynas product, Nymuls BC35 ("chosen for its non-tacky properties which served us well on this contract," says Neil Anderson); and the thin surfacing had a binder from the Nynas Nypol range of polymer modified bitumens.

"Each of the Nynas products used on the A90 contract is well formulated and particularly appropriate for its chosen application. A lot of thought has gone into the mix to ensure durability, longevity and good resistance to skidding; and we believe the asphalt overlay produced by Leiths to suit the A90's circumstances could not be bettered," says Nynas asphalt engineering support manager Jukka Laitinen.

The EME2 was laid 120mm thick in areas of crack and seat, with 75mm in other areas; the thin surfacing laid to a target thickness of 35mm, an actual average thickness of 38mm being achieved. A total of three rollers was carefully used in the compaction of the layers, with the EME2 compaction continuously monitored by a nuclear density gauge. All testing (excluding that associated with the crack and seat) was carried out by Leiths' accredited testing services division. As a prelude to Transport Scotland's TS2010 standard, launched in December 2010, texture depth was not a 'sign off' parameter upon completion of works on the A90. Instead, certain parts of the new carriageway were subject to a minimum skid resistance requirement, having to achieve a scrim value of at

least 0.7. These sections of road might have been surfaced with high friction surfacing but in lieu of this, Leiths' thin surfacing was gritted with a 1mm/3mm grit at the time of rolling.

Skidding resistance was assessed early this spring, some three months after completion of work – an extremely harsh winter having intervened. Grip Tester equipment from Findlay Irvine was used for the assessment, producing scrim equivalent results of a highly satisfying 0.73. Even the non-gritted thin surfacing produced 0.66, a perfectly acceptable result, according to Neil Anderson.

Transport Scotland senior materials engineer Dougie Millar confirmed the agency's increasing interest in skidding resistance as a parameter

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Jukka Laitinen

for achieving satisfactory surfacing. "We published TS2010 for two primary reasons," he says. "Transport Scotland national network surveys have revealed unsatisfactory performance by SMA

thin surfacing and also that high friction surfacing is being specified perhaps over zealously.

"TS2010 is aimed at producing much more durable SMAs and also, via the inclusion of a new performance specification for skidding resistance, achieving satisfactory levels of grip without recourse to high friction surfacing using imported aggregates." Nynas' Jukka Laitinen says: "We hope the work on the A90, in which we played a part, will contribute to the development of, and the confidence in, Transport Scotland's new standard."

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