



Tensar[®]

**PAVEMENT
SURFACING**

Tensar's Glasstex P100 increased pavement strength and mitigated reflective cracking.

Smart solution for M3

Glasstex[®] delivered stronger, safer and morereliable running lanes for the M3 SmartMotorways project.

CLIENT'S CHALLENGE

The hard shoulders of the M3 between Junction 2 and 4a were being converted to 'smart' running lanes, as part of the Smart Motorways programme. Highways England needed a pavement solution that would reduce initial costs, increase service life and minimise maintenance and disruption on this busy stretch of motorway.

TENSAR SOLUTION

About 300,000m² of Tensar's Glasstex[®] P100 composite asphalt interlayer was proposed to create a reinforced Stress Absorbing Membrane Interlayer (SAMI). This increased pavement strength at low strain and mitigated reflective cracking from both traffic induced stress and from defects in the underlying pavement structure. This extended the operating life of the pavement, reducing whole life costs.

M3 Junctions 2 to 4a

Asphalt reinforcement interlayer

📍 Surrey, UK

BENEFITS

Mitigating

propagation of reflective cracking

Enhanced

service life and reduced maintenance costs

Significant

construction cost savings compared to traditional solutions

REF TEN358



Glasstex adhered to the underlying pavement structure using a bitumen bond coat.

PROJECT BACKGROUND

More than 130,000 vehicles use the M3 between Junctions 2 and 4a every day. As part of Highways England's Smart Motorways programme, the capacity of this congested three lane section was being increased, with hard shoulders converted to 'smart' running lanes.

Asphalt surfacing contractor Tarmac, working for main contractor Balfour Beatty, carried out structural resurfacing of the carriageway. The road was in poor condition, a result of reflective cracking of the asphalt due to movement of lean mix concrete and bituminous road base. Repairs were needed to strengthen the road and to prevent cracking, which could have led to water ingress and further deterioration of the concrete.

AECOM had specified asphalt reinforcement in the pavement design. Tarmac, subcontractor Foster Contracting and Tensar proposed Tensar's Stress Absorbing Membrane Interlayer (SAMI) Glasstex solution, while supporting the required departure from the standard process.

Glasstex P100 is a composite of glass yarn grid and paving fabric, which formed an interlayer between the fractured substrate and the asphalt overlay. It was adhered to the underlying pavement structure using a straight run bitumen (160/220 pen) bond coat, with a calibrated spray rate of 1.1kg/m², to activate both stress relief and interlayer barrier functions (as given by BS EN 15381: 2008), with reinforcement provided by the grid. Combined with Tarmac's Utililayer polymer-modified binder course, this delivered maximum possible crack resistance and durability.

Glasstex mitigates reflective cracking propagation and dissipates peak strain energy caused by movement in the substrates and traffic-induced bending. The result was a pavement with a longer operational life, requiring less maintenance.

Installation of the Tensar solution was carried out during several nights by subcontractor Foster Contracting, which has developed plant specifically for efficient and safe installation of Glasstex. The standard approach would have involved a minimum 360mm reconstruction depth but using Glasstex meant only 120mm to 150mm had to be removed, saving significant construction time and cost.

Main contractor:

Balfour Beatty

Asphalt contractor:

Tarmac

Subcontractor:

Foster Contracting Ltd

Client:

Highways England

Consultant:

AECOM

"Tensar's Stress Absorbing Membrane Interlayer was fast to lay and will meet Highways England's requirements for a low-maintenance pavement with long operational life."

Barrie Farquhar

Project Manager

Tarmac

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