



Case Study

application **Chip Seal with Fabric Interlayer**
location **2nd Street, Marshall, IL**
product **Mirafi® MPV500**

job owner **City of Marshall**
engineer **Francis Associates**
contractor **Geodynamics**
chip seal contractor **Lawrence Gravel**
date of installation **August 2011**

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TenCate® develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

THE CHALLENGE

South 2nd Street in the City of Marshall, IL is a 20 plus year old hot mix asphalt pavement that was very heavily oxidized, having base failures, a large percentage of fatigue cracking and water intrusion. It is a major truck route through the City of Marshall. The street was due to be overlaid with hot mix asphalt but because of budget shortfalls, an alternate surface treatment was proposed. The consultant for the City of Marshall, Francis Associates, chose to construct a chip seal over TenCate Mirafi® MPV500 paving fabric interlayer for their new pavement surface.

THE DESIGN

Francis Associates chose to add a fabric interlayer to their chip seal roadway to increase the overall performance of the new chip seal surface treatment. The addition of the interlayer improved the bond of the chips to the existing roadway, which will improve chip retention over time. It also acted to seal the roadway and provide a moisture barrier keeping water out of the

road base where the deterioration of the subgrade is caused. The addition of the fabric interlayer also eliminated the need for future maintenance on the roadway such a crack filling. Prior to construction, the existing roadway received patching repairs to areas that were experiencing base failures. In addition, all existing cracks 1/8" or larger were routed and crack sealed.



Existing roadway.



Installation of Mirafi® MPV500.



Tack coat and Mirafi® MPV500 being installed.

THE CONSTRUCTION

Geodynamics was the subcontractor responsible for the installation of the paving fabric interlayer. A tack coat of PG64-22 was applied at a rate of 0.28 gal/sy, followed by the Mirafi® MPV500 polypropylene paving fabric installation. The City sanded the fabric at a rate of 2 lbs per yd² with a spreader truck. The fabric was then rolled 4 times with a self propelled rubber-tired roller and left open to traffic until the next day.

Prior to the installation of the chip seal, the entire roadway was swept to remove the sand that was previously applied. RS-2 asphalt emulsion was applied on top of the fabric at a rate of 0.35 gal/yd². The chips consisting of a CA-16 crushed gravel was spread into the emulsion at a spread rate of 26 lbs/yd² with a chip spreader. The chips were then rolled 2 times with a rubber tired roller to seat and orientate the chips.. Finally, the excess chips were swept off of the roadway.

THE PERFORMANCE

Francis Associates and the City of Marshall were very pleased with the final results of the project and plan to make chip seal with fabric a standard surface treatment. Two test sections of 150 feet each were installed without paving fabric to act as a control so that the fabric performance could be evaluated. The project will continue to be monitored to document the improved performance of using Mirafi® MPV500 fabric interlayer with chip seals.



Sanding the Mirafi® MPV500 paving fabric.



Chipping.



Finished roadway.



Rolling the chips.

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