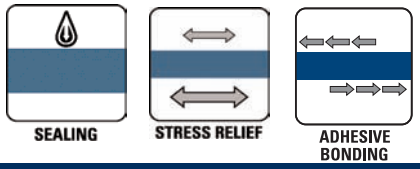
TENCATE Mirafi®



Case Study

application	Pavement Rehabilitation	job owner	City of Liberty Lake, WA
location	E Mission Avenue - Liberty Lake, WA	engineer	Andrew Staples
product	Mirafi® PGM-G⁴ Composite Paving Grid	contractor	Poe Asphalt
		interlayer installer	Road Products Inc (RPI)

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

The existing approximately 10 year old pavement had cracking, thin spots and excessive-traffic for the design of the street. The Engineer needed a way to extend the life of the road, reduce maintenance cost and preserve the pavement condition index with an improved ride quality for a longer time frame and improve the roadways ability to support increased traffic. The objective was to maximize the pavement's performance by doing the following:

1. Reduce the negative impact of moisture intrusion into the base on the structural value and the load bearing capacity of the base.

2. Maximize the ability to reduce severity and delay of reflective cracks to slow pavement deterioration and preserve structural integrity of the pavement.

3. Maximize the ability to spread point load lessening the impact of increased traffic.

4. Maximize performance of HMA pavement section without the expense of adding structural value to the existing base.

5. Ease of construction and efficient installation to minimize road closure during construction

THE PLAN

The solution was to install TenCate Mirafi® PGM-G⁴ high strength, multi-axial composite paving grid into a .19 Gals/SY PG 64-22 hot asphalt binder to provide the following:

Above pictures: Mission Road before construction.

Liberty Lake - Mission St - Grind & Overlay Project

Existing Cross Section	New Cross Section
	Final 2.5" PG 64-28 HMA, Pavement Section
	Multi-Axial PGM G4 installed in .19 Gal/SY Hot PG 64-28 Asphalt
Existing old 3" HMA	Overlay old 3" HMA. Taper mill 6' out from curb with a "smooth" mill
Existing AB Base	Existing AB Base

1. A moisture barrier: Mirafi® PGM-G⁴ fully saturated with the hot PG asphalt binder becomes a moisture barrier to protect the base from top down moisture intrusion, preserving the load bearing capacity.

2. Efficient low elongating, tensile reinforcement: The multi-axial Mirafi® PGM-G⁴ is more efficient at dispersing the forces that cause cracking, maximizing delay and reducing severity of reflective cracks, slowing the start of more rapid roadway deterioration after cracks develop and preserving pavement integrity longer.

3. Increase pavement flexural strength: The multi-axial Mirafi® PGM-G⁴ is more efficient at spreading the point loading, improving the flexural strength, adding ability for the roadway to handle the increased traffic.

4. Cost efficient mitigations: Mirafi® PGM-G⁴ provides maximum capability of the pavement section to perform when the expense of removing and improving the structural value of the base is not possible or too costly. While it will not "correct" a deficient base structural value, it will mitigate the negative impact that top down moisture has on the base load bearing capacity and structure of the existing base.

5. Wide width efficient installation: Mirafi® PGM-G⁴ is available in 12.5' widths, reducing longitudinal laps by over 50%, is strong, but flexible, adding to the ease and speed of installation.

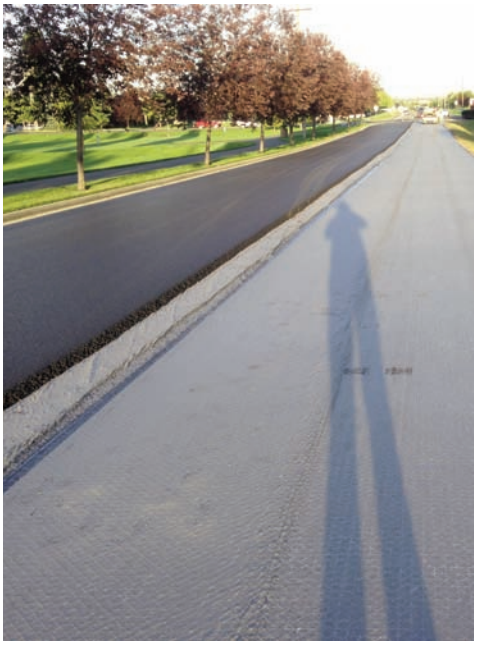
THE PROCESS

The construction process consisted of three steps:

1. Taper mill at curb edge, patch and fill cracks on existing old HMA.

2. Install Mirafi® PGM-G⁴ high strength, multi-axial composite paving grid into a .19 Gals/SY PG hot asphalt binder.

3. Overlay with a 2.5" lift of well compacted HMA.



Installation of Mirafi® PGM-G⁴ composite paving grid.

Above pictures: Installation of Mirafi® PGM-G⁴ composite paving grid.

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