

Case Study

application | Pavement Interlayer
location | Terminal Way-Ferry to Earle Road, CA
product | Mirafi® PGM-G⁴ Composite Paving Grid

job owner
engineer
contractor
interlayer installer

Port of Los Angeles
Peter Ouk, Port of LA
Griffith Company
Diversified

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

This project involved continuous heavy truck traffic to/from major port terminal operations at the Port of Los Angeles, CA. There was severe cracking with potholes and many failing patch repairs on approximately ten year old pavement. The Port Engineer wanted 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 the heavy port 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 heavy truck 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 closures during construction.

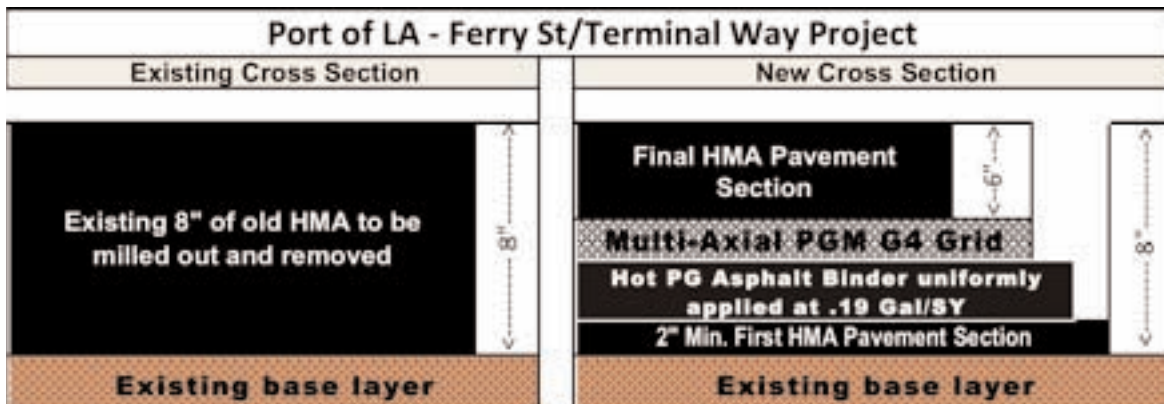
THE SOLUTION

The solution was to install TenCate Mirafi® PGM-G⁴ high strength, multi-axial composite paving grid into a .18-.19 Gals/SY PG 70-10 hot asphalt binder to provide the following:

1. A moisture barrier: Mirafi® PGM-G⁴ fully saturated with the hot PG 70-10 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: Mirafi® PGM-G⁴, because it is multi-axial, it is more efficient at dispersing the forces that cause cracking, maximizing delay and reducing severity of reflective cracks. This slows the start of more rapid roadway deterioration after cracks develop and preserve pavement integrity longer.



Port of LA terminal before construction.



3. Increase pavement flexural strength: Mirafi® PGM-G⁴ is more efficient at spreading the point loading, improving the flexural strength, therefore adding the ability for the roadway to handle the heavy port 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.

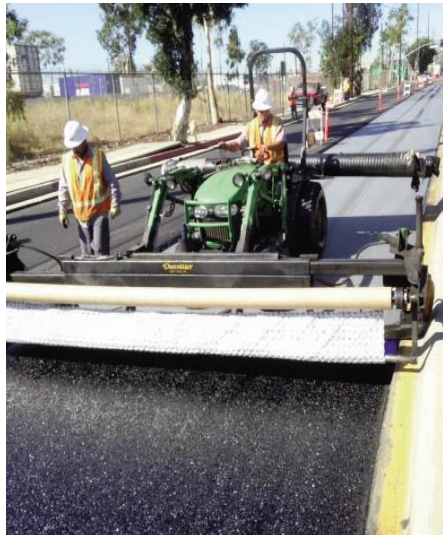


Installation of Mirafi® PGM-G⁴ composite paving grid.

THE CONSTRUCTION

The construction process consisted of six steps:

1. Removal of existing old HMA down to the base.
2. Compaction of the existing base.
3. Installation of 2" lift of new compacted HMA.
4. Installation of Mirafi® PGM-G⁴ high strength, multi-axial composite paving grid into a .18-.19 Gals/SY PG 70-10 hot asphalt binder.
5. Overlay with a 3" lift of well compacted HMA
6. Overlay with another 3" lift of well compacted HMA.



Installation of Mirafi® PGM-G⁴ composite paving grid.



Mirafi® PGM-G⁴ installed on right lane prior to overlay. Left lane completed.

TenCate Geosynthetics Americas assumes no liability for the accuracy or completeness of this information or for the ultimate use by the purchaser. TenCate Geosynthetics Americas disclaims any and all express, implied, or statutory standards, warranties or guarantees, including without limitation any implied warranty as to merchantability or fitness for a particular purpose or arising from a course of dealing or usage of trade as to any equipment, materials, or information furnished herewith. This document should not be construed as engineering advice.

Mirafi® is a registered trademark of Nicolon Corporation.

© 2013 TenCate Geosynthetics Americas