GDOT Interlayer (N12 and N13)

Don Watson
Background
GDOT Interlayer

• Traditional approach
  ➢ Single surface treatment (#7 stone)
  ➢ Not satisfactory
Test Track Objective

- Double surface treatment with sand seal
- Open-Graded Interlayer (OGI)
Preparation and Construction
Saw Cuts to Simulate Cracks

- Mill to 2.2 inch depth
- Deep cuts 1/8 inch wide
- Longitudinal cuts at 3 foot spacing
- Transverse cuts at 15 foot spacing
- Filled with sand to prevent healing
Saw Cuts to Simulate Cracks

15 ft increments

3 ft increments
Typical Sections

- TEST SECTION NUMBER N-12
- TEST SECTION NUMBER N-13

9.5 mm SP

Surf. Treatment

9.5 mm SP

OGI

1.5 in

0.7 in

1.1 in

1.1 in
Open Graded Interlayer
## OGI Properties

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>% Passing</th>
<th>Specification Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot;</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>96</td>
<td>80-100</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>59</td>
<td>40-65</td>
</tr>
<tr>
<td>No. 4</td>
<td>14</td>
<td>10-25</td>
</tr>
<tr>
<td>No. 8</td>
<td>8</td>
<td>2-8</td>
</tr>
<tr>
<td>No. 200</td>
<td>2</td>
<td>1-4</td>
</tr>
</tbody>
</table>

### Mixture Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Specification Range</th>
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</thead>
<tbody>
<tr>
<td>Asphalt Content (AC), %</td>
<td>4.5</td>
<td>4.0-5.0</td>
</tr>
<tr>
<td>Air Voids, %</td>
<td>22.2</td>
<td>22±1</td>
</tr>
<tr>
<td>Voids in Mineral Aggregate (VMA), %</td>
<td>30.8</td>
<td>-</td>
</tr>
<tr>
<td>Film Thickness, µm</td>
<td>23.2</td>
<td>-</td>
</tr>
</tbody>
</table>
Field Performance
Cracking

Percent of Saw Cut Area with Reflective Cracks

Equivalent Single Axle Loadings (ESALs) in Millions

OGI

Surf. Trmt.

N12 Reflected Saw Cut

N13 Reflected Saw Cut
Open-Graded Interlayer
Rutting

Rut Depth (mm)

Equivalent Single Axle Loadings (ESALs)

N12, Rut (mm)  N13 Rut (mm)
Findings
After 20 Million ESALs

- 50.5% of saw cuts have reflected through the OGI (N13) compared to only 6% in the Double Surface Treatment with a Sand Seal (N12)
- Cracking in both sections is low severity
- Additional dense-graded layer thickness in N12 may have affected performance
- N13 has less rutting than N12 (3 mm vs 7.8 mm)
THANKS!

Any questions?
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