Limerock, Shell Rock and Coquina Base Materials
Web Interim Report

County: St. Lucie

Section/Subsection: 94030-000

FIN: 415298-1-52-01

State Road: 70

Last Updated: November 2014
The objective of this study is to evaluate the long-term field performance of Shell Rock, Cemented Coquina and Limerock as a base material. The project was constructed in 1996 on SR 70 in Saint Lucie County, and consists of three 1,500 ft test sections located in the westbound traffic lane. The project was resurfaced in 2009.

The Limerock section (Section 1) was produced by Rinker Materials (87-090) in Miami-Dade County. The Cemented Coquina section (Section 2) was produced by Florida Rock Industries (94-209) in St Lucie County. The Shell Rock section (Section 3) was produced by Palm Beach Aggregates (93-406) in Palm Beach County.

Performance is evaluated annually in terms of deflection, ride, rutting and cracking.
St. Lucie County
SR 70
BMP 19.171
EMP 17.466
TYPICAL SECTION
SR-70
STA. 209+00.00 TO STA. 361+49.38
MP 17.149 TO MP 20.036
(WEST OF MCCARTY ROAD TO GORDY ROAD)

WILL EXISTING ASPHALT CONCRETE PAVEMENT 6.75 IN. AVG. DEPTH

RE surfaced

TYPE SP (PG 76-22) STRUCTURAL COURSE (TRAFFIC OIL 2800) AND FRAC TION COURSE (FC-61/PG 76-22/0.75)

Section 1

<table>
<thead>
<tr>
<th>Material</th>
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<tbody>
<tr>
<td>0.80&quot;FC -5</td>
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<tr>
<td>4.4&quot;-SP 12.5</td>
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<tr>
<td>10.4&quot;-Limerock</td>
</tr>
<tr>
<td>12&quot;-Stabilized</td>
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<tr>
<td>Subgrade</td>
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Section 2

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Section 3

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<tr>
<td>10.4&quot;-Shell Rock Base</td>
</tr>
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<td>12&quot;-Stabilized</td>
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Cracking: No cracking was observed.

Rut

![Rut graphs showing comparison between Limerock, Coquina, and Shell Rock]

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Milepost

Rut (in)

Limerock  Transition Area  Coquina  Shell Rock
Ride

The graphs illustrate the variability of MRI (in/mile) across different base material types: Limerock, Coquina, and Shell Rock. The box plots show the distribution of MRI values with 25th and 75th percentiles, average, and outliers. The Milepost range is from 17.400 to 19.200.

- **Limerock** shows a relatively consistent MRI value around 60 in/mile with some variability.
- **Coquina** has a lower range, mainly around 40 in/mile with less variability.
- **Shell Rock** has the highest MRI values, with a range around 80 in/mile.

The graphs help in understanding the impact of different base materials on MRI performance.
Base Damage Index - FWD (D8-D12)
Overall Pavement Response - FWD (D₀)

- 25th Percentile
- 75th Percentile
- Average

Limerock
Coquina Base Material Study
Shell Rock

D₀ (mils)

Milepost
Embarkment Response - FWD (D_{60})

![Graph showing embankment response with base material types: Limerock, Coquina, Shell Rock. The graph displays the 25th, 75th percentiles, and average values for D_{60} in meters/s.](image)

![Another graph showing D_{60} values across different mileposts: 17.400 to 19.200.](image)