



Florida Department of
TRANSPORTATION

Geosynthetic Material Study

Experimental Project Interim Report

FDOT Office	State Materials Office
District	2
County	Alachua
Financial Project #	207801-3-52-01
Roadway ID	26050000
State Road No.	331
US Road No.	N/A
Report Date	5/11/2017

Project Description

District	2
County	Alachua
Financial Project	207801-3-52-01
Roadway ID	26050000
State Road No.	331
US Road No.	N/A
Lanes Tested	R1, R2, L1, L2

Objective

The objective of this study is to evaluate the effectiveness of mitigation strategies for high water table including an asphalt base and a limerock base underlain with geocomposite, compared to a standard limerock base used as control.

Background

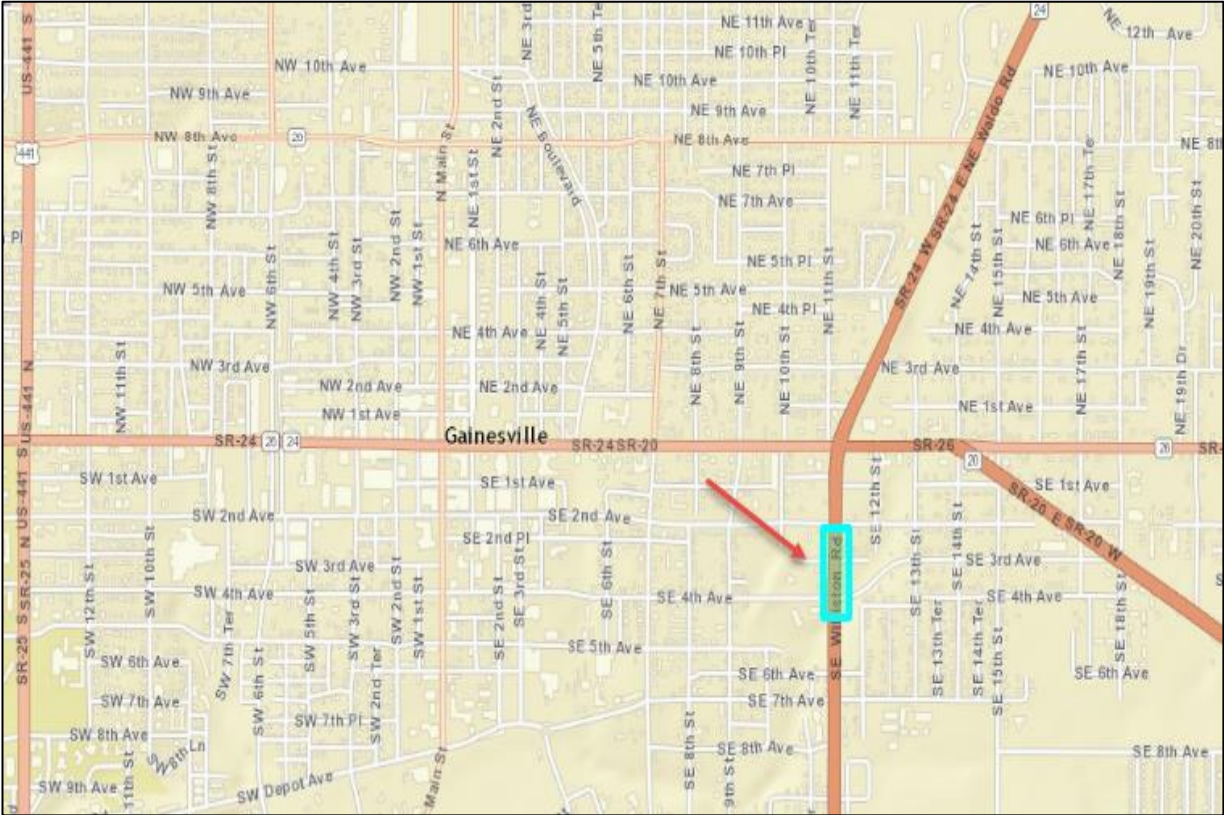
This experimental project is located on SR-331 in Gainesville, Alachua County. The objective is to compare the relative long-term performance of an asphalt base (Type B-12.5) and a limerock base underlain with a thermally bonded non-woven geocomposite material commonly known as Roadrain. These test sections were constructed in an area with an elevated water table. The control sections with a standard limerock base were constructed in areas free from the effects of an elevated water table.

Description

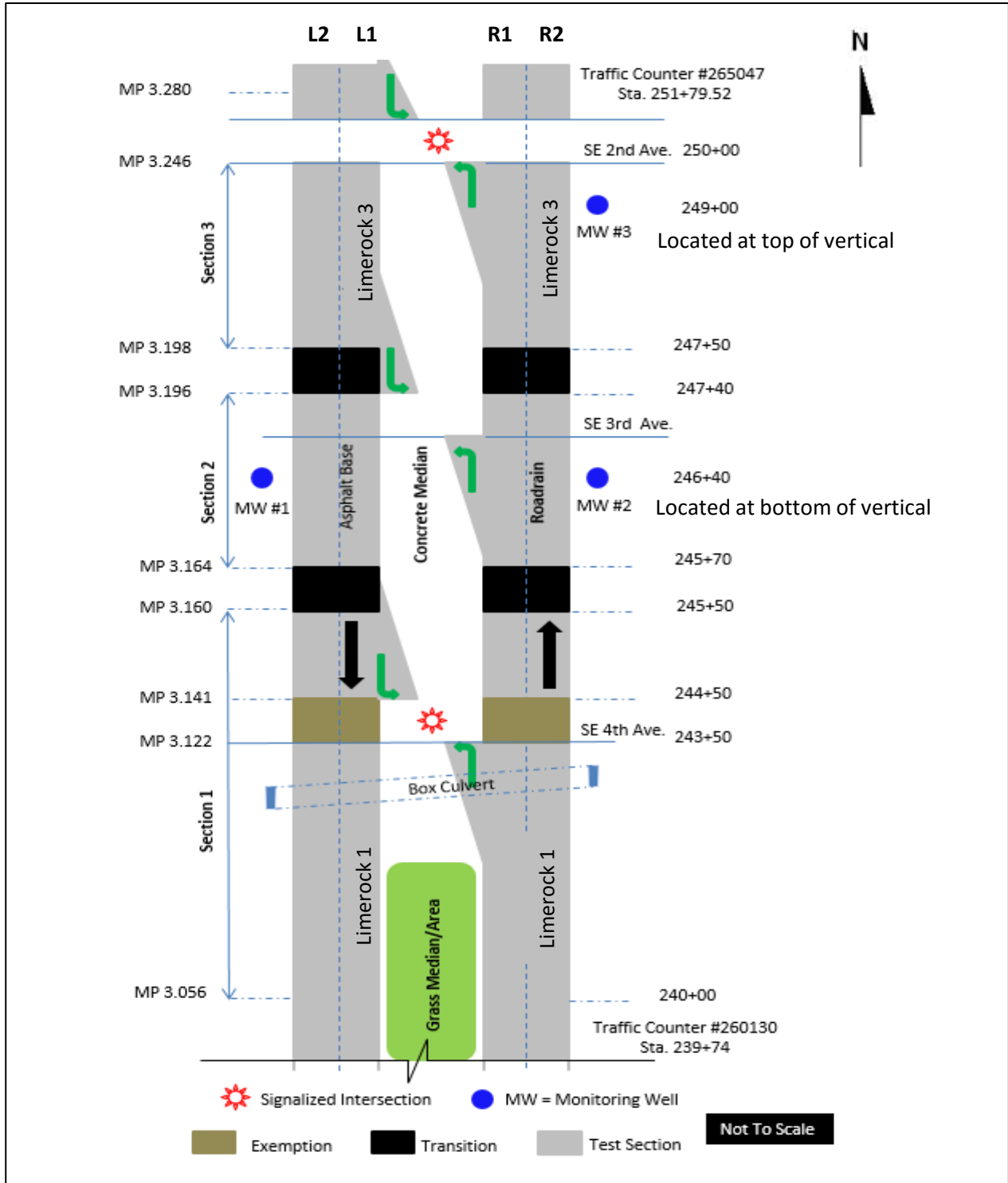
In 2005, three (3) test sections were constructed as part of a 3.29 miles resurfacing project (207801-3-52-01). Control sections 1 and 3 in the Northbound and Southbound lanes consist of 7.5 inches of limerock base, identified as Limerock 1 and Limerock 3, respectively. Test Section 2 consists of 7 inches of asphalt base in the Southbound lanes (identified as Black Base) and 7.5 inches of limerock base underlain with Roadrain placed in the Northbound lanes. All test sections sections have 1.5 inches Type SP 9.5 asphalt structural layer, and 1.5 inches Type FC 12.5 friction course. Two monitoring wells (MW), namely MW #1 and MW #2, were installed to the East and to the West of Test Section 2, respectively, at locations with high water table located at the bottom of a vertical curve. A third monitoring well (MW #3) was installed in an area with a relatively lower water table, on the North East side of the project, at the top of a vertical curve. Performance is evaluated in terms of Cracking, Ride, Rutting, and Deflection.

Project Location

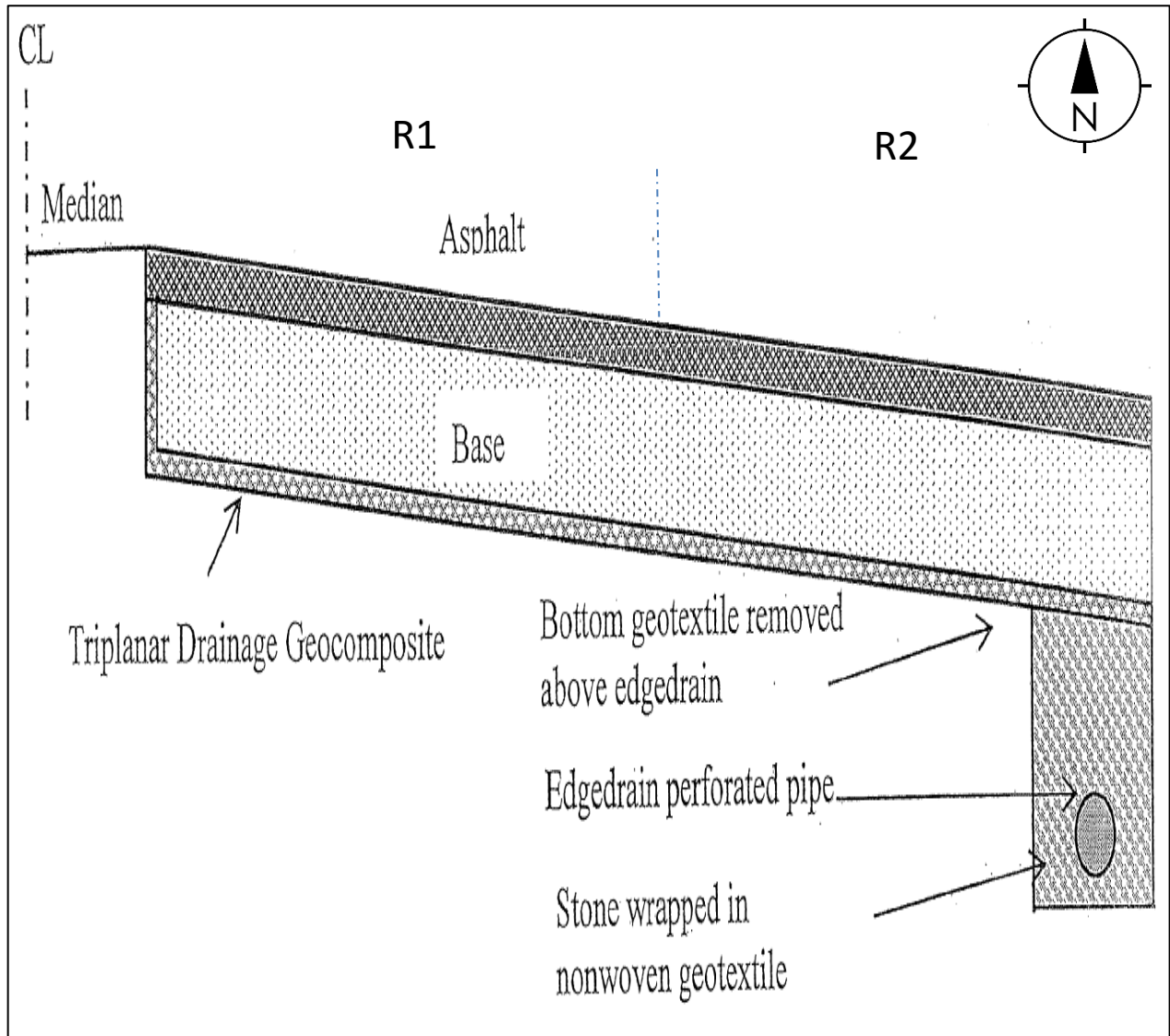
District 2
County Alachua
Financial Project 207801-3-52-01
Roadway ID 26050000
State Road No. 331
US Road No. N/A
Lanes Tested R1, R2, L1, L2



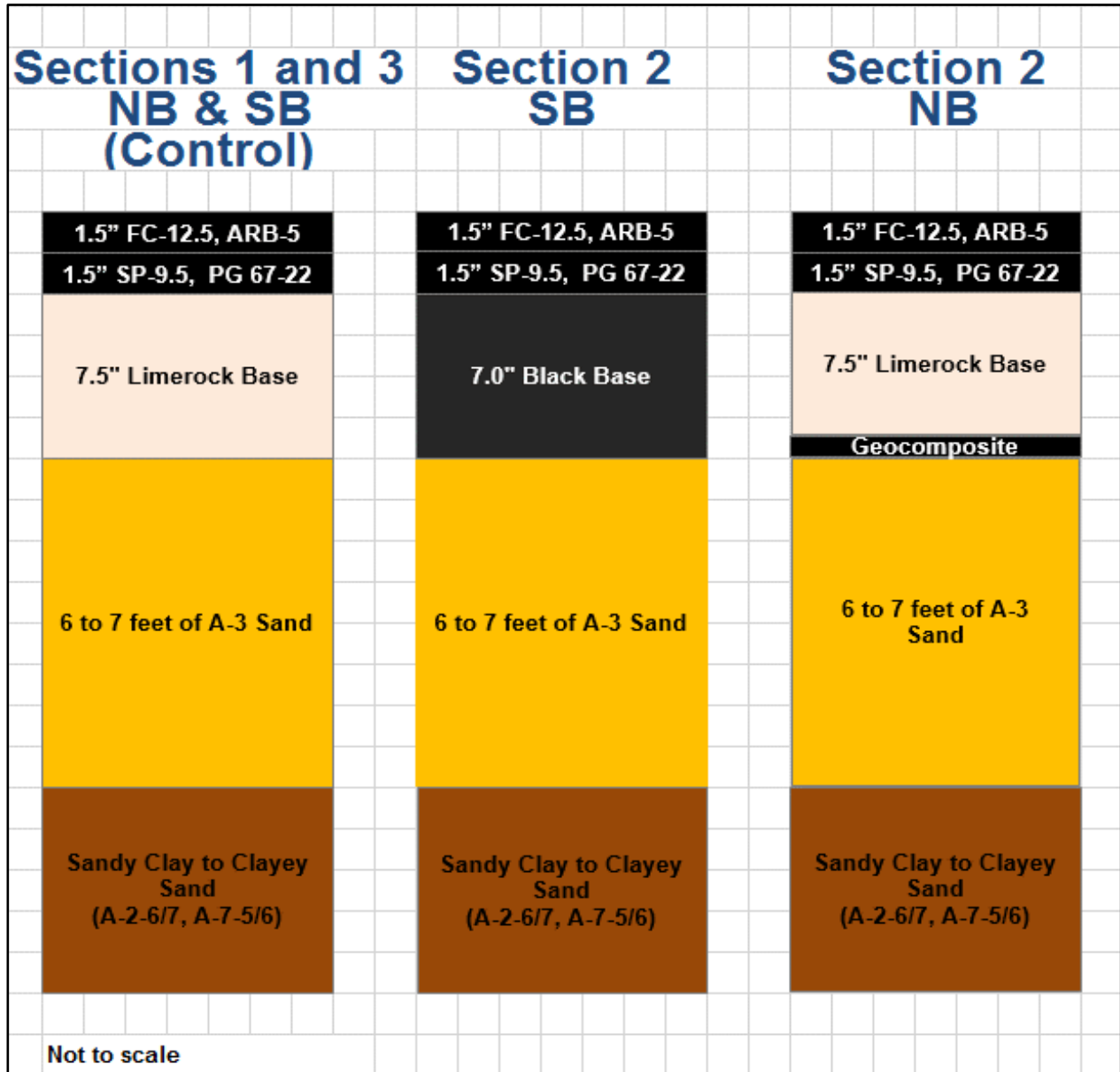
Project Layout



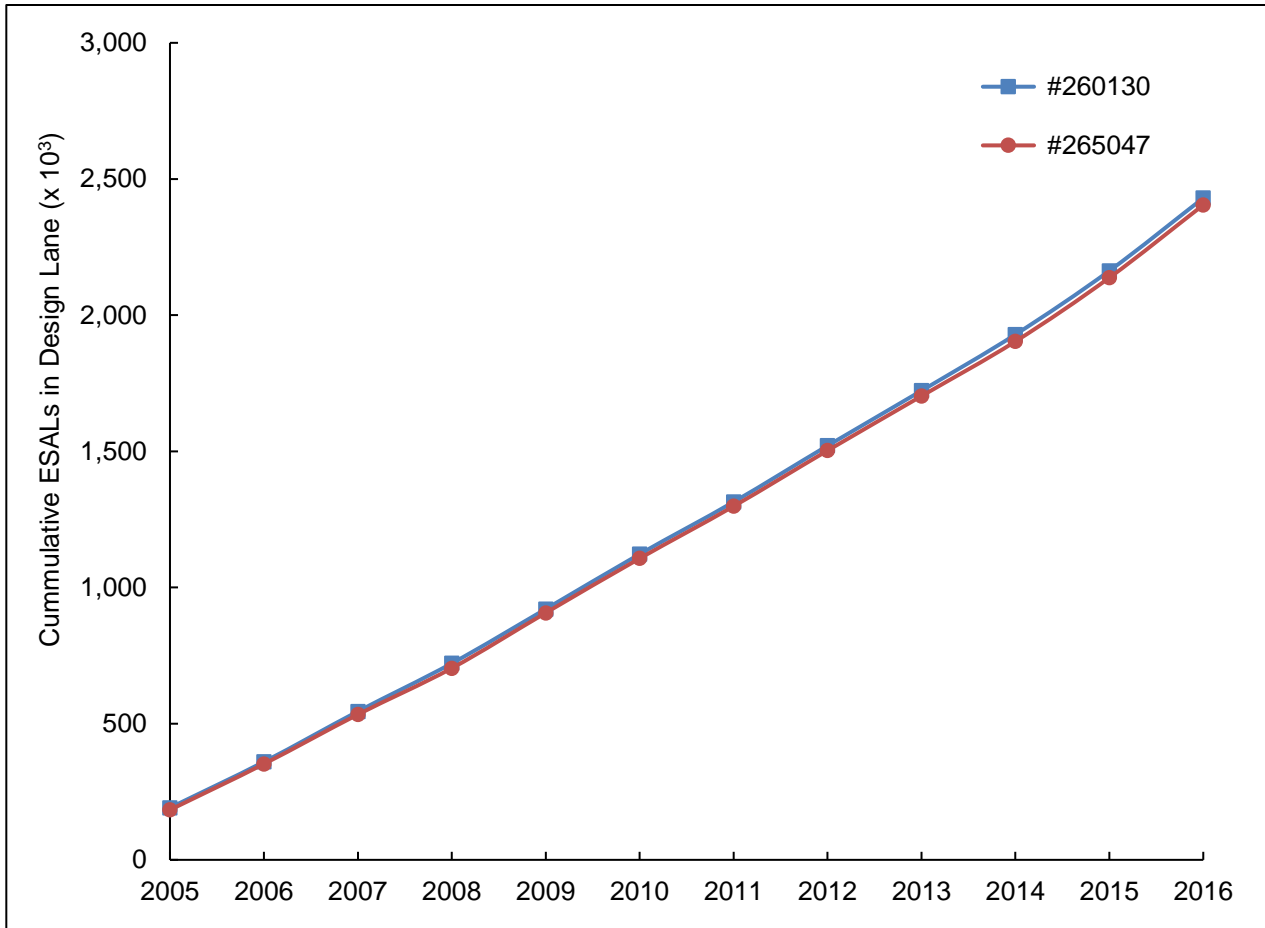
Pavement Cross Section



Layer Thickness

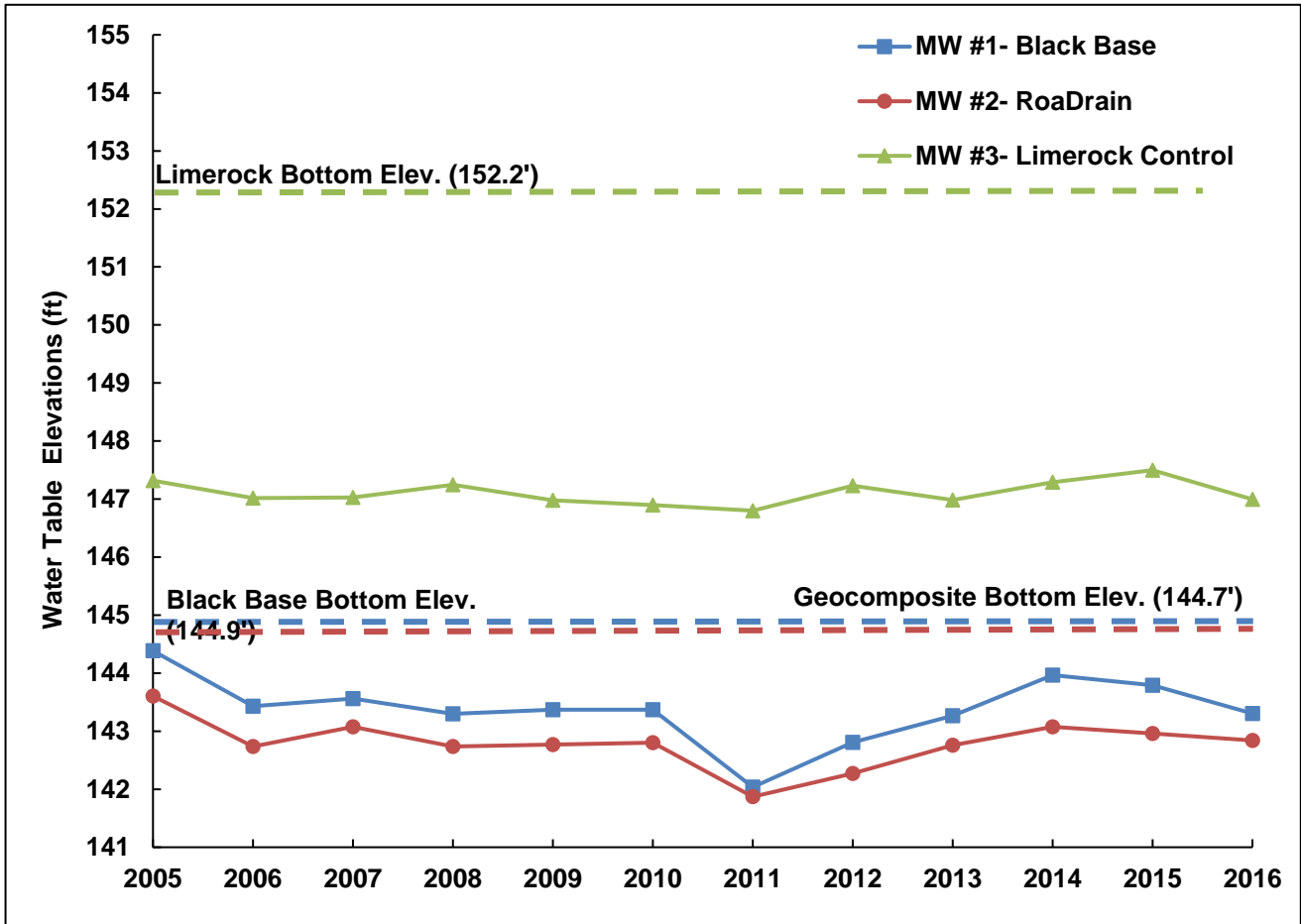


Traffic



Source: FDOT Traffic Online 2016

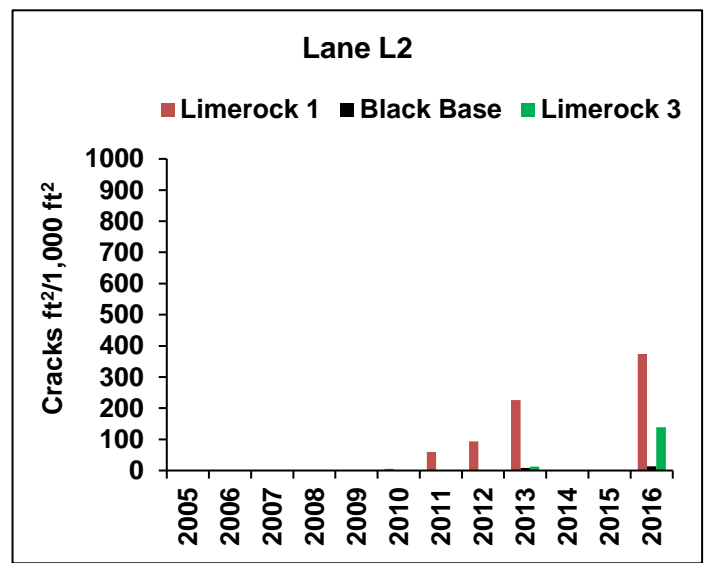
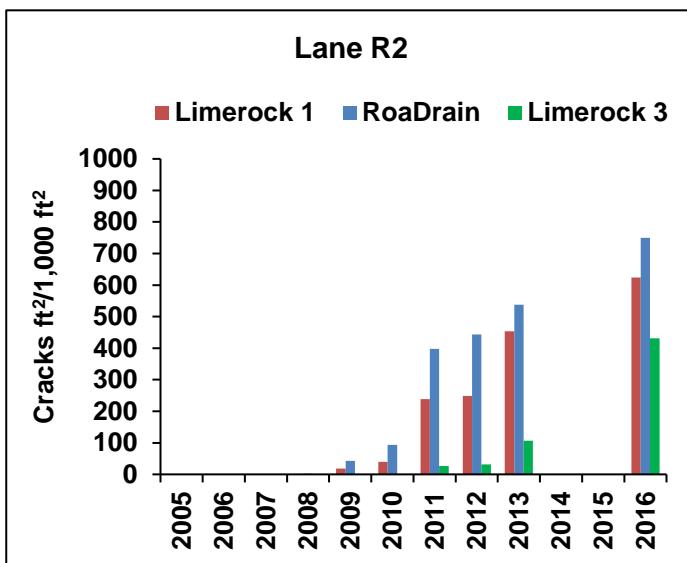
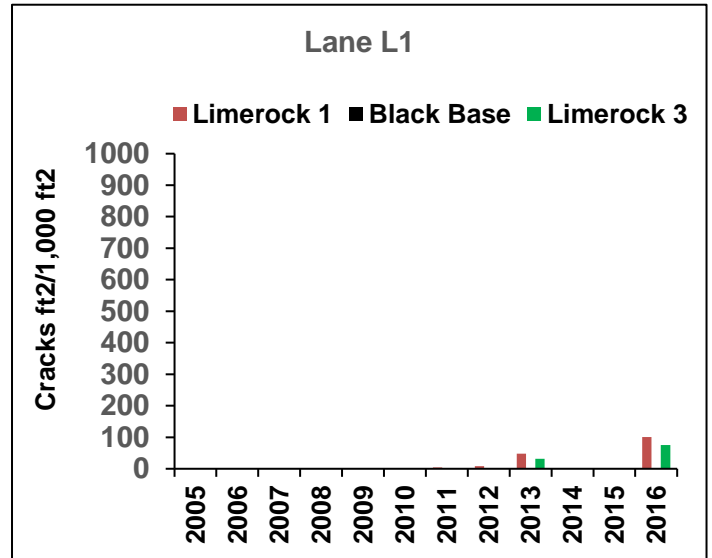
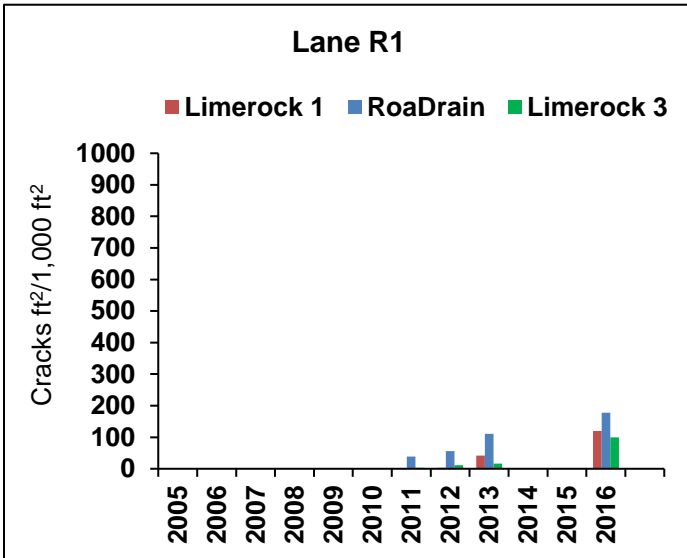
Ground Water Table



MW = Monitoring Well

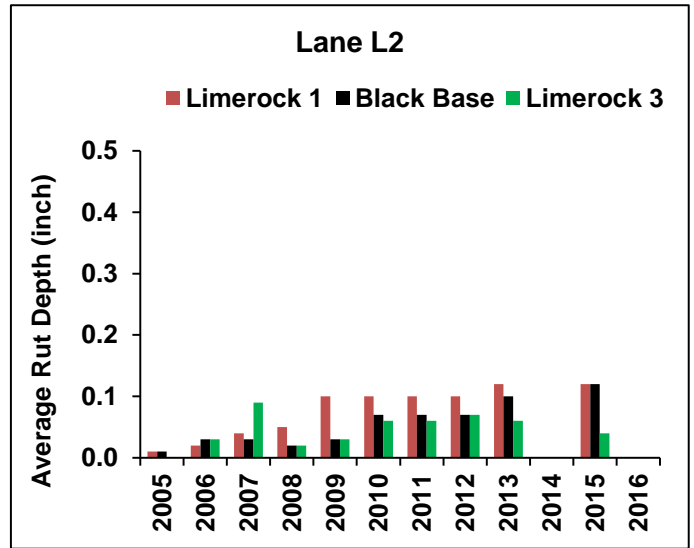
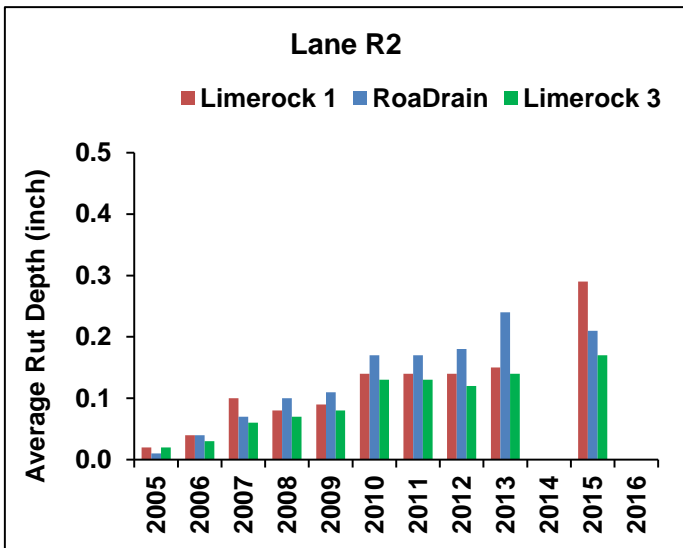
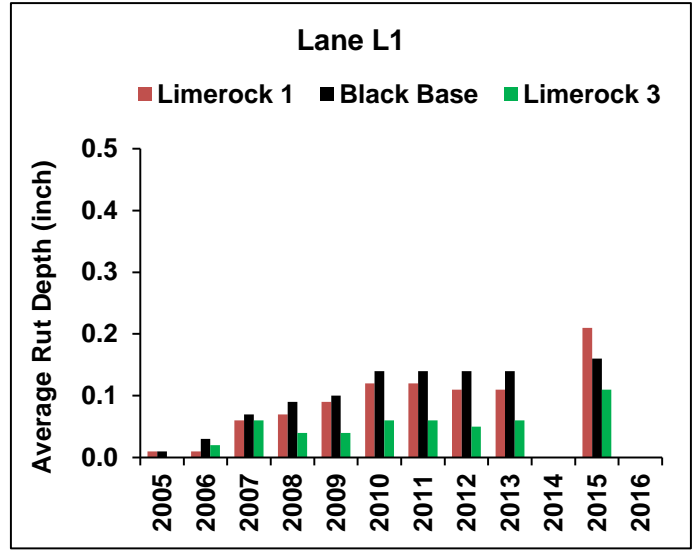
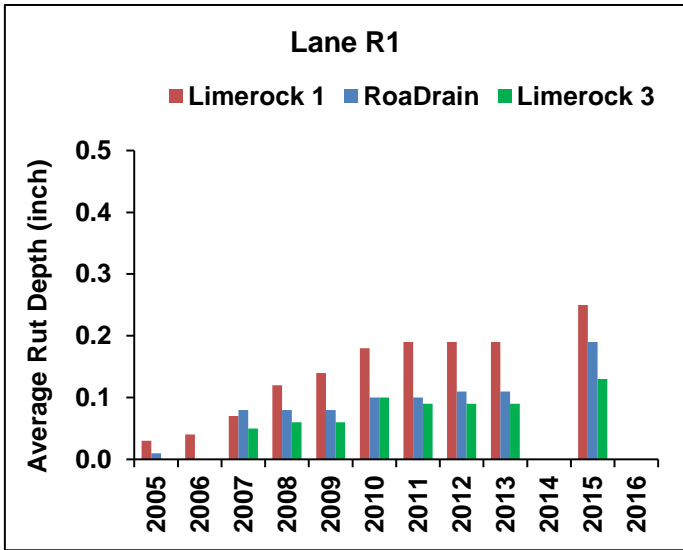
MMW #1 and MW#2 are located at bottom of vertical curve; MW#3 is located at the top of vertical curve

Cracking



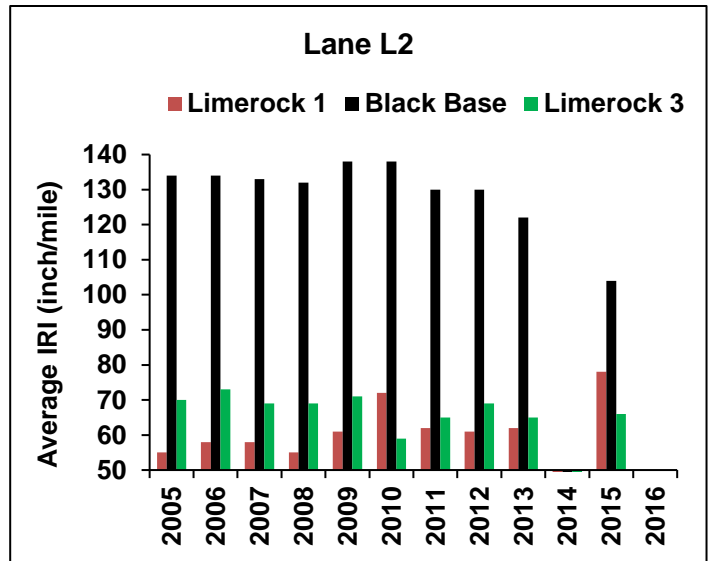
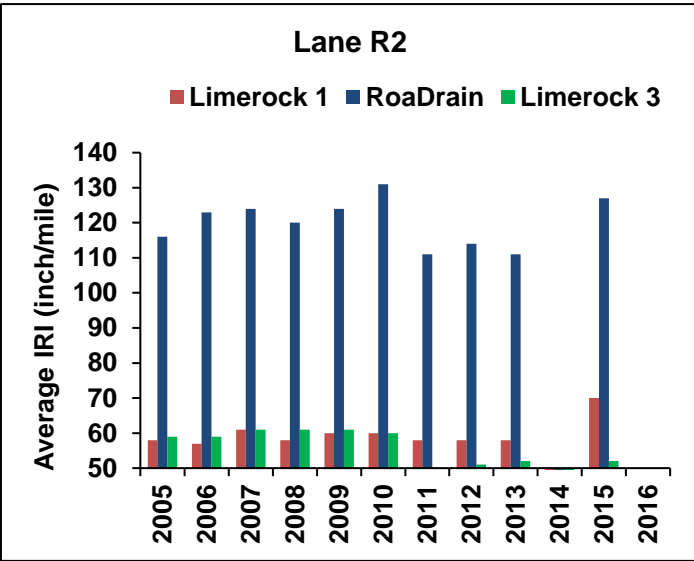
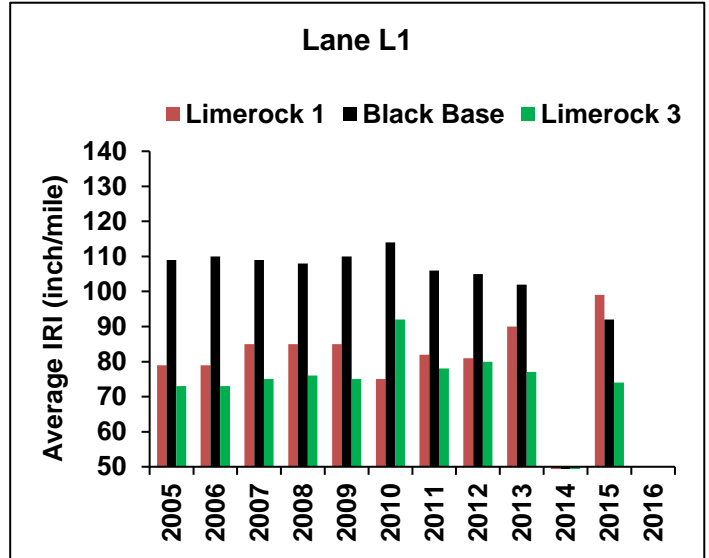
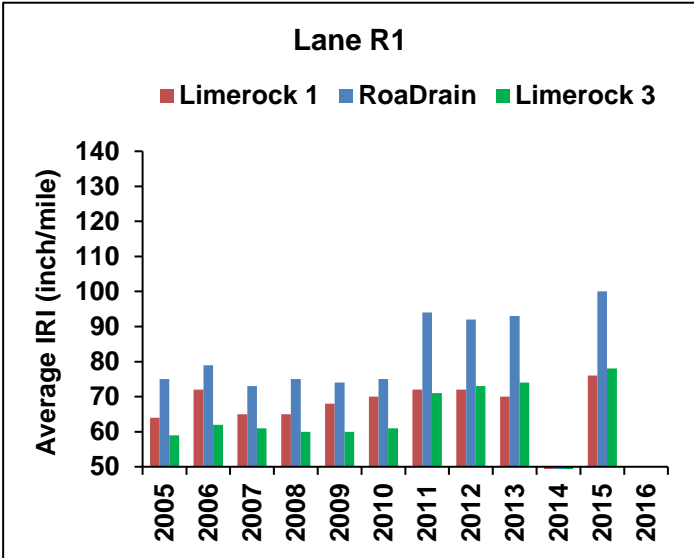
No crack data collected in 2014 or 2015

Rut Depth



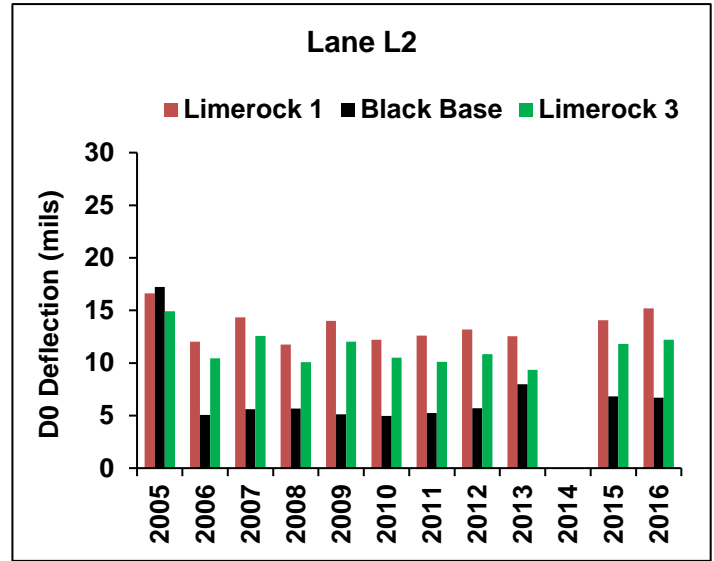
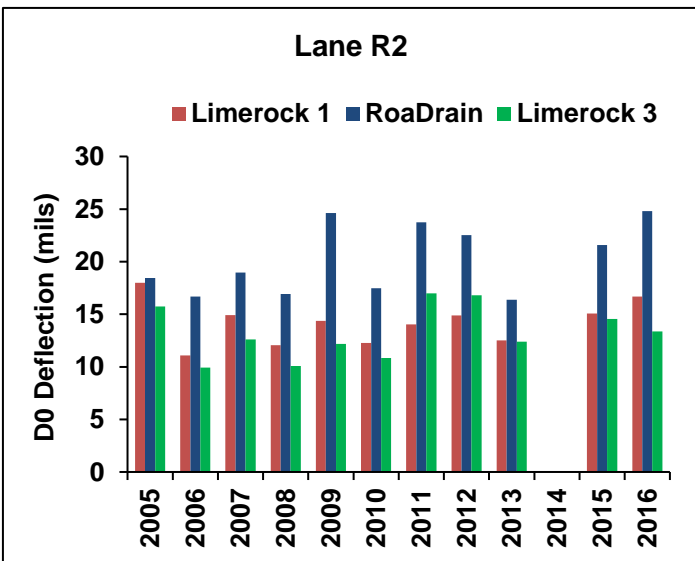
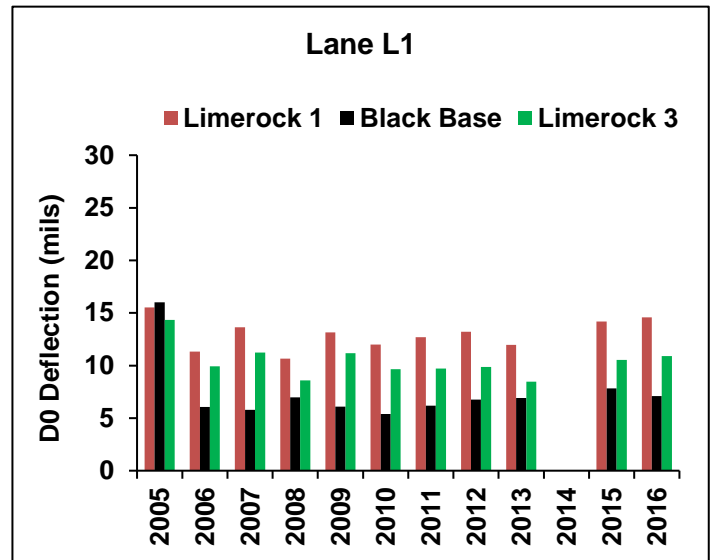
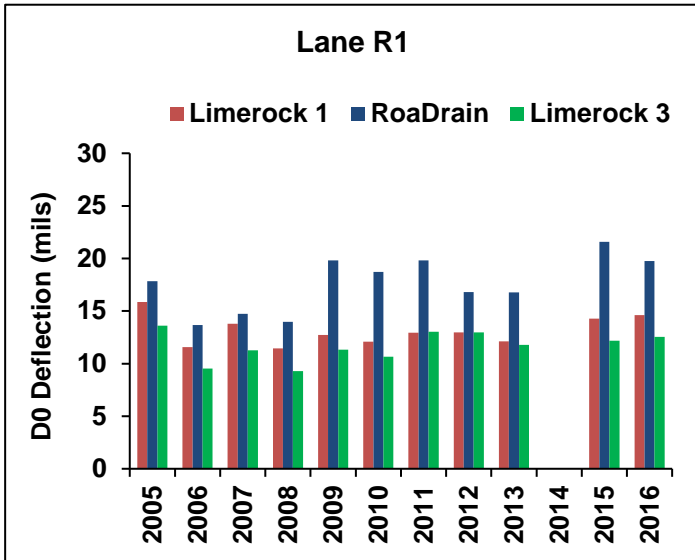
No rutting data collected in 2014 or 2016

Smoothness



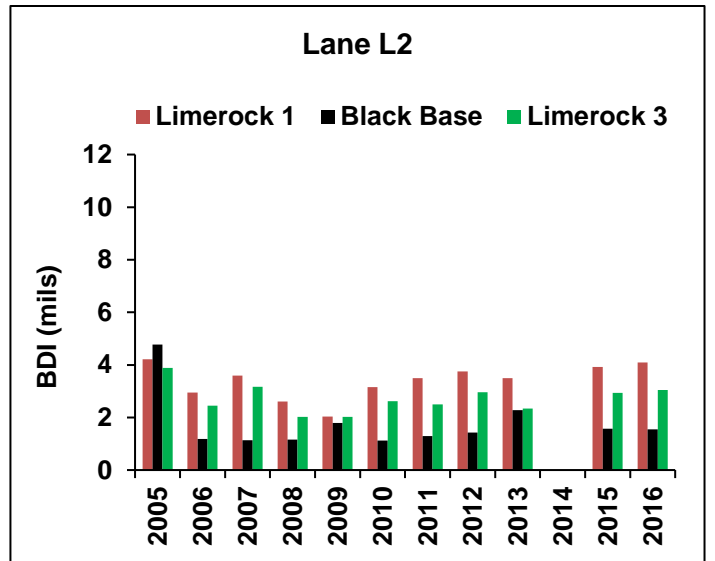
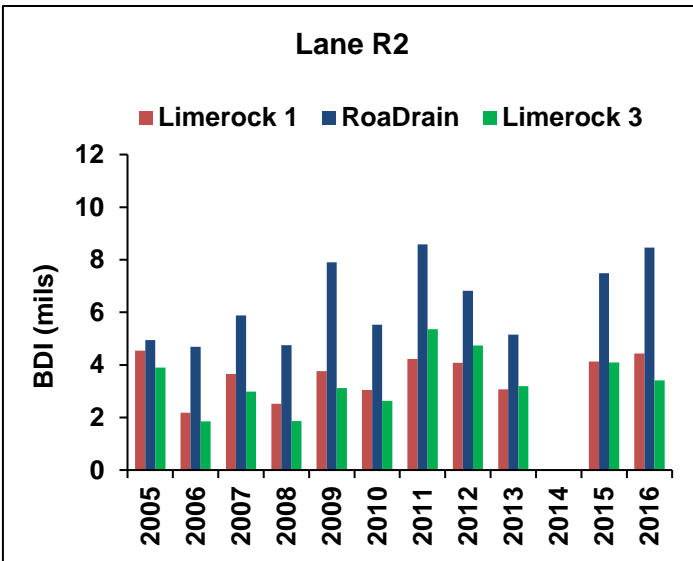
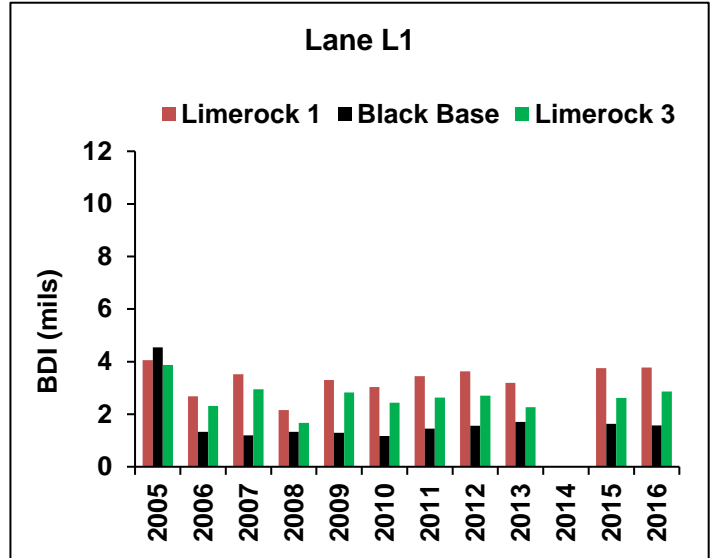
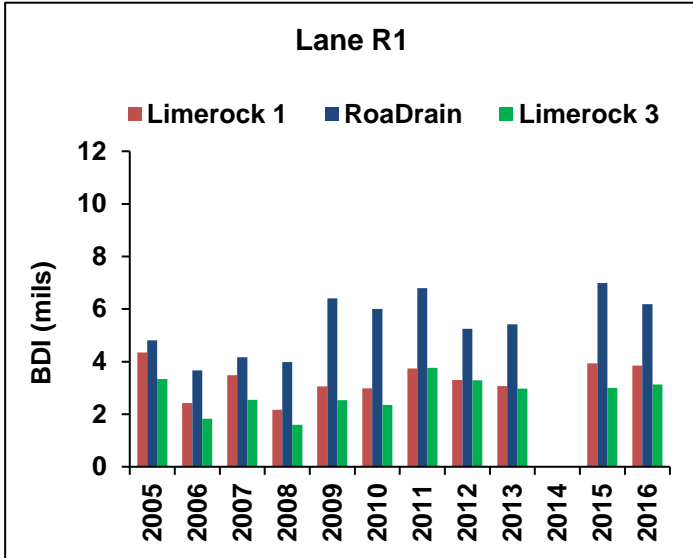
No smoothness data collected in 2014 or 2016

FWD Deflection (D₀)



No FWD data collected in 2014

FWD Deflection (BDI)



No FWD data collected in 2014

BDI (Base Damage Index)= $D_{12} - D_{24}$ (the higher the BDI, the worse the performance)