



Florida Department of
TRANSPORTATION

Evaluation of Stress Absorbing Membrane (SAM)

Experimental Project Interim Report

FDOT Office	State Materials Office
District	2
County	Levy
Financial Project	430548-1-52-01
Roadway ID	34070000
State Road No.	24
US Road No.	N/A
Report Date	12/12/2016

Project Description

District	2
County	Levy
Financial Project	430548-1-52-01
Roadway ID	34070000
State Road No.	24
US Road No.	N/A
Lanes Tested	R1

Objective

The objective of this study is to evaluate the relative long-term performance of pavement with Stress Absorbing Membrane (SAM) interlayer and SAM placed over pre-existing Soil Stabilized Columns (SSC), compared to a pavement section with no special treatment used as a control section.

Background

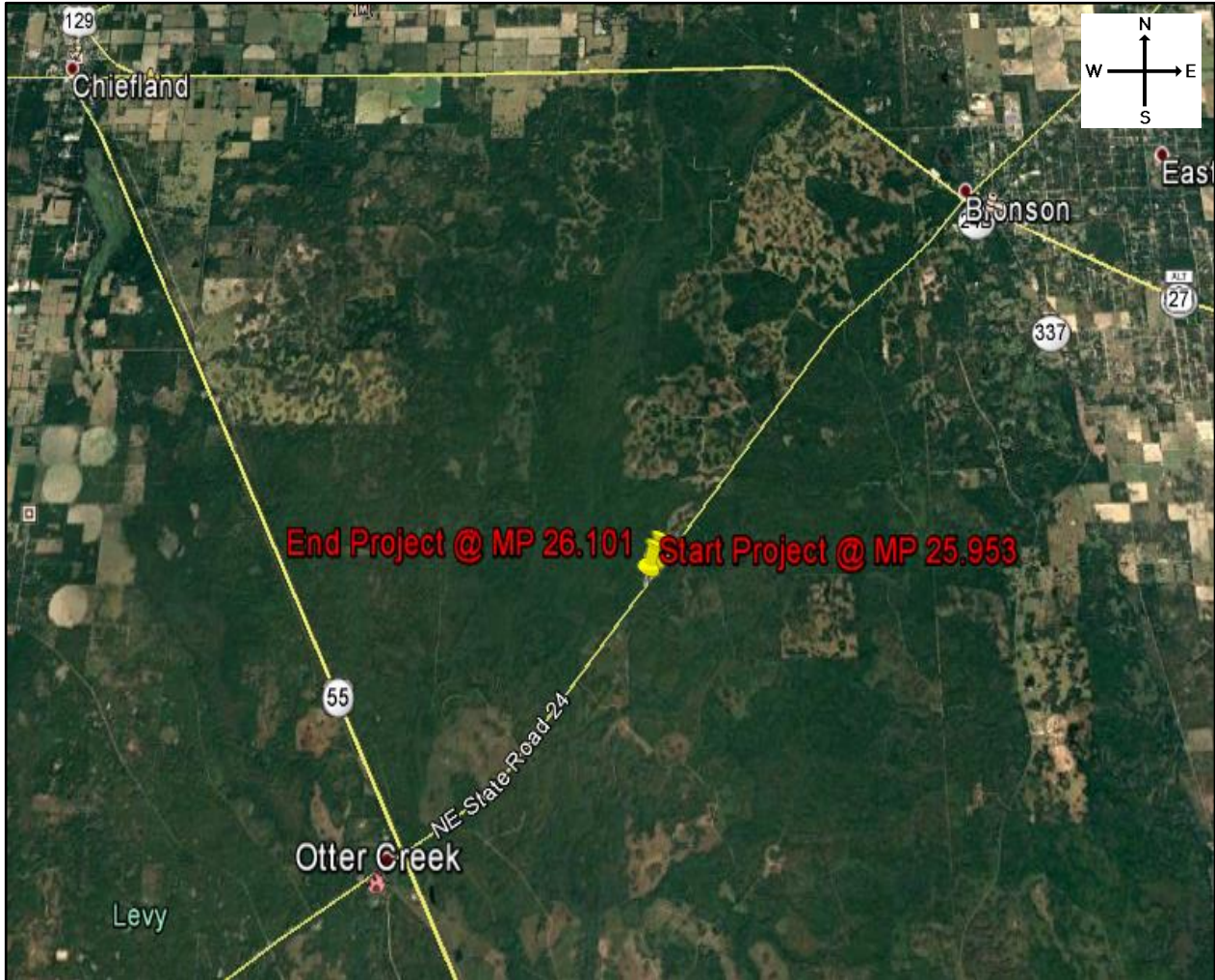
The experimental project is located in the Eastbound travel lane (R1) of SR-24 in Levy County, between Mileposts 25.953 and 26.101. It was part of a 11.2 miles milling and resurfacing project (430548-1-52-01), which was completed in April of 2015. The SAM treated area had experienced severe rutting, combination of cracking types (i.e.; Classes IB,II, III, and block) in the outside wheelpath of R1, which had been patched repeatedly as a result. A 2013 subsurface investigation encountered brown silty sand at a depth ranging from 3.5 to 5 feet. Below this stratum, within the limits of Section 3, a 1 foot thick muck layer was encountered with organic content between 11% and 80%. Underneath the muck layer, brown and gray silty sand (A-3) was encountered up to boring termination depth. The water table was measured at 3.5 feet below the existing pavement surface.

Description

The experimental project consists of three 242 ft test sections, namely, a control section with no special treatment (Section 1), a SAM treated section (Section 2), and a SAM placed over existing SSC section (Section 3). The SSC consists of 6 to 18 inch diameter dry grout mix placed in a staggered grid pattern, pushed down by flight-auger to form 8 to 10 feet deep grout columns through the weak layer to the competent bearing strata. The pavement was milled 5 inches below grade, and received 1 inch SP 12.5 leveling course on top of 8 inches of existing limerock base, SAM treatment in Section 2 and Section 3, 2.5 inches SP-12.5 structural overlay, and 1.5 inches FC-12.5 friction course. The SAM (POLYGUARD Cold Flex 2000) has a thick layer of flexible mastic sandwiched between a top and bottom layer of high strength fabric. The topside geotextile was designed to fully bond to the asphalt overlay and provide high tensile stiffness reinforcement. The high strength grid side was to be placed face up (i.e., traffic side). When applied to cracks or joints of an old pavement, the geosynthetic material was designed to provide stress relief to reduce reflective cracking in the overlay, and reduce runoff moisture penetration into the pavement surface and base. Pavement performance is evaluated in terms of cracking, rutting, smoothness, and deflection.

Project Location

District	2
County	Levy
Financial Project	430548-1-52-01
Roadway ID	34070
State Road No.	24
US Road No.	N/A
Lanes Tested	R1



Project Layout

**Section 1
(No treatment)**

**BMP 25.953
Sta. 1369+68.91**

**EMP 25.999
Sta. 1372+11.79**

**Section 2
(SAM)**

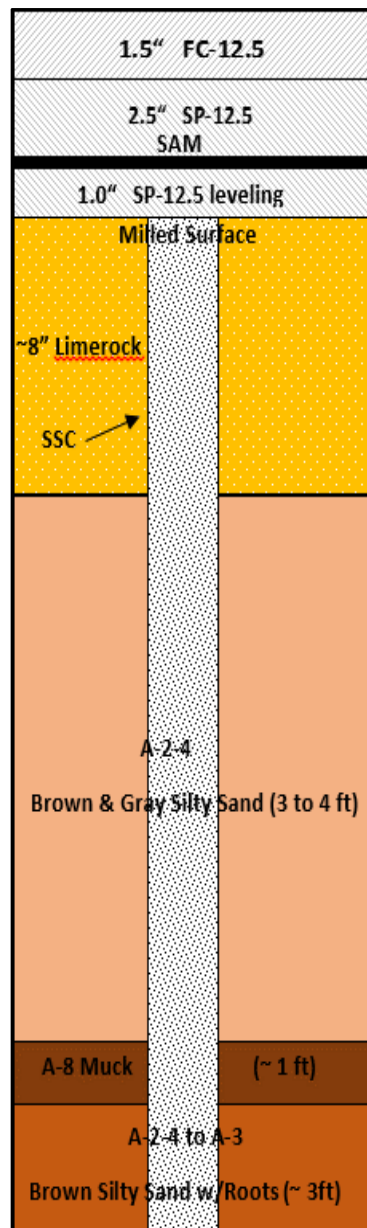
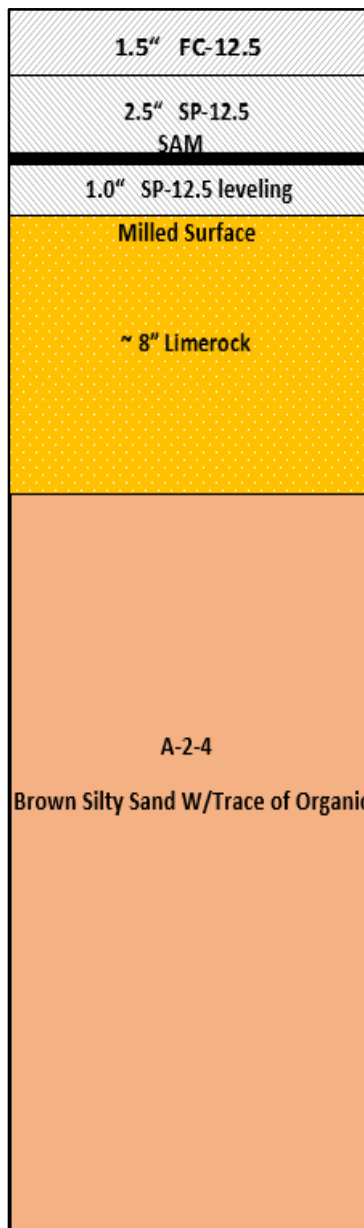
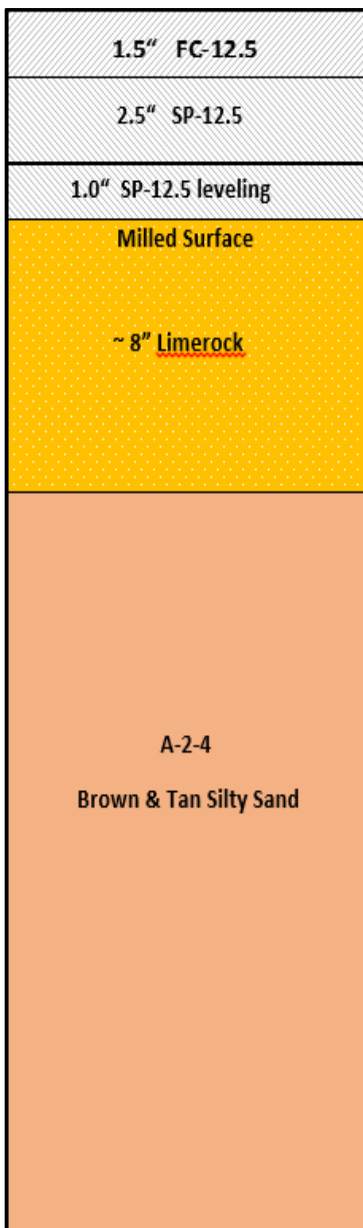
**BMP 25.999
Sta. 1372+11.79**

**EMP 26.045
Sta. 1374+54.67**

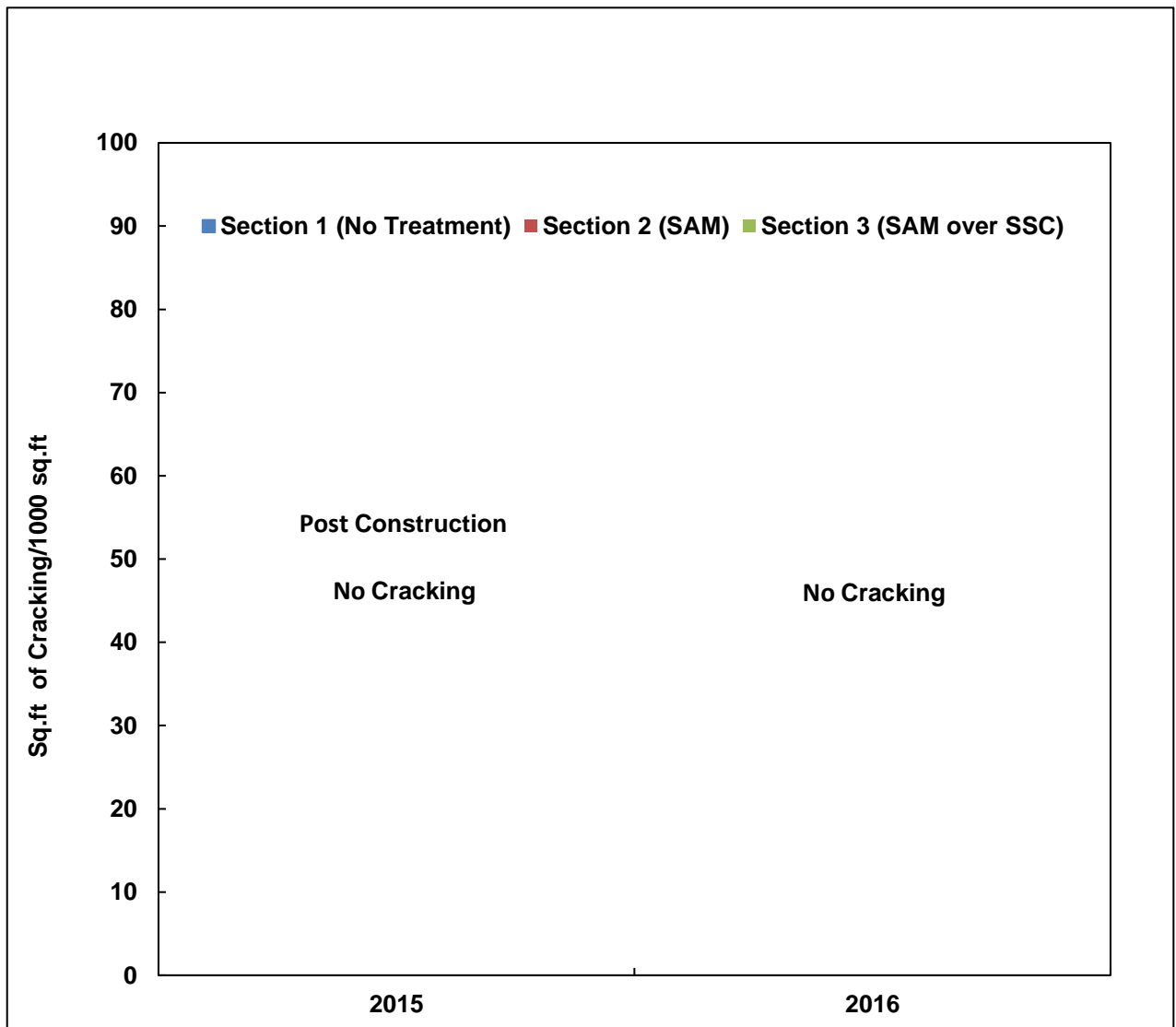
**Section 3
(SAM over SSC)**

**BMP 26.055
Sta. 1375+07.47**

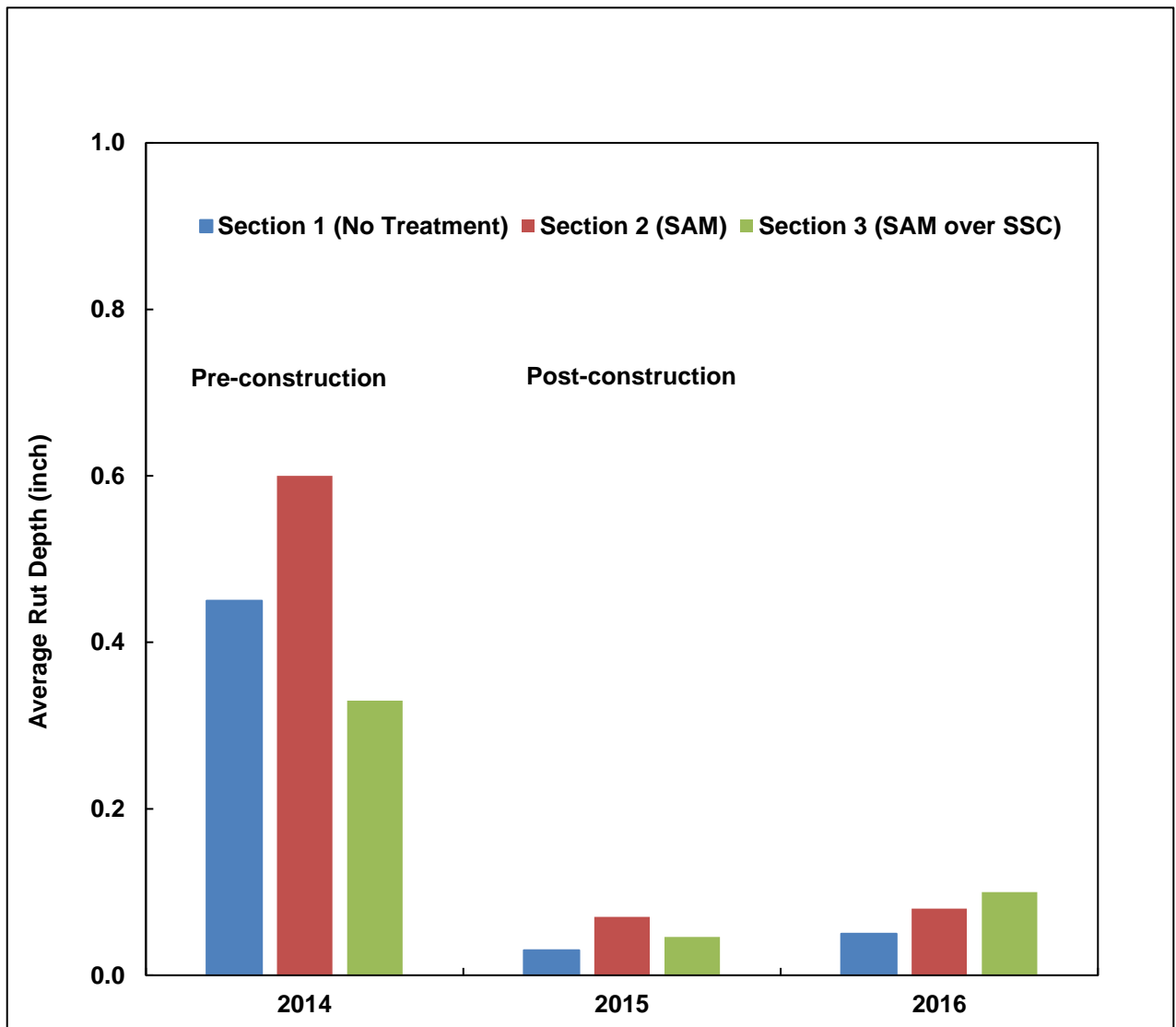
**EMP 26.101
Sta. 1377+50.35**



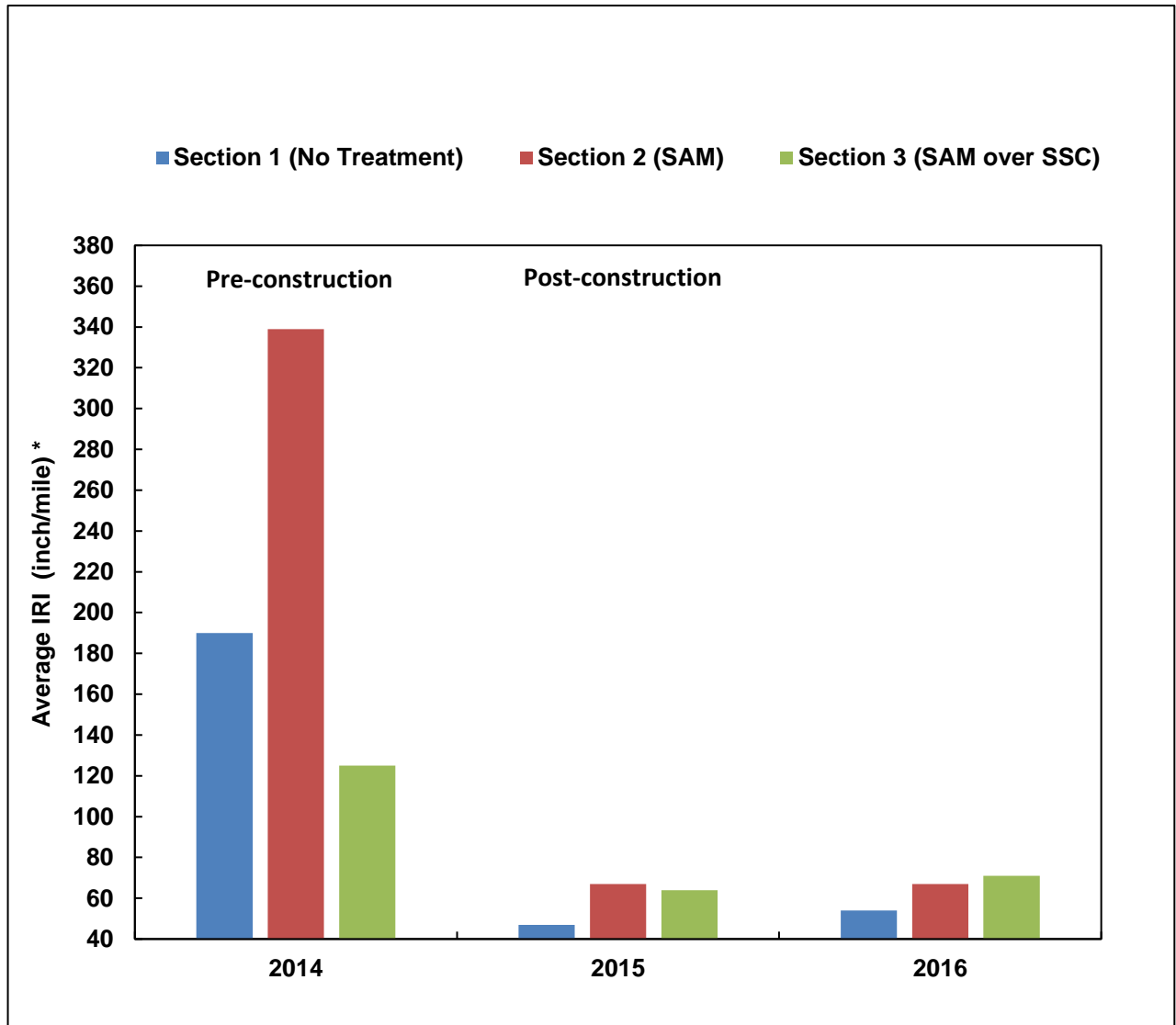
Cracking



Rut Depth

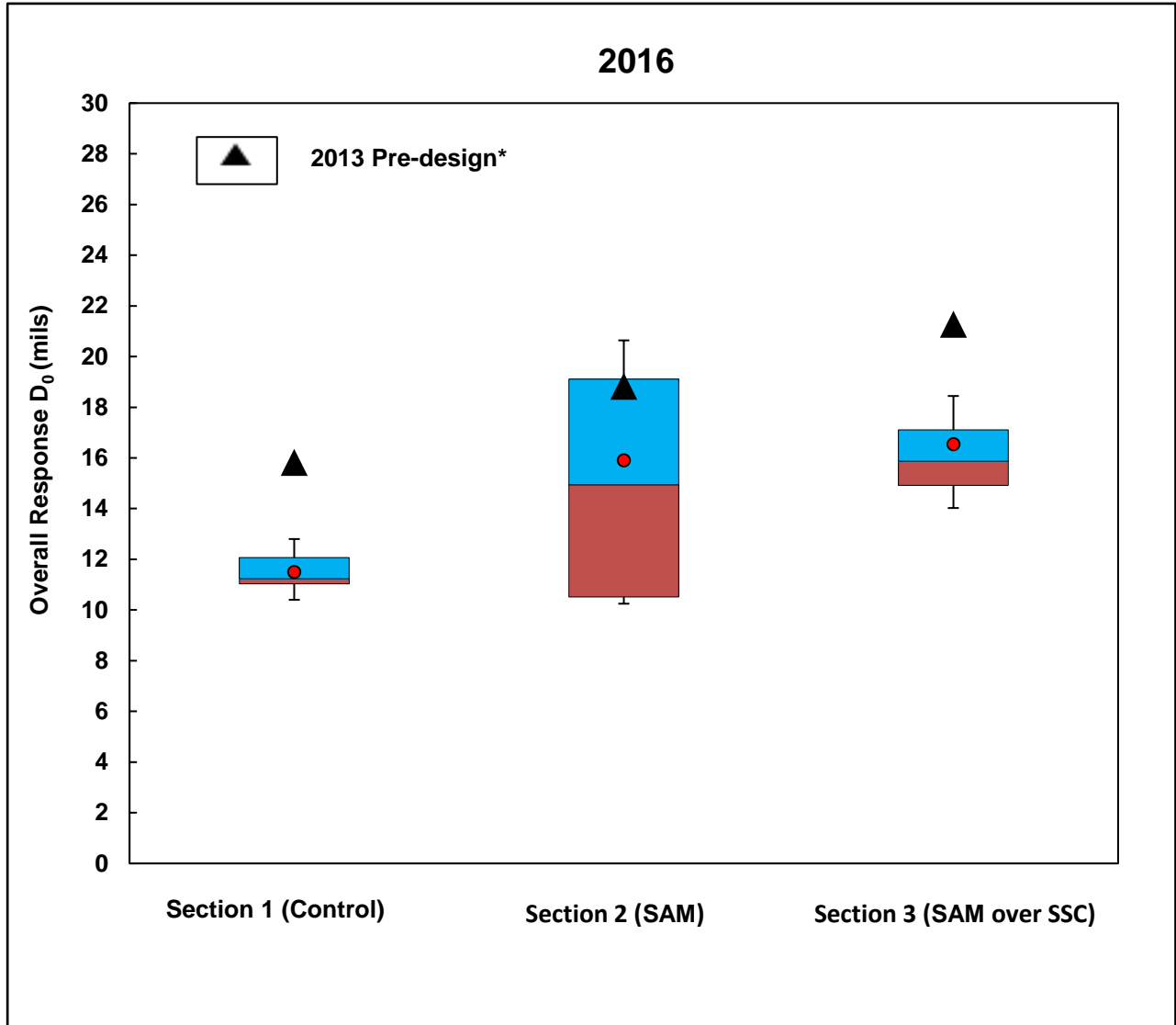


Smoothness

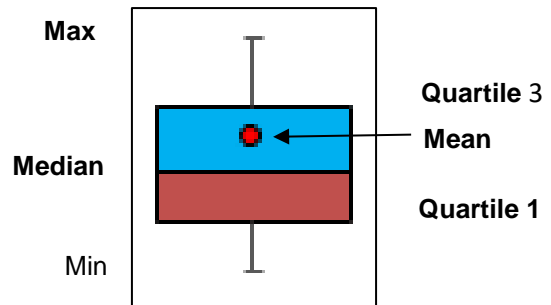


Average IRI* = Average of Left and Right wheelpaths

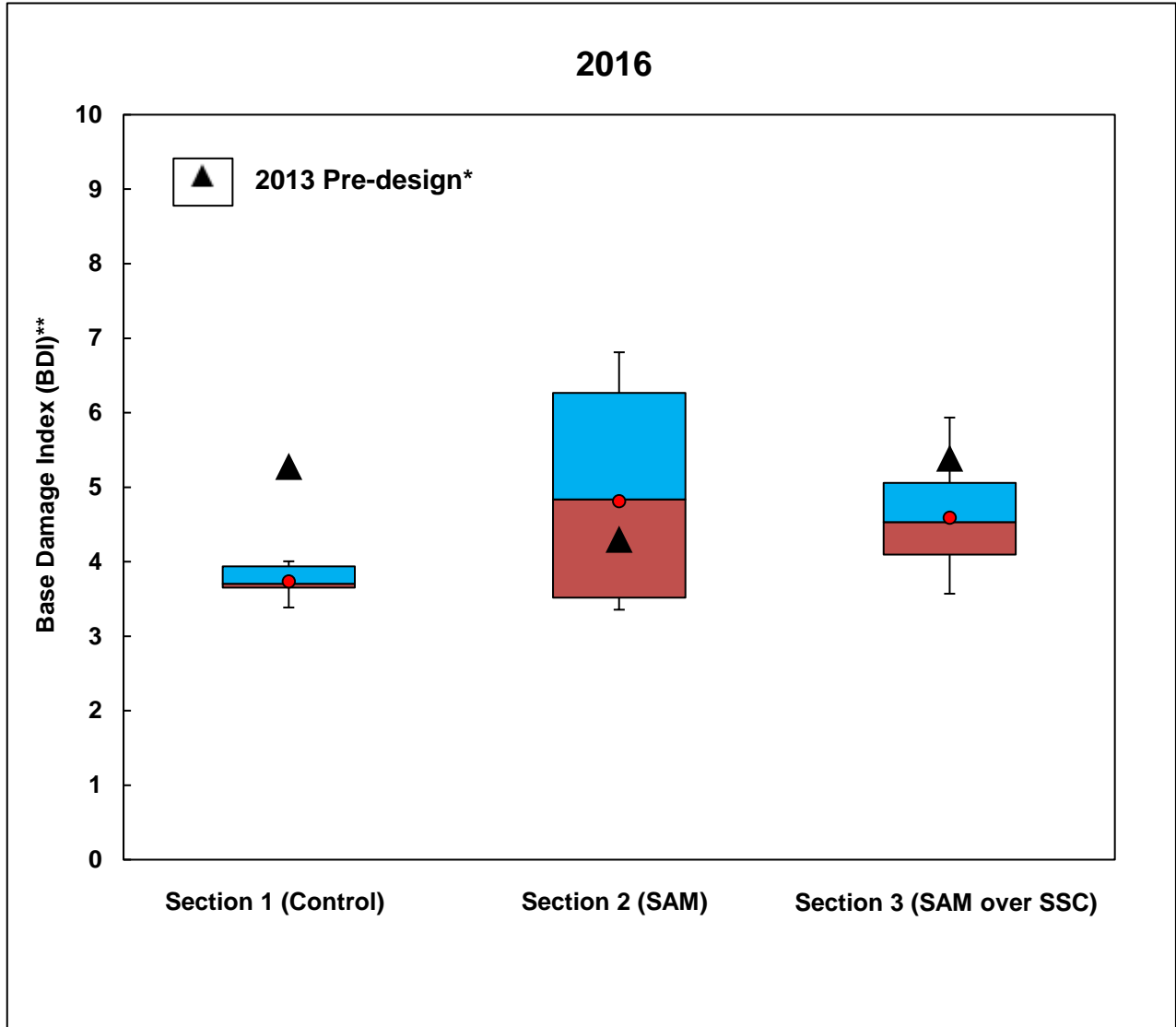
Overall Deflection



* 2013 Pre-design deflection data is limited to one data point per test section.



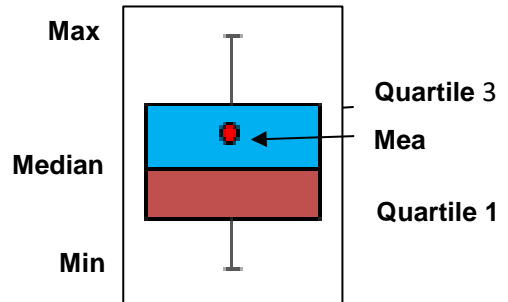
Base Damage Index



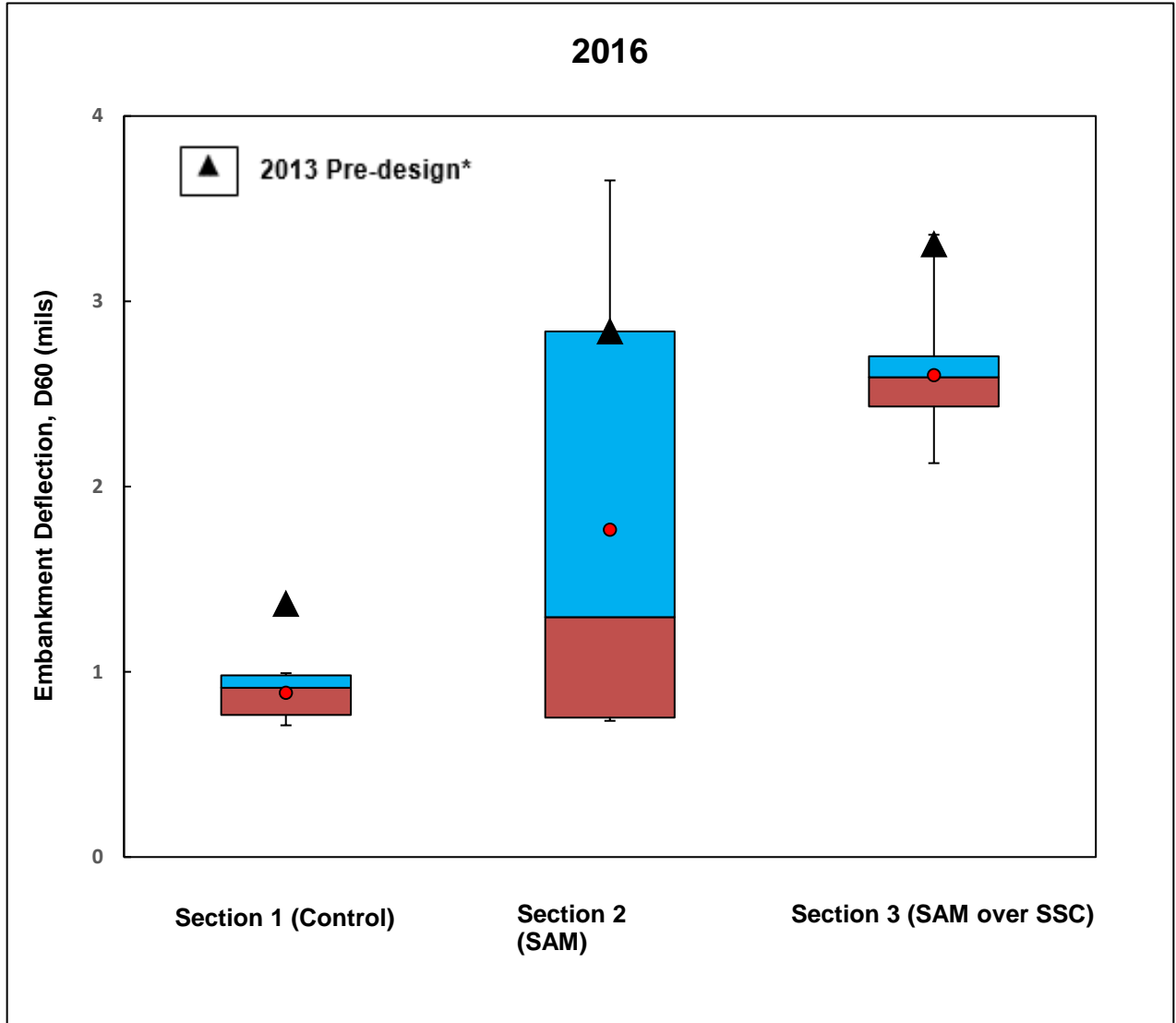
* 2013 Pre-design deflection data is limited to one data point per test section.

** Base Damage Index (BDI) = D8 - D18

The higher the BDI the worse the base performance



Embankment Deflection



* 2013 Pre-design deflection data is limited to one data point per test section.

