Experimental Project Status Report

County	**Palm Beach**
Section/Subsection No.	**93130-3508**
State Road	**15**
Project Description	**Geosynthetic Reinforcement Evaluation**

UPDATED August 2011

State Materials Office
Gainesville, Florida

Project Description

County	**Palm Beach County**
Section Number	**93130-3508**
State Road	**15**

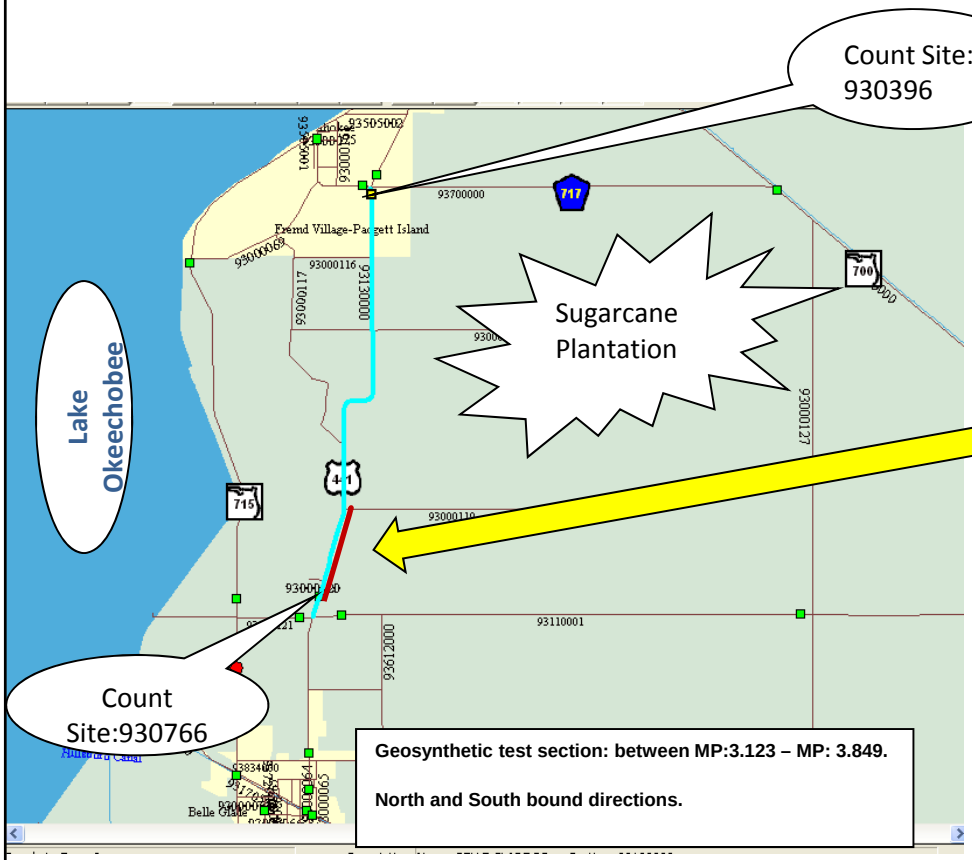
OBJECTIVE:

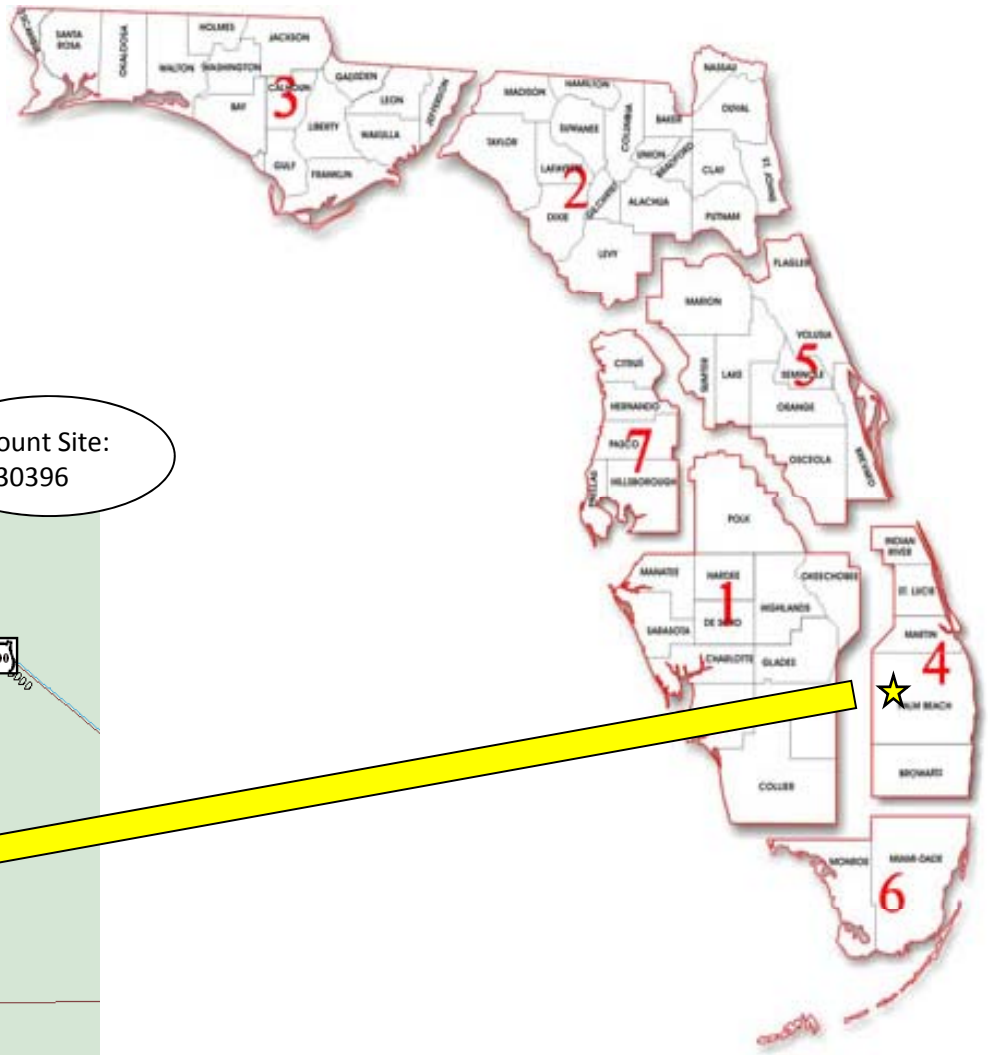
This project was constructed in 1999 to evaluate the performance of geogrid and geotextile materials as base/subgrade reinforcement layers and separation barriers. Four sections were laid out in the north and southbound direction. A fifth section on the north end of the project without geotextile or geogrid serves as the control section.

SR 15 is a rural principal arterial which traverses farmlands with deep layers of A-8 organic material, starting just beneath the surface. Only two routes connect Belle Glade with Pahokee and other communities located on the Eastern Shore of Lake Okeechobee. The original pavement was built over a muck stratification and was in very poor condition due to the weakness subgrade and heavy truck loading. Reconstruction was not feasible which would have required rerouting traffic over to SR - 715. It was decided to build a road on a new parallel alignment. A 0.88 mile section of the new alignment was built using various configurations of geosynthetic materials to evaluate their relative performance as it relates to the overall stabilization of the roadway pavement and base/subgrade structural support.

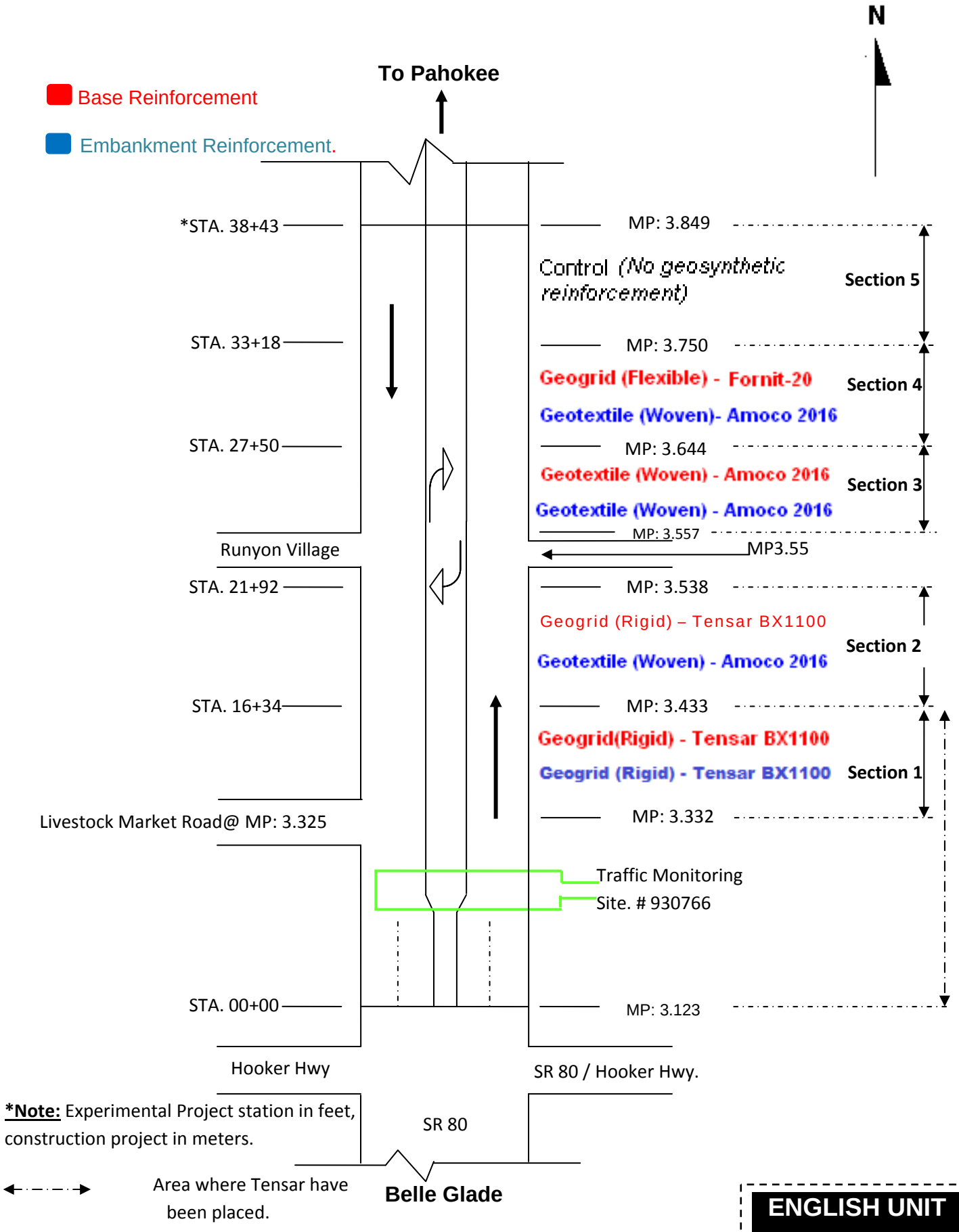
The performance is evaluated in terms of deflection, ride, rutting and cracking. To date, the reinforced sections have shown better performance than the unreinforced control section. Long term performance will continue to be monitored.

Location


Count Site: 930396
Lake Okeechobee
Sugarcane Plantation
Count Site:930766
Fremd Village-Padgett Island
93700000
93110001
717
700
441
715
Geosynthetic test section: between MP:3.123 – MP: 3.849.
North and South bound directions.


1
2
3
4
5
6
7

Experimental Project Site Layout



***Note:** Experimental Project station in feet, construction project in meters.

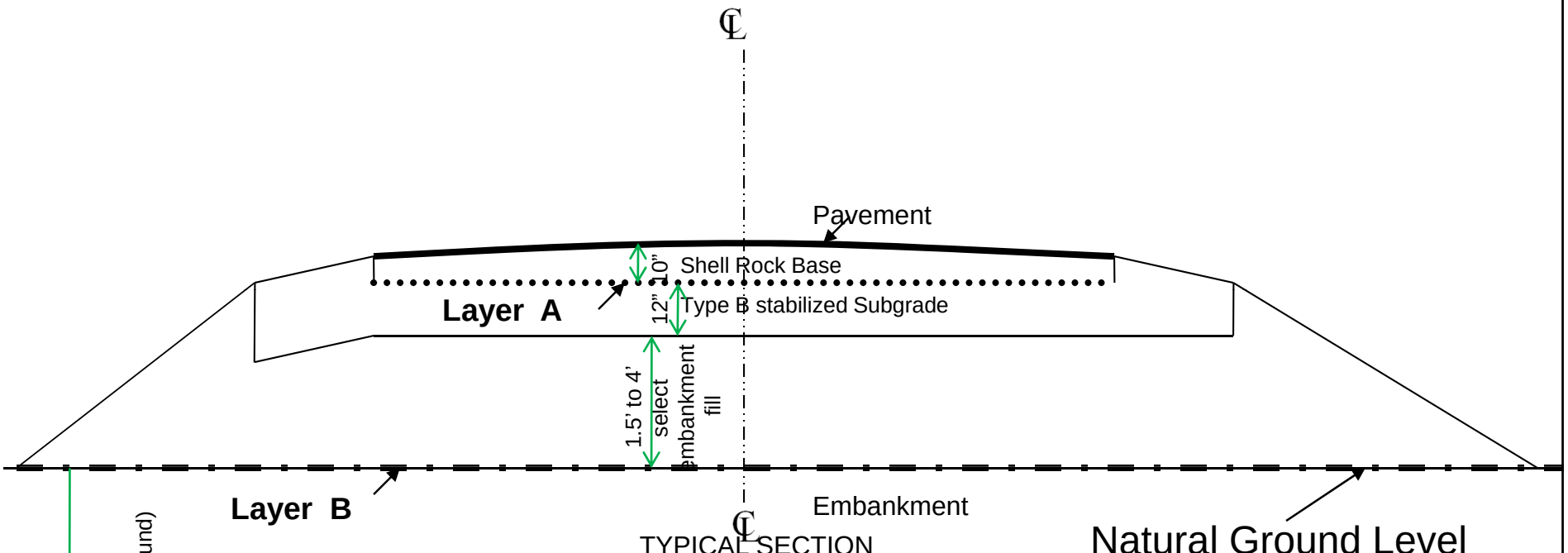
Area where Tensar have been placed.

ENGLISH UNIT

NOT TO SCALE

Geosynthetic Reinforcement Evaluation
State Road 441 Section 93130-3508

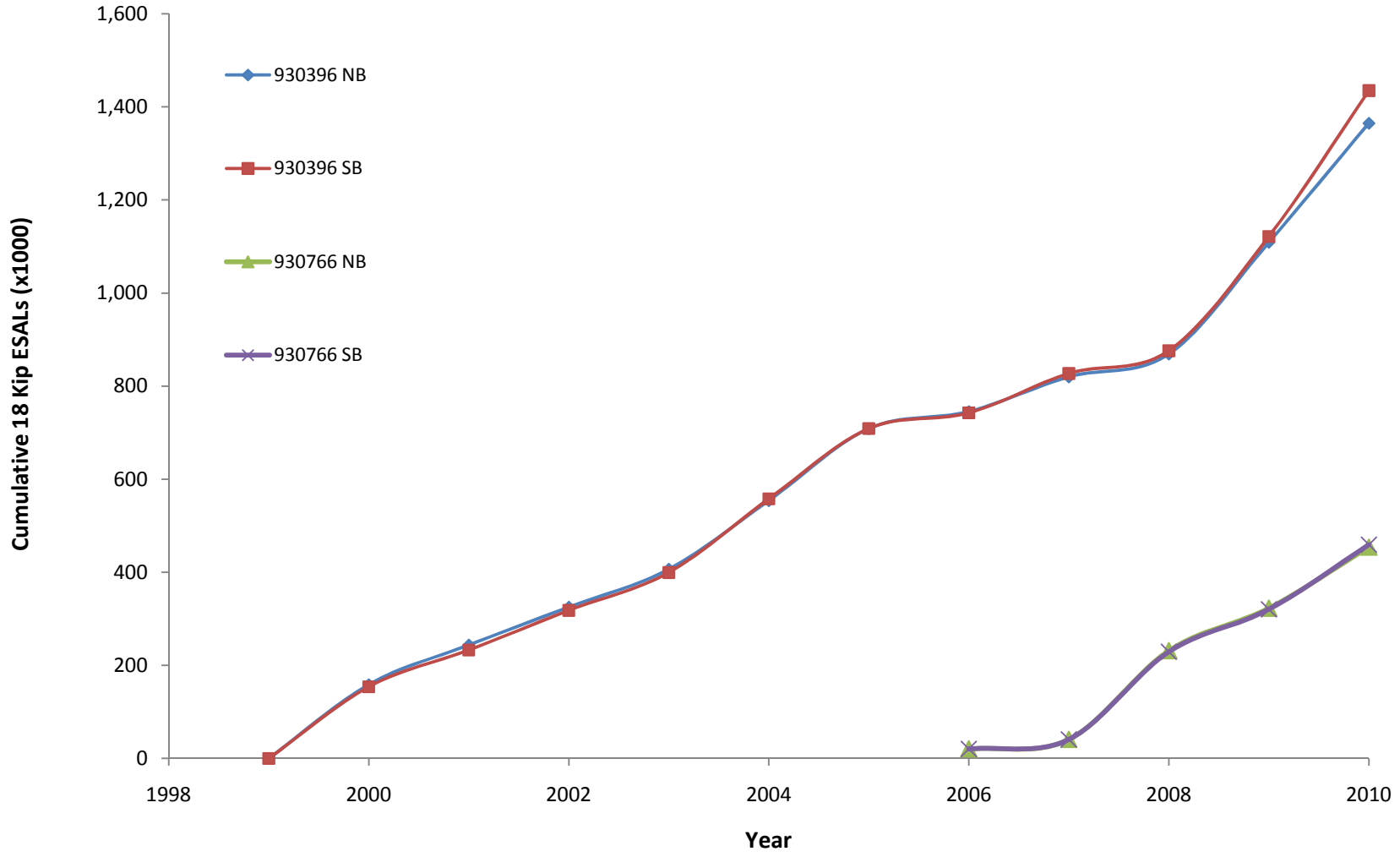
State Project No.
93130-3508



TYPICAL SECTION
SR 15 (US-441)
STA. 00+00.000 TO STA. 16+34.000

SECTION	LAYER A	LAYER B
1	Geogrid (Tensar)	Geogrid (Tensar)
2	Geogrid (Tensar)	Geotextile(Amoco)
3	Geotextile(Amoco)	Geotextile(Amoco)
4	Geogrid (Fornit-20)	Geotextile(Amoco)
5	No Geosynthetic	No Geosynthetic

Traffic Data



Pavement Distress Summary

Northbound

2010 Test Results

Project No. 93130-3508

Section	Reinforcement	Transverse Cracking SF/1000SF	Total Cracking SF/1000SF	Rutting (in.)	Ride Quality		Avg. Deflection Corrected to 70°F (Under Load Plate D_o)	Embankment Modulus (M_r)	
					AVG. RN	AVG. IRI	FWD (mils)	psi	Mpa
1	Geogrid (Tensar) /Geogrid(Tensar)	0.6	51.8	0.20	4.29	67	10.5	26,200	180
2	Geogrid (Tensar) /Geotextile(Amoco)	4.1	92.7	0.26	3.97	96	12.0	21,600	150
3	Geotextile(Amoco) /Geotextile(Amoco)	8.2	63.8	0.21	4.14	89	10.6	32,300	220
4	Geogrid (Fornit-20) /Geotextile(Amoco)	2.7	56.0	0.28	4.33	55	11.5	19,400	130
5	No Geosynthetic	9.9	131.0	0.43	3.95	122	15.3	23,700	160

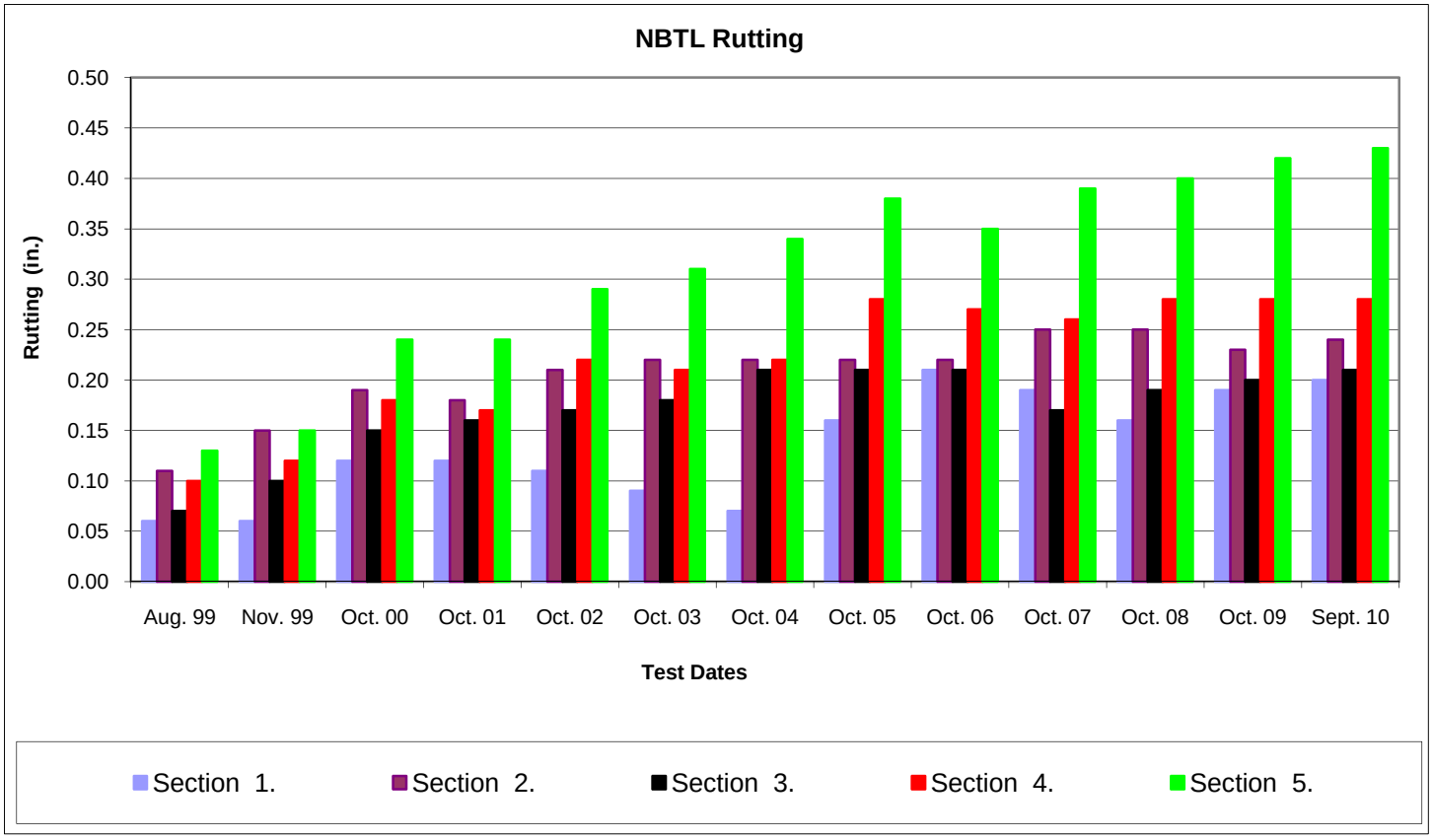
Southbound

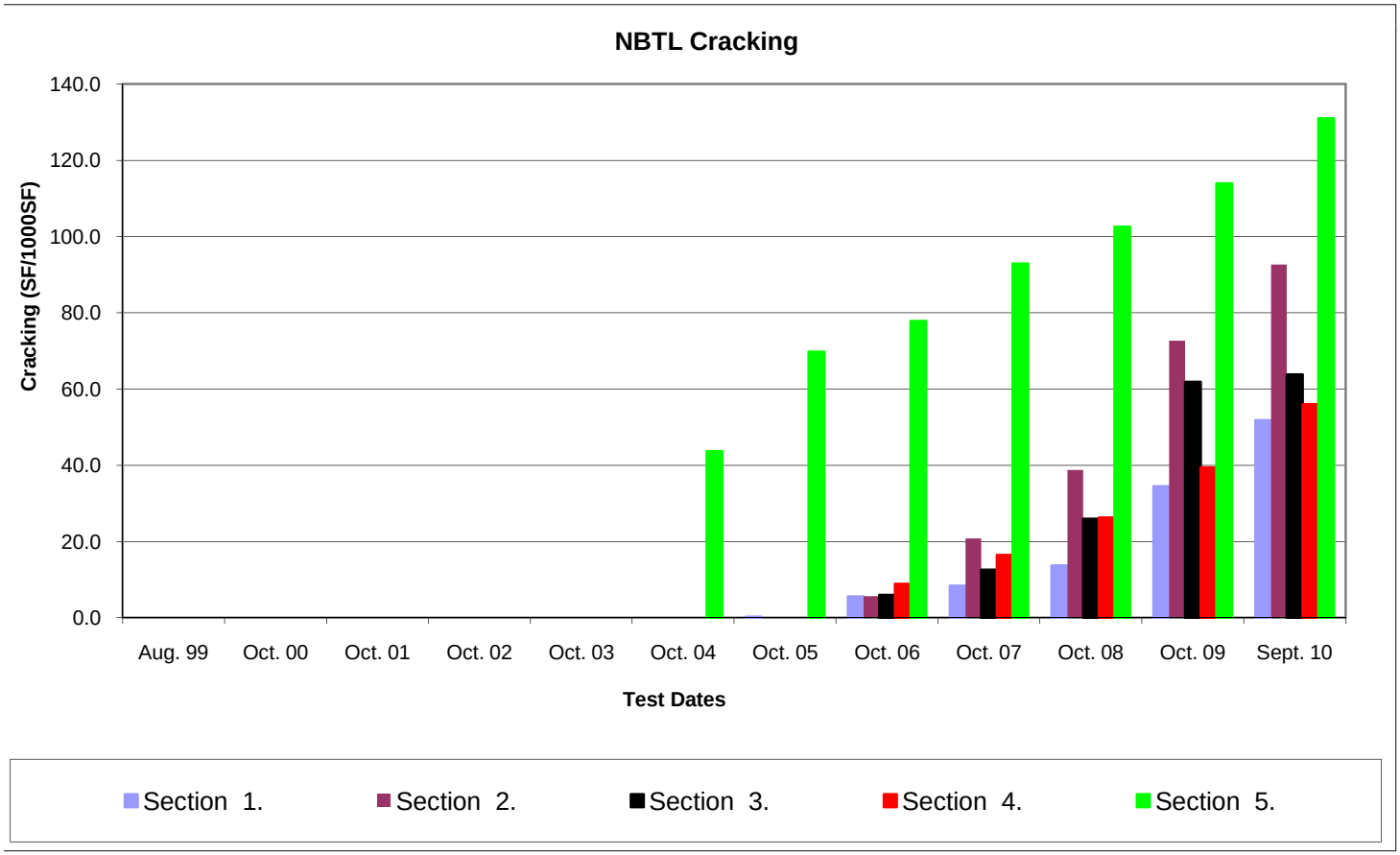
2010 Test Results

Section	Reinforcement	Transverse Cracking SF/1000SF	Total Cracking SF/1000SF	Rutting (in.)	Ride Quality		Avg. Deflection Corrected to 70°F (Under Load Plate D_o)	Embankment Modulus (M_r)	
					AVG. RN	AVG. IRI	FWD (mils)	psi	Mpa
1	Geogrid (Tensar) /Geogrid(Tensar)	37.5	125.8	0.27	3.90	109	11.7	17,500	120
2	Geogrid (Tensar) /Geotextile(Amoco)	22.6	61.8	0.25	3.88	130	10.7	21,000	150
3	Geotextile(Amoco) /Geotextile(Amoco)	19.8	74.9	0.20	3.84	108	11.3	17,800	120
4	Geogrid (Fornit-20) /Geotextile(Amoco)	25.4	98.7	0.38	3.85	103	13.2	16,400	110
5	No Geosynthetic	8.6	122.2	0.48	3.85	124	11.9	10,200	70

Pavement Distress
NBTL

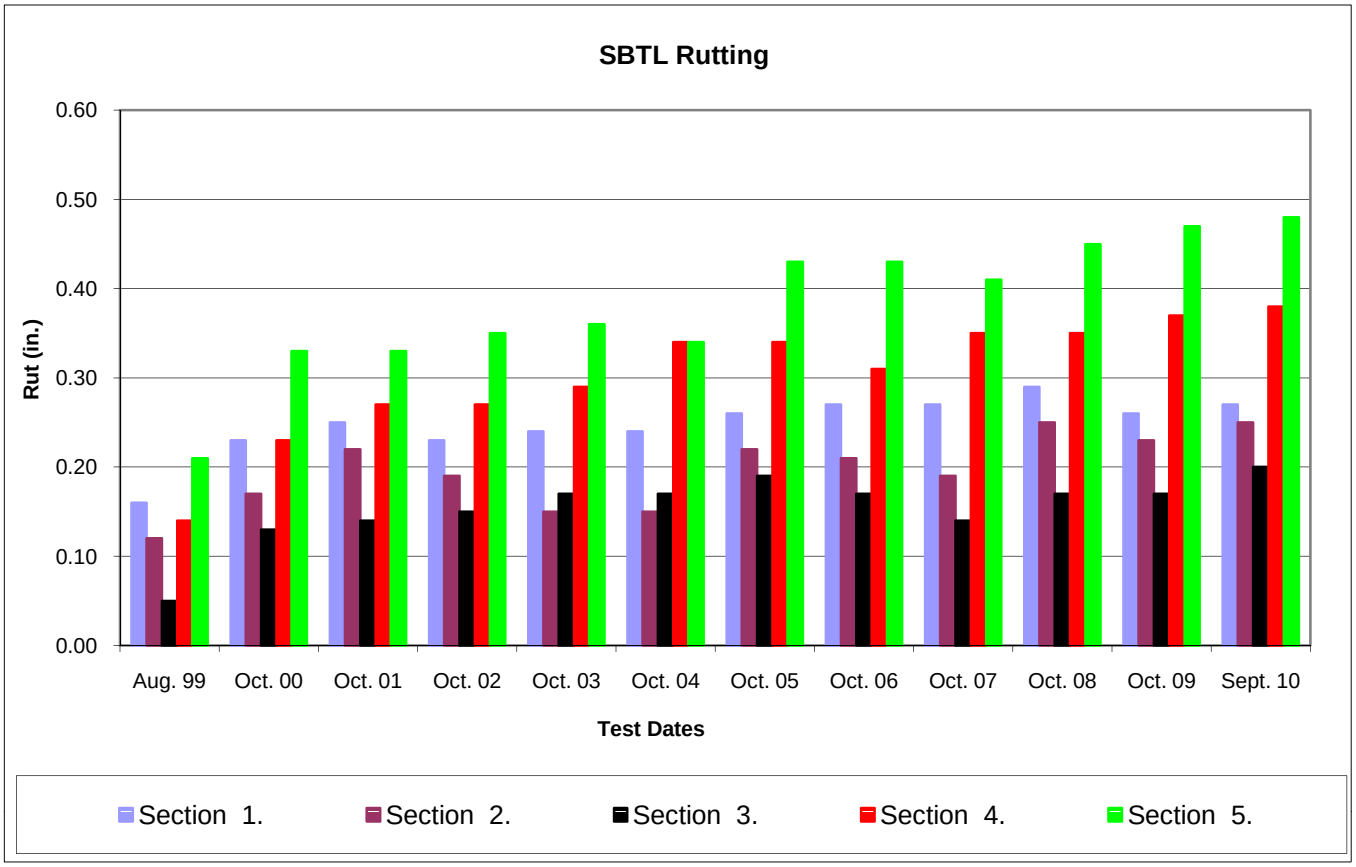
Project No. 93130-3508

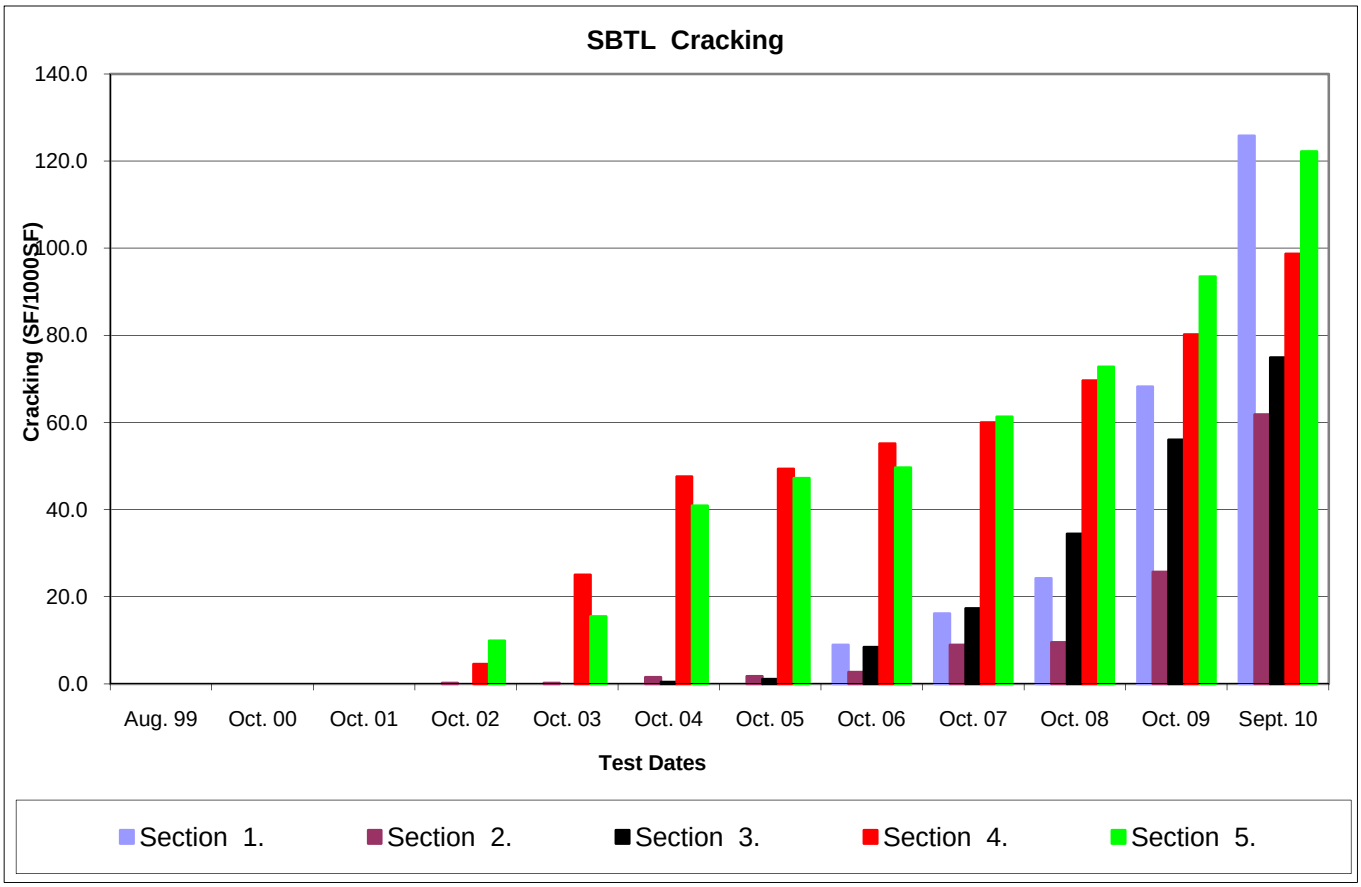




Pavement Distress
SBTL

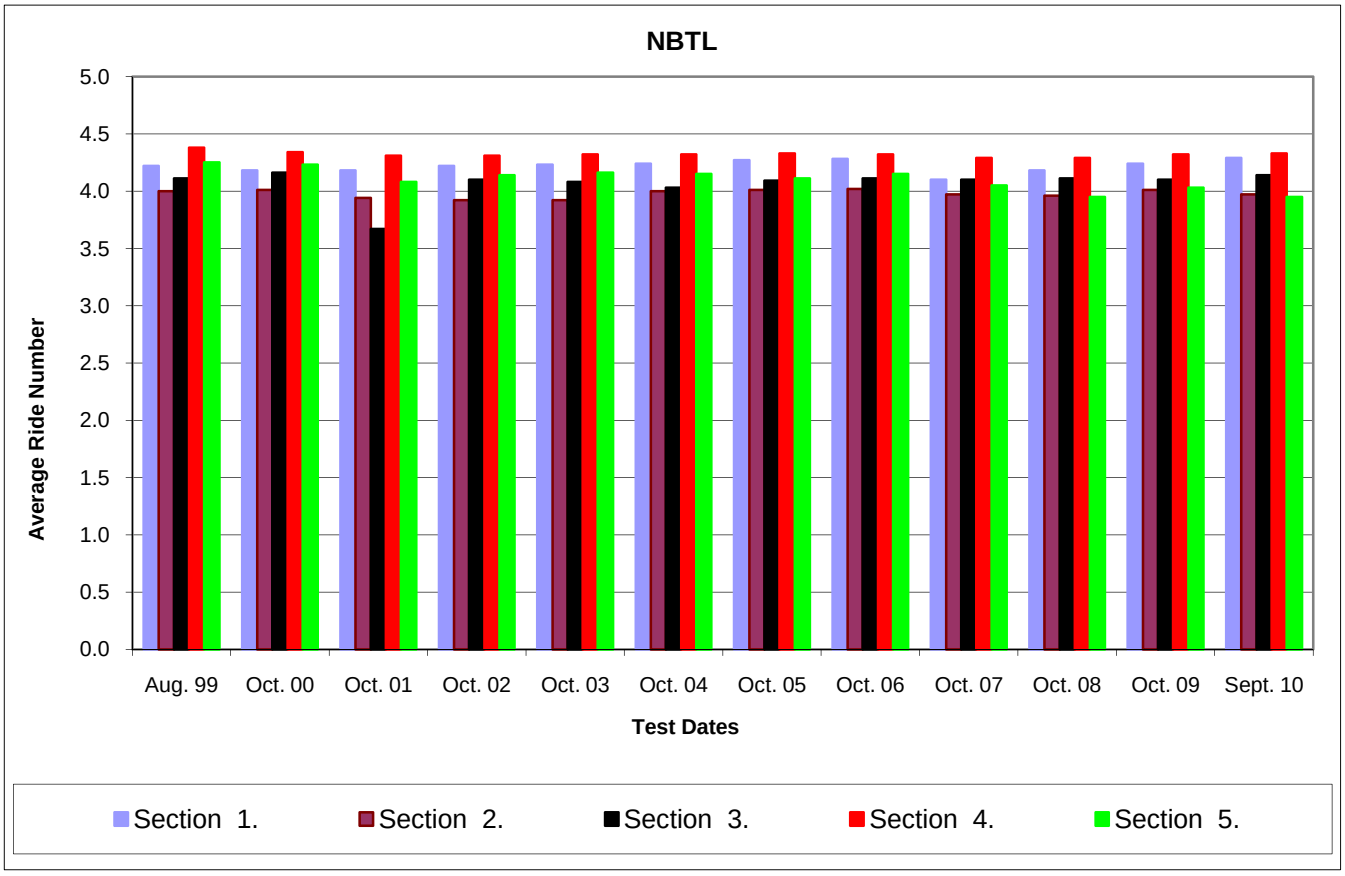
Project No. 93130-3508

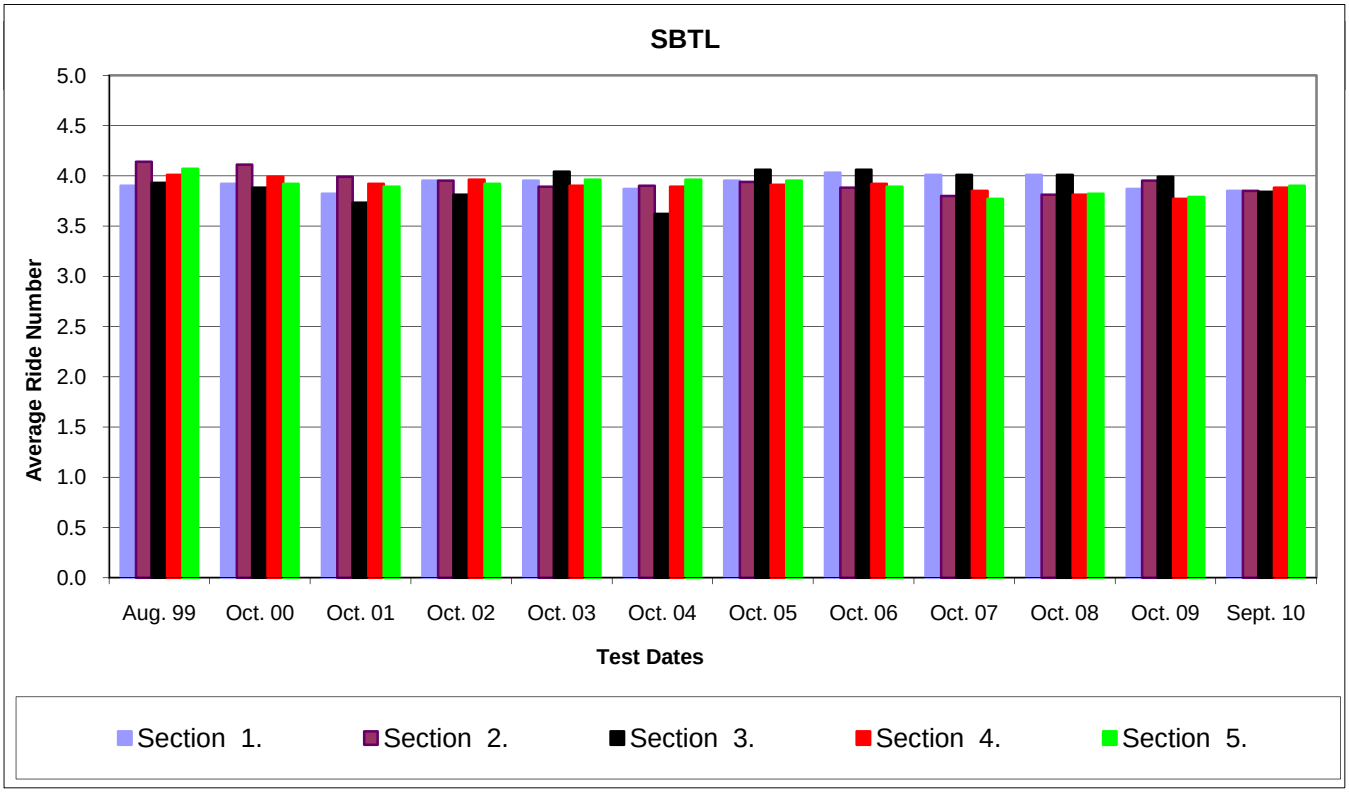




Pavement Distress Ride

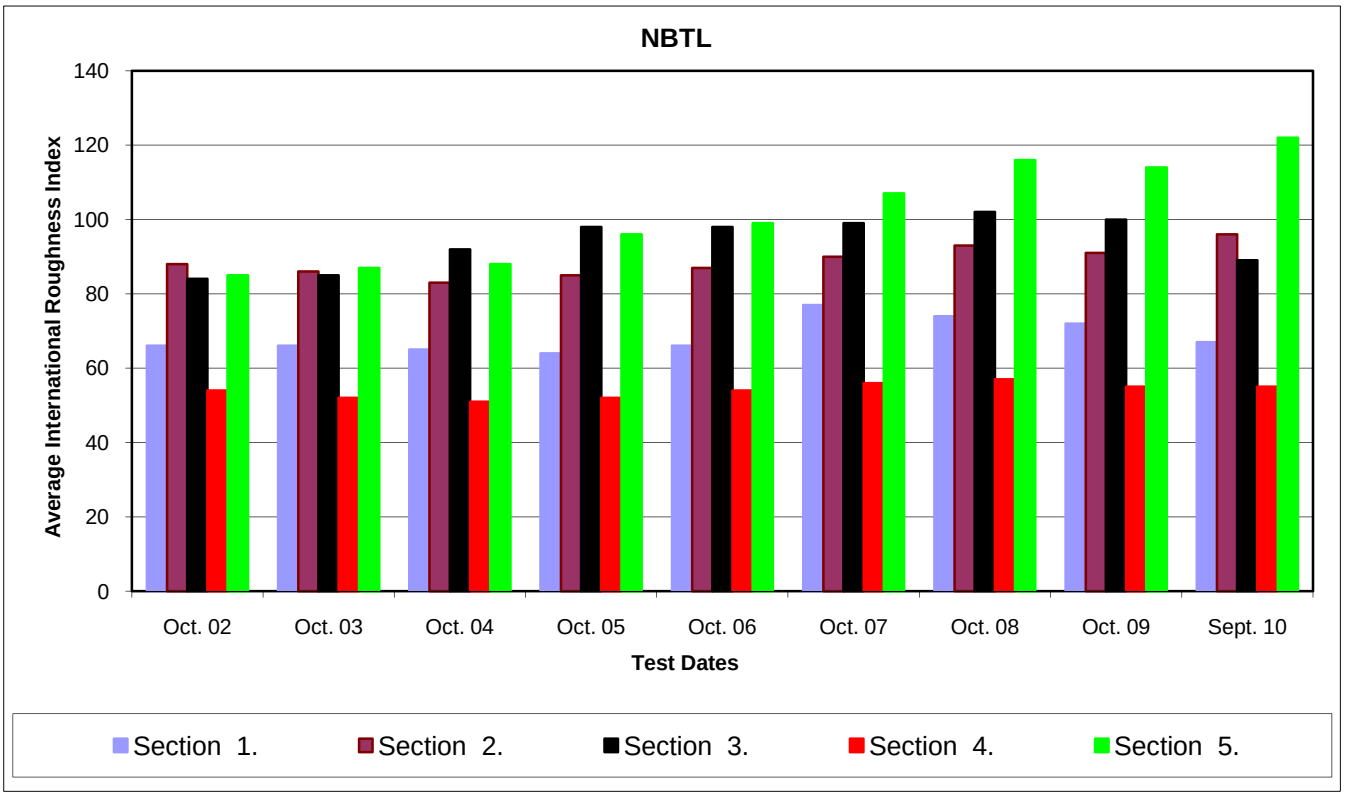
Project # 93130-3508

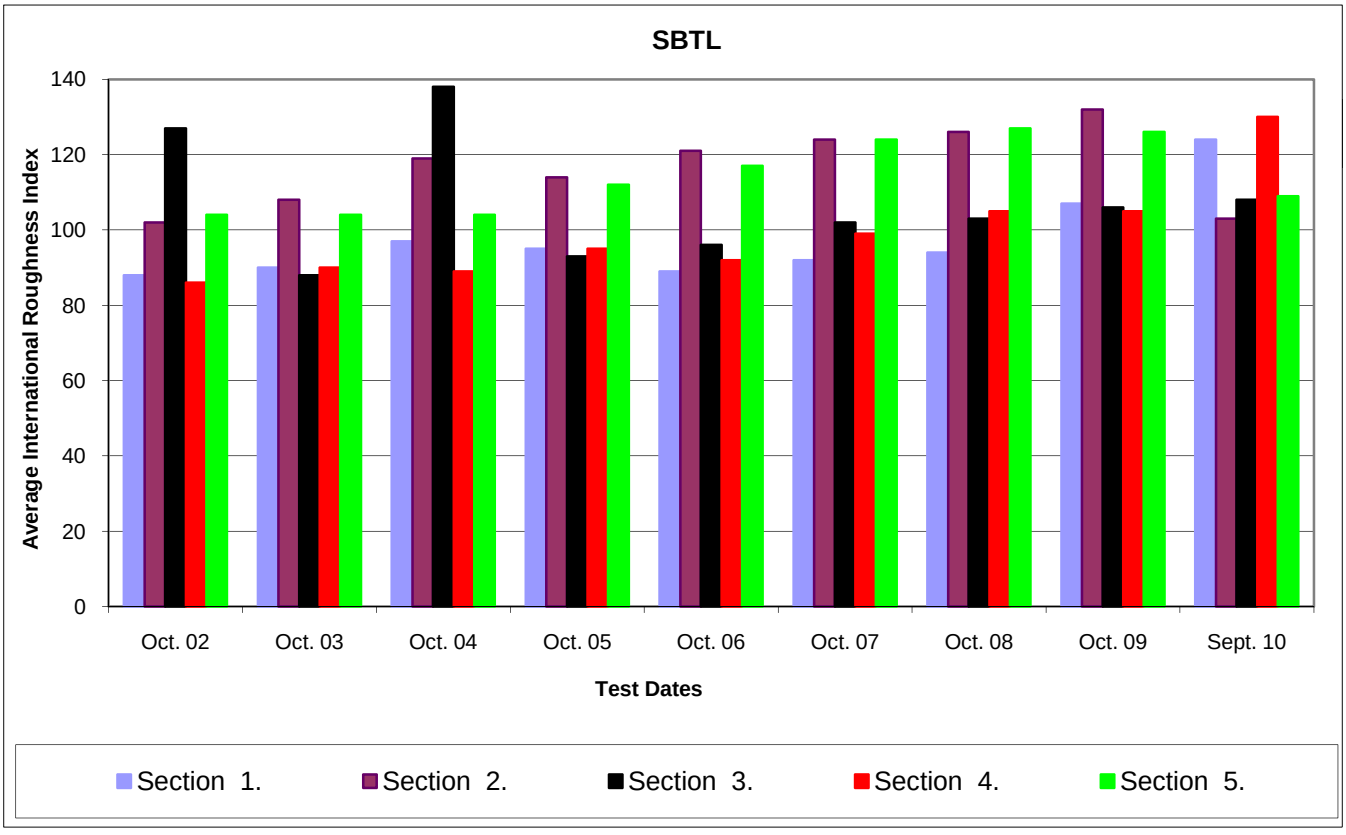




Pavement Distress
Ride

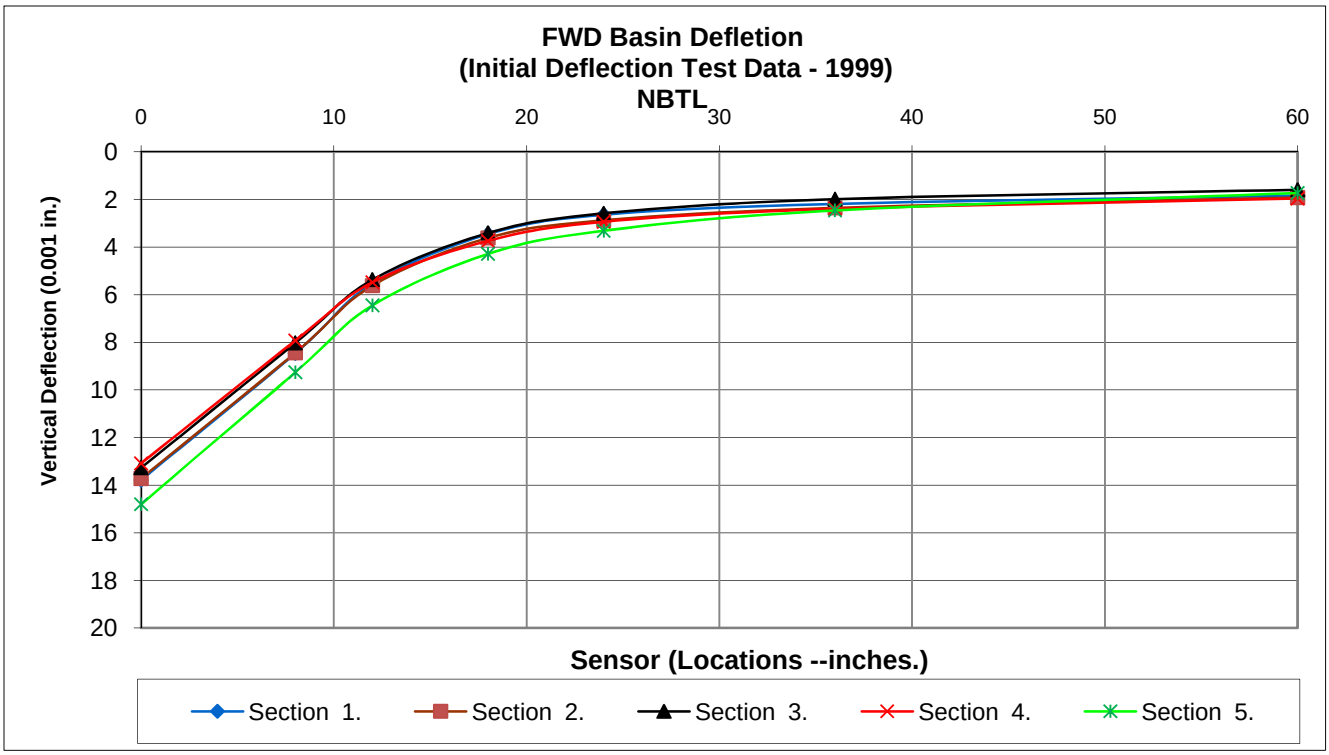
Project # 93130-3508

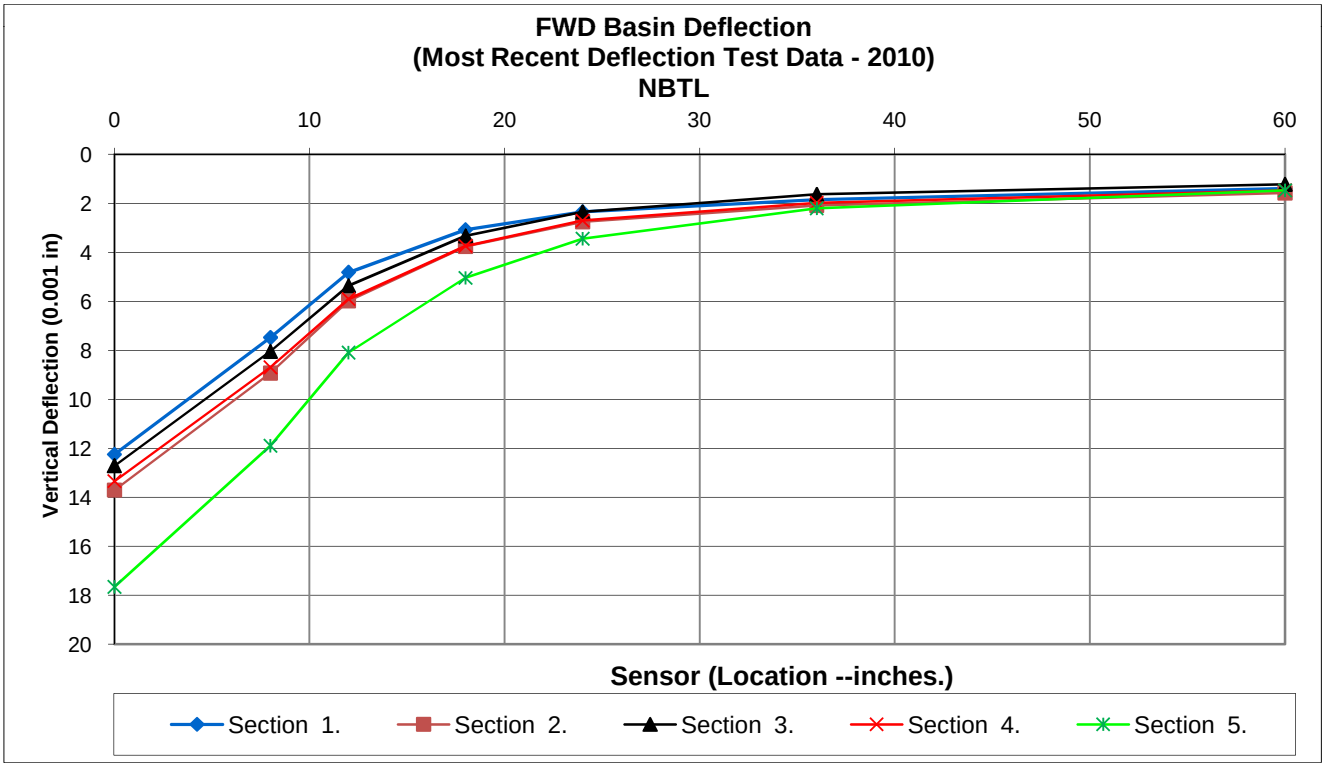




Pavement Deflection

Project No. 93130-3508





Pavement Deflection

Project No. 93130-3508