

Project Report

Krishnapatnam Port Company Limited

Condition Pavement Strength Testing

for Port Roads



Using IRSM SWECO PRI2100 Falling Weight Deflectometer

24-May-2018 To 25-May -2018

Prepared By

INDIAN ROAD SURVEY & MANAGEMENT PVT. LTD.

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5.5. Performance Criteria

The Pavement performance is evaluated to find the actual Remaining Life retained at present in terms of Fatigue and Rutting performances for Flexible Pavements. The calculated Design traffic projected for 15 years is 241.53 MSA.

As Discussed in Section 4 the analysis has been carried out. Based on the Deflection data - Elastic Modulus values has been processed. After applying appropriate correction to Derived Elastic modulus values, the Sections has been grouped to Road-wise and 15% percentile values has been arrived.

The evaluated Fatigue performance of Bituminous layer, Rutting performance based on Subgrade layer, fatigue performance in cementitious layer are listed below

Section	15 % percentile			Fatigue in Bituminous Layer, Nf (MSA)	Fatigue in Cementitious Layer(B), Nfi (MSA)	Rutting in Sub-grade, N (MSA)	Design Traffic Ni(MSA)	Safe / Not Safe
	E – Bituminous Temp Adj	E2 Cementitious (Original)	E3 Subgrade Monson Adj					
Port Road 1	758.58	3705.57	115.97	16609	18459	6062	>241.53	Safe
Port Road 2	1360.45	3509.55	100.13	6250	18277	4615	>241.53	Safe
Port Road 3	1181.54	6591.15	113.69	71801	10119	32387	>241.53	Safe
Port Road 4	1527.67	7401.3	118.83	83257	9599	50303	>241.53	Safe
Port Road 5	3226.41	8873.42	134.42	75359	9954	117701	>241.53	Safe
Port Road 6	859.34	7155.4	112.3	133347	8884	39064	>241.53	Safe

6. Discussion and Conclusion

The project consists of 6 road sections inside Krishnapatnam Port, Nellore in Andhra Pradesh. The total length of the existing project corridor is 2.8 km approx.

IRSM's SWECO PRI2100 Falling Weight Deflectometer was engaged for data collection and the survey was done on 24-May-2018. The testing was undertaken in all sections, that reflected the road conditions and pavement composition. Subsequently the analysis was undertaken with appropriate pavement compositions as per IRC guidelines - IRC 115: 2014 and IRC 37: 2012.

The results from the entire stretch are presented in Section 5.

The results indicate:

- All road section in Krishnapatnam Port has a uniform Pavement composition.
- During initial Testing, it is observed the deflection readings recorded in these sub sections indicates a very stiff underlying layers ensuring the privileges of the high performance heavy volume pavements.
- for Back calculation process, the limits for Subgrade and Bituminous layer has been considered based on the IRC 115: 2014 and for cementitious layer the limits have been considered based on IRC 37: 2012. The same has been discussed 4.1.1
- Through the performance check, the existing pavement is found to be satisfactorily safe in terms of Fatigue performance of Bituminous Layer & cementitious layer and Rutting performance based on Subgrade Layer.
- Variability in the calculated results may be a reflection on variability of the pavement composition along the alignment. For each section, the available information only supports the consideration of provided pavement composition in that section.