

Performance Evaluation of Geogrid in Flexible Pavement Using Mechanical-Empirical Design Approach

Publons ID	(not set)
Wos ID	WOS:001037314700013
Doi	10.1007/s42947-021-00030-4
Title	Performance Evaluation of Geogrid in Flexible Pavement Using Mechanical-Empirical Design Approach
First Author	
Last Author	
Authors	Susanto, HA; Yang, SH; Duc, MA;
Publish Date	MAR 2022
Journal Name	INTERNATIONAL JOURNAL OF PAVEMENT RESEARCH AND TECHNOLOGY
Citation	
Abstract	<p>In the past decade, numerous studies have shown that incorporating geogrid in the pavement could effectively improve the pavement performance. The major benefit of using geogrid in the flexible pavement is to improve its rutting performance as the result of the reinforcement function of geogrid. Mechanical-empirical pavement design guide (MEPDG) developed to provide the pavement performance prediction throughout its design life. However, MEPDG is not able to consider the effect of incorporating geogrid in the flexible pavement. In this study, a design procedure was proposed to obtain an equivalent geogrid pavement structure, which satisfies MEPDG design input requirements. In this procedure, a 2D finite element method was used to simulate geogrid reinforced and non-reinforced pavement structures. The iteration process based on stress-strain analysis of finite element model (FEM) used to obtain an equivalent structure input for MEPDG. The geogrid reinforced rutting performance can be predicted by analyzing the equivalent geogrid structure using MEPDG. A significant life improvement of pavement with geogrid was observed compared to pavement without geogrid. The results showed that the incorporating of geogrid in asphalt pavement layer significantly reduce the rutting of pavement layer, thus will contribute to extension of pavement service life.</p>
Publish Type	Journal
Publish Year	2022
Page Begin	442
Page End	456
Issn	1996-6814
Eissn	1997-1400
Url	https://www.webofscience.com/wos/woscc/full-record/WOS:001037314700013
Author	HERY AWAN SUSANTO, S.T, M.T