

论文

平原水网区等级公路若干问题的研究

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摘要:

研究了平原水网区高地下水位时等级公路的路基和路面结构受力问题.采用有限元计算了重载交通条件下路基的工作区深度,试验研究了不同压实度和含水量状态下路基的支撑能力,计算分析了高地下水位时路面结构的力学响应.研究认为,在重载交通条件下,路基的工作区深度达2m以上,现有的等级路路基高度严重不足,地基下较大深度范围处于路基工作区内;由于土的弹塑性性质的变化,高含水量时黄河冲(淤)积粉土的回弹模量并不能真实地反映路基的承载能力;标准轴载下,地下水位为1.5m时,路表弯沉即达到34.07mm,超过了设计弯沉;高地下水位对基层和底基层,尤其是对底基层疲劳寿命的影响很大.通过分析,提出了相应的工程对策.

关键词: 等级公路 地下水 路基 路面结构

Research on some problems about a classified highway in a water net plain district

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Abstract:

The mechanics problems of a roadbed and pavement structure of a classified highway in a water net plain district were studied. Through the limited element method, the force influence zone of the roadbed under a heavy load circumstance was calculated, and the mechanical response of the pavement structure on a higher water table was analyzed. The roadbed supportability under different compactness and the water content circumstances was experimentally studied. The force influenced zone of the roadbed is over 2 meters under the heavy load circumstance so that the roadbed height of the existing classified highway is not serious enough and that there is a much deeper area below ground within the force influence zone. Because of elastoplasticity variation of the soil, the elastic modulus of the Yellow River alluvial (silting) soil can not reflect the bearing capacity of a roadbed in a high water content situation. Under the standard axle load condition, the deflections of the road surface have reached to 34.07mm and exceeded the design value. The high water table gives much important influence to the fatigue life of the base and the sub-base, especially the sub base. Corresponding project countermeasures were put forward.

Keywords: the classified highway groundwater roadbed pavement structure

收稿日期 2007-06-05 修回日期 1900-01-01 网络版发布日期 2008-02-16

DOI:

基金项目:

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