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岩土工程地质

堆载下单桩负摩阻力工作性状非线性数值分析

林智勇[①], 苏美选[②]

①福建工程学院土木工程系 福州 350108;
②福州海峡职业技术学院建筑工程系 福州 350014

摘要：

利用三维非线性数值方法对一算例在堆载作用下桩侧负摩阻力进行了计算分析。计算结果揭示了摩擦型、端承型桩负摩阻力工作性状的异同; 分析了堆载速度、桩顶荷载对负摩阻力的影响: 堆载越快,负摩阻力越小; 在无桩顶荷载作用下,由负摩阻力引起的下拉荷载最大,可视为常规方法设计的上限值; 桩顶荷载与堆载施工顺序对负摩阻力的影响也很大,先施加桩顶荷载,后进行堆载所产生的负摩阻力最大,反之最小。

关键词： 堆载 负摩阻力 数值模拟 下拽力 中性点

NUMERICAL NONLINEAR ANALYSIS ON NEGATIVE SKIN FRICTION BEHAVIOR OF SINGLE PILE UNDER SURFACE LOADS

LIN Zhiyong[①], SU Meixuan[②]

①Department of Civil Engineering,Fujian University of Technology,Fuzhou 350108;
②Department of Architectural Engineering,Fuzhou Strait Vocation and Technological College,Fuzhou 350014

Abstract:

Three dimensional nonlinear analyses on negative skin friction of a single pile was carried out for a

扩展功能

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- 苏美选

specific case under surface loads. The results show the similarities and differences of negative skin friction behavior between friction pile and end-bearing pile. It was found that loading velocity of surface loads and the pile working loads influences negative skin friction very much: the more the loading velocity,the less the negative skin friction; the dragload of a pile without pile axial load is the ultimate value and could be considered as an upper limit for conventional analysis. Moreover,combinations of pile working load with surface load lead to change the pile axial force,namely,application of the working load and then application of the surface load caused a maximal negative skin friction,and on the contrary case minimum.

通讯作者：

作者简介：林智勇,主要从事岩土体稳定性分析、桩基工程等的教学与研究.Email: l-sir@139.com
作者Email：

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