

尹中高速公路粉喷桩复合地基桩土应力比 现场试验研究

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摘要 结合甘肃尹中高速公路粉喷桩处理饱和黄土地基的实体工程, 选择了2个典型断面, 其中一个断面为悬浮式复合地基, 另一个断面为支承式复合地基, 实测了桩顶及桩间土的压力, 计算出了相应的桩土应力比 n 及复合地基承载力发挥值。结果表明: (1) 在相同荷载水平下, 支承式复合地基中桩体与桩间土体所承受的压力均大于悬浮式复合地基中的相应值; (2) 在加荷初期, n 值增长较快, 但随着桩土变形的协调, n 值趋于稳定, 且2个断面在路堤主要受荷范围内的 n 值大部分集中在3~8; (3) 无论柔性基础下粉喷桩复合地基的形式如何, 按土体先破坏计算的复合地基承载力发挥值更接近于工程的实际荷载水平; (4) 柔性基础下复合地基的破坏模式应为桩间土体先破坏, 继而引起整个复合地基的破坏。

关键词 [土力学](#); [粉喷桩](#); [复合地基](#); [桩土应力比](#)

分类号

FIELD TESTING STUDY ON STRESS RATIO OF PILE TO SOIL IN COMPOSITE GROUND OF DRY JET MIXING PILES AT YINJIAZHUANG—ZHONGCHUAN EXPRESSWAY

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Abstract

Combined with the practical project by using dry jet mixing(DJM) piles to treat the saturated loess under the Yinjiazhuang—Zhongchuan expressway in Gansu Province, two typical sections were selected to test the stress of the pile and the soil with the pressure gauge in the composite ground. In the two sections, one is the floating pile composite ground, the other is the end-bearing pile composite ground. On the basis of the test data, calculated the stress ratio of the pile to soil and the bearing capacity is calculated. The results show that: (1) the stress of the pile and the soil in the end-bearing pile composite ground is larger than that in the floating pile composite ground when the upper load is the same; (2) the stress ratio of the pile to the soil is focused on 3–8 in this case; (3) in the two kinds of composite ground, the calculated bearing capacity being brought into play is more closer to the real load if the soil is supposed to fail first; (4) the failure mode of the composite ground under flexible foundation is the initial soil failure, then the failure of the whole composite ground is induced.

Key words [soil mechanics](#); [dry jet mixing\(DJM\) pile](#); [composite ground](#); [stress ratio of pile to soil](#)

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