

用超声波CT技术检测桩底端压浆效果

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摘要 用超声波CT技术检测苏通长江大桥试验桩的桩底压浆效果试验工作。测试技术的要点是正确识别直达超声波到时和建立超声波与材料的关系。介绍了超声波信号识别与校正技术、检测剖面上材料分布范围的判别依据与解释结果的表达等。试验结果证明, 桩底压浆可以在桩底形成扩大头, 提高桩的侧向摩擦阻力和桩端承载力, 从而有效地提高桩基础总体的承载力。

关键词 [桩基工程](#); [超声波CT](#); [桩底压浆](#); [测桩](#)

分类号

CHECK ON POST GROUTING AT THE BOTTOM OF TEST PILES BY ULTRASONIC CT

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Abstract

The ultrasonic CT is used to check the post grouting at the bottom of the test piles in the being constructed Yangtze River Bridge at Nantong city, Jiangsu Province. The key of the technology is to correctly identify arrive time and to build right criterion to link sonic wave velocity and materials. There are several materials in the checked section, such as concrete, sand and grouting. The materials form several boundaries and lead to complex reflection and refraction. The signal of first arriving may be not the one along the line from ultrasonic emitter to receiver. The correct arrive times are identified by theoretic analysis and practical work. They should also be corrected to eliminate random and system errors, such as inclined drill changing distance between ultrasonic emitter and receiver. To built right criterion to link sonic wave velocity and materials, both laboratory test and in-situ practice should be combined together. The other parts of the checking process also are discussed. It is proved that post grouting at the end of pile can greatly improve the bearing capacity of pile foundation. The rigidity of mixture of cement grouting and sand varies from concrete to common sand. It depends on ratio of cement grouting and sand. If the mixture is not fully concreting at checking, the rigidity of the mixture and the bearing capacity can be further increased.

Key words [pile engineering](#); [ultrasonic CT](#); [grouting at the bottom of piles](#); [checking pile](#)

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