



STANGERS

FOUNDATION INTEGRITY TESTING

We Provide a Comprehensive Range of Pile NDT Tests

The fitness of piles for their purpose can be conventionally assessed from the results of loading tests, either to the 'ultimate' failure load, or to a multiple of the working load.

Behaviour of a pile is a function of the interaction between the pile and the subsoil, and its performance therefore relates not only to the structural integrity of the pile itself, but also to the surrounding soil conditions.

Because of the prohibitive cost of load tests, few are carried out relative to the size of the pile population, and gross assumptions must be made about the group performance. Integrity testing methods allow rapid pile performance assessment. They do not replace load tests, but can reduce the number required to give confidence about the pile group performance. As a test pile is driven, the Pile Driving Analyser (PDA) displays and records dynamic measurements from strain transducers and accelerometers attached near the top of the pile.

PAX PILE DRIVING ANALYSER



PILE INTEGRITY TEST - PIT



For each hammer blow, the PDA processes signals from the gauges to calculate the hammer energy, pile stresses and pile bearing capacity.

The PIT, is a low-strain testing method which is used to quickly perform quality control tests of a large number of piles. The impact produces a compression wave which travels down the pile at a constant wave speed.



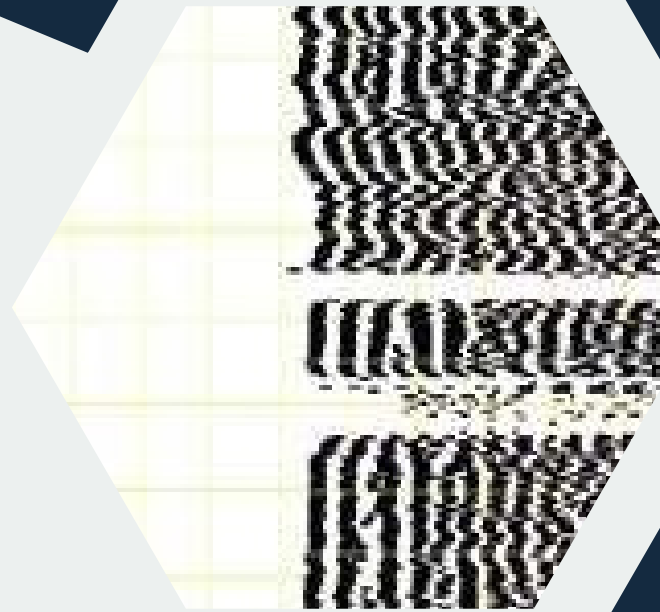
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Changes in the cross-sectional area (such as a reduction in diameter) or material (such as a void in concrete) produce wave reflections.

Sonic Logging is used to detect defects in cast in-situ concrete piles. Defects that may be detected using sonic logging include: honeycombing, segregation due to improper concrete placement methods, washout of cement due to groundwater flow, cracks in pile shafts due to shrinkage, inclusion of foreign material causing contamination of concrete, necking and arching of piles due to collapse of side walls during withdrawal of temporary liners.

Because of the character of the ultrasonic method, it can detect defects which may escape detection by other integrity testing methods. It is especially suitable for testing large-diameter piles and slurry-wall elements. By comparing the graphs from the various combinations of access tubes, a qualitative idea of the structural soundness of the concrete throughout the pile can be determined.

DEFECT IN PILE SHAFT



SONIC LOGGING EQUIPMENT



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