LATERALLY LOADED DRILLED SHAFTS FROM FULL SCALE FIELD TESTS

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ABSTRACT

The current engineering guidelines of drilled shafts subject to lateral loading contain numerous approximations leading to design issues faced by the Missouri Department of Transportation (MoDOT). In designing deep foundations it is important to understand the behavior of drilled shafts under lateral loading. The objective of the research is to develop the "true" drilled shafts response to lateral loading by conducting full-scale field tests.

Twenty-five drilled shafts were constructed at two sites in Missouri as part of a previous "geotechnical thrust" research program. In order to measure the response of the foundations to static lateral loading, sixteen full-scale lateral load field tests were performed on the drilled shafts. All the tests were conducted in pairs therefore two foundations were loaded and monitored simultaneously. The data acquired from the field load tests were reduced and analyzed following conventional data reduction procedures to establish the observed lateral response of the drilled shafts in terms of load and deflection. The measured load-displacement curves were compared to the predicted load-displacement curves used by the commercial software program L-Pile. The data also allowed characterizing the variability and uncertainty involved with the prediction of the lateral response of drilled shafts.