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Effect of CSL Tube Type on the Drilled Shaft Axial Load Carrying Capacity

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Abstract : Cross-Hole Sonic Logging (CSL) is a common type of Non-Destructive Testing (NDT) method, which is currently used to check the integrity of placed drilled shafts. CSL evaluates the integrity of the concrete inside the cage and between the access tubes based on propagation of ultrasonic waves between two or more access tubes. A number of access tubes are installed inside the reinforcing cage prior to concrete placement as guides for sensors. The access tubes can be PVC or steel galvanized based on ASTM6760. The type of the CSL tubes can affect the axial strength of the drilled shaft. The objective of this study is to compare the amount of axial load capacity of drilled shafts due to using a different type of CSL tubes inside the caging. To achieve this, three (3) large-scale drilled shaft samples were built and tested using a hydraulic actuator at the Florida International University's (FIU) Titan America Structures and Construction Testing (TASCT) laboratory. During the static load test, load-displacement curves were recorded by the data acquisition system (MegaDAC). Three drilled shaft samples were built to evaluate the effect of the type of the CSL tube on the axial load capacity in drilled shaft foundations.

Keywords : drilled shaft foundations, axial load capacity, cage, PVC, galvanized tube, CSL tube
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