

0702771 A INTEGRITY TESTING - REFLECTION
0702772 A INTEGRITY TESTING - CROSS HOLE**Description:**

Drilled shafts shall be subjected to nondestructive tests to evaluate their structural integrity. Such tests may include (a) reflection (also known as sonic echo) tests or (b) cross hole acoustic tests. The type of test to be used, if any, is specified in the contract documents. The Contractor shall be responsible for performing and submitting reports of such tests to the Engineer in a timely manner. All testing shall be conducted after the concrete has cured for at least 24 hours. The Contractor shall employ an engineer who has a valid Connecticut professional engineer's license and has been approved by the Engineer to perform, evaluate and report on the tests. The report on the tests on any given shaft must be submitted to the Engineer within 3 working days of the performance of the tests on that shaft

Construction Method:

1-Qualification of Integrity Testing Firm/Personnel and Submittals: The Contractor shall employ a qualified testing firm and/or personnel experienced in the conducting and reporting of reflection and/or cross hole integrity tests to setup, perform and prepare a report of the test. The qualifications of the testing firm/personnel shall be submitted to the Engineer for review and approval. The testing firm/personnel shall have successfully completed and submit the names of no less than ten (10) integrity test evaluations on drilled shafts of similar dimensions and capacities in the past one (1) year. The list of projects shall contain names and phone numbers of owner's representatives who can verify the testing firm's/personnel participation on those projects.

2-Reflection - Equipment and procedures to be used for reflection (sonic echo) tests shall be capable of detecting defects that occupy no more than 30 per cent of the cross-sectional area of the drilled shaft and are no greater than 6 inches thick, and this resolution shall be indicated in the report of the Contractor's consultant. . Any shafts in which anomalous zones have been found in the initial test shall be retested one week after the first test is performed so as to determine if the anomalies found in the first test were due to unset concrete. The State shall not be responsible for the cost of retesting a shaft with reported anomalies.

3-Cross Hole - The test should proceed from the bottom of a pair of access tubes to the top, in depth increments of 2 inches. Every possible tube combination should be tested in this manner. The source and receiver should be lifted together and careful depth measurements made before taking a set of readings. The record that should be provided to the Engineer should include a graph of acoustic pulse arrival time versus depth and power of the arriving signal (or energy vs. time) versus depth in each pair of tubes within the shaft. Any zone with a 20% difference in arrival times and low power relative to other zones should be considered anomalous and reported as such. Any shafts in which anomalous zones have been found in the initial test shall be retested one week after the first test is performed so as to determine if the anomalies found in the first test were due to unset concrete. The State shall not be responsible for the cost of retesting a shaft with reported anomalies

Method of Measurement:

1 - Integrity Testing – Reflection - "Integrity Testing – Reflection" will be measured for payment by the actual number of tests completed and accepted.

2 - Integrity Testing – Cross Hole - "Integrity Testing – Cross Hole" will be measured for payment by the actual number of tests completed and accepted.

Basis of Payment:

1 - Integrity Testing – Reflection - This item will be paid for at the unit contract price, on a lump sum basis per drilled shaft tested. Payment will include costs for mobilization, testing, analysis and reporting of tests.

2 - Integrity Testing – Cross Hole - This item will be paid for at the unit contract price, on a lump sum basis per drilled shaft tested. Payment will include costs for mobilization, testing, re-testing of shafts with reported anomalies, analysis and reporting of tests.

