

500 STRUCTURES

ITEM 506 - STATIC LOAD TEST

506.01 Description

506.02 General

506.03 Application of Load

506.04 Basis of Payment

506.01 Description. This item shall consist of the application of a static load to a driven pile and the furnishing of instruments and facilities for obtaining load-settlement data required to determine the capacity of the pile. The Engineer shall, when specified, determine whether any subsequent static tests are to be performed and the location of all piles tested.

506.02 General. The hammer selected for driving the pile to be tested shall be used for driving all piles represented by the test. If the Contractor subsequently finds it necessary to use a different hammer, the Engineer will determine if an additional static load test is necessary and any such additional test shall be completed at no additional cost to the City. Additional tests may be conducted as per Item 523, when approved by the owner Division.

When anchor piles are used to apply load, they shall be located not closer than 7 feet (2.1 m) center to center from the loaded pile. If possible, the anchor piles should be parallel to the axis of the loaded pile. Battered piles may be used as anchor piles provided the horizontal forces in the anchor system are balanced and excessive bending stresses are not induced in the piles. Bearing piles meeting these requirements may be used as anchor piles. After the test has been completed, anchor piles which are outside the limits of the footing shall be removed or cut off at least 1 foot (0.3 m) below the bottom of the footing or finished surface of the ground. Anchor piles, other than bearing piles, which are within the limits of the footing shall be cut off at an elevation below the footing reinforcing steel. All bearing piles used as anchor piles which are displaced upward during the application of the test load shall be redriven in accordance with plan requirements.

The Contractor shall furnish a calibrated load cell for determining the load applied. He shall also furnish the Engineer with a recent verification of the calibration of the gages and devices by a reliable agency equipped to do the testing.

The Contractor shall supply adequate facilities for recording load and settlement readings 24 hours per day for the duration of the test.

The tested pile shall be substantially vertical and the load should be applied to the pile at a point as near the ground surface as possible to avoid column buckling of the pile.

If a cast-in-place reinforced concrete pile is to be tested and the shell provides all the steel required by Section 507.06, the shell shall be tested without concrete filling, unless otherwise directed by the Engineer. The test will not be considered satisfactory if the pile fails internally during the test due to improper installation or procedure by the Contractor.

506.03 Application of Load. The load shall be applied not earlier than 72 hours after both the pile to be tested and the anchor piles have been driven.

The load shall be concentrically applied by such a method that the load acting on the pile at any time may be definitely determined and controlled. A backup system shall be furnished for measuring the settlement of the pile being tested.

The initial loading shall be approximately 4/5 of the plan design load or as directed. Subsequent loading shall be increments of approximately 1/5 the plan design load, and these increments shall be applied 1 hour after all measurable settlement due to the loading has ceased. "Measurable settlement," is defined as 0.01 inch (0.3 mm) or more in a 20 minute time interval.

All settlement readings will be recorded by the Engineer.

The application of load will be considered complete when the "yield point" is reached. The "yield point" is defined as where the additional amount of settlement exceeds 0.02 inch per ton (0.6 mm per 6750N) for the load increment applied.

If the yield point is reached before the total applied load exceeds 3 times the plan design load, an additional increment of the load shall be applied to assure that the failure load has been established. If the amount of settlement per increment is repeated or increased, the application of load will be considered completed, but if not, the application of load increments will be continued until the yield point is reached or until a total load of 4 times the plan design load is applied. The safe bearing value Q shall be considered as 50 percent of the yield capacity.

When the yield point has not been reached after the last required increment of load has been applied, the application of the total load shall be continued for not less than 1 hour after all measurable settlement has ceased. The unloading process shall take place in 25 percent decrements which occur at 5 minute intervals.

All instrumentation shall remain in place for three hours after the pile is unloaded in order to obtain settlement recovery measurements.

If it is necessary to remove and reapply the load, it shall be reapplied utilizing the same procedures used to apply the initial loads except that the load increments shall be applied 15 minutes after all measurable settlement has ceased.

506.04 Basis of Payment. Payment will be made at the contract price for:

Item	Unit	Description
506	Lump Sum	Static Load Test
506	Each	Subsequent Static Load Test