

Technical Bulletin

FROM SPEIGHT, MARSHALL & FRANCIS,
P.C.

Structural Engineers
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On a regular basis, we plan to distribute these informational leaflets about crucial - but often ambiguous - structural engineering topics. With the knowledge our featured subjects, our goal is to help our clients improve their profitability while reducing their liability. We suggest distributing a copy of our technical bulletins throughout your office and keeping them on hand for quick reference.

SPECIAL INSPECTIONS (PART V)

Driven Pile Foundations - Specification Section 02360

Introduction:

In this bulletin we will outline the process of evaluating "Driven Pile Foundations" pursuant to the Schedule of Special Inspections and Project Specifications. The Special Inspection team is referred to as Agent No. 1, the Special Inspector (typically the Structural Engineer) and Agent No. 2, the Testing Laboratory (typically the Geotechnical Engineer).

Test Piles - Agent No. 2:

- Review Geotechnical report and foundation notes on the structural drawing.
- Record and report type and specifications of driving equipment, such as:
 - T Hammer make and model.
 - T Ram weight.
 - T Stroke.
 - T Driving cap weight.
 - T Rated driving energy.
 - T Rate of hammer operation.
- Perform inspection on each test pile prior to driving. Report any defects.
- Review pile pick-up procedures.
- Observe and record driving information of each test pile(s). Test pile(s) should be driven under the direction of a registered Geotechnical Engineer. The pile log reports shall include:
 - T Date of driving.
 - T Test pile location.
 - T Test pile number.
 - T Test pile dimensions.
 - T Tip embedment.
 - T Blow count per foot.
 - T Pile driving time (each)
 - T Record unusual driving conditions.



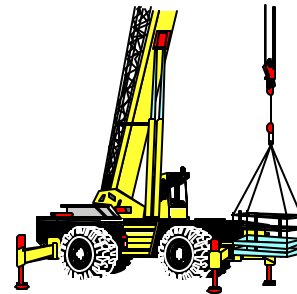
- Perform test pile(s) retap procedures between 2 and 24 hours after initial driving with conventional load test and no sooner than 48 hours when pile dynamic analysis is used.
- Evaluate Pile Dynamic Analysis (P.D.A)*, if utilized.

Pile load test - Agent No. 2:

- Contractor shall coordinate set-up of load test equipment.
- Review installation of dial guages, piano wire, mirror, and scale.
- Review jack calibration information.
- Observe and record load test operation.
- Final report shall be prepared per ASTM D 1143.

Production Piles - Agent No. 2:

- Review driving criteria, as indicated by load test or P.D.A.*
- Perform inspection on each pile and report any defects.
- Review pile pick-up procedures.
- Observe and record driving information of each pile and conformance with driving criteria.
 - T Date driven.
 - T Pile location.
 - T Pile number.
 - T Pile capacity.
 - T Hammer specifications (must be same as test pile equipment).
 - T Pile dimensions.
 - T Tip embedment.
 - T Blow count per foot.
 - T Pile driving time.
- Evaluate production pile log(s) and driving data.



Pile Survey - Agent No. 1:

- Review the as-driven location of each pile.
- Determine whether each pile is located within design tolerances for each pile cap.
- Report discrepancies for corrective action if necessary.

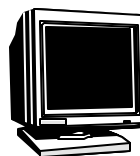
* Pile Dynamic Analysis (P.D.A.): Eliminates the need to perform a compressive load test of test piles.

Conclusion:

Once all the production piles for a project have been driven and have met the design criteria, the Geotechnical Engineer (Agent No. 2) will submit a letter of approval for review to the Special Inspector (Agent No. 1). The Special Inspector (Agent No. 1) will also review the as-driven pile survey for compliance with the Contract Drawings and will submit any discrepancies to the Structural Engineer of Record for corrective action. Since every detail during pile driving is essential to the acceptance of the pile(s), it is imperative that each pile is closely monitored and that accurate information is recorded.

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