

## STATEWIDE CRITICAL REQUIREMENT LIST – FISCAL YEAR 2020/2021

### Quality Assessment Category Number 9 Structure Foundations

#### ***PILES***

1. Does the CEI staff ensure that pile driving requirements as outlined in Spec 455 and as established by the Geotechnical Engineer in reference to bearing penetration, pile and hammer cushion, blow count criteria, practical refusal, maximum strokes and equipment for driving has been complied with? Do the project records, the pile driving log and a field visit verify this? [Spec.455-5]
2. Does the CEI staff inspect prestressed piles for defects as soon as possible upon delivery to the project site? Are defects reported to the Project Administrator as soon as possible but, in any case, prior to use? Have the width, length, termination points, and precise location for any cracks or other defects been properly documented? Have the cause and need for correction of defects been addressed appropriately? Do project documentation and a field visit verify the aforementioned? [Good Practice]
3. Does the CEI enforce the requirement that the contractor shall provide and maintain in working order an approved device to automatically determine strokes when driving with Open Ended Diesel hammers or energy/equivalent strokes when driving with hydraulic hammers? For projects let after June 30<sup>th</sup>, 2020, does the CEI provide a pile inspection device that displays and stores electronically: stroke for open-ended diesel hammers, blows per foot and blows per minute for all hammers, and exports the electronic data in a format compatible with the Department's Pile Driving Record form, or replicates the Department's Pile Driving Record form?
4. Does the CEI enforce that the proper number of lifting points and distances are used for concrete piles and that these are stored properly. [Spec. 455-7 & Standard Plan 455-001]
5. Does the CEI ensure the final pile top elevation and alignment are within tolerances?

#### ***ALL DRILLED SHAFTS INCLUDING SHAFTS UNDER MISCELLANEOUS STRUCTURES***

6. Does the CEI staff ensure the methods and equipment for drilled shaft construction are consistent with the contract plans and the approved drilled shaft installation plan and ensure proper alignment, cleanliness of shaft, over reaming, and slurry mixtures have been maintained and documented as required by contract documents? Do project records including the drilled shaft logs and a field visit verify this? Try to visit during drilled shaft installation if possible. [Spec. 455-15]
7. Does the CEI staff ensure that Drilled shaft concrete operations are consistent with slump loss test results, limits, pump requirements, curing requirements and duration of placement limits as outlined in Specs 346, 400 and 455? Does the CEI ensure that the concrete is over-poured until good concrete is evident? Do project records including the drilled shaft logs and a field visit verify this? [Spec. 455-17]
8. Does the CEI staff verify that the temporary casing in drilled shafts supporting miscellaneous structures provided at least one foot above the ground surface to at least five feet below the

ground surface [455-15]?

9. Does the CEI verify that the proper reinforcement cage is assembled according to the plans, indexes or specifications with the proper number and dimension of bars, with the proper number, type and size of spacers, that the number, length, top and bottom of the access tubes are according to the specifications, and that the proper number, diameter, length and circle diameter of anchor bolts are placed? [Spec. 455-16]

10. Does the CEI enforce that the shafts are over-reamed when the excavation time exceeds the limits indicated in the specifications? [Section 455-15.11.5]

11. Does the CEI verify that the Contractor insert simulated or mock probes in each access tube prior to concreting to ensure the serviceability of the tube? Does the CEI verify that the Contractor fills access tubes with clean potable water and recap prior to concreting? The Contractor must repair or replace any leaking, misaligned or unserviceable tube prior to concreting [Section 455-16.4].

### **AUGER CAST PILES**

12. Auger Cast Pile Installation Plan (ACPIP): Have an approved copy of the ACPIP on site. [Spec. 455-47]. Verify the auger flights are of the proper diameter and length, continuous and without breaks and gaps.

13. Ensure the demonstration Pile is performed successfully prior to the start of production piles [Spec. 455-39]. Document demonstration pile and production pile activities in the Auger Cast-in-Place Pile Installation Record (Form 700-011-03) and note problems in the Daily Report of Construction.

14. Ensure the pump is properly calibrated [455-42] and an accurate calibration factor in units of volume/stroke is obtained. Pump calibration must be performed prior to the installation of the demonstration pile, immediately after any significant pump maintenance or repair is performed or at any time the inspector suspects the pump is operating differently from the last calibration.

15. Ensure that at least 5 ft of head is established before withdrawing the auger [455-44, item 10]. NOTE: When the Developmental Specification for auger cast piles is used, the initial head requirements for piles longer than 50 ft are stricter than the Standard Specification.

16. Does the CEI staff ensures Contractor meets the minimum grout volume requirements [455-44 items 11, 12], re-drills and re-grouts in accordance with the specifications when the return depth is less than 5 ft [455-44, item 11], when grouting is interrupted by any reason [455-44, item 11], or when the minimum over pour requirements are not met [section 455-44, item 12] in any segment of the pile. Does the CEI staff ensures that proper records and auger cast pile logs and are maintained by the responsible party? NOTE: When the Developmental Specification for auger cast piles is used, the minimum grout volumes, return depth, and the re-drilling and re-grouting requirements of 455-44 are stricter than the Standard Specification.

17. Does the CEI staff ensure that Auger Cast Pile mixing, sampling and testing, pumping cement grout operations are consistent with requirements and duration of placement limits as outlined in Specifications 455 or required by contract documents? [Spec. 455-43]

18. Does the CEI staff ensure the methods and equipment for Auger Cast Pile construction are consistent with the contract plans and the approved Auger Cast Pile Installation Plan?

