

4551501 Structures Foundations C. Drilled Shafts
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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Comment: (11-9-10) I have reviewed the above referenced specification. So long as “Proposed CSLS Specialty Engineer” and “Engineer” are defined terms in the provision, I have no further comments. In the event Proposed CSLS Specialty Engineer and Engineer refer to the same person, one or the other term should be used for consistency.

Response:

Castellanos, Juan

- Comments: (11-9-10)
1. **455-15.1.2 Drilled Shaft Installation Plan**, in item 4: Contractor is not required to log the drilling: “Details of shaft excavation methods ~~and drilling log procedures.~~”
 2. **455-16.3 Support, Alignment, and Tolerance**, second paragraph: add a specific requirement for the bottom spacer: “Use concrete wheels or other approved noncorrosive spacing devices within 3 feet from the bottom ~~near~~ the bottom, within 3 6 feet of the top, and intervals not exceeding 15 feet along the shaft to ensure concentric spacing for the entire length of the cage. Do not use block or wire type spacers....”
 3. **455-16.4 Cross-Hole Sonic Logging (CSL) Tubes**: “Install CSL access tubes full length in all drilled shafts from the **actual** tip of shaft to a point high enough above top of shaft to allow cross-hole-sonic-logging testing....”
 4. **Section 455-15-11.5**. This section needs to be revised to delete the references to the sidewall sampler. The time of excavation should be enough to call for overreaming, whether there is a sampler or not. I have never seen a sidewall sampler and the Department does not even have one anymore. And in miscellaneous shafts, I really doubt that we will ever have a sidewall sampler available for miscellaneous shafts.
 5. Perhaps this is a good time to put back the overreaming pay item. The specs (section 455-23.5) talk about measure it and even correct the overream quantity when the casing ID is slightly smaller than the plan diameter. It would not make sense to measure it, if we don’t have a pay item. Alternatively, if putting pack the pay item is not desired, then section 455-23.5 should be deleted.
 6. **Section 455-16.1 Pilot Hole**: Add the following sentence at the end of the one paragraph: “Before starting to drill any pilot hole, provide at least 3 working days notice to the Engineer.”

Response:

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Comments: (12-6-10) Section 455-16.2 last paragraph ... deeper shafts; “the rebar cage may be spliced or suspended”, seems to me to need a little more explanation: IE ... “lengthened by spicing per section 415-5.4, or suspend the cage by temporary support from ground elevation, as approved by the Engineer.”

Response:

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Comments: (12-6-10) Don Rauch is not here today. But I got what he was doing. I have highlighted in red his recommended changes to the proposal. Section 455-15.11.5.1 is to be deleted, rather than delete he recommends the verbiage listed below. Section 455-15.9.3 is not addressed in this change however he recommends changing that section to the verbiage listed below. For section 455-17.1 He added a line to the current proposed change and it is also marked in red. Hope this helps, Sorry for the confusion.

SUBARTICLE 455-15.11.5.1 (Pages 569 – 570) is deleted and the following substituted:

455-15.11.5.1 Excavation Time for shafts for miscellaneous Structures: For drilled shafts installed to support mast arms, cantilever signs, overhead truss signs, high mast light poles or other miscellaneous structures, adjust excavation operations so that the maximum time that slurry is in contact with the bottom 5 feet of the shaft (from time of drilling to concreting) does not exceed 12 hours. If exceeding the 12 hour time limit, overream the bottom 5 feet of shaft at no additional expense to the Department prior to performing other operations in the shaft.

SUBARTICLE 455-15.9.3 (Page 567) is deleted and following substituted:

455-15.9.3 Wet Excavations: Construct the tremie or pump line used to deposit concrete beneath the surface of water so that it is water-tight and will readily discharge concrete. Construct the discharge end of the tremie or pump line to prevent water intrusion and permit the free flow of concrete during placement operations. Ensure that the tremie or pump line has sufficient length and weight to rest on the shaft bottom before starting concrete placement. Ensure that the discharge end of the tremie or pump line is embedded at least 5 feet into the concrete at all times during the concrete placement when the shaft length is less than 15 feet in length and 10 feet into the concrete at all times during placement operations after 10 feet of concrete has been placed when the shaft length is greater than 15 feet long. Ensure that the free fall of concrete into the hopper is less than 5 feet at all time. Support the tremie so that it can be raised to increase the discharge of concrete and lowered to reduce the discharge of concrete. The Engineer will not allow rapid raising or lowering of the tremie to increase the discharge of the concrete. Maintain a continuous flow of concrete and a positive pressure differential of the concrete in the tremie or pump line at all times to prevent water or slurry intrusion into the shaft concrete.

SUBARTICLE 455-17.1 (Page 571) is deleted and the following substituted:

455-17.1 General: Place concrete in accordance with the applicable portions of Sections 346 and 400, 455-15.2, 455-15.3, 455-15.4, 455-15.5, 455-15.8, 455-15.9, and the requirements herein. Place concrete as soon as possible after completing all excavation, cleaning the shaft excavation, inspecting and finding it satisfactory, and immediately after placing reinforcing steel. Continuously place concrete in the shaft to the top elevation of the shaft. For drilled shafts under miscellaneous structures, after placing concrete to the top of the ground and flushing and cleanup, remove the temporary casing, set the top form and hand install the conduit to the correct depth. Continue concrete placement to the top of the form representing the top of shaft elevation,

flush and cleanup and then remove the tremie. Place concrete through a tremie or concrete pump using approved methods.

After the shaft is overpoured sufficiently to eliminate all contaminated concrete, additional concrete may be added to the shaft without the use of a tremie or pump in accordance with Section -400.

Response:

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Comments: (12-6-10) Currently Section 415 has the following sections for approved QPL items: Mechanical Rebar Splices and Plastic Chair and Bolsters. Will there eventually be a section for Spacers? 455-16.3 states, "Use concrete wheels or other approved noncorrosive spacing devices." It goes on to state, "Use spacers constructed of approved material equal in quality and durability to the concrete specified for the shaft. The Engineer will approve spacers subject to satisfactory performance in the field." I would like it cleared up where these are approved. How can the Engineer ever approve a spacer for the first time on satisfactory performance in the field? How would spacers ever get approved?

Response:
