

FLORIDA  
DEPARTMENT  
OF  
TRANSPORTATION



STANDARD SPECIFICATIONS  
FOR  
ROAD AND BRIDGE  
CONSTRUCTION

JULY 2017

**455-12.8 Preformed Pile Holes:** There is no separate pay item for preformed pile holes. Payment will be made as the unit price for piling of the applicable pile type. Payment will be full compensation for all labor, equipment, casings and materials required to perform this work.

**455-12.9 Point Protectors:** Price and payment will be full compensation for all labor, equipment, and materials required to perform this work.

**455-12.10 Static Load Tests:** Price and payment will be full compensation for all labor, equipment, and materials required to perform this work.

**455-12.11 Pile Cut-Off:** Anticipate all piles will require cutting-off, and include all costs associated with pile cut-off in the pay items for piling.

**455-12.12 Payment Items:** Payment will be made under:

Item No. 455- 2-	Treated Timber Piling - per foot.
Item No. 455- 14-	Concrete Sheet Piling - per foot.
Item No. 455- 34-	Prestressed Concrete Piling - per foot.
Item No. 455- 35-	Steel Piling - per foot.
Item No. 455- 36-	Concrete Cylinder Piling - per foot.
Item No. 455-119-	Test Loads - each.
Item No. 455-120-	Point Protection - each.
Item No. 455-133-	Sheet Piling - per square foot.
Item No. 455-143-	Test Piles (Prestressed Concrete) - per foot.
Item No. 455-144-	Test Piles (Steel) - per foot.
Item No. 455-145-	Test Piles (Concrete Cylinder) - per foot.

## C. DRILLED SHAFTS

### 455-13 Description.

Construct drilled shaft foundations consisting of reinforced concrete drilled shafts without bell footings.

### 455-14 Materials.

**455-14.1 Concrete:** For all concrete materials, meet the requirements of Section 346. Use concrete that is specified in the Plans.

**455-14.2 Reinforcing Steel:** Meet the reinforcing steel requirements of Section 415. Ensure that reinforcing steel is in accordance with the sizes, spacing, dimensions, and the details shown in the Plans.

### 455-15 Construction Methods and Equipment.

#### 455-15.1 General Requirements:

**455-15.1.1 Templates:** Provide a fixed template, adequate to maintain shaft position and alignment during all excavation and concreting operations, when drilling from a barge. Do not use floating templates (attached to a barge). The Engineer will not require a template for shafts drilled on land provided the Contractor demonstrates satisfactorily to the Engineer that shaft position and alignment can be properly maintained. The Engineer will require a fixed template, adequate to maintain shaft position and alignment during all excavation and concreting operations, for shafts drilled on land when the Contractor fails to demonstrate satisfactorily that he can properly maintain shaft position and alignment without use of a template.

**455-15.11.5 Time of Excavation:** Any unclassified excavation work lasting more than 36 hours (measured from the beginning of excavation for all methods except the Permanent Casing Method, which begins at the time excavation begins below the casing) before placement of the concrete requires overreaming the sidewalls to the depth of softening or removing excessive slurry cake buildup. Ensure that the minimum depth of overreaming the shaft sidewall is 1/2 inches and the maximum depth is 3 inches. Provide any overreaming required at no expense to the Department when exceeding the 36 hour limit unless the time limit is exceeded solely to accomplish excavating deeper than the elevation shown in the Plans as ordered by the Engineer. The Department will pay the Contractor for authorized overreaming resulting from softening or excessive filtercake buildup which is indicated by test methods employed by the Engineer during the initial 36 hour time period. The Department will pay the Contractor for authorized overreaming when excavating deeper than the elevation shown in the Plans as ordered by the Engineer exceeds the 36 hour time limit.

When using mineral slurry, 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.

#### **455-16 Reinforcing Steel Construction and Placement.**

**455-16.1 Cage Construction and Placement:** Completely assemble and place as a unit the cage of reinforcing steel, consisting of longitudinal bars, ties, and cage stiffener bars, immediately after the Engineer inspects and accepts the shaft excavation and immediately prior to placing concrete. Tie all intersections of drilled shaft reinforcing steel with cross ties or "figure 8" ties. Use double strand ties, ties with larger tie wire, U-bolts, or similar when necessary. The Engineer will give final approval of the cage construction and placement subject to satisfactory performance in the field.

**455-16.2 Splicing Cage:** If the bottom of the constructed shaft elevation is lower than the bottom of the shaft elevation in the Plans, extend a minimum of one half of the longitudinal bars required in the upper portion of the shaft the additional length. Continue the tie bars for the extra depth, spaced on 2 foot centers, and extend the stiffener bars to the final depth. The Contractor may lap splice these bars or use unspliced bars of the proper length. Do not weld bars to the planned reinforcing steel unless shown in the Contract Documents.

For drilled shafts supporting sign, signal, lighting and ITS structures, if the shaft cleaning operations result in excavating below the required tip elevation, the reinforcing steel cage does not need to be extended. The reinforcing steel cage may be spliced to rest on the bottom of the excavation or suspended in place from the top.

**455-16.3 Support, Alignment, and Tolerance:** Tie and support the reinforcing steel in the shaft so that the reinforcing steel will remain within allowable tolerances as specified in 455-20 and Section 415.

Use wheels or other approved noncorrosive spacing devices within 3 feet of the bottom, within 6 feet of the top, and intervals not exceeding 10 feet along the shaft to ensure concentric spacing for the entire length of the cage. Do not use block or wire type spacers. Use a minimum of one spacer per 30 inches of circumference of cage with a minimum of four at each level. Provide spacers at the bottom of the drilled shaft reinforcing cage as required to maintain the proper position of the cage.