

ORIGINATION FORM

Date: **4-1-13**

Originator: **Larry Jones**

Contact Information: **414-4305**

Specification Title: **Structures Foundations (Design Build) – Optional Soil Set-Up Approach**
Specification Section, Article, or Subarticle Number: **4550510-DB for Design Build projects**

Why does the existing language need to be changed? **An alternative technical concept needs to be included to allow for all manufacturers to compete in bidding.**

Summary of the changes: **The table in 455-5.10.7 is revised to reflect the technical criteria.**

Are these changes applicable to all Department jobs? **No.**

If not, what are the restrictions? **Design Build only.**

Will these changes result in an increase or decrease in project costs? **N/A**

If yes, what is the estimated change in costs?

With who have you discussed these changes?

What other offices will be impacted by these changes? **Design**

Are changes needed to the PPM, Design Standards, SDG, CPAM or other manual? **No**

Is a Design Bulletin, Construction Memo, or Estimates Bulletin needed? **No**

Contact the State Specifications Office for assistance in completing this form.

Daniel Scheer 850-414-4130 daniel.scheer@dot.state.fl.us

Frances Thomas 850-414-4101 frances.thomas@dot.state.fl.us

Debbie Toole 850-414-4114 deborah.toole@dot.state.fl.us

Andy Harper 850-414-4127 clifton.harper@dot.state.fl.us

Ray Haverty 850-414-4129 ray.haverty@dot.state.fl.us



Florida Department of Transportation

RICK SCOTT
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

ANANTH PRASAD, P.E.
SECRETARY

MEMORANDUM

DATE: September 30, 2013

TO: Specification Review Distribution List

FROM: Daniel Scheer, P.E., State Specifications Engineer

SUBJECT: Proposed Specification: **4550510DB Structures Foundations (Design Build) – Optional Soil Set-Up Approach.**

In accordance with Specification Development Procedures, we are sending you a copy of a proposed specification change for Design Build projects.

This change is proposed by Larry Jones of the State Structures Design Office to incorporate this alternative technical concept in Design Build projects when requested by the Geotechnical Engineer.

Please share this proposal with others within your responsibility. Review comments are due within four weeks and should be sent to Mail Station 75 or to my attention via e-mail at SP965DS, or daniel.scheer@dot.state.fl.us. Comments received after **October 28, 2013**, may not be considered. Your input is encouraged.

DS/ft
Attachment

STRUCTURES FOUNDATIONS (DESIGN BUILD) – OPTIONAL SOIL SET-UP APPROACH.

(REV ~~12-3-127-30-13~~) (~~FA 1-3-13~~)(1-13)

ARTICLE 455-5.10.7 is deleted and the following substituted:

455-5.10.7 Optional Soil Set-Up Approach: If the Contractor so desires, it may consider soil set-up. Production piles that are driven to less than the Nominal Bearing Resistance (NBR) may be accepted based on the anticipated soil setup without set checks on all piles, only if the following criteria are met:

- (a) Pile tip penetration satisfies the minimum penetration requirement following 455-5.8.
- (b) End of Initial Drive (EOID) resistance exceeds 1.10 times the Factored Design Load for the pile bent/pier, as determined by the dynamic testing or blow count criteria.
- (c) The Resistance Factor for computing NBR is taken from the following table:

<i>Resistance Factors for Pile Installation Using Soil Setup (all structures)</i>				
<i>Loading</i>	<i>Design Method</i>	<i>Construction QC Method</i>	<i>Resistance Factor, ϕ</i>	
			<i>Blow Count Criteria³</i>	<i>100% Dynamic Testing⁴</i>
<i>Compression</i>	<i>Davisson Capacity</i>	<i>EDC using UF method, or PDA and CAPWAP¹</i>	<i>0.55</i>	<i>0.60</i>
		<i>Static Load Testing²</i>	<i>0.65</i>	<i>0.70</i>
		<i>Statnamic Load Testing²</i>	<i>0.60</i>	<i>0.65</i>
<i>Uplift</i>	<i>Skin Friction</i>	<i>EDC using UF method, or PDA and CAPWAP¹</i>	<i>0.45</i>	<i>0.50</i>
		<i>Static Load Testing²</i>	<i>0.55</i>	<i>0.55</i>
<i>1 Dynamic Load Testing and Signal Matching Analysis</i> <i>2 Used to confirm the results of Dynamic Load Testing and Signal Matching Analysis</i> <i>3 Initial drive of production piles using Blow Count Criteria</i> <i>4 Initial drive of all piles accepted by results of Dynamic Testing of all blows.</i>				

<i>Resistance Factors for Pile Installation Using Soil Setup (all structures)</i>			
<i>Loading</i>	<i>Design Method</i>	<i>Construction QC Method</i>	<i>Resistance Factor, ϕ</i>
<i>Compression</i>	<i>Davisson Capacity</i>	<i>PDA and CAPWAP¹</i>	<i>0.55</i>
		<i>Static Load Testing²</i>	<i>0.65</i>
		<i>Statnamic Load Testing²</i>	<i>0.60</i>
<i>Uplift</i>	<i>Skin Friction</i>	<i>PDA and CAPWAP¹</i>	<i>0.45</i>

Use when Geotechnical Services are required for the Project.

		Static Load Testing ²	0.55
1 Dynamic Load Testing and Signal Matching Analysis			
2 Used to confirm the results of Dynamic Load Testing and Signal Matching Analysis			

(d) At least one test pile is driven at each bent/pier *with a successful set check at the anticipated production pile tip elevations* and one of the following sets of dynamic load testing conditions are met at each bent/pier.

1. The bearing of at least 10% of piles in the bent/pier (round up to the next whole number) is confirmed by instrumented set-check, and all test piles and instrumented set-checks demonstrate the pile resistance exceeds the NBR within seven days after EOID

2. The bearing of at least 20% of piles in the bent/pier (round up to the next whole number) is confirmed by instrumented set-check, and all test piles and instrumented set-checks demonstrate the pile resistance exceeds the NBR within 21 days after EOID.

(e) All uninstrumented piles are driven deeper and to a greater EOID resistance than the EOID resistance of all instrumented production piles in the same bent/pier.