

Section 10.1

PILE LENGTHS

10.1.1 Purpose

To establish a procedure for obtaining production pile lengths and driving criteria to be used in structures.

10.1.2 Authority

Section 334.048, Florida Statutes

Section 455, Standard Specifications for Road and Bridge Construction and Supplements thereto.

10.1.3 Definitions

District Construction Engineer (DCE): The authority on the entire construction activity in the District.

Geotechnical Engineer: In this procedure, the Geotechnical Engineer may be the District Geotechnical Engineer (DGE), any Department Engineer assigned for the project by the DGE, the Consultant Geotechnical Engineer working directly for the District Geotechnical Engineer, or the Geotechnical Engineer employed by the Department's Consultant CEI and performing under the direction of the DCE and DGE.

Project Engineer: The Engineer who shall be responsible for the everyday construction activity at the project under the direction of the Resident Engineer/Senior Project Engineer.

10.1.4 General

The steps to establish pile lengths consist of approval of Contractor's hammer system as detailed in the pile installation plan, the recording of test pile data, and the setting of production pile lengths and the driving criteria in accordance with **Section 455, Structures Foundations, Standard Specifications**.

10.1.5 Approval of Pile Driving System

(A) Resident Level Responsibilities

The Resident Engineer shall receive from the Contractor at least 30 days prior to the driving of the initial test pile a completed ***Pile Driving Installation Form, No. 700-020-01***. Within three (3) working days, the Resident Engineer shall forward the pile installation plan to the Geotechnical Engineer for review and recommendations.

The Project Engineer, within five (5) working days of receipt of the Geotechnical Engineer's comments and/or recommendations shall notify the Contractor of acceptance, rejection or request additional information and/or changes that may be necessary for pile driving. The letter of rejection shall contain the reason(s) for rejection of the plan.

(B) District Level Responsibilities

The District Geotechnical Engineer shall make comments and/or recommendations to the Resident Engineer of the acceptance or rejection of the driving system within five (5) working days of receiving the pile installation plan.

10.1.6 Test Pile Installation

(A) Resident Level Responsibilities

Test pile installation shall be documented in the pile driving record. As soon as the Contractor's schedule for driving test piles is known, the Project Engineer shall notify the Geotechnical Engineer of the schedule so the Geotechnical Engineer may observe the installation of the test piles to aid in setting production pile lengths.

Every test pile driven on the project shall be recorded in the pile driving record. It shall contain all the data and observations pertaining to the driving of the test pile. The test pile lengths and any special requirements for piles can be found in the plans or specifications.

Two pages of the pile driving record book are dedicated for recording information relating to each pile driven Page 1 contains the general information about the project, driving criteria, and procedures. Page 2 contains the driving log record and comments. The test pile information must be completed as soon as practical.

Most of the items on Page 1 are self-explanatory. The subcontractor's name should be noted only if someone other than the prime Contractor drives the piling.

The notes section shall describe any occurrences during the driving of the pile or any information, which the recorder feels, may be beneficial to the Geotechnical Engineer or the Project Engineer.

Page 2 describes the actual pile driving. All of the field information shall be completed for each foot of driving. The specifications require the Contractor to furnish high and low ground elevations at each pile group and bent. This elevation shall be of the natural ground, not of the water line. This information should be shown for all locations where pile lengths are to be authorized.

The measured hammer energy is the hammer energy determined during driving by observed stroke lengths or pressure gauges (other methods may be used when proposed and approved). Stroke/pressure details must be documented.

The pile rebound shall be monitored and recorded accurately with the amount of rebound shown in inches and the elevation limits of rebound shown.

The notes column must describe, accurately and completely, the manner in which the pile driving proceeded noting any irregularities, unexpected occurrences, deviations from driving criteria or procedures, actual elevations where the jets were turned on and off, relationship between the pile tip and jet tip, depth to which the pile penetrated under its own weight, spalling, cracks, where cushions were changed, etc.

Upon completion of test pile driving documentation, the inspector and the Project Engineer must sign the form in the appropriate place. The original is retained in the project files. A copy of the completed form is to be sent to the Geotechnical Engineer for review and use in setting the permanent pile lengths.

Additional information will need to be sent to the Geotechnical Engineer to aid in setting pile lengths. This information would include copies of field data notes, including notes obtained for the monitoring of equipment, any PDA and CAPWAPC information obtained, load test results and any other information which explains or records the events occurring during the driving of the piles.

This information shall be attached to the test pile record.

10.1.7 Production Pile Installation

Production pile lengths are established utilizing the results of the test pile program and contract documents. As mentioned above, pile driving shall be documented in the pile driving record book.

(A) District Level Responsibilities

Within seven (7) days of the receipt of the test pile dynamic and/or static load test data, the Geotechnical Engineer shall review and examine the test pile data and set up the production pile length and driving criteria. A letter of recommendation similar to the pile length letter, containing pile-driving criteria shall be sent a letter to the Resident Engineer recommending production pile lengths to be used on the project Refer to Guidance Documents 10-1-A and 10-1-B for Sample letters.

The letter shall contain the required blow count, minimum tip elevation or depth requirements, if applicable, and any other special driving criteria. A chart of blow count versus capacity shall also be furnished. If using a diesel hammer, a chart of blow count versus stroke/pressure shall also be furnished and attached to the letter of recommendation. A copy of the ***Pile Driving Installation Plan Form, No. 700-020-01***, shall be attached to the letter so that all parties involved know that the same system used to install test piles is also used to install production piles.

(B) Resident Level Responsibilities

Upon receipt of the letter from the Geotechnical Engineer, the Resident Engineer shall approve the recommendation and send it to the Contractor.

Guidance Document 10-1-A

**SAMPLE LETTER NO. 1
PRODUCTION PILE LENGTHS**

(Date)

(ADDRESSEE)

PRODUCTION PILE LENGTHS

Financial Project ID:

State Job No.:

FAP No.:

Contract No.:

County:

Dear (_____):

The District (put in which District, 1-8) Geotechnical Office has completed its review of the test load/core boring data for the subject bridge. The recommended production pile lengths are as follows:

LOCATION	PILE SIZE	RECOMMENDED PILE LENGTH
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Recommended by: _____
District Geotechnical Engineer/Geotechnical Engineer

Authorized for contract administration purpose by: _____
Resident Engineer

(Initials/Initials)

cc: State Construction Geotechnical Engineer

State Structures Engineer's Office (State Geotechnical Engineer)
FHWA (only if Federal Aid oversight project)

Guidance Document 10-1-B

SAMPLE LETTER NO. 2 PRODUCTION PILE LENGTHS

(DATE)

(ADDRESSEE)

Re: Financial Project ID:
State Job No.:
FAP No.:
Contract No.:
County:

Dear (_____):

The District (put in which District 1-8) Geotechnical Office has completed its review of the test load/core boring data for the subject bridge. The recommended production pile lengths are as follows:

LOCATION	PILE SIZE	RECOMMENDED PILE LENGTH
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If you have any questions or require further information, please let us know.

Recommended by: _____
Consultant Geotechnical Engineer

Concurrence by: _____
District Geotechnical Engineer

Authorized for contract administration purpose by:

Resident Engineer

(INITIALS/INITIALS)

cc: State Construction Geotechnical Engineer

State Structures Engineer's Office (State Geotechnical Engineer)
FHWA (only if Federal Aid oversight project)