Florida Department of Transportation

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GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

STEPHANIE KOPELOUSOS
SECRETARY

December 11, 2007

Dr. Leslie McCarthy, PhD, P.E.
Program Operations Engineer
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: Office of Design, Specifications
Section 548
Proposed Specification: 5480700- Retaining Wall Systems- Acceptance Program

Dear Dr. McCarthy:

We are submitting, for your approval, two copies of a proposed Supplemental Specification for Retaining Wall Systems- Acceptance Program.

This change was proposed by Tom Malerk of the State Materials Office to provide a verification and resolution process for organic testing.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via Email to SP965DB or duane.brautigam@dot.state.fl.us.

If you have any questions relating to this specification change, please call Duane F. Brautigam, State Specifications Engineer at 414-4110.

Sincerely,

signature of file

Duane F. Brautigam, P.E.
State Specifications Engineer

DFB/dm
Attachment
cc: Gregory Jones, General Counsel
Florida Transportation Builders' Assoc.
State Construction Engineer

RETAINING WALL SYSTEMS.
(REV 10-09-07)

ARTICLE 548-7 (of the Supplemental Specifications) is deleted and the following substituted:

548-7 Acceptance Program.

548-7.1 General Requirements: *Meet the requirements of 120-10 except delete the requirement of 120-10.1.4.1, 120-10.1.4.3, 120-10.2 and 120-10.3.*

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548-7.2 Maximum Density Determination: Obtain a minimum Quality Control (QC) density of 100% of the maximum density as determined by FM 1 T-180.

Perform gradation tests on the sample collected in accordance with AASHTO T 27 and FM 1-T 011. Classify soils in accordance with AASHTO M–145 in order to determine compliance with embankment utilization requirements.

548-7.3 Density Testing Requirements: Ensure compliance with the requirements of nuclear density testing in accordance with FM 1-T 238. Determine the in-place moisture content for each density test. Use FM 1-T 238, FM 5-507 (Determination of Moisture Content by Means of a Calcium Carbide Gas Pressure Moisture Tester), or FM 5-535 (Laboratory Determination of Moisture Content of Granular Soils By Use of a Microwave Oven) for moisture determination.

Perform these tests at a minimum frequency of one set of tests per LOT. One set of tests is defined as a density test for the fill within 3 ft behind the wall face and another density test for the fill beyond 3 feet behind the wall face.

Determine test locations including stations and offsets, using the random number generator provided by the Engineer. Do not use note pads or work sheets to record data for later transfer to the density log book. Notify the Engineer upon successful completion of QC testing on each LOT.

548-7.4 Acceptance Criteria: Obtain a minimum density of 90% of the maximum dry density as determined by FM 1 T-180within 3 ft behind the wall face and obtain a minimum density of 95% of the maximum dry density as determined by FM 1 T-180 from beyond 3 feet behind the wall face.

548-7.5 Frequency: Conduct sampling and testing at a minimum frequency listed in the table below. The Engineer will perform Verification sampling and tests at a minimum frequency listed in the table below.

Test Name	Quality Control	Verification
Maximum Density	One per soil type	One per soil type
Density	One set of tests per LOT	One set of tests per four LOTs for each type of QC test.
Gradation	One per Maximum Density	One per Maximum Density
LL&PI	One per Maximum Density	One per Maximum Density
Soil Classification	One per Maximum Density	One per Maximum Density
Organic Content	*One per soil type*	*One per soil type*

In addition, for permanent walls utilizing metallic soil reinforcement, test for corrosiveness at a minimum frequency of one test per soil type at point of placement according to the electro-chemical table in 548-2.6. The Engineer will collect enough material to split and create two separate samples and retain one for Resolution at point of placement until LOTs represented by the samples are accepted. The Engineer will perform Verification tests for corrosiveness at a minimum frequency of one test per soil type.

548-7.6 Verification Comparison Criteria and Resolution Procedures:

548-7.6.1 Maximum Density Determination: The Engineer will collect enough material to split and create two separate samples and retain one for Resolution until LOTs represented by the samples are accepted.

The Engineer will meet the requirements of 120-10.4.1 except replace “AASHTO T 99, Method C” with “FM 1-T 180, Method D”.

548-7.6.2 Density Testing: Meet the requirements of 120-10.4.2.

548-7.6.3 Soil Classification: The Engineer will meet the requirements of 120-10.4.3 except test the sample retained in 548-7.6.1 instead of taking the additional one.

548-7.6.4 Gradation: The Engineer will verify the Quality Control results if the Verification result meets the gradation limits set forth in the gradation table of 548-2.6. Otherwise, the Engineer will test the sample retained in 548-7.6.1. The State Materials Office or an AASHTO accredited laboratory designated by the State Materials Office will perform Resolution testing. The material will be sampled and tested in accordance with AASHTO T 27 and FM 1-T 011.

If the Resolution Test result satisfies the required gradation limits, the LOTS will be verified. If the Resolution Test results do not meet the required gradation limits, reconstruct the LOTS with acceptable material. The Engineer will perform new verification testing.

548-7.6.5 LL&PI: The Engineer will verify the Quality Control results if the Verification result satisfies the plasticity index and liquid limit criteria set forth in 548-2.6. Otherwise, the Engineer will test the sample retained in 548-7.6.1. The State Materials Office or an AASHTO accredited laboratory designated by the State Materials

Office will perform Resolution testing. The material will be sampled and tested in accordance with AASHTO T 90 and AASHTO T 89 respectively.

If the Resolution Test result satisfies the required criteria, LOTS of that soil type will be verified. If the Resolution Test results do not meet the required criteria, reconstruct the corresponding LOTS with acceptable material. The Engineer will perform new verification testing.

548-7.6.6 Corrosiveness: The Engineer will verify the Quality Control results if the Verification result satisfies the electro-chemical test criteria set forth in 548-2.6. Otherwise, the Engineer will test the sample retained in 548-7.5. The State Materials Office or an AASHTO accredited laboratory designated by the State Materials Office will perform Resolution testing. The material will be sampled and tested in accordance with FM 5-551, FM 5-552 and FM 5-553.

If the Resolution Test result satisfies the required criteria, material of that soil type will be verified and accepted. If the Resolution Test results do not meet the required criteria, reject the material and reconstruct with acceptable material.

548-7.6.7 Organic Content: The Engineer will verify the Quality Control results if the Verification result satisfies the organic content test criteria set forth in 548-2.6. Otherwise, the Engineer will collect three additional samples. The material will be sampled and tested in accordance with FM 1-T 267 and by averaging the test results for three randomly selected samples from at least one lift per soil type. The State Materials Office or an AASHTO accredited laboratory designated by the State Materials Office will perform Resolution testing.

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