

ORIGINATION FORM

Date: **11/22/2013**

Originator: **Juan Castellanos**

Contact Information: **Juan Castellanos 850-414-4276**

Specification Title: **Retaining Wall Systems**

Specification Section, Article, or Subarticle Number: **548-2.6.2**

Why does the existing language need to be changed? **To address an industry request of allowing the use of materials with low pH values for geosynthetic reinforcement and no metal elements within the backfill.**

Summary of the changes: **In sub-article 548-4.6.2, allow pH between 3 and 5 for walls for geosynthetic reinforcement and no metallic reinforcement under certain conditions.**

Are these changes applicable to all Department jobs? **Yes**

If not, what are the restrictions?

Will these changes result in an increase or decrease in project costs? **No**

If yes, what is the estimated change in costs?

With who have you discussed these changes? **State Materials Office, Rudy Powell, Larry Jones**

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

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.

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ANANTH PRASAD, P.E.
SECRETARY

MEMORANDUM

DATE: December 2, 2013
TO: Specification Review Distribution List
FROM: Daniel Scheer, P.E., State Specifications Engineer
SUBJECT: Proposed Specification: **5480206 Retaining Wall Systems.**

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

This change was proposed by Juan Castellanos of the State Construction Office to allow the use of materials with low pH values for geosynthetic reinforcement with no metal elements within the backfill.

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 **December 30, 2013**, may not be considered. Your input is encouraged.

DS/cah
Attachment

RETAINING WALL SYSTEMS.
(REV 11-25-13)

SUBARTICLE 548-2.6.2 is deleted and the following substituted:

548-2.6.2 Compacted Select Backfill: Meet the requirements of Sections 105 and 120 except as noted within this Section. Have the backfill material tested for every soil type for pH, resistivity, sulfate and chloride content by a Department approved independent testing laboratory prior to placement. Provide certification to the Engineer that the results have met the requirements of this Section and are signed and sealed by a Professional Engineer, registered in the State of Florida.

For constructing the retaining wall volume, do not use backfill material containing more than 2.0% by weight of organic material, as determined by FM 1-T 267 and by averaging the test results for three randomly selected samples from each stratum or stockpile of a particular material. If an individual test value of the three samples exceeds 3%, the stratum or stockpile will not be suitable for constructing the retaining wall volume.

Ensure that the material is non-plastic as determined by AASHTO T90 and the liquid limit as determined by AASHTO T89 is less than 15. The pH, as determined by FM 5-550, shall not be lower than 5.0 and not higher than 9.0. *The Engineer may approve Sources of select backfill material having a pH between 4.5 and 5.0 for walls utilizing metallic reinforcement and between 3.0 and 5.0 for walls utilizing geosynthetic reinforcement without no metallic elements or pipes placed within the backfill,* as determined by FM 5-550, may be used provided the interior face of the MSE wall panels have 3 inches of concrete cover over the reinforcement and the concrete used in the panels contains the following ingredients and proportions:

1. The quantity of cement replaced with Type F fly ash is 10% to 20% by weight.
2. The quantity of cement replaced with slag is 50% to 60% by weight.
3. Portland cement is 30% by weight of total cementitious material.
4. The total weight of the Type F fly ash and slag does not exceed 70% of total cementitious material.

Do not place metallic pipe in backfill materials having a pH less than 5.0.

Use backfill for walls using soil reinforcements that meets the following gradation limits determined in accordance with AASHTO T27 and FM 1-T 011:

Sieve Size	Percent Passing
3-1/2 inches	100
3/4 inch	70-100
No. 4	30-100
No. 40	15-100
No. 100	0-65
No. 200	0-12

In addition, for permanent walls utilizing metallic soil reinforcement, use backfill that meets the following electro-chemical test criteria for determining corrosiveness:

Criteria	Test Method
Resistivity: > 3000 ohm --cm	FM 5-551
Soluble sulfate content: < 200 PPM	FM 5-553
Soluble chloride content < 100 PPM	FM 5-552

For walls not using soil reinforcement, use backfill that meets the following gradation limits determined in accordance with AASHTO T27 and FM 1-T 011:

Sieve Size	Percent Passing
3-1/2 inches	100
No. 200	0-12