



Florida Department of Transportation

RICK SCOTT
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

ANANTH PRASAD, P.E.
SECRETARY

January 16, 2014

Chad Thompson
Programs Operations Engineer
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: State Specifications and Estimates Office
Section **548**
Proposed Specification: **5480206 Retaining Wall Systems.**

Dear Mr. Thompson:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

These changes were 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 review and transmit your comments, if any, within two weeks. Comments should be sent via email to SP965DS or daniel.scheer@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at 414-4130.

Sincerely,

Daniel Scheer, P.E.
State Specifications Engineer

DS/cah

Attachment

cc: Florida Transportation Builders' Assoc.
State Construction Engineer

RETAINING WALL SYSTEMS.**(REV 11-1625-143)**

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.

In lieu of the mix design described above, a mix design with a fast pozzolanic material meeting the requirements of 346-2.3 (6) Silica Fume, Metakaolin and Ultrafine Fly Ash, can be substitute. Examples of mix designs meeting this requirement are:

- 1. 8% silica fume plus 20% fly ash*
- 2. 10% metakaolin plus 20% fly ash*

Provide proper curing for these materials to prevent surface cracking.

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

RETAINING WALL SYSTEMS.**(REV 1-16-14)**

SUBARTICLE 548-2.6.2 is deleted and the following substituted:

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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. 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 with 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:

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