ORIGINATION FORM
Proposed Revisions to the Specifications

(Please provide all information - incomplete forms will be returned)

Date: February 26, 2020

Office: Materials

Originator: John Shoucair

Specification Section: 530

Telephone: 352-955-2925, 880-2925

Article/Subarticle: 2.1.3.3, 2.1.3.4, 2.3.4, 2.1, 3.2, 4.1

email: john.shoucair@dot.state.fl.us

****Will the proposed revision require changes to:**

Publication	Yes	No	Office Staff Contacted and date contacted
Standard Plans Index	○	◉	
Traffic Engineering Manual	○	◉	
FDOT Design Manual	○	◉	
Construction Project Administration Manual	○	◉	
Basis of Estimate/Pay Items	◉	○	Missy Hollis 1/24/20, Kristin
Structures Design Guidelines	○	◉	
Approved Product List	◉	○	Karen Byram 2/5/20
Materials Manual	○	◉	

**This section must be completed prior to processing proposed revisions.

Will this revision necessitate any of the following:

Design Bulletin ☐ **Construction Bulletin** ☑ **Estimates Bulletin** ☐ **Materials Bulletin** ☑

Are all references to external publications current? **Yes** ◉ **No** ○

If not, what references need to be updated? (Please include changes in the redline document.)

Why does the existing language need to be changed?

There is an incorrect reference the Test Method for Los Angeles Abrasion for large aggregate. On-site mixing of sand cement bags is specified, but contractors are using prepackaged bags from commercial sources.

Summary of the changes:

Correct the reference the Test Method for Los Angeles Abrasion.
Specify the use of prepackaged bags approved on the APL list, and correct subsequent references that assume in-place mixing was performed on site. Change measurement to bag.

Are these changes applicable to all Department jobs? **Yes** ◉ **No** ○

If not, what are the restrictions?

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

Daniel Strickland 850-414-4130 Daniel.Strickland@dot.state.fl.us Rebecca Frimmel 850-414-4155 Rebecca.Frimmel@dot.state.fl.us

Valencia Cunningham 850-414-4101 Valencia.Cunningham@dot.state.fl.us Darla Hunsicker 850-414-4114 Darla.Hunsicker@dot.state.fl.us

Florida Department of Transportation
605 Suwannee Street
Tallahassee, FL 32399-0450

RON DESANTIS
GOVERNOR

KEVIN J. THIBAULT, P.E.
SECRETARY

M E M O R A N D U M

DATE: June 25, 2020

TO: Specification Review Distribution List

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

SUBJECT: Proposed Specification: **5300201 REVETMENT SYSTEMS**

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

These changes were proposed by John Shoucair to correct the reference in the Test Method for Los Angeles Abrasion, specify the use of prepackaged bags approved on the APL list, and correct subsequent references that assume in-place mixing was performed on site. The bag measurement is also to be changed in the Standard Specification.

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 online at http://fdotewp1.dot.state.fl.us/programmanagement/development/industryreview.aspx . Comments received after **July 23,2020**, may not be considered. Your input is encouraged.

DS/dh

Attachment

REVETMENT SYSTEMS
(REV 5-8-20)

SUBARTICLE 530-2.1.1 is deleted and the following substituted:

530-2.1 Riprap:

530-2.1.1 General: Meet the following requirements:

~~Portland Cement.....Section 921~~
~~Fine Aggregate.....Section 902~~
~~Grout .....Section 934~~
Type D-2 Geotextile Fabric* .....Section 985
*Use products listed on the Department's APL.

SUBARTICLE 530-2.1.2 is deleted and the following substituted:

530-2.1.2 ~~Sacks~~Prepackaged Sand-Cement Bags: Provide prepackaged sand-cement bags listed on the Department's Approved Product List. ~~Provide sacks made of jute, cotton, or scrim reinforced paper capable of holding the sand-cement mixture without leakage. Ensure that sack material is permeable and absorptive enough to permit passage of water to provide for hydration of the cement. Ensure that paper used in sacks is non-asphalt laminated with a polyester fiber scrim reinforcement in a three-way directional pattern, has an embossed finish, and is perforated approximately 3/32 inch in approximate one inch centers. Extend perforations continuously through the entire wall.~~

~~Provide sacks of uniform size and dimensions, in order to provide uniformity of lines in the completed work. Use sacks that are free from holes and strong enough to withstand handling without ripping or splitting. Use only one type and size of sack at any one structure.~~

SUBARTICLE 530-2.1.3.3 is deleted and the following substituted:

530-2.1.3.3 Physical Requirements of Broken Stone and Broken Concrete: Use broken stone and broken concrete meeting the following physical requirements:

Absorption (FM 1-T85)	Maximum 5%
Los Angeles Abrasion (ASTM C535~~FM 1-T096~~)	Maximum loss 45%*
Soundness (Sodium Sulphate) (AASHTO T104)	Maximum loss 12%** (after five cycles)
Flat and elongated pieces	Materials with least dimension less than one third of greatest dimension not exceeding 10% by weight.
Dirt and Fines	Materials less than 1/2 inch in maximum dimension accumulated from interledge layers, blasting or handling operations not exceeding 5% by weight.
Drop Test***(EM 1110-2-2302)	No new cracks developed, or no existing crack widened additional 0.1 inch, or final largest dimension greater than or equal to 90% original largest dimension of dropped piece.

* Ensure that granite does not have a loss greater than 55% and that broken concrete does not have a loss greater than 45%.
** The Engineer may accept rubble exceeding the soundness loss limitation if performance history shows that the material will be acceptable for the intended use. The Engineer will waive the soundness specification for rubble riprap (broken stone and broken concrete) when project documents indicate it will be placed in or adjacent to water or soil with a sulfate content less than 150 parts per million and a pH greater than 5.0.
*** The Engineer will waive the Drop Test unless required to ensure structural integrity. Provide all equipment, labor and testing at no expense to the Department. EM refers to the US Army Corps of Engineer's Specification Engineering Method.

SUBARTICLE 530-2.1.3.4 is deleted and the following substituted:

530-2.1.3.4 Source Approval and Project Control: The Engineer will approve construction aggregate sources in accordance with 6-2.3. ~~as amended by the following:~~

1. The Engineer may perform Independent Verification tests on all materials placed on the project.

2. The Engineer will check the gradation of the riprap by visual inspection at the project site. Resolve any difference of opinion with the Engineer in accordance with the method provided in FM 5-538. Provide all equipment, labor, and the sorting site at no expense to the Department.

3. The Engineer may test components in a blend of rubble processed from different geologic formations, members, groups, units, layers, or seams. The Engineer may select components based on like color, surface texture, porosity, or hardness. The Engineer will reject any blend if a component that makes up at least five percent by volume of the blend does not meet these specifications.

SUBARTICLE 530-2.3.4 is deleted and the following substituted:

530-2.3.4 Gabion Rock: Use rock meeting the requirements of ASTM D6711 to fill gabions. The rock must be reasonably free from thin, flat, or elongated pieces. Rock size must be at least 1.25 times greater than the aperture size of the wire mesh or fabric. Each range

of sizes may allow for a variation of 5% oversize rock by weight, 5% undersize rock by weight, or both.

Physical Property Requirements	Acceptable Range
Los Angeles Abrasion ~~, ASTM C131~~ and ASTM C~~D~~535	Maximum loss 40%
Bulk Specific Gravity	Minimum 2.20
Absorption, ASTM C127 and ASTM C128	Maximum 3%

SUBARTICLE 530-3.2 is deleted and the following substituted:

530-3.2 Sand-Cement:

~~**530-3.2.1 Mixing Materials:** Proportion sand and cement in the ratio of 5 cubic feet of sand to 94 pounds (one bag) of cement. If proportioning the materials by mass, use a density of 85 pounds per cubic foot (loose volume) for sand. The Contractor may batch sand at the moisture content occurring in the stockpile.~~

~~Mix the sand and cement until the mixture is of uniform color.~~

~~**530-3.2.2 Filling Sacks:** Accurately measure the mixed material into each sack, taking care to place the same amount of material in each sack; keep at least the top 6 inches of the sacks unfilled to allow for proper tying or folding and to ensure against breaking of the sack during placing.~~

530-3.2.1~~3~~ Placing: Place the ~~filled~~ bags~~sacks~~ with their ~~tied or folded~~ ends all in the same direction. Lay the bags~~sacks~~ with broken joints, in a regular pattern. Ram or pack the bags~~sacks~~ against each other so as to form a close and molded contact ~~after the sand and cement mixture has set up~~. Remove and replace bags~~sacks~~ ripped or torn in placing with sound, unbroken bags~~sacks~~. Then, thoroughly saturate all bags~~sacks~~ with water.

530-3.2.2~~4~~ Grouting: Immediately after watering, fill all openings between bags~~sacks~~ with dry grout composed of one-part Portland cement and five parts sand.

530-3.2.3~~5~~ Toe Walls: ~~The Contractor may construct toe walls of riprap for fill slopes of poured in place concrete in lieu of sand cement in sacks. Meet the concrete requirements as specified in Section 347. If using~~ Use sand~~-~~ cement bags~~in sacks~~ for the toe walls if required.~~,~~ ~~f~~Fill the entire trench excavated for the toe walls with sand~~-~~-cement ~~in~~ bags~~sacks~~.

SUBARTICLE 530-4.1 is deleted and the following substituted:

530-4 Method of Measurement.

530-4.1 Sand-Cement: The quantity to be paid for will be the volume, in cubic yards, calculated from the minimum dimensions shown in the plans, satisfactorily placed and accepted.~~of sand actually used in the sand cement mixture and grout, satisfactorily placed and accepted.~~

~~If sand cement is proportioned by volume, the sand will be measured loose in an approved measure prior to mixing with cement. If sand cement is proportioned by weight,~~

~~approved scales will be used for this purpose and the volume will be calculated using a standard conversion factor for sand of 85 pound per cubic foot. No adjustment of batch weights to allow for varying moisture content of the sand will be made.~~

~~For toe walls, the quantity to be paid for will include only the volume of sand cement in sacks or concrete placed within the neat lines shown in the Plans for the toe walls.~~