

Origination Form

Specifications

Name:	Richard Hewitt	Specification Number:	All articles of 283 edited except 283-2
Email:	richard.hewitt@dot.state.fl.us	Associated Specs:	None.
Date:	2024-05-08T18:08:42Z	Verified:	VERIFIED

Summary:

Changing method by which density target is established. Spec change sets Density Target by using 85% of the Gmm (Maximum Specific Gravity) of the RAP Material. Expanding location RAP Base can be to include Limited Access shoulders that are NOT designated Emergency Use.

Justification:

Current method of establishing density target based on 95% of Modified Proctor Test results in relative density in the 70% range. Establishing density target based on 85% of RAP Gmm (RAP Maximum Specific Gravity) ensure a higher density target is established and does so without need to run Modified Proctor Tests.

Do the changes affect other types of specifications?

Section 285 has minor edits

List Specifications Affected: 285 Optional Base Course

Other Affected Documents/Offices	Contacted	Yes/No
Other Standard Plans		No
Florida Design Manual		Yes
Structures Manual		No
Basis of Estimates Manual		No
Approved Product List		No
Construction Office		No
Maintenance Office		No

Materials Manual		No
Traffic Engineering Manual		No

Are changes in line with promoting and making progress on improving safety, enhancing mobility, inspiring innovation, and fostering talent; explain how?

Helps improve quality by establishing a more appropriate density target.

What financial impact does the change have; project costs, pay item structure, or consultant fees?

No impact anticipated.

What impact does the change have on production or construction schedules?

No change anticipated.

How does this change improve efficiency or quality?

Improves quality by ensuring adequate density of RAP Base is achieved. Current use of 95% of Modified Proctor Test results in relative density in 70% range and this is likely reason why RAP Base has had mixed history of success with some projects rutting and creeping when loaded with traffic.

Which FDOT offices does the change impact?

Construction and Materials

What is the impact to districts with this change?

Should simplify operations at would eliminate need to perform Modified Proctor Testing to determine density target for field use. Rather contractor can use existing RAP Gmm test data to determine field density target.

Does the change shift risk and to who?

No shift in risk.

Provide summary and resolution of any outstanding comments from the districts or industry.

Comments and Responses are available on the Track the Status of Revisions hyperlink located on the Specifications landing page: <https://www.fdot.gov/programmanagement/Specs.shtm>

What is the communication plan?

Through the established specification revision process (e.g., Internal and Industry Review)

What is the schedule for implementation?

The Standard Specifications eBook and Workbook are effective July 1st every year.

RECLAIMED ASPHALT PAVEMENT BASE (REV 5-8-24)

SECTION 283-1 is deleted and the following substituted:

283-1 Description.

Construct a base course composed of reclaimed asphalt pavement (RAP) material. Use RAP material as a base course only on ~~non-limited-access~~ paved shoulders, shared use paths, or other non-traffic bearing applications. Use RAP base thickness equivalent to the optional base group thickness for limerock on Limited Access shoulders. Do not use RAP on shoulders designated as Emergency Shoulder Use nor substitute RAP in lieu of stabilized subgrade.

283-2 Materials.

Meet the following requirements:

Recycled Asphalt Pavement (RAP)334-2.3

Prime Coat* Section 300

*Use products listed on the Department's Approved Products List (APL).

Obtain the RAP material by either milling or crushing an existing asphalt pavement. Use material so that at least 97% (by weight) pass a 3-1/2 inch sieve and is graded uniformly down to dust.

When the RAP material is from a Department project and the composition of existing pavement is known, the Engineer may approve material on the basis of the composition. When the composition of obtained RAP is not known, the following procedure will be used for approval:

1. Conduct a minimum of six extraction gradation analyses of the RAP material. Take samples at random locations in the stockpile. The average asphalt cement content of the six stockpile samples must be 4% or greater with no individual result below 3-1/2%.
2. Request the Engineer to make a visual inspection of the stockpile of RAP material. Based on this visual inspection of the stockpiled material and the results of the Contractor's extraction gradation analyses, the Engineer will determine the suitability of the materials.
3. The Engineer may require crushing of stockpiled material to meet the gradation criterion. Perform all crushing before the material is placed.

283-3 Equipment.

In addition to meeting the requirements of 200-3, use double drum vibratory roller for the compaction of RAP when vibratory compaction is allowed.

283-4 Transporting RAP Material.

Meet the requirements of 200-4 except replace "rock" with "RAP".

283-5 Preparation of Roadbed.

The areas of stabilized subgrade must be to the lines shown in the Plans to a grade parallel to the finished elevation of the RAP base and to the full thickness of Type B Stabilization, prior to adding the RAP base material. Ensure that a firm and unyielding stabilized

subgrade is established to support the compaction of RAP and the elevation of the roadbed is such that the RAP base will conform to the typical cross-section upon completing the work.

283-63 Spreading RAP Material.

283-63.1 Method of Spreading: Spread the RAP with a blade or device which strikes off the material uniformly to laying thickness and produces an even distribution of the RAP. The Contractor may ~~also~~ place the RAP material directly from the milling machine into the trench by a conveyor. When placing the RAP material by conveyor directly from the milling machine, obtain the Engineer's approval of the milling process.

283-63.2 Number of Courses: When RAP base is used on limited access shoulders, construct lift thicknesses of 6 inches or less construct the base in two 6-inch courses. When the specified compacted thickness of the base is greater than 6 inches, construct the base in multiple courses not to exceed 6 inches and shall not be less than 3 inches~~two courses.~~ ~~Place t~~The first course to a thickness of approximately one half the total thickness of the finished base, or sufficient additional thickness of the first course may be increased to bear the weight of construction equipment without disturbing the subgrade or underlying materials.

Except when as might be permitted by the Engineer ~~for special cases~~, conduct all RAP base construction operations for shoulders before placing the final pavement on the adjacent traveled roadway.

283-74 Compacting and Finishing Base.

~~283-4.1 General:~~ Meet the requirements of 200-6.1.

~~283-4.1.1 Single Course Base:~~ Construct as specified in 200-6.1.1.

~~283-4.1.2 Multiple Course Base:~~ Construct as specified in 200-6.1.2.

~~283-4.2 Moisture Content:~~ Meet the requirements of 200-6.2.

~~283-4.3 Density Requirements:~~ Compact the material to a density of not less than 95% of maximum density as determined by FM 1-T180. Where the width of the base construction is not sufficient to permit use of standard base compaction equipment, perform compaction using vibratory compactors, trench rollers, or other special equipment which will provide the density requirements specified herein.

~~283-4.4 Density Tests:~~ Meet the requirements of 200-7 with the exception of 200-7.2.1. Within the entire limits of the width and depth of the base, obtain a minimum density in any LOT of 95% of the maximum density as determined by FM 1-T180.

~~283-4.5 Thickness Requirements:~~ Meets the thickness requirements of 285-6.

283-8 Acceptance Program.

283-8.1 General Requirements: Meet the requirements of 120-10.1.

283-8.2 Quality Control Tests:

283-8.2.1 Maximum Specific Gravity: Collect enough material to split and create three separate samples. Determine test locations, including stations and offsets, using the Random Number generator approved by the Department. Retain the Verification and Resolution samples for the Department until the Engineer accepts the LOTs represented by the samples. Determine the QC Maximum Specific Gravity of Asphalt Paving Mixtures (G_{mm}) in accordance with FM 1-T209.

283-8.2.2 Calculated Proctor Maximum Density Determination: For limited access shoulders, calculate the QC standard maximum density by multiplying the G_{mm} obtained

in 283-8.2.1 by unit weight of water (62.4 lb/ft³) and 85%. This calculated value will be considered the Calculated Proctor from hereon.

283-8.2.3 Density Testing Requirements: Determine the in-place wet density by Nuclear Density testing in accordance with FM 1-T310. Determine the in-place moisture content for each density test in accordance with FM 5-507 (Speedy Moisture) or ASTM D-4643 (Microwave Oven). Calculate the dry density using the measured in-place wet density and moisture content.

Obtain a minimum QC density of 100% of the Calculated Proctor maximum density as determined in 283-8.2.2 for limited access paved shoulders. For non-limited access paved shoulders, shared use paths, and other non-traffic bearing applications, obtain a minimum QC density of 95% of the Calculated Proctor maximum density as determined in 283-8.2.2.

283-8.2.4 Thickness, Surface, and Cross Slope Testing Requirements: Meet the requirements of 200-7.3.1.2 and 200-7.3.1.3.

283-8.2.5 Frequency: Meet the requirements of 200-7.2.2 except replace Modified Proctor Maximum Density with Maximum Specific Gravity for Asphalt Mixtures.

283-8.2.6 Test Selection and Reporting: Meet the requirements of 120-10.2.5.

283-8.3 Department Verification Tests: Meet the requirements of 200-7.3.2 except replace maximum density in 200-7.3.2.1 with maximum specific gravity in accordance with FM 1-T209.

283-8.4 Payment for Resolution Tests: Meet the requirements of 120-10.5.

283-8.5 Verification Comparison Criteria and Resolution Procedures:

283-8.5.1 Maximum Specific Gravity: The Engineer will compare the Verification test results of 283-8.2.1 to the corresponding QC test results. If the test result is within the between-laboratory precision value specified in 334-5.5.1 (Table 334-7) of the QC test result, the LOTs will be verified. Otherwise, the Engineer will collect the Resolution split sample corresponding to the Verification sample tested. 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 1-T209.

The Engineer will compare the Resolution Test results with the QC test results. If the Resolution Test result is within the between-laboratory precision value specified in 334-5.5.1 (Table 334-7) of the corresponding QC test result, the Engineer will use the QC test results for material acceptance purposes for each corresponding set of LOTs. If the Resolution test result is not within the between-laboratory precision value specified in 334-5.5.1 (Table 334-7) of the corresponding QC test, Verification Test results will be used for material acceptance purposes for the LOTs in question.

283-8.5.2 Density: Meet the requirements of 200-7.4.3.

283-8.5.3 Surface and Cross Slope Testing Requirements: Meet the requirements of 200-7.4.4 and 200-7.4.5.

283-5 Testing Surface.

— Test the surface in accordance with the requirements of 200-7-3.

283-96 Priming and Maintaining.

283-96.1 Priming: Apply the prime coat only when the base meets the specified density requirements and the moisture content in the top half of the base is within 2% of optimum. At the

time of priming, ensure that the base is firm, unyielding, and in such condition that no undue distortion will occur. The Engineer will not allow priming if the surface is dry, dusty, or sloughing.

| **283-96.2 Maintaining:** Meet the requirements of 200-8.2.