3340000 SUPERPAVE ASPHALT CONCRETE
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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Comments: (5-16-12)

1. 334-5.5.1, 334-5.6, & 334-5.7.1 state that asphalt samples may be reheated using a microwave oven prior to testing. Current FM methods allow for reheating samples in an preheated oven set at 300 degrees +/-9° F. Reheating samples using the current acceptable method would not allow the sample to be over heated. Considering that microwaves do not provide uniform heat, how is anyone able to ensure proper heating without overheating? Some sort of control needs to be established to prevent damage to the sample. At this time we would consider establishing a temperature range of +/- 15 from target compaction temperature during the reheating process. Proposed language would be something like: Reheat the sample to within +/- 15 of the target compaction temperature, samples reheated beyond the maximum will not be used for volumetric properties determination.

Response: This is an excellent comment. Additional wording has been added to accomplish the reviewer's request, except a tolerance of +/- 20 F was used instead of +/- 15 F to be in agreement with the tolerance established in 334-5.1.1. The new wording is: "In lieu of the 1-1/2 hours reheating procedure, the mixture may be reheated to within plus or minus 20°F of the roadway compaction temperature using a microwave oven. Stir the mixture as necessary during the reheating process to maintain temperature uniformity. Subsequently, condition and test the mixture as described in 334-5.1.1."
Change made.

2. 334-5.1.2 Requires density testing on side street connections. These small connections to the mainline are smaller than the width of the intersection and are mostly hand work. These areas take longer to construct due to their irregular shapes and cannot be compacted until the desired shape is achieved. These areas have always been separated in the past due to the constructability limitations. The CPF specification pays based on consistent rolling and paving and these areas cannot be treated in the same way as mainline paving.

Response: The proposed change has generated enough controversy that the change will be rescinded for this workbook revision and readdressed for the next workbook revision.
Change made.

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Comments: (6-26-12)

1. 334-2.3.5 Asphalt Binder for Mixes with RAP:

I think we may be getting away from the CQC philosophy with this specification change. We are telling the Contractor what grade of binder to use in mixtures containing RAP. Additionally, we are not specifying a viscosity range for the mix and are taking all responsibility for proposing

binder changes as necessary, based on testing that takes about a week to get results on. My concern is the Contractor will produce low viscosity mix and get premature rutting. They will argue that they were required to use a specified binder type with no specified viscosity range. Enforcing the warranty may be difficult given that we have taken all responsibility for binder choice. I recommend rewriting the specification in a way that puts the burden on the Contractor to design their mixtures to assure adequate viscosity, and reserving the right for the Engineer to make binder changes as necessary.

Response: The SMO will continue to monitor the properties of the recovered mix, except instead of using recovered viscosity, G*/sin(d) determined from the dynamic shear rheometer will be the material property examined. Pending the results of these tests, adjustments to the mix design may be made. The SMO staff has done considerable research and analysis over the last year to devise the new binder and RAP changes.
No change made.

2. 334-5.1.1 Sampling and Testing Requirements:
The direction for what to do if the ignition oven malfunctions was removed from this section. We discussed and agreed to expand this note to all of the applicable lab equipment. Where will this direction be located in the future? A logical place would be in this spec.

Response: The new wording to include all lab equipment was moved to 320-2.4 and is shown below in italics as a new addition to number 5 of that subarticle.

> "5. Equipment and Supplies - Furnish the lab with the necessary sampling and testing equipment and supplies for performing contractor QC and Department Verification Sampling and Testing. A detailed list of equipment and supplies required for each test is included in the appropriate FDOT, AASHTO, or ASTM Test Method. *In the event testing equipment goes out of service during production, the Contractor may elect to use replacement equipment at another laboratory qualified, as described in Section 105, for up to 72 hours upon notification of the Engineer.*"

No change made.

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Comments: (6-27-12)
1. Dropping the minimum thickness of SP 12.5 for placement of variable thickness down to 1/2" from 3/4" (and originally 1") will this damage the rock of the asphalt? Also if there is a preference can a statement be made that variable thickness shall be placed before last lift of structural.

Response: This is a good comment and has been discussed with Industry and the Pavement Management Office in Tallahassee. A typical SP 12.5 mix has less than 10% of the 1/2" size

aggregate in it. There is likely to be some "dragging" of the 1/2" aggregate, but since this mix will be covered up with another layer of hot mix asphalt, the negative impact should be minimal.

The response to the second part of the reviewer's comments is as follows: Typically, the variable thickness overbuild is placed before the last lift of structural mix, however the author agrees that this is not always the case. Since this is mainly a pavement design issue, the author will discuss the situation with the Pavement Design Office and address the issue in the next specification workbook.
No change made.

2. 334-5.1.2, last paragraph on page 10:
Highlighted areas are to be deleted. Change to read paid at the same density pay factor as areas requiring not pay factor as for the areas.

The density pay factor (as defined in 334-8.2) for areas not requiring density testing for acceptance will be *paid at the same density pay factor as* prorated based on a pay factor of 1.00 for the quantity (tonnage) of material in areas not requiring density testing for acceptance and the actual pay factor for the tonnage of material in

Response: Actually, the proposed wording is correct. This is the new direction of the Department related to payment for density and non-density areas.
No change made.

3. 334-5.5.1 Plant Testing:
Add statement at the end to heat uniformly. This will go with 334-5.6.1 and 334-5.7.1 also in the testing.

At the completion of each LOT, the Engineer will test a minimum of one Verification split sample randomly selected from the LOT. Results of the testing and analysis for the LOT will be made available to the Contractor within one working day from the time the LOT is completed. Verification samples shall be reheated at the target roadway compaction temperature for 1 -1/2 hours, plus or minus 5 minutes, reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. *In lieu of the 1-1/2 hours reheating procedure, the mixture may be reheated to the target roadway compaction temperature using a microwave oven.*

Response: This is an excellent comment. Additional wording has been added to accomplish the reviewer's request. The new wording is: "In lieu of the 1-1/2 hours reheating procedure, the mixture may be reheated to within plus or minus 20°F of the roadway compaction temperature using a microwave oven. Stir the mixture as necessary during the reheating process to maintain temperature uniformity. Subsequently, condition and test the mixture as described in 334-5.1.1.
Change made.

4. 334-8 Basis of Payment.
Last sentence to use the Department's latest version if the Asphalt Plant- Pay Factor Worksheets. Due to the difficulty of getting contractors to use the latest and greatest. Add highlighted text.

334-8.1 General: Price and payment will be full compensation for all the work specified under this Section (including the applicable requirements of Sections 320 and 330).

For materials accepted in accordance with 334-5, based upon the quality of the material, a pay adjustment will be applied to the bid price of the material as determined on a LOT by LOT basis. The pay adjustment will be assessed by calculating a Pay Factor for the following individual quality characteristics: pavement density, air voids, asphalt binder content, and the percentage passing the No. 200 and No. 8 sieves. The pay adjustment will be computed by multiplying a Composite Pay Factor for the LOT by the bid price per ton. Perform all calculations ~~*within*~~ *using the latest version of* the Department's Asphalt Plant - Pay Factor Worksheets.

Response: Good suggestion. The reviewer's proposed change will be adopted.
Change made.

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Comments: (6-27-12)

1. 334-5.1.2 Acceptance Testing Exceptions:

a. Industry questions the need to cut additional cores in the side street areas as the process of paving these areas is very different than paving mainline and the resulting density values will more than likely will be more variable that their mainline counterparts. This will increase the variability of the density of the resulting sublot and lot and affect the pay. We would recommend alternative language that the contractor address in his quality control plan the means and methods used to pave and compact these short side street sections off the mainline to monitor and achieve the best density they can in these areas.

Response: The proposed change has generated enough controversy that the change will be rescinded for this workbook revision and readdressed for the next workbook revision.
Change made.

b. "Density testing for acceptance will not be performed on density areas less than 50 tons within a sublot." The proposed language could be miss-interpreted and needs some work to be more clear.

Response: The wording was modified slightly to the following to offer more clarity:
"Do not perform density testing for acceptance in situations where the area(s) requiring density testing is less than 50 tons within a sublot."
Change made.

2. 334-5.5.1 Plant Testing and various other locations: (334-5.6.1 Plant Samples, 334-5.7.1 Plant)

Industry strongly disagrees with using a microwave oven with no check and balances on temperature/time or usage. Using the text as it is it would be easy to overheat the sample and cause damage during this reheating without setting a test procedure or a precise process for using a microwave oven. All microwave ovens are different and will require some sort of procedure to ensure the samples are properly heated and not damaged during preparation for testing.

Response: This is an excellent comment. Additional wording has been added to accomplish the reviewer's request. The new wording is:

> "In lieu of the 1-1/2 hours reheating procedure, the mixture may be reheated to within plus or minus 20°F of the roadway compaction temperature using a microwave oven. Stir the mixture as necessary during the reheating process to maintain temperature uniformity. Subsequently, condition and test the mixture as described in 334-5.1.1."

Change made.

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