

Origination Form

Specifications

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Date:	2025-03-18T14:24:54Z	Associated Specs:	Spec 916 and Spec 341

Summary:

The paragraph in Section 916 related to project level emulsion sampling was relocated to a new Article in Section 300. Because of the new Article number and subsequent renumbering of later Articles and Subarticles, there were two associated renumbering changes needed in Section 341.

Justification:

There is a requirement for project sampling of emulsion (prime and tack coats) that currently is written in section 916 of the Specifications. Since section 916 is a materials related specification and is a Division III specification, the project sampling paragraph is technically located in the wrong portion of the specification book. Since it is related to project sampling, it should be in Division 2. The Specifications office requested that it be moved and it was relocated to a new Article in section 300.

Do the changes affect other types of specifications?

Neither

List Specifications Affected:

Other Affected Documents/Offices	Contacted	Yes/No
Other Standard Plans		No
Florida Design Manual		No
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?

Not applicable for specification changes to Sections 300, 341, and 916. The changes are only editorial.

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

No financial impact.

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

No impact on production and construction schedules.

How does this change improve efficiency or quality?

Not applicable. Editorial changes only.

Which FDOT offices does the change impact?

Materials and Construction.

What is the impact to districts with this change?

No impact to the districts.

Does the change shift risk and to who?

The changes are editorial in nature and do not shift 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.

BITUMINOUS TREATMENTS, SURFACE COURSES, AND CONCRETE
PAVEMENT

SECTION 300
PRIME AND TACK COATS

300-1 Description.

Apply bituminous prime coats on previously prepared bases and apply bituminous tack coats on previously prepared bases and on existing pavement surfaces.

300-2 Materials.

Meet the following requirements:

Asphalt Emulsion for Prime Coat*	916-3
PG 52-28 Tack Coat*	916-2
Asphalt Emulsion for Tack Coat*	916-3
Sand	902-2, 902-6
Screenings	902-5

*Use products listed on the Department's APL.

300-2.1 Prime Coat: A copy of the Bill of Lading representing the material in the distributor tank must be in the truck and be always available.

Where prime coats are to be diluted, certify the dilution was done in accordance with the specific dilution requirements for each product and for each load of material used.

300-2.2 Cover Material for Prime Coat: Uniformly cover the primed base by a light application of cover material. The Contractor may use either sand or screenings for the cover material. For the sand, meet the requirements as specified in 902-2 or 902-6, and for the screenings, meet the requirements as specified in 902-5. If the primed base course will be exposed to general traffic, apply a cover material coated with 2 to 4% asphalt cement. Apply the asphalt coated material at approximately 10 pounds per square yard. Roll the entire surface of asphalt coated prime material with a traffic roller as required to produce a reasonably dense mat.

300-2.3 Tack Coat: Unless the Contract Documents call for a specific type or grade of tack coat, use PG 52-28 meeting the requirements of 916-2, heated to a temperature from 250 to 300°F or use an undiluted emulsion listed on the APL, meeting the requirements of 916-3. Heat the emulsion to the temperature recommended by the tack coat manufacturer. A copy of the Bill of Lading representing the material in the distributor tank must be in the truck and be always available.

For night paving, use PG 52-28 tack coat. The Engineer may approve an emulsified tack coat for night paving if the Contractor demonstrates, at the time of use, the emulsion will break and not affect the progress of the paving operation.

300-3 Equipment.

300-3.1 Pressure Distributor: Provide a pressure distributor equipped with pneumatic tires having a sufficient width of rubber in contact with the road surface to avoid breaking the bond or forming a rut in the surface. Ensure the distance between the centers of openings of the outside nozzles of the spray bar is equal to the width of the application required, plus or minus two inches. Ensure the outside nozzle at each end of the spray bar has an area of opening greater than the opening of an interior nozzle by 25% to 75%. Ensure all other nozzles have uniform

openings. When the application covers less than the full width, the Contractor may allow the normal opening of the end nozzle at the junction line to remain the same as the interior nozzles. A trailer-mounted pressure distributor can be used for non-mainline applications, if approved by the Engineer. It shall have a self-contained heat system, clean out system, calibration chart, manhole, and shall meet the requirements herein.

Clean the distributor tank at a minimum of every twelve months and whenever the product type in the tank is changed. Remove all emulsion and asphalt material during cleaning. Additionally, clean the distributor tank if the quality of the tack or prime shot diminishes or buildup causes the calibration of the tank to be affected.

300-3.2 Sampling Device: Equip all pressure distributors and transport tanks with an approved spigot-type sampling device.

300-3.3 Temperature Sensing Device: Equip all pressure distributors and transport tanks with an approved dial type thermometer.

Use a thermometer with a temperature range from 50 to 500°F, no greater than 25°F increments, and a minimum dial diameter of two inches.

Locate the thermometer near the midpoint of the tank's length and within the middle third of the tank's height, or as specified by the manufacturer (if in a safe and easily accessible location). Enclose the thermometer in a well with a protective window or by other means as necessary to keep the instrument clean and in the proper working condition.

300-4 Contractor's Quality Control.

Provide the necessary quality control of the prime and tack coats and application in accordance with the Contract requirements. If the application rate varies by more than 0.01 gallon per square yard from the rate set by the Engineer or varies beyond the range established in 300-7 or 300-8, immediately make all corrections necessary to bring the application rate into the acceptable range. The Engineer may take additional measurements at any time. The Engineer will randomly check the Contractor's measurement to verify the application rate.

300-5 Cleaning Base and Protection of Adjacent Work.

Before applying any bituminous material, remove all loose material, dust, sand, dirt, caked clay, and other foreign material which might prevent proper bond with the existing surface for the full width of the application. Take particular care in cleaning the outer edges of the strip to be treated, to ensure the prime or tack coat will adhere.

When applying prime or tack coat adjacent to curb and gutter, valley gutter, or any other concrete surfaces, cover such concrete surfaces, except where they are to be covered with a bituminous wearing course, with heavy paper or otherwise protect them as approved by the Engineer, while applying prime or tack coat. Remove any bituminous material deposited on such concrete surfaces.

300-6 Weather Limitations.

Do not apply prime and tack coats when the air temperature in the shade and away from artificial heat is less than 40°F at the location where the application is to be made or when weather conditions or the surface conditions are otherwise unfavorable.

300-7 Application of Prime Coat.

300-7.1 General: Clean the surface to be primed and ensure the moisture content of the base does not exceed the optimum moisture. Heat the prime coat material to the temperature recommended by the prime coat manufacturer. Apply the material with a pressure distributor. Determine the application amount based on the character of the surface. Use an amount sufficient to coat the surface thoroughly and uniformly with no excess.

The Contractor may elect to omit application of bituminous prime coat on previously prepared or exposed bases when an asphalt lift is placed within 24 hours of final preparation of such bases. Keep base moisture content within acceptable range. Protect finished base from rain and ensure base bonds adequately to the new lift of asphalt pavement. Apply prime to base when asphalt is not placed within 24 hours of final preparation of base. Apply prime to full depth reclamation and cement stabilized bases.

300-7.2 Application Rate: Use an application rate as defined in Table 300-1. Control the application rate within the minimum and plus 0.01 gallon per square yard of the minimum application rate. The minimum application rate may be adjusted by the Engineer to meet specific field conditions. Determine and record the application rate a minimum of twice per day, once at the beginning of each day's production and, as needed, to control the operation.

Base Type	Minimum Application Rate (gal/yd ²)
Limerock, Limerock Stabilized, Shell-Rock, Recycled Concrete Aggregate and Local Rock Bases	0.10
Sand-Clay, Cemented Coquina, Shell, and Shell Stabilized Bases	0.15

300-7.3 Sprinkling: If required by the Engineer, lightly sprinkle the base with water and roll it with a traffic roller in advance of the prime coat application.

300-7.4 Partial Width of Application: If traffic conditions warrant, the Engineer may require the application be made on only one-half the width of the base at one time, in which case, use positive means to secure the correct amount of bituminous material at the joint.

300-8 Application of Tack Coat.

300-8.1 General: Where the Engineer requires a tack coat prior to laying a bituminous surface, apply the tack coat as specified herein below. Coat the surface completely and uniformly with tack.

300-8.2 Where Required: Place a tack coat on all asphalt layers prior to constructing the next course. In general, the Engineer will not require a tack coat on primed bases except in areas that have become excessively dirty and cannot be cleaned, or in areas where the prime has cured to the extent all bonding effect has been lost.

300-8.3 Method of Application: Apply the tack coat with a pressure distributor except on small jobs, if approved by the Engineer, apply it by other mechanical devices or by hand methods. Heat the bituminous material to a suitable temperature as designated by the supplier.

300-8.4 Application Rate: Use an application rate defined in Table 300-2. Control the application rate within plus or minus 0.01 gallon per square yard of the target application rate. The target application rate may be adjusted by the Engineer to meet specific field conditions.

Determine and record the application rate a minimum of twice per day, once at the beginning of each day's production and again, as needed, to control the operation. When using PG 52-28, multiply the target application rate by 0.6.

Asphalt Mixture Type	Underlying Pavement Surface	Target Tack Rate (gal/yd ²) ¹
Base Course, Structural Course, Dense-Graded Friction Course, Open-Graded Friction Course	Newly Constructed Asphalt Layers	0.06
	Milled Asphalt Pavement Surface, Oxidized and Cracked Asphalt Pavement, Concrete Pavement	0.09

Note 1: Target tack application rates greater than those specified may be used upon approval of the Engineer.

When using a meter to control the tack or prime application rate, manually measure the volume in the tank at the beginning and end of the application area for a specific target application rate. Perform this operation at a minimum frequency of once per production shift. Resolve any differences between the manually measured method and the meter to ensure the target application rate is met in accordance with this Section. Adjust the application rate if the manually measured application rate is greater than plus 0.02 or minus 0.01 gallons per square yard when compared to the target application rate.

300-8.5 Curing and Time of Application: When using a distributor, apply tack coat sufficiently in advance of placing bituminous mix to permit drying, but do not apply tack coat so far in advance that it might lose its adhesiveness as a result of being covered with dust or other foreign material. When using a spray paver, the requirements above do not apply.

300-8.6 Protection: Keep the tack coat surface free from traffic until the subsequent layer of bituminous hot mix has been laid.

300-9 Sampling and Testing.

~~At the direction of the Engineer~~ As directed by the Engineer, sample tack in accordance with AASHTO R 66, ~~sample tack~~ from the distributor used on the project at a minimum frequency of once per project per product. ~~The sample shall be tested by~~ Provide the sample to the Department for testing of the following specified material properties: percent residue, contaminants, and the residue property $G^*/\sin \delta$. ~~Should any of the test results fail the specification requirements, the~~ The tack material will be considered defective and shall not to be used on Department projects if any of the test results fail the material requirements unless waived by the Engineer. Should a tack sample fail specifications, the Engineer may require three 6-inch diameter roadway cores be obtained from the day of production from which the tack sample was obtained. Cease use of the defective tack material. Obtain three 6-inch diameter roadway cores at locations identified by the Engineer from the day of production where the defective tack sample was obtained. Exceptions to these requirements will only be allowed if approved by the Engineer. The Department will test the roadway cores ~~shall be tested~~ for bond strength in accordance with FM 5-599. ~~Remove and replace material represented by any core with an individual bond strength results less than 80 psi. will require removal and replacement.~~ Failing bond strength results may result in bond strength testing for additional areas represented by the ~~failing defective~~ tack material.

Commented [GS1]: This wording for the entire Article 300-9 is being moved verbatim from Section 916 to this Section. Section 916 is in Division III and this wording belongs in Division II.

There are subsequent changes for renumbering of Articles and Subarticles in this Section and in Section 341. The entire Specification book has been searched and only Sections 300 and 341 are affected by the renumbering.

Additional editorial changes have been made to this article, as shown in redline format.

300-9-10 Method of Measurement.

300-9-10.1 General: The quantity specified will be the volume, in gallons, of bituminous material ~~actually~~ applied and accepted. This application rate will be determined from measurements made by the Contractor and verified by the Engineer based on tank calibrations, as specified in 300-9-10.2. Where it is specified prime coat material is to be diluted with water, the amount specified for the application rate will be the volume after dilution.

300-9-10.2 Calibration of Tanks: Ensure all distributors used for applying tack or prime coats are calibrated prior to use by a reliable and recognized firm engaged in calibrating tanks. Submit a certification of calibration and the calibration chart to the Engineer prior to use. In lieu of a volumetrically calibrated distributor, use a distributor equipped with a calibrated meter approved by the Engineer.

300-9-10.3 Temperature Correction: Measure the volume and increase or decrease the volume actually measured to a corrected volume at a temperature of 60°F.

Make the correction for temperature by applying the applicable conversion factor (K), as shown below.

For petroleum oils having a specific gravity above 0.966 at 60°F, K = 0.00035 per degree.

For petroleum oils having a specific gravity of between 0.850 and 0.966 at 60°F, K = 0.00040 per degree.

For emulsified asphalt, K = 0.00025 per degree.

When volume-correction tables based on the above conversion factors are not available, use the following formula in computing the corrections for volumetric change:

$$V = \frac{V^1}{K(T - 60) + 1}$$

Where:

V= Volume of bituminous material at 60°F (pay volume).

V¹= Volume of bituminous material as measured.

K= Correction factor (Coefficient of Expansion).

T= Temperature (in °F), of bituminous material when measured.

300-10-11 Basis of Payment.

~~There is no direct payment for the~~**The** work specified in this Section, ~~it is incidental to, and is to be included in the other items of related work.~~ will not be paid for directly, but will be considered as incidental work.