

411-R-767 WARRANTED MICRO-SURFACING

(Adopted 10-19-23)

The Standard Specifications are revised as follows:

SECTION 411, BEGIN LINE 15, DELETE AND INSERT AS FOLLOWS:

**411.02 Materials**

Materials shall be in accordance with the following:

Asphalt Emulsion .....	902.01(b)1
Coarse Aggregates – Class B or Higher* .....	904.03
Fine Aggregates** .....	904.02
Portland Cement, Type I .....	901.01(b)
Water .....	913.01

\* The coarse aggregate angularity shall be a minimum of 95% in accordance with ASTM D5821. The coarse aggregate for rut fill shall be limestone, dolomite, crushed gravel, sandstone, ACBF, or SF. The surface application aggregate type shall be based on the ESAL category *shown* in the Surface Aggregate Table below.

\*\*The fine aggregate for micro-surface shall be limestone, dolomite, crushed gravel, sandstone, ACBF, or SF. The fine aggregate angularity shall be a minimum of 45 in accordance with AASHTO T 304 Method A. The clay content of the blended aggregate material from the fine and coarse aggregates shall meet a minimum sand equivalency of 65 in accordance with AASHTO T 176. The surface leveling application aggregate type shall be based on the ESAL category ~~as follows:~~*shown in the Surface Aggregate Table below.*

*RAS shall not be used in any micro-surfacing course.*

SECTION 411, BEGIN LINE 64, DELETE AS FOLLOWS:

(g) percentage of polymer modified ~~CSS-1h~~ emulsified asphalt

SECTION 411, AFTER LINE 72, INSERT AS FOLLOWS:

(j) *aggregate application rate: the aggregate application rate shall be 18-22 lb/sq yd for a course. The minimum total aggregate application rate for a multiple course micro-surfacing shall be 40 lb/sq yd.*

SECTION 411, BEGIN LINE 81, DELETE AS FOLLOWS:

**411.05 Pre-Paving Coordination**

A pre-paving meeting will be held on-site prior to beginning work. The Contractor shall furnish as a minimum:

- (a) the Contractor’s detailed work schedule
- (b) traffic control plan
- (c) calibration of equipment
- (d) DMF/~~JMF~~
- (e) inspection and evaluation of the condition and adequacy of equipment, including units for transport of materials
- (f) QCP in accordance with ITM 803.

SECTION 411, BEGIN LINE 139, DELETE AND INSERT AS FOLLOWS:

The Contractor shall furnish a warranty bond at the pre-construction conference or prior to beginning any work on the contract. The warranty bond shall be equal to 100% of the contract total for the warranted micro-surfacing pay items, ~~and~~ shall be properly executed by a surety satisfactory to the Department, and shall be payable to the State of Indiana. The warranty bond shall be in effect for ~~three~~ *one* years from the date of substantial completion.

SECTION 902, BEGIN LINE 81, DELETE AND INSERT AS FOLLOWS:

### 1. Asphalt Emulsion Warranted Micro-Surfacing

The polymer modified asphalt emulsion shall be a ~~quick-set, CSS-1h emulsion in accordance with AASHTO M 208, except the cement mixing test is waived~~ *CQS-1hP in accordance with AASHTO M 316. The distillation temperature shall be 350°F.*

The polymer material shall be milled or blended into the asphalt or blended into the emulsifier solution prior to the emulsification process. The minimum polymer solids content will be 3.0% based on the residual of the emulsion. Mix set additives shall be added as required to provide control of the quick-set properties. ~~Additional requirements shall be in accordance with the following:~~

Characteristics	Test Method	Requirements
<del>Residue by Distillation, % (Note)</del>	<del>AASHTO T 59</del>	<del>62+</del>
<del>Softening Point, °F (°C)</del>	<del>AASHTO T 53</del>	<del>140+ (60+)</del>
<del>Viscosity @ 140°F (60°C)</del>	<del>AASHTO T 202</del>	<del>8000+</del>
<del>Elastic Recovery @ 25°C (77°F), %</del>	<del>AASHTO T 301</del>	<del>60+</del>
<del>Note: The distillation temperature for this test shall be 350°F (175°C).</del>		