QUICK FACTS: LEVEL 1B

TEX-207-F, PART V

Determining Mat Segregation Using a Density-Testing Gauge

Why

Identify segregation of a compacted mat.

Segregation may be the cause of low density/high air voids, which may lead to premature cracking, raveling, and roughness of hot mix asphalt pavements.

When

After Compaction

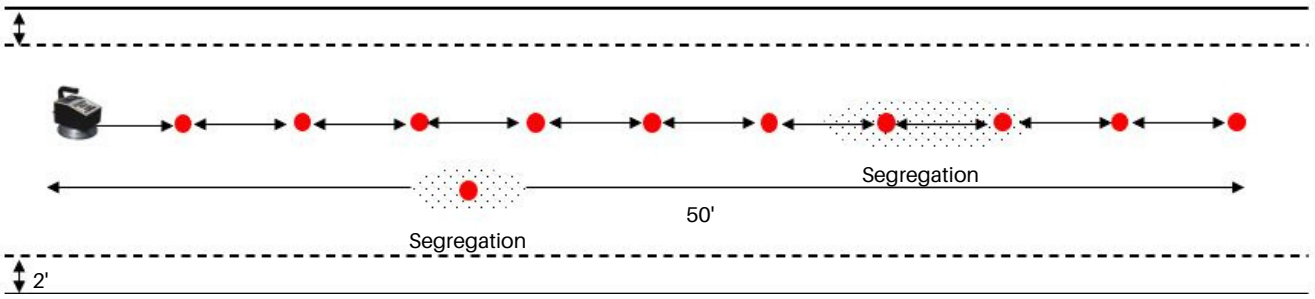
1. Engineer one per project.
2. Contractor one per sublot.
3. Moderate or severe thermal segregation.
4. Paver stops from lack of material **and** low uncompacted mat temperature.
5. Visible segregation.

Not required when thermal imaging system is used.

How

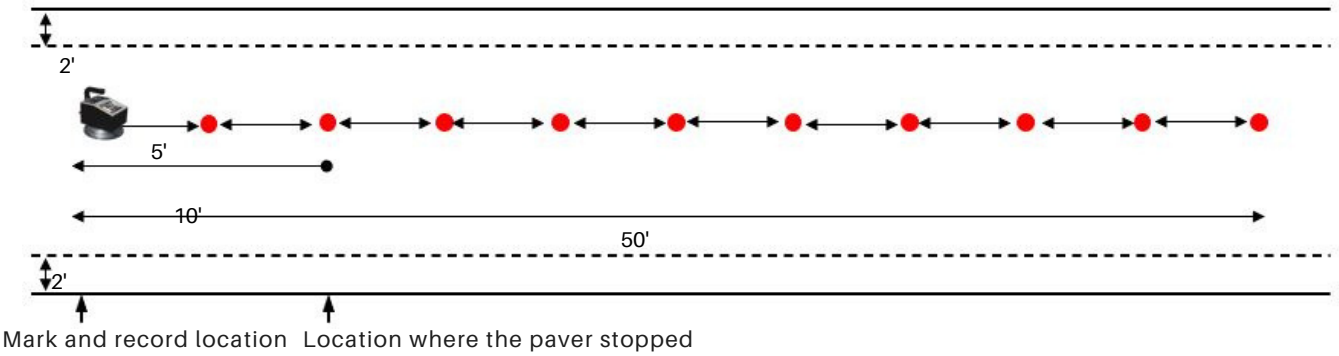
Random Location

1. Randomly select a location.
2. Choose an area with visible segregation, if possible.
3. Stay two feet or more from the pavement edge.
4. Start your 50-foot profile and take readings every 5 ft.
5. Take additional reading(s) from areas with visible segregation. Include in the profile.



When the Paver Stops and Low Mat Temperature according to Specification

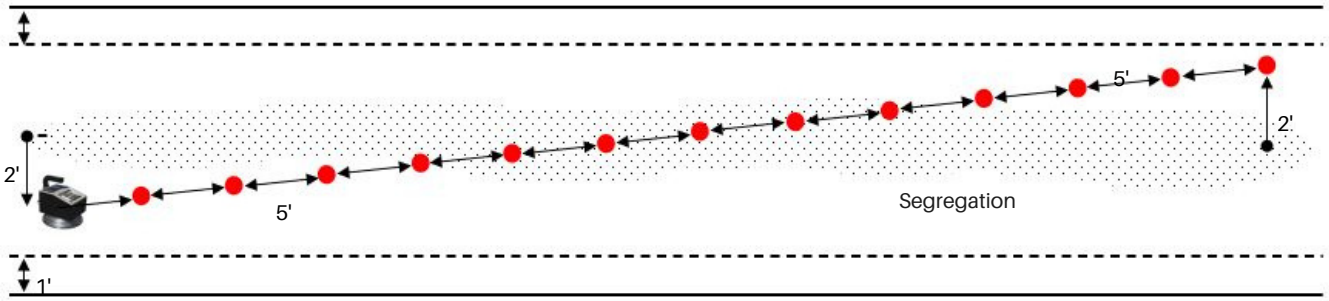
1. Mark where paver stopped.
2. Move back 10 feet.
3. Mark and record this location.
4. Start your 50-foot profile and take readings every five feet, staying two feet or more from the pavement edge.



QUICK FACTS: LEVEL 1B

Longitudinal Streaking Greater than 50 Feet

1. Start the profile with an offset of two feet from the center of the streak.
2. Profile the area at an angle in a diagonal direction.
3. End the profile with an offset of two feet on the opposite side of the streak.
4. Do not start or end a profile less than one foot from the pavement edge.
5. Start your profile and take readings every five feet through the entire length of the streaking.



Gauge Readings

- *Electrical Impedance Gauge (Non-Nuclear)*
  - Two readings in continuous mode
- *Nuclear Density Gauge*
  - Three one-minute readings in backscatter mode

Action

1. Average the readings from each location.
2. Discard any single reading that is more than 1 pcf from the average.
3. Average the readings from all the locations.
4. Determine the difference between the highest and lowest average density.
5. Determine the difference between the average and lowest average density.

SPECIFICATION

- Density profile is considered failing if it exceeds the tolerances found in the specification as shown in the table below.
- Segregation in the testing area is more severe as the density testing range increases.

Mixture Types	Maximum Allowable Density Testing Range	
	Highest to Lowest	Average to Lowest
Base Mixtures	8 pcf	5 pcf
Surface Mixtures	6 pcf	3 pcf

1. Investigate density profile failures and take corrective actions during production and placement to eliminate segregation.
2. Suspend production if two consecutive density profiles fail unless otherwise approved.
3. Resume production after the Engineer approves changes to production or placement methods.