

# Segregation of Asphalt Mixtures

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Causes, Identification, and Cures



## End of Load Segregation

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## Detrimental Effects of Segregation in the Vat

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1. Non-Uniform Appearance
2. Low Density and Density Failures
3. Negative Impact on Rideability
4. Raveling of the Pavement

# Segregation

What do you do if  
you see it?

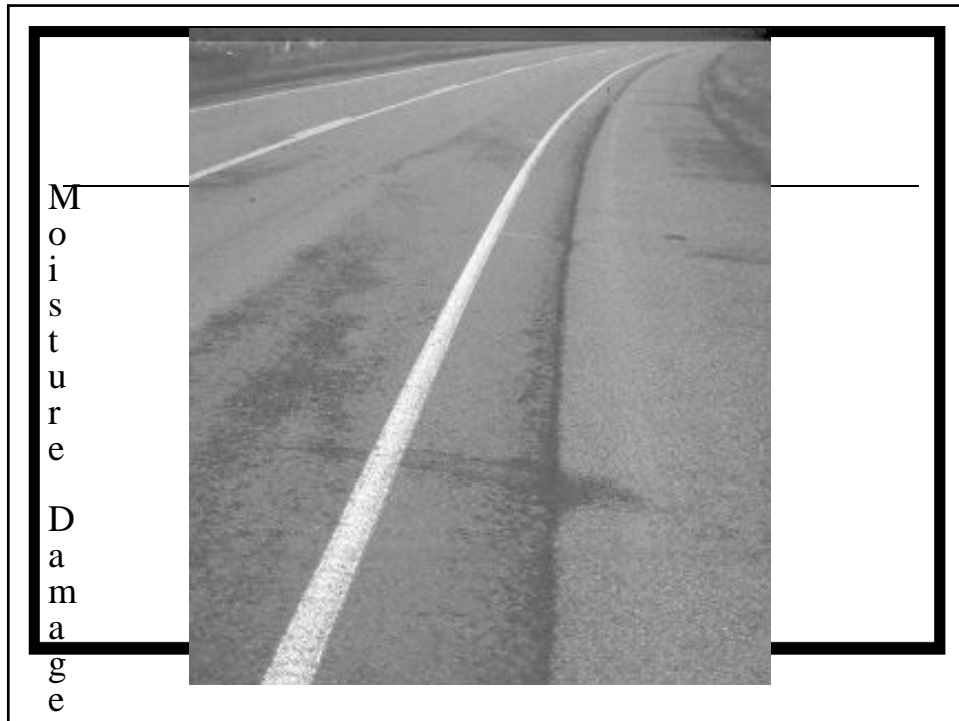
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Communicate  
Determine source  
Stop / slow production

# Raveling

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## Location of Segregation

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- Key step is to determine where segregation is present and/or being caused
  - Plant
    - Stockpiles, plant, storage silos
  - Haul trucks
  - Paver
    - Mix dumping, improper paver operation

# Placing HMA

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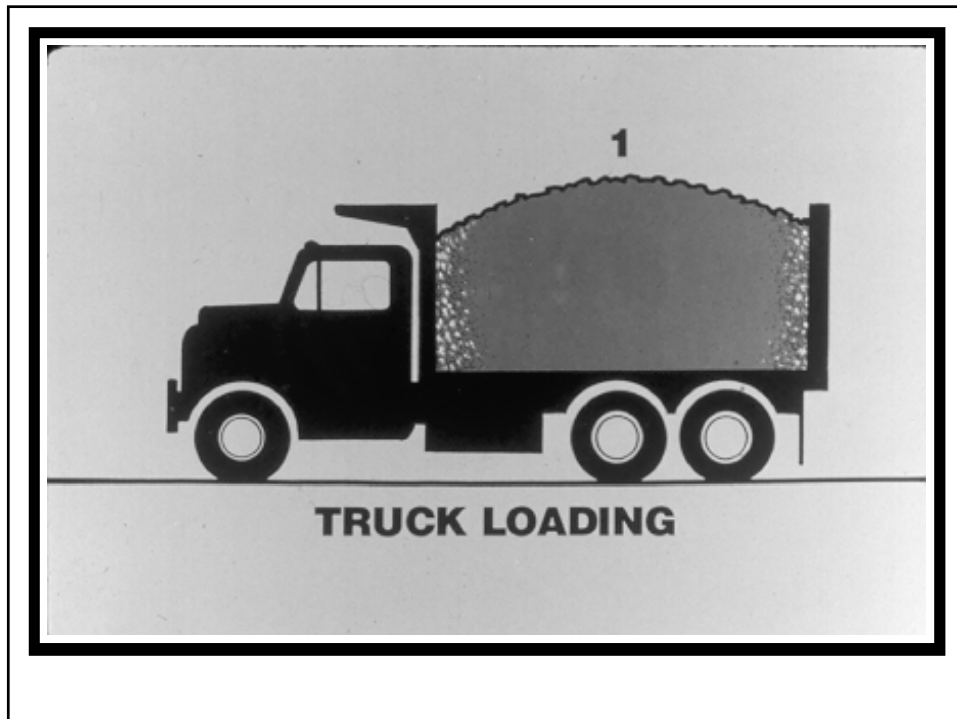
- Segregation Trouble Spots

- Trucking Operations

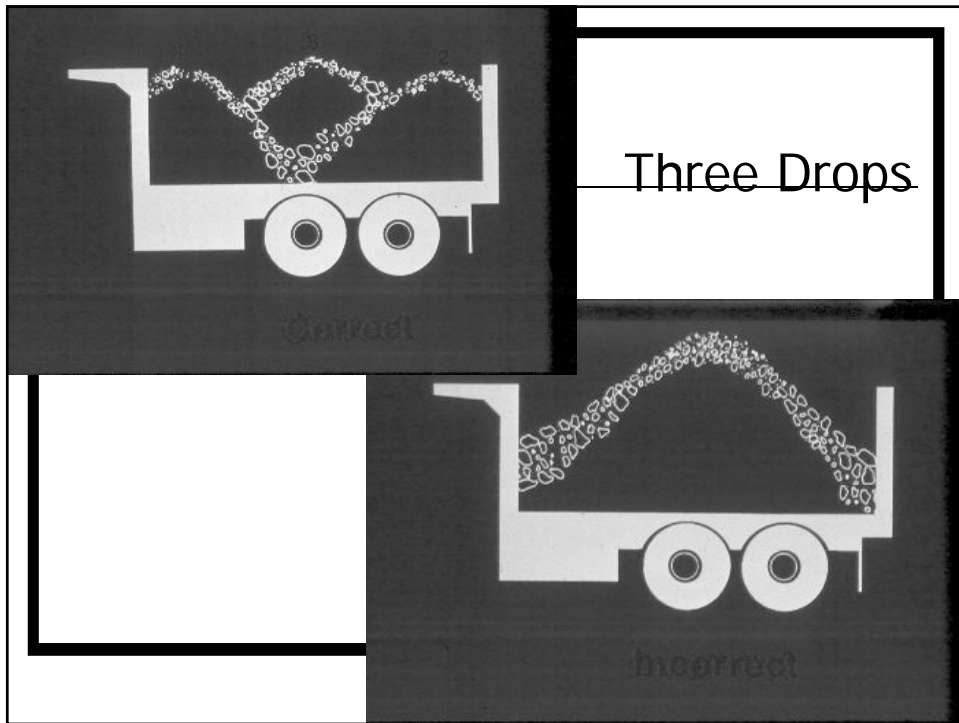
- Improper Loading
    - Improper Unloading

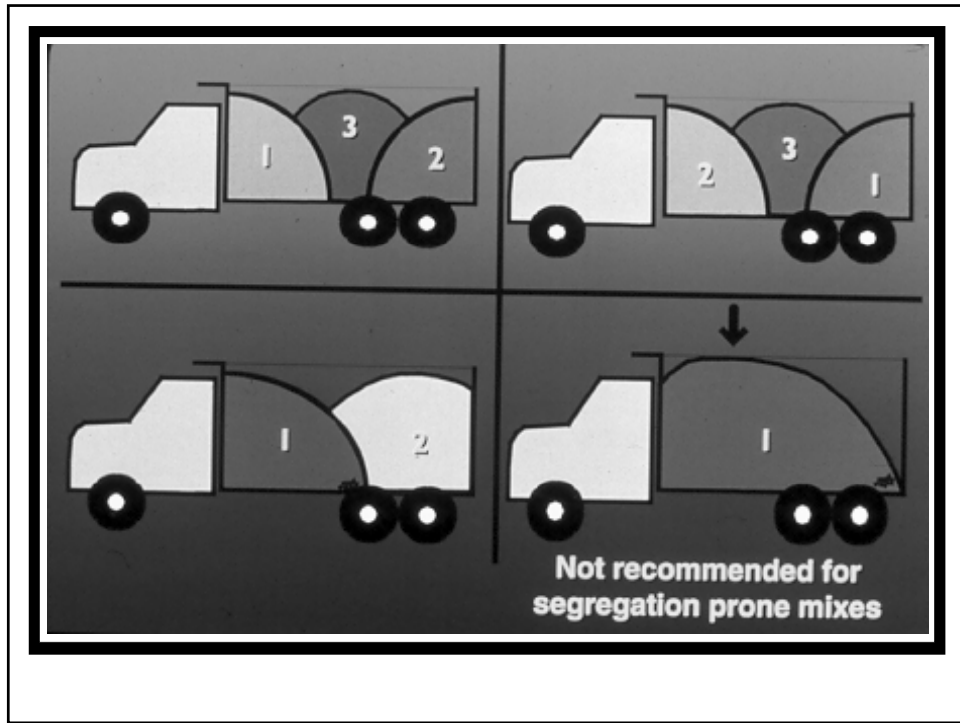
- Paving Operations

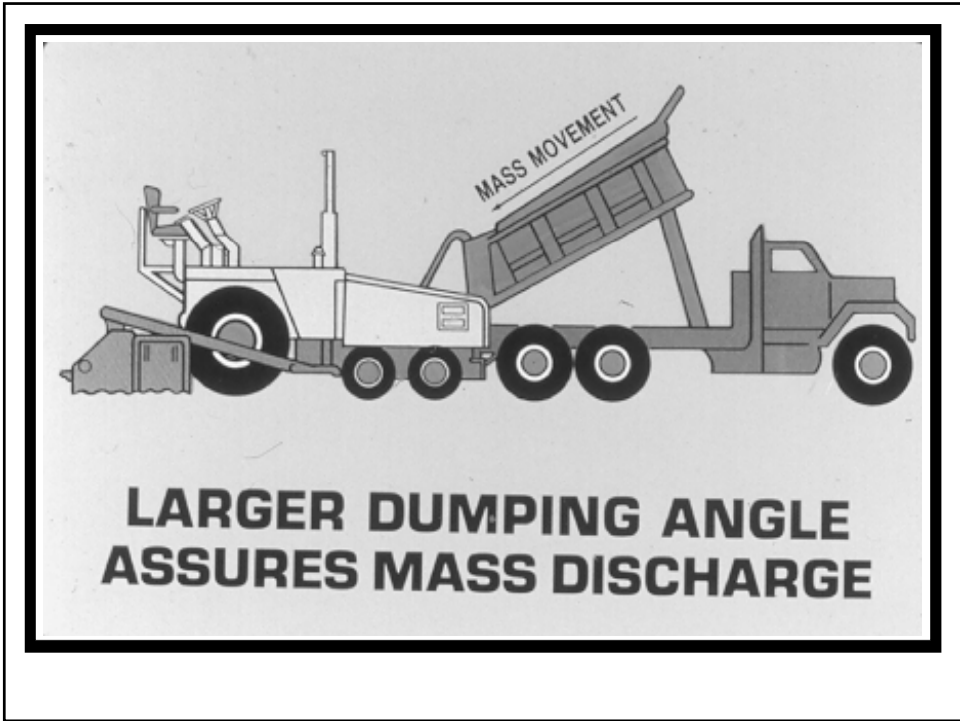
- Improper hopper wing dumping
    - Running the paver hopper dry and moving forward before hopper is recharged



Mix Appearance - What can you tell by looking?







## Causes of Segregation - Paver

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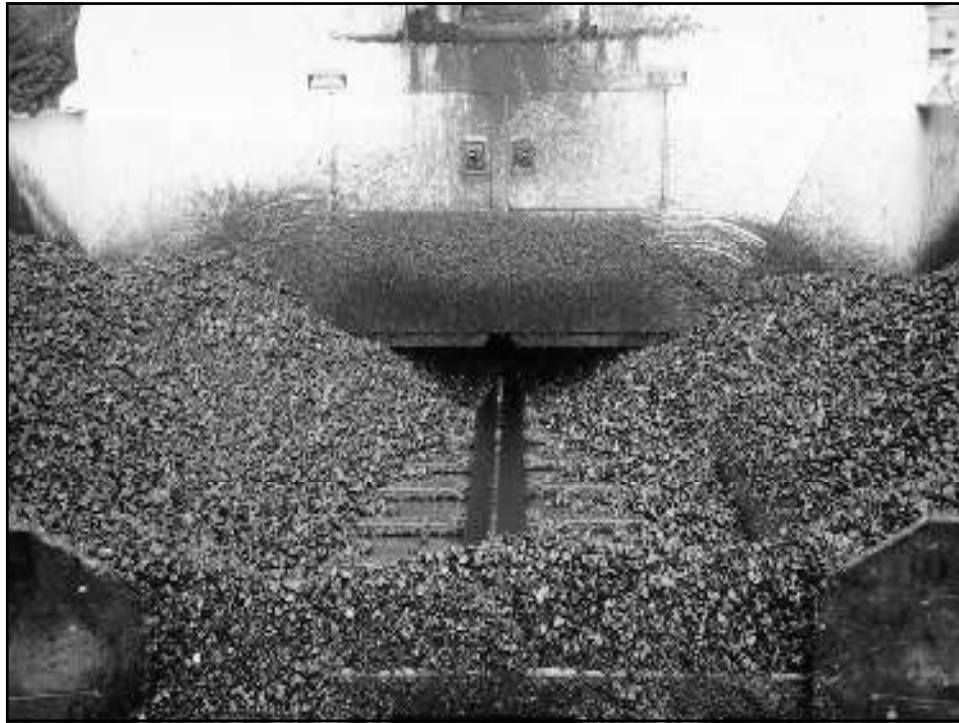
1. Improper dumping into hopper
2. Mix level in hopper too low
3. Improper dumping of hopper wings
4. Improper feed to augers
5. Improper operation of augers
6. Stopping the paver between loads

## SEGREGATION CHECKLIST

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### PAVER

- MINIMIZE FOLDING WINGS (TO PREVENT MIXTURE COOLING AT WING WALLS)
- NEVER LET HOPPER RUN LESS THAN 25%
- NEVER EXPOSE THE CONVEYING SYSTEM
- ADJUST FLOW GATES TO DELIVER A CONTINUOUS AND ADEQUATE AMOUNT OF MIX TO THE AUGERS
- AUGERS NEED TO BE PROPER LENGTH



## Placing HMA



**Flooding hopper with HMA**

## Proper Flipping of Wings

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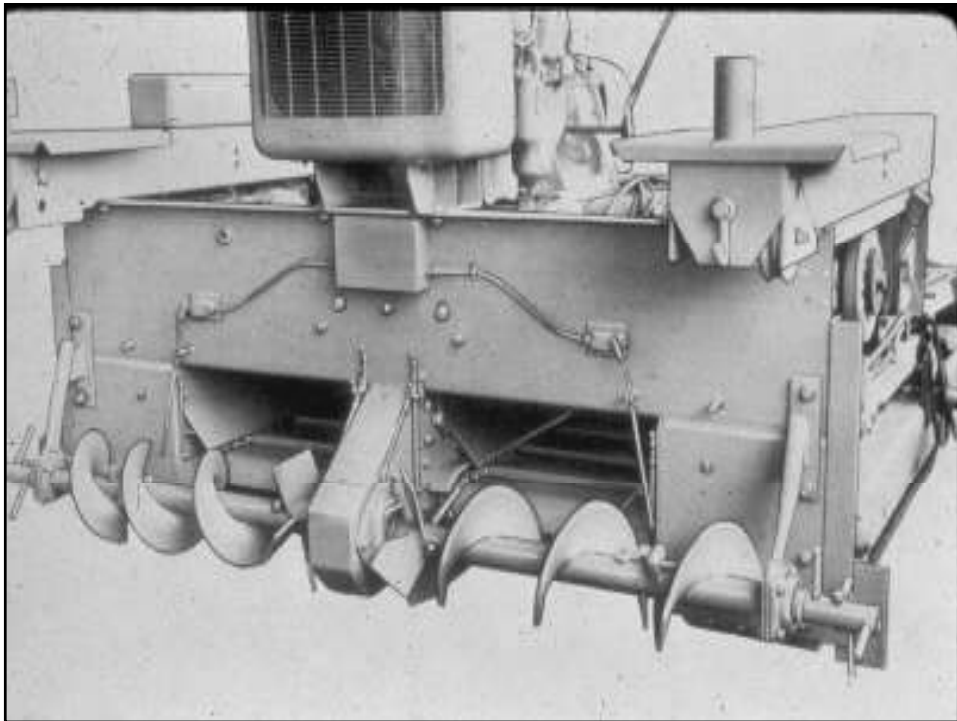


## SEGREGATION CHECKLIST

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### PAVER

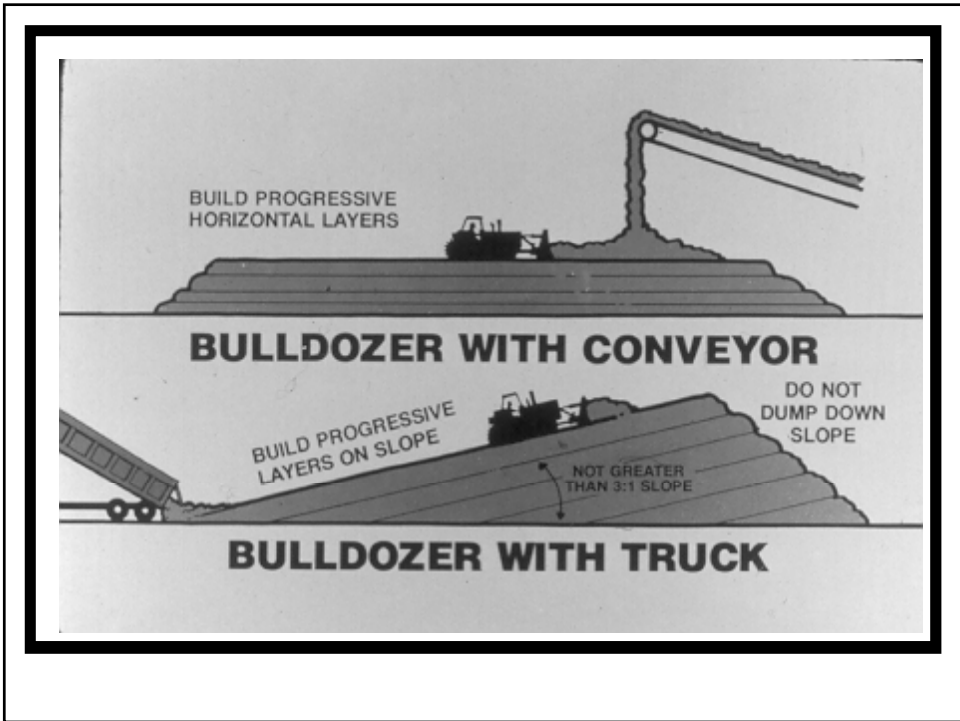
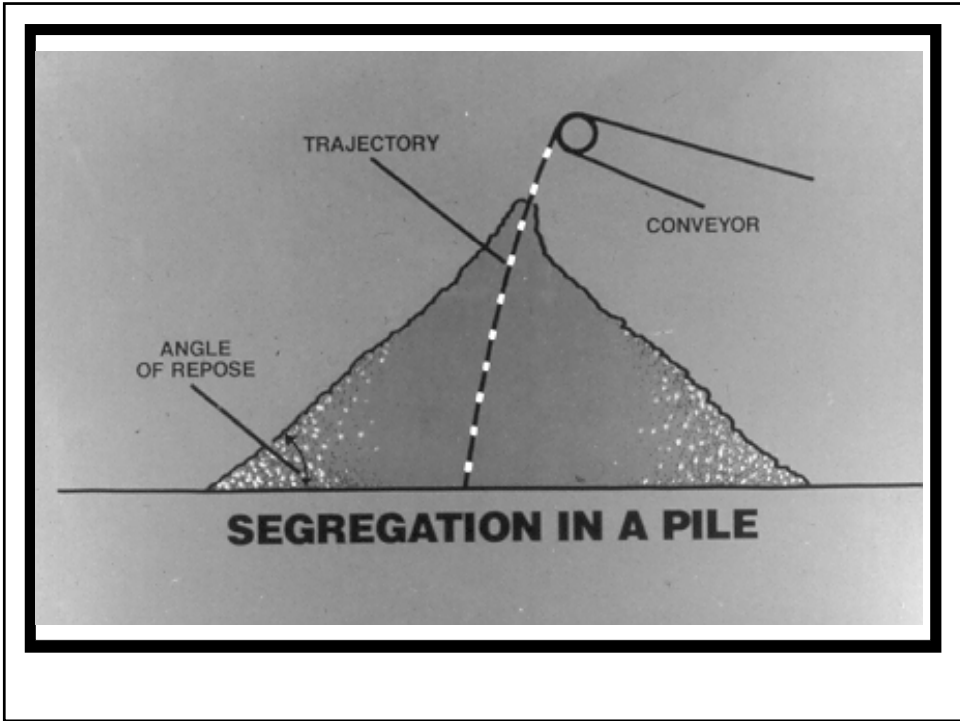
- AUGER LENGTH = 18" MIN. SPACE TO END
- OPERATE AUGERS AT LOW ENOUGH RPM SO AS NOT TO SLING MIX
- PERIODIC EDGE SEGREGATION CAN OCCUR IF THE AUGERS ARE RUN TOO SLOW OR STARVED
- WORN KICK BACK AUGERS WILL CAUSE CENTER SCREED MAT SEGREGATION
- MAINTAIN A UNIFORM PAVING OPERATION





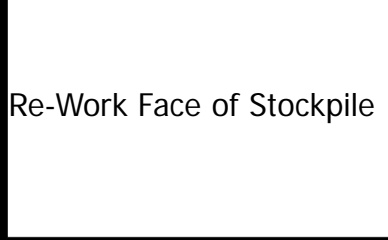
## SEGREGATION CHECKLIST

- **STOCKPILES**
  - CONSTRUCT IN LAYERS
  - USE HIGH WALL BULKHEADS
  - LOADER SHOULD DIG IN AND CURL BUCKET
- **COLD FEED BINS**
  - AVOID ADJACENT BIN SPILLAGE
  - AVOID CONING OF MATERIALS
  - MAINTAIN CONSTANT LEVELS
  - USE MULTIPLE BINS FOR COARSE AGGREGATE





Segregated Stockpiles

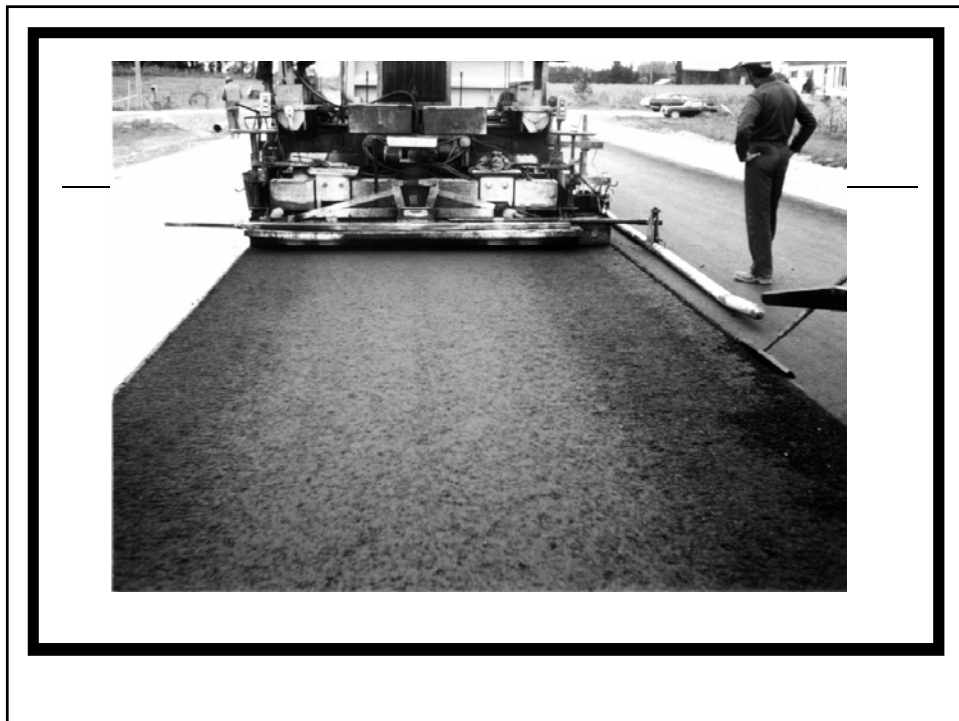
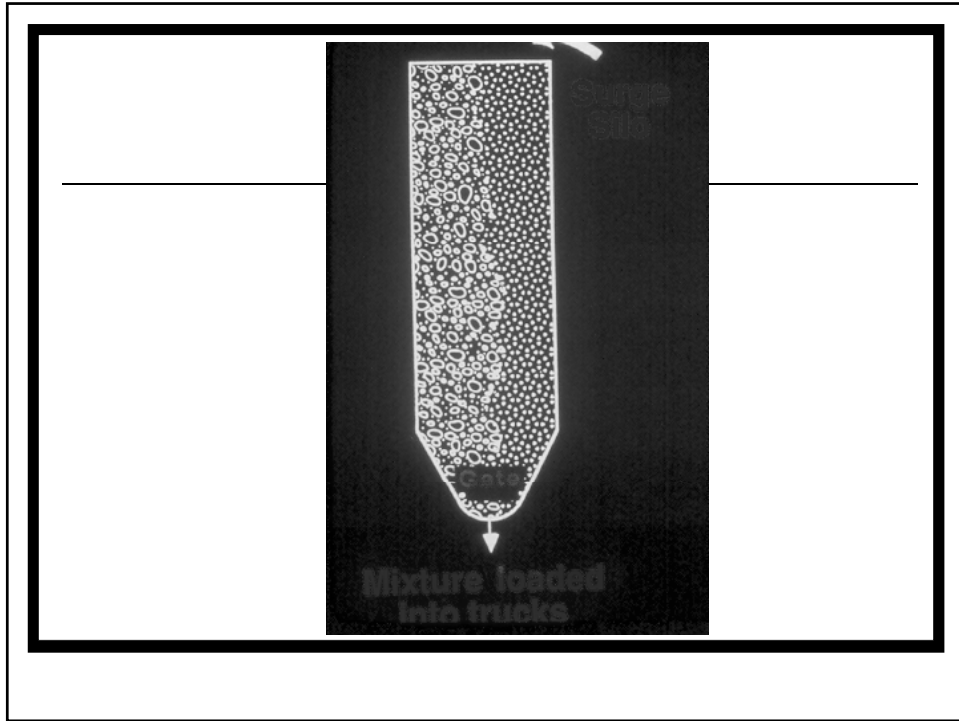


Re-Work Face of Stockpile



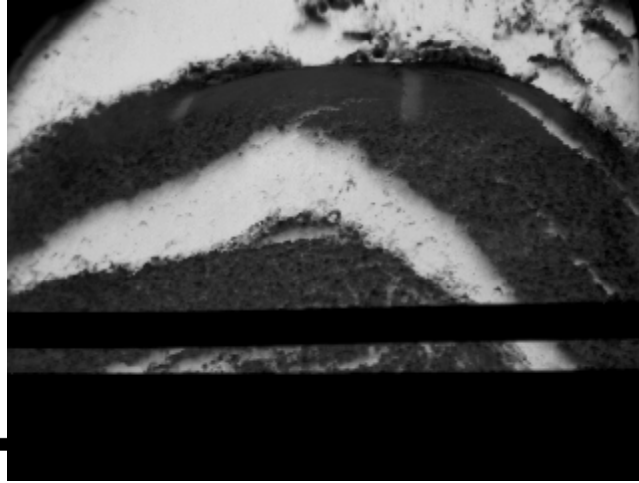
## Bulkheads between Bins





## Truck Box Segregation

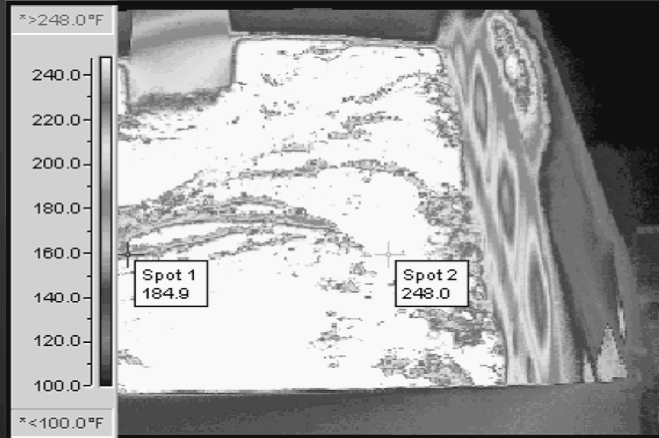
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## Placing HMA



# Placing HMA



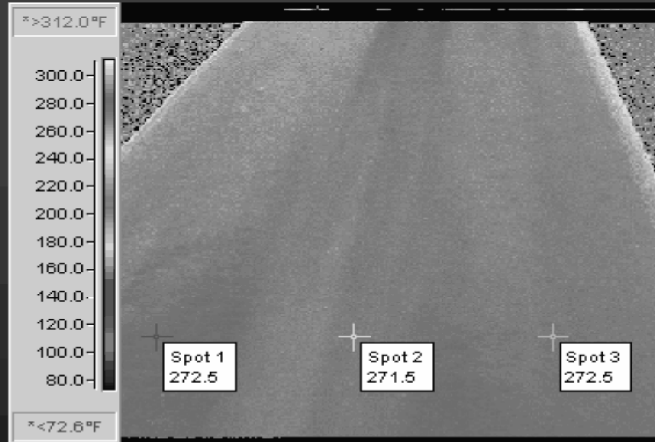
**TEMPERATURE DIFFERENTIAL - TRUCK BED**

# Placing HMA



**TEMPERATURE DIFFERENTIAL - MAT w/PAVER**

# Placing HMA



**MAT USING ROADTEC SHUTTLE BUGGY**



# Segregation

What do you do if  
you see it?

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Communicate  
Determine source  
Stop / slow production