

**ALDOT-372-90**  
**APPROVAL OF RECYCLED ASPHALT PAVEMENT**  
**AND RECLAIMED ASPHALT SHINGLES STOCKPILES**

**1. SCOPE**

- 1.1. This procedure describes the requirements for storing, handling, testing, and approving stockpiles of Recycled Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS).

**2. REFERENCED DOCUMENTS**

- 2.1. ALDOT 370; Quality Control and Quality Assurance Procedures and Responsibilities for Asphalt Plant Mix Production
- 2.2. ALDOT Standard Specifications Section 410, “Asphalt Pavements”
- 2.3. AASHTO MP 23, Standard Specification for Reclaimed asphalt shingles for use in Asphalts Mixtures
- 2.4. AASHTO T 2; Standard Method of Test for Sampling of Aggregates
- 2.5. AASHTO T 27, Standard Method of Test for Sieve Analysis of Fine and Course Aggregates
- 2.6. AASHTO T 30; Standard Method of Test for Mechanical Analysis of Extracted Aggregate
- 2.7. AASHTO T 248; Standard Method of Test for Reducing Samples of Aggregate to Testing Size

**3. STORAGE AND HANDLING OF RAP & RAS MATERIAL**

**3.1. General**

- 3.1.1. Stockpiles shall be located on a base with adequate drainage. Stockpiles shall be constructed in layers to minimize segregation, ensuring a workable face.
- 3.1.2. The contractor is responsible for ensuring the safe construction and maintenance of stockpiles.
- 3.1.3. If stockpiles are fractionated by specific maximum sizes, each processed fraction shall be stored in a separate stockpile at the plant.
- 3.1.4. Processed stockpiles that have been inactive for at least one year shall be re-processed and tested in accordance with the requirements given in Section 5 prior to incorporation in an asphalt mix design.

**4. LABELING AND MAPPING LOCATION OF STOCKPILES**

- 4.1. The contractor shall have a map of the property identifying each stockpile location. This information shall be on site and readily available to the inspectors. Recycled stockpiles labeled on the map shall have the following information included on the map:
- Identification Name
  - Maximum aggregate size
  - RAP, RAS, or blended RAP & RAS

- Percentage in Blend-RAS only

4.2. Temporary stockpiles (those not shown on the map) shall have signs to clearly identify RAP, RAS, and blended stockpiles. These signs shall include the same information as Section 4.1.

## **5. PROCESSING RAP AND RAS STOCKPILES**

5.1. All RAP and RAS used on State projects must be processed (crushed, screened, etc.) before incorporation into the mix. The processing may take place immediately prior to incorporation into the mix (i.e. between the cold feed bin and the drum with an inline crusher). The contractor shall ensure that no pieces greater than 2 inches shall enter the processing operation if the processing operation takes place immediately prior to incorporation into the mix.

5.2. Blended RAP and RAS stockpiles shall be processed as follows:

5.2.1. Materials shall be mechanically proportioned when combined into single feed stockpiles. Combination ratios shall be determined and controlled based on weight and mix type (i.e. wearing surface or binder).

5.2.2. Electronic belt weighing devices shall be used to determine RAP and RAS weights and to monitor the flow rates to ensure the desired ratios are maintained.

5.2.3. Ground blending of RAS is not allowed.

5.3. Fractionated stockpiles shall be processed as a separate operation.

5.4. Oversize pieces greater than the maximum aggregate size of the proposed stockpile shall be re-processed.

5.4.1. All RAP and RAS shall be processed to remove foreign materials. Foreign materials are nails, metals, glass, rubber, soil, brick, paper, wood, plastic or any component not part of the asphalt mixture.

5.4.2. Stockpiles shall be essentially free of foreign materials, not to exceed the requirements given in AASHTO MP 23.

5.4.3. Foreign materials shall be determined by means of AASHTO T 27 and prior to asphalt content checks.

5.4.4. Stockpiles shall also meet the requirements as stated in Section 410.02(e) of the Standard Specifications.

## **6. TESTING & REPORTING**

### **6.1. General**

6.1.1. A certified Asphalt Level 1 Technician shall perform all sampling and testing. Samples for mix design testing shall be obtained in accordance with the requirements given in AASHTO T 2.

6.1.2. All reduction of samples shall be done in accordance with the requirements given in AASHTO T 248.

- 6.1.3. All gradation testing shall be done in accordance with the requirements given in AASHTO T 30.

## 6.2. Sampling and Testing

### 6.2.1. For mixes containing RAP or Blended RAP/RAS:

- Collect 10 representative samples for the first 10,000 T (t) of material or portion thereof, and 1 representative sample for each additional 5,000 T (t) of material added.
- The most recent 10 samples shall be used to perform asphalt binder content and gradation analysis to verify:
  - The standard deviation of asphalt binder content does not exceed 0.5%,
  - The standard deviation of material passing the #200 {0.075 mm} sieve does not exceed 2.0%, and
  - The standard deviation of the largest sieve with at least 50% passing does not exceed 5.0%.
- If the test results do not fall within these limits, 5 additional samples shall be collected and tested to determine a revised asphalt content and gradation.
- Asphalt content and gradations shall meet the tolerances given in ALDOT 370 Section 7.

### 6.2.2. For mixes containing RAS:

- Collect 10 representative samples for the first 5,000 T (t) of material or portion thereof, and 1 representative sample for each additional 1,000 T (t) of material added.
- The most recent 10 samples shall be used to perform asphalt binder content and gradation analysis to verify:
  - The standard deviation of asphalt binder content does not exceed 1.0% and,
  - The standard deviation of material passing the #200 {0.075 mm} sieve does not exceed 1.5%.
- If the test results do not fall within these limits, 5 additional samples shall be collected and tested to determine a revised asphalt content and gradation.
- Asphalt content and gradations shall meet the tolerances given in ALDOT 370 Section 7.

## 6.3. Reporting

- 6.3.1. These results shall be included in the mix design packet submitted to the Bureau of Materials and Tests during the Job Mix Formula (JMF) design approval. The stockpile shall be clearly indicated on each JMF.
- 6.3.2. These results shall also be separate for each stockpile and continually recorded on control charts. Charts shall include sampling and testing dates and stockpile identification. This information shall be on site and readily available to the inspectors.
- 6.3.3. The Contractor shall document all observations, inspection records, samples, and test results for each stockpile that is completed or relocated. This information shall be on site and readily available to the inspectors.

- 6.3.4. The Area Materials Engineer and/or his representative will approve, disapprove, or request additional testing for reasons of segregation, contamination, improper certification or questionable source and quality requirements based on the test results.