

Quality Control (QC). If the Engineer identifies conditions that cause an unsatisfactory chip seal, immediately stop production and begin corrective action, at no additional cost to the Department. Maintain QC measures until the Engineer accepts the work.

1. **Quality Control Plan.** Provide and follow a plan to maintain QC for production and construction processes, as required. Provide the Engineer a copy of the QC plan for review and approval, prior to the pre-production meeting.

Establish and maintain an effective QC plan. Ensure the QC plan, details procedures, and organization to produce the required single, double, and shoulder chip seal operations. Comply with the Engineer-approved QC plan for the duration of the project and allow the Engineer access to in-progress work for Assurance review and testing.

Ensure the QC plan addresses at least the following:

- a. Materials;
- b. Sampling and testing methods to determine compliance with material specifications;
- c. Equipment;
- d. Calibration method to determine compliance with the application rates;
- e. Procedures for pavement cleaning and preparation;
- f. Controls implemented to ensure the chip seal material cures or sets up before opening to traffic;
- g. Proposed procedure for monitoring initial acceptance requirements;
- h. Dust control;
- i. Bleeding;
- j. Rough joints;
- k. Surface patterns;
- l. Procedures to ensure that both the initial and final sweeping are completed in a manner that prevents damage to vehicles; and
- m. An action plan, demonstrating how the chip seal operation will be adjusted for adverse environmental conditions.

2. **QC Sampling and Testing.** Perform the following minimum QC tests during chip seal placement.

a. **Coarse Aggregate.** Determine the actual application rate by placing a tarp over 1 square yard of pavement, applying coarse aggregate to the pavement in a production run, retrieving the aggregate placed on the tarp, and weighing the coarse aggregate. Place coarse aggregate within.

Collect one sample from the project aggregate stockpile each day of production, and perform a sieve analysis. Ensure sieve analysis results meet the requirements of Table 902-7 and fall within the quality control tolerances of Table 505-1 to substantiate the design for intended yield.

Chip Seal Quality Control Tolerances	
Parameter	Tolerance
3/8 in sieve	-5.0%
No. 4 sieve	+5.0%
Aggregate Application rate	±1 pound per square yard of the required JMF application rate
Emulsion Application Rate	±0.01 gallon per square yard of the JMF target rate

b. **Emulsion.** Determine the actual application rate using a 1,000-foot yield check. Apply the asphalt emulsion within.

Acceptance.

1. **Field Inspection Acceptance.** Upon completion of work, schedule an inspection with the Engineer. The Engineer will note deficiencies, including areas exhibiting adhesion failure, cohesion failure, excessive stone, loss of stone, or other factors the Engineer identifies as unacceptable. Correct work the Engineer determines unacceptable.

2. **Delayed Acceptance.** At least 30 days after placing the single chip seal, double chip seal, or shoulder chip seal, the Engineer, with the Contractor, will inspect the project for surface flushing, surface patterns, or loss of stone. If the Engineer determines the work includes these deficiencies, correct the work within 7 working days of the review, or by an agreed upon date, as approved by the Engineer, and at no additional cost to the Department.