

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
**WARRANTY WORK REQUIREMENTS FOR SINGLE CHIP SEALS
(CAPITAL PREVENTIVE MAINTENANCE)**

CFS:EMC

1 of 3

APPR:ARB:KPK:07-07-16
FHWA:APPR:07-13-16

a. Description. This special provision must be used in conjunction with 12SP-500B to construct warranted single chip seals. The work consists of furnishing all materials, equipment and labor necessary for the surface preparation and application of a single chip seal or shoulder chip seal.

b. Limits of Warranted Work. The warranted work includes all chip seal applications on driving lanes and shoulders within the project limits unless otherwise indicated on the proposal.

c. Warranty Period. The length of warranty will be 2 years from the Acceptance Date of Warranted Work.

d. Amount of Warranty Bond. Supply a warranty bond equal to 100 percent of the warranted work for chip seals.

e. Materials. Provide materials in accordance with subsection 505.02 of the Standard Specifications for Construction with the following exceptions:

1. Asphalt Emulsion. For jobs north of M-46 with ADT<5000, CRS-2M as specified in section 904 of the Standard Specifications for Construction is an approved alternate. The emulsified asphalt must conform to certification procedures described in the *Materials Quality Assurance Procedures Manual*.

2. Coarse Aggregate. Coarse aggregates for all chip seals will be tested materials or provided by a prequalified aggregate supplier. Copper Smelter Slag will not be permitted for use as a chip seal aggregate.

Table 1: Gradation and Physical Requirements for Single Chip Seal Aggregates

Sieve Analysis (MTM 109), Total Percent Passing (a)	
Sieve Size	34CS-M
3/4 inch	100
1/2 inch	100
3/8 inch	90-100
1/4 inch	N/A
No. 4	0-15
No. 8	0-5
No. 200 (Loss by Wash)	2.0 maximum
Physical Requirements for Coarse Aggregates (34CS-M)	
Test – Description	Specification
<i>MTM 102</i> – L.A. Abrasion Resistance	35% maximum (b) 45% maximum (c)
<i>MTM 117</i> – Percent of Crushed Particles	ADT > 4,000 100% minimum on single face, 90% on 2 faces ADT < 4,000 95% minimum on single face 85% on 2 faces
<i>MTM 110</i> – Deleterious Particles in Aggregate	3.5% maximum (d)
<i>ASTM D 4791</i> – Flat and Elongated Ratio, 3:1(e)	15.0% maximum
<i>MTM 111</i> – Aggregate Wear Index (f)	ADT > 4,000 260 minimum ADT < 4,000 220 minimum
Moisture Content at time of placement(g)	4% maximum
a. Ensure all aggregate is washed. b. Natural aggregate. c. Iron Blast-Furnace slag aggregate. d. Includes the sum of shale, silt stone, structurally weak and clay ironstone. e. As determined for material retained on the No.4 sieve. The ratio between any combination of length, width or thickness. f. Does not apply to a shoulder chip seal. g. As described in MDOT Procedures for Aggregate Inspection.	

f. Construction. Ensure all construction is in accordance with subsection 505.03 of the Standard Specifications for Construction.

g. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

Pay Item	Pay Unit
Chip Seal, Single, Warranty.....	Square Yard
Chip Seal, Shoulder, Warranty	Square Yard

1. **Chip Seal, Single, Warranty** includes all materials, equipment, labor for placement of a single application of asphalt emulsion and coarse aggregate to a pavement and the accompanying shoulders as specified in the plans. Payment also includes all materials sampling and testing, surface preparation, brooming, and documentation.

2. **Chip Seal, Shoulder, Warranty** includes all materials, equipment, and labor for placement of a single application of asphalt emulsion and coarse aggregate to only the shoulders. Payment includes materials sampling and testing, surface preparation, brooming, and documentation.

h. Warranty Requirements. If any of the following performance criteria are not met, warranty work is required.

1. **Surface Cracking.** Each individual driving lane will be reviewed for measuring and quantifying surface cracking. One segment (528 feet in length) per 2 miles for each separate driving lane will be randomly chosen to review in detail. One segment will be reviewed for all projects or remaining portions of projects less than 2 miles, but greater than 1 mile. All open cracks will be logged within the chosen segments by crack type. The total length of longitudinal cracks will be logged for each segment. The transverse cracks will be logged by those between 6 inches and 6 feet in length and those equal or exceeding 6 feet in length. Transverse cracks and longitudinal cracks will be converted to defective cracks by the following;

- A. One transverse crack 6 feet or greater, in length = one defective crack.
- B. Five transverse cracks between 6 inches and 6 feet in length = one defective crack.
- C. A total of 125 feet of longitudinal crack(s) = one defective crack.

If the number of defective cracks equal or exceed the values in Table 2, the segment is considered defective. Warranty work is required when the average of all segments reviewed exceed the following values in Table 2.

Table 2: Warranty Requirements for Surface Cracking

Chip Seal Treatment	Pavement Type	Number of Defective Cracks
Single Chip Seal	Flexible	25

Corrective action for this parameter requires the Contractor to overband crack fill all cracks on the entire site, including shoulders if part of the chip seal work.

2. **Loss of Cover Aggregate.** The allowable threshold limit for loss of cover aggregate must not exceed 40 percent of the segment length. All segments in the driving lane or shoulder (528 feet in length) will be measured where the aggregate loss is evident. This measurement is linear and not dependent on area of aggregate loss. Corrective action, full-width across the driving lane or shoulder, will be required for each defective segment.

3. **Bleeding/Flushing.** The allowable threshold limit for bleeding or flushing must not exceed 40 percent of the segment length. All segments in the driving lane or shoulder (528 feet in length) will be measured where the bleeding or flushing is evident. This measurement is linear and not dependent on area of bleeding or flushing. Corrective action, full-width across the driving lane or shoulder, will be required for each defective segment.