

# MIDLAND COUNTY ROAD COMMISSION

## BID FORM

Sealed Proposal will be received at the office of the Board of Road Commissioners, County of Midland, located at 2334 N. Meridian Road, Sanford, Michigan, 48657, until:

**DATE: Wednesday, April 15th , 2015, at 2:00 p.m.**

### **Item No. 17 – CHIP SEAL APPLICATION**

**Estimated 20.00 ± miles of application**

Materials, Labor, Equipment for Single Chip Seal	\$ _____/SYD
Materials, Labor, Equipment for Fog Seal	\$ _____/SYD
Temporary Raised Pavement Markers, Yellow	\$ _____ Each
Temporary Raised Pavement Markers, White	\$ _____ Each

#### **Progress Schedule:**

Begin all work after receiving notice of award of contract from the County. The work may be scheduled to begin June 15<sup>th</sup> and all items of work must be completed by September 15<sup>th</sup>, unless a different date is authorized by the County.

COMPANY BIDDING \_\_\_\_\_

CONTACT PERSON \_\_\_\_\_

ADDRESS \_\_\_\_\_

PHONE/FAX \_\_\_\_\_

\_\_\_\_\_  
AUTHORIZED SIGNATURE

\_\_\_\_\_  
TITLE

**INDICATE ON ENVELOPE:** Company Name, Item Number, Bid Item, Time and Date

MIDLAND COUNTY ROAD COMMISSION  
SPECIAL PROVISION  
FOR  
FOG SEAL

C&T:KPK

C&T:APPR:TC:CJB:05-27-11

**a. Description.** This work consists of furnishing all materials, equipment, labor and preparation necessary for an application of a fog seal following a chip seal to protect against water infiltration and weathering and to prevent loss of aggregate from the chip seal. A fog seal is a light application of a slow-setting emulsified asphalt diluted with water. All work and materials must be in accordance with the standard specifications, except as modified herein.

**b. Materials.** The material must meet the following requirement:

Asphalt Emulsion: CSS-1h.....904

Dilute asphalt emulsion, at one part asphalt emulsion to one part water, at the emulsion plant.

**c. Equipment.** Use equipment that is safe, environmentally acceptable, and capable of producing a quality product.

1. Pressure Distributor. The pressure distributor must have the following characteristics:

- A. Have a ground speed computer controlled device interconnected with the asphalt emulsion pump such that the specified application rate is supplied at any speed;
- B. Be capable of maintaining the asphalt emulsion at the specified temperature.
- C. Have spray bar nozzles capable of producing a uniform fan spray and with shutoff control that is instantaneous, with no dripping.
- D. Be capable of maintaining the specified application rate within + 0.015 gal/syd for each load.

2. Miscellaneous. Provide a power broom and all necessary hand tools, thermometers, etc. Distributors and power brooms must be equipped with at least one visible approved flashing, rotating, or oscillating amber light.

**d. Pre-Paving On-Site Meeting.** A pre-paving meeting between the Engineer and Contractor will be held prior to beginning work. The agenda for this meeting will include a review of the following:

- 1. Work schedule,
- 2. Traffic control plan,
- 3. Equipment calibration and adjustments,
- 4. Condition of materials and equipment, and
- 5. Quality control plan (JMF, Yield Check Methods, etc.).

**e. Construction.** Place the longitudinal construction joint at the edge of metal of the driving lane; at a location requiring a minimal overlap onto the driving lane; or at a location requiring a minimal overlap of the new longitudinal joint resulting from milling and resurfacing.

Where corrugations are present joints are to be constructed at the outside edge of the far side of the corrugation on the first pass. The joint must be placed at the outside edge of the opposite side of the corrugation for the second application.

Complete application of the fog seal within 48 hours of the application of chip seal, but not on the same day as the application of chip seal.

Apply the fog seal only when the pavement and air temperature is 55 degrees F or above. Do not apply the fog seal if there is threatening weather and temperatures are forecast to be below 32 degrees F within 24 hours from the time of application.

Use pressure sufficient to apply emulsion at a uniform rate, but without splattering or drilling from the spray bar. Adjust nozzle angle and spray bar height to ensure correct spray pattern.

Apply fog seal at a rate of 0.10 to 0.15 gallons of diluted material per square yard of pavement treated. Ensure the fog seal applications results in a uniform coverage of emulsion just sufficient to flow into and seal the pavement pores, small cracks, and voids. The asphalt emulsion application rate, as determined by a yield check, must not exceed a tolerance of  $\pm 0.015$  gal/syd from the established JMF application rate.

If a condition is identified that causes an unsatisfactory fog seal, stop all production work and perform corrective action immediately at no additional cost to the contract. If there are adverse environmental conditions, provide the Engineer an action plan that clearly demonstrates how the fog seal operation will be adjusted for the actual environmental conditions.

Allow the Engineer access to all work in progress for the purpose of quality assurance review and testing.

**f. Quality Control.** Establish, maintain, and follow an effective quality control system in accordance with current Department procedures. The quality control system must detail plans, procedures, and organization necessary to furnish and apply a fog seal that complies with the contract. Follow the quality control system until work is accepted.

Establish, maintain, and follow a Contractor Quality Control (CQC) plan sufficient to ensure that the warranty related treatment complies with the contract. The CQC plan must cover all fog seal operations. Submit a copy of the plan to the Engineer, at the pre-construction meeting, for approval. Follow the approved plan throughout the project.

Include the following information, at a minimum, in the CQC plan:

1. Materials to be used on the project.
2. Sampling and testing methods used to determine compliance with material specifications.
3. Equipment to be used on the project.
4. Calibration method used to determine compliance with the application rates.

5. Procedures for pavement preparation.
6. Controls implemented by the Contractor to ensure that the fog seal material is cured or set up satisfactorily before opening to traffic.
7. Procedures implemented by the Contractor to for monitoring initial acceptance requirements.

**g. Documentation.** Provide the Engineer a daily report including the following information:

1. Control section, project number, county, route, Engineer;
2. Date, air temperature, pavement temperature, humidity;
3. Asphalt emulsion temperature;
4. Beginning and ending stations;
5. JMF: application and dilution rates (asphalt emulsion);
6. Yield checks on asphalt emulsion (3 per day, minimum);
7. Length, width, total square yards; and
8. Contractor's signature.

Provide asphalt emulsion documentation in accordance with current Department acceptance procedures.

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

<b>Pay Item</b>	<b>Pay Unit</b>
Seal, Fog.....	Square Yard

1. **Seal, Fog** includes all materials, equipment, and labor for placement of the asphalt emulsion including surface preparation, stationing, and documentation.

## MIDLAND COUNTY ROAD COMMISSION

SPECIAL PROVISION  
FOR  
**PAVEMENT PERFORMANCE WARRANTY**

CFS:EMC

APPR:KPK:DBP:12-07-12  
FHWA:APPR:12-18-12

**a. Description.** The pavement performance warranty consists of satisfying the warranty requirements of the work contained in the special provision for Warranty Work Requirements. This special provision establishes the common terms and definitions applied to the pavement requiring warranted work. The pavement performance warranty assures and protects the Department from specific defects found in the pavement.

**b. Definitions.**

**Abrasion.** The wearing away of treatment material by tire friction or snowplow scraping.

**Acceptance Date of Warranted Work.** The date when the warranted work is complete, has been determined by the Department to be in compliance with the contract specifications, and is continuously open to traffic. This is the date of initial acceptance and constitutes the start date for the warranty period. There may be more than one acceptance date of warranted work for a project.

**Adhesion.** The bonding of a material to crack sidewalls and the pavement surface.

**Bleeding/Flushing.** The accumulation of excess asphalt binder on the pavement surface that creates a shiny, reflective condition and becomes tacky to the touch at high temperatures.

**Cohesion.** The resistance of a material to internal rupture.

**Debonding.** A physical separation of two HMA layers. De-bonding will be visually identified as shoving, or the loss of the surface course. Surface potholes, regardless of depth, will be classified as de-bonding.

**Driving Lane(s).** The delineated pavement surface used by traffic. Each of the following is considered a separate driving lane.

- Each individual mainline lane and adjacent shoulder
- The sum of all ramp lanes and the associated acceleration/deceleration lanes
- The sum of all auxiliary lanes, such as passing lanes and turn lanes

Approaches and driveways are not considered driving lanes for the purpose of this special provision.

**Longitudinal Crack.** Any open crack in the individual driving lanes that extends more in the longitudinal direction than the transverse direction.

**Loss of Cover Aggregate.** Areas of dislodged and removed aggregate from the chip seal surface caused by the mechanical action of vehicles. Chip seal damage from snow plows will not be considered defective if both the aggregate and asphalt emulsion have been removed from the underlying pavement surface. When asphalt emulsion remains on the surface without aggregate, the chip seal is defective. This parameter applies to all treated areas, including driving lanes and shoulders.

**Non-Working Cracks.** Cracks that experience relatively little horizontal or vertical movement as a result of temperature change or traffic loading. As a general rule, movement less than 1/8 inch.

**Opening to Traffic.** The allowance of vehicles on the newly chip sealed pavement with or without the use of reduced speeds and/or a pilot car.

**Overband.** A type of finish in which material is allowed to completely cover prepared cracks by extending onto the pavement surface.

**Raveling.** Surface disintegration, due to the loss of aggregate material, that occurs over an area or in a continuous longitudinal strip. Wear caused by snowplow abrasion is not considered raveling.

**Reservoir.** A uniform rectangular channel resulting from crack sawing operations.

**Rutting.** Longitudinal surface depressions in the wheel path of a HMA pavement caused by inadequate compaction or plastic movement of the asphalt mixture.

**Surface Cracking.** The total number of defective cracks within a 528 feet segment.

**Transverse Crack.** Any open crack that equals or exceeds 6 feet in length in the individual driving lanes that extends more in the transverse direction than the longitudinal direction.

**Treatment Failure.** The degree to which a treatment is not performing its function. This includes areas along the sealed or filled crack exhibiting loss of adhesion or cohesion or pull-out of material. Sealant materials displaying abrasion are not performing, unless there is a definable upheaval in the pavement profile along crack edges that allows snowplow scraping to wear away material.

**Warranted Work.** Work that is guaranteed not to exceed the specified thresholds of performance during the warranty period.

**Warranty Bond.** A surety which guarantees that the warranty requirements will be met.

**Warranty Work.** Corrective action by the Contractor to bring the warranted work back into compliance. All costs will be borne by the Contractor including traffic control, mobilization, pavement marking and/or other related work.

**Working Cracks.** Cracks that experience considerable horizontal or vertical movement as a result of temperature change or traffic loading. In general, movement greater than, or equal to 1/8 inch. 12SP500(B) CFS:EMC 3 of 7 12-07-12

**c. Initial Acceptance.** The Department and the Contractor must jointly review all completed warranted work, or a portion thereof, as determined by the Department. If the work does not meet contract requirements, the Contractor must make all necessary corrections, at their expense, prior to initial acceptance. Initial acceptance will occur as soon as the Department determines that all contract requirements have been met for the warranted work. The initial acceptance date on warranties that include a Delayed Acceptance, shall be the date that the warranted work was completed and opened to traffic if no deficiencies are observed in the delay period, or the date that all corrective work was completed for any deficiencies that were observed in the delay period. The date on which initial acceptance occurs is termed the Acceptance Date of Warranted Work.

Initial acceptance will be documented and executed jointly by the Department and the Contractor on a form furnished by the Department. A copy of the form will be sent to the Contractor's warranty bond surety agent, by the Department. Neither the initial acceptance nor any prior inspection, acceptance, or approval by the Department diminishes the Contractor's responsibility under this warranty.

The Department may accept the work and begin the warranty period to accommodate seasonal limitations or staged construction, excluding any area needing corrective work.

**d. Warranty Bond.** Furnish a single term warranty bond of the amount stipulated in the special provision for Warranty Work Requirements, prior to contract award. The effective starting date of the warranty bond will be the Acceptance Date of Warranted Work. The warranty bond will be released at the end of the warranty period or after all warranty work has been satisfactorily completed, whichever is later, and a form furnished by the Department is jointly executed by the Department and the Contractor.

**e. Rights and Responsibilities of the Department.** The Department:

1. Reserves the right to approve the time, traffic control and methods for performing any warranty work by permit through the Region utilities and permit process.
2. Reserves the right to approve the schedule proposed by the Contractor to perform warranty work.
3. Reserves the right to approve all materials and specifications used in warranty work.
4. Reserves the right to determine if warranty work performed by the Contractor meets the contract specifications.
5. Reserves the right to perform, or have performed, routine maintenance during the warranty period, which routine maintenance will not diminish the Contractor's responsibility under the warranty.
6. Reserves the right, if the Contractor is unable, to make immediate emergency repairs to the pavement to prevent an unsafe road condition caused by defective warranted work as determined by the Department. The Department will attempt to notify the Contractor that action is required to address an unsafe condition. The Department will record the time and date of the attempts for Contractor notification. However, should the Contractor be unable to comply with this requirement, to the Department's satisfaction and within the required time frame specified by the Department, the Department will perform, or have performed any emergency repairs deemed necessary. Any such emergency repairs undertaken will not relieve the Contractor from

meeting the warranty requirements of this special provision. Any costs associated with such emergency repairs will be paid by the Contractor.

7. Is responsible for monitoring the pavement throughout the warranty period and will provide the Contractor any written reports of the surface condition and/or maintenance activities related to pavement performance when requested.

8. Is responsible for notifying the Contractor, in writing, of any corrective action required to meet the warranty requirements.

**f. Rights and Responsibilities of the Contractor.** The Contractor:

1. Must warrant to the Department that the warranted work will be free of defects as measured by the performance parameters and specified threshold values for each. The warranty bond must be described on a form furnished by the Department. The completed form must be submitted to the Department prior to award of contract.

2. Is responsible for performing all warranty work including, but not limited to, maintaining traffic and restoring all associated pavement features, at the Contractor's expense.

3. Is responsible for performing all temporary or emergency repairs, resulting from being in non-compliance with the warranty requirements, using Department approved materials and methods.

4. Must notify the Department and submit a written course of action for performing the needed warranty work, 10 calendar days prior to commencement of said warranty work, except in the case of emergency repairs as detailed in this special provision. The submittal must propose a schedule for performing the warranty work and the materials and methods to be used.

5. Must follow a Department approved maintaining traffic plan when performing warranty work. All warranty work must be performed under permit issued by the Region Utilities and Permits Engineer. The permit fee and an individual permit performance bond will not be required. The permit insurance requirements, however, will apply.

6. Must furnish to the Department, in addition to the regular performance and lien bond for the contract, supplemental performance and lien bonds covering any warranty work being performed. These supplemental bonds must be furnished prior to beginning any warranty work, using Department approved forms. These supplemental bonds must be in the amount required by the Department to cover the costs of warranty work.

7. Must complete all warranty work required by this special provision and prior to conclusion of the warranty period, or as otherwise agreed to by the Department.

8. Will be liable during the warranty period in the same manner as Contractors currently are liable for their construction related activities with the Department pursuant to the Standard Specifications for Construction, including, but not limited to subsections 104.07.C, 107.10 and 107.11. This liability will arise and continue only during the period when the Contractor is performing warranty work. This liability is in addition to the Contractor performing and/or paying for any required warranty work, and must include liability for injuries and/or damages and any expenses resulting therefrom which are not attributable to normal wear and tear of traffic and weather, but are due to non-compliant materials, faulty workmanship, and to the operations of

the Contractor as set forth more fully in subsections 104.07.C, 107.10 and 107.11 of the Standard Specifications for Construction.

**g. Evaluation Method.** The Department will conduct pavement evaluations by dividing the project into segments. Each individual driving lane will be divided into segments of 528 feet for measuring and quantifying the condition parameters. Evaluation may include use of both the Department's Pavement Management System and/or field pavement condition reviews. This evaluation may be waived in emergency situations.

The beginning point for laying out segments will be the Point of Beginning (POB) of the project. Segments will be laid out consecutively to the Point of Ending (POE) of the project. The original segmentation of the project will be used for all successive reviews throughout the warranty period.

**h. Condition Parameters.** Condition parameters are used to measure the performance of the warranted work during the warranty period. Each condition parameter has a threshold level applied to each segment and defines the number of defective segments allowed before corrective action (warranty work) is required.

**i. Warranty Requirements.** Warranty work will be required when the following two criteria are both met as a result of a failure to meet the performance parameters.

Criterion 1 - The threshold limit for a performance parameter is exceeded, and

Criterion 2 - The maximum allowable number of defective segments is exceeded for one or more performance parameters for a driving lane, unless otherwise noted in the appendix.

Specific threshold limits and segment limits are covered in the appendix.

During the warranty period, the Contractor will not be held responsible for pavement distresses that are caused by factors beyond his control and unrelated to design decisions made by the Contractor, pavement construction or materials. These include, but are not limited to: chemical and fuel spills, vehicle fires, snow plowing, and any testing by the Department, such as coring. Other factors considered to be beyond the control of the Contractor, which may contribute to pavement distress will be considered by the Engineer on a case by case basis upon receipt of a written request from the Contractor.

**j. Conflict Resolution Team.** The sole responsibility of the Conflict Resolution Team (CRT) is to provide a decision on disputes between the Department and the Contractor regarding application or fulfillment of the warranty requirements. The CRT will consist of five members:

1. Two members selected and compensated by the Department.

2. Two members selected and compensated by the Contractor.

3. One member mutually selected by the Department and the Contractor. Compensation for the third party member will be equally shared by the Department and the Contractor.

If a dispute arises on the application or fulfillment of the terms of this warranty, either party may serve written notice that appointment of a CRT is required.

At least three members of the CRT must vote in favor of a motion to make a decision. If agreement

cannot be reached, the CRT may decide to conduct a forensic investigation. The CRT will determine the scope of work and select the party to conduct the investigation. All costs related to the forensic investigation will be shared proportionally between the Contractor and the Department based on the determined cause of the condition.

**k. Emergency Repairs.** If the Department determines that emergency repairs are necessary for public safety, the Department or its agent may take repair action. Emergency repairs will be authorized by the Engineer.

Prior to emergency repairs, the Department will document the basis for the emergency action. In addition, the Department will preserve evidence of the defective condition.

**l. Non-Extension of Contract.** This special provision must not be construed as extending or otherwise affecting the claim process and statute of limitation applicable to this contract.

**m. Measurement and Payment.** All costs, including engineering and maintaining traffic costs, associated with meeting the requirements of this special provision are considered to be included in the contract unit prices for the warranted work regardless of when such costs are incurred throughout the warranty period. These costs include but are not limited to, all materials, labor and equipment necessary to complete required warranty work.

## MIDLAND COUNTY ROAD COMMISSION

SPECIAL PROVISION  
FOR  
**WARRANTY WORK REQUIREMENTS FOR SINGLE CHIP SEALS**  
**(Capital Preventive Maintenance)**

CFS:EMC

C&T:APPR:ARB:KPK:10-25-12  
FHWA:APPR:11-08-12

**a. Description.** This special provision must be used in conjunction with 12SP500(B) 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 in the North and Superior Regions 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	0-10
No. 8	0-5
No. 200 (Loss by Wash)	2.0 maximum
Physical Requirements for Coarse Aggregates (34CS-M)	
Test – Description	Specification
MTM 102 – L.A. Abrasion Resistance	35% maximum (b) 45% maximum (c)
MTM 117 – 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
MTM 110 – Deleterious Particles in Aggregate	3.5% maximum (d)
ASTM D4791 – Flat and Elongated Ratio, 3:1(e)	15.0% maximum
MTM 111 – Aggregate Wear Index (f)	ADT > 4,000 260 minimum ADT < 4,000 220 minimum
Moisture Content at time of placement(g)	4% maximum
a. All aggregate shall be 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.** All construction must be 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:

<b>Pay Item</b>	<b>Pay Unit</b>
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 4, the segment is considered defective. Warranty work is required when the average of all segments reviewed exceed the following values in Table 4.

**Table 4: 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. 12SP505(A) CFS:EMC 4 of 4 10-25-12

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.