SHIAWASSEE COUNTY ROAD COMMISSION

701 West Corunna Avenue, Corunna, Michigan 48817-1229
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Commissioners:
MIKE CONSTINE
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NOTICE TO BIDDERS
SHIAWASSEE COUNTY ROAD COMMISSION

Sealed proposals will be received by the Shiawassee County Road Commission, 701 W. Corunna Avenue, Corunna, Michigan 48817-1229 until 3:30 p.m., **Friday, November 20, 2026.** Proposals will be publicly opened at 7:30 a.m. on Tuesday, November 24, 2026, and read for the following:

2027 CHIP SEAL PROGRAM

Michigan Department of State Highway and County approved specifications are required for all materials. Prices are to be F.O.B. Corunna, Michigan. Information will be available at the office of the Shiawassee County Road Commission or by calling (989) 743-2228. Proposals and specifications may also be obtained from the Road Commission website at www.shiawasseeroads.com or requested via email at generalmail@shiawasseeroads.com. Bid specification forms must be used. Bids can be mailed or hand-delivered to the Road Commission offices at the above address. This is a public bid opening. Results (bid tabulations) will be posted on our website.

ALL BIDS MUST BE IN A SEALED ENVELOPE AND PLAINLY MARKED "CHIP SEAL BID" ON THE OUTSIDE. THE ENVELOPE SHALL INCLUDE THE NAME AND ADDRESS OF THE BIDDER.

"The Shiawassee County Road Commission, in accordance with Title VI of the Civil Rights of 1964, 78 Stat. 252, 42 USC 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Federally-assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of gender, disability, race, color, or national origin in consideration for an award."

The Board reserves the right to reject any or all proposals or any part of the same, to waive irregularities and or informalities and to make the award in part or entirety as may appear in the best interest of the County of Shiawassee.

SHIAWASSEE COUNTY ROAD COMMISSIONERS
Mike Constine
Ric Crawford
John Plowman

SHIAWASSEE COUNTY ROAD COMMISSION

PROPOSAL FOR:

2027 CHIP SEAL PROGRAM

The undersigned has examined the Contract Documents (Advertisements, Proposal, General Conditions, Specifications and Special Provisions) and has reviewed the locations of the work described herein and is fully informed as to the nature of the work and conditions related to its performance, and understands that the quantities shown are approximate only, and are subject to either increase or decrease.

The undersigned hereby proposes to furnish all necessary machinery, tools, apparatus, and other means of construction, do all the work, **furnish all the materials**, and for the unit prices named in the itemized bid, to complete the work herein described in strict accordance with the specifications therefore arid such other provisions and supplemental specifications as may be a part of this proposal.

The undersigned further proposes to do such extra work as may be authorized by the Shiawassee County Road Commission, prices for which are not included in the itemized bid. Compensation shall be made on the basis agreed upon before such extra work begins.

The undersigned encloses a certified check or bid bond in the amount of five (5%) percent of the bid, payable to the Shiawassee County Road Commission, which, it is agreed, will be forfeited as liquidated damages, if, in the event this Proposal is accepted and the undersigned should fail to execute the Contract and furnish to the Shiawassee County Road Commission satisfactory performance and lien bonds and proof of insurance within ten (10) days after the notification of award of the Contract. It is further understood that the bid deposit of the next lower bidder will not be returned until the Contract has been executed and that the bid deposits of all others will be returned promptly. The successful bidder will be required to furnish contract bonds as specified in Section 102 of the 2020 MDOT specifications.

These bonds are to be submitted on standard forms provided by the Surety Company. The starting date shall be after June 1, 2027, and the completion date for all projects will be September 10th, 2027.

The quantities listed in the proposal are estimates and approximate only, subject to Township approval. The quantities of work to be performed are subject to increase or decrease as determined by conditions encountered in the prosecution of the work. Completed work will be paid for on the basis of actual work done and/or materials furnished, and not as a lump sum on the estimated quantities used for bidding purposes.

The Shiawassee County Road Commission reserves the right to reject any or all proposals or any part of the same, to waive irregularities and informalities, and to make the award in part or entirety as may appear to the best interest of the various townships and county of Shiawassee.

Proposals shall be filled in with ink or typed on the forms provided and prices shall be stated in figures. In the event of a discrepancy between the unit price and total amount for any item, the unit price shall govern.

A copy of this proposal, together with the advertisement, general conditions, detailed specifications, and special provisions, when properly signed by the Contractor and the Road Commission, will serve as the Contract for the work.

CANCELLATION OF CONTRACT PROVISION

The Shiawassee County Road Commission shall have the right to cancel the Contract for non-performance. Should the work as inspected by the County designated representative, reveal that the Contractor's work results in a non-acceptable maintenance condition of one or all specified areas:

The designated representative at the time of the first circumstance shall call a meeting with the Contractor and issue a written warning of possible Contract termination should the condition continue.

If the condition should repeat for a second time, written notice of termination shall be sent to the Contractor.

PRE-QUALIFICATIONS

Bidders shall be pre-qualified by the State of Michigan or have available upon request, three references of previous work experience including the company name, address, phone number, and contact person.

INSURANCE REQUIREMENTS

The Contractor shall at all times exercise extreme care and shall assume all liability for any damages resulting from this operation and shall hold the Shiawassee County Road Commission harmless form any claims or damages. Contractors working in the road right-of-way must have a valid certificate of Auto Liability, Worker's Compensation and Commercial General Liability Insurance. Certificates shall be on file with the Shiawassee County Road Commission before work begins. This requirement will apply to each entity under this contract.

MINIMUM REQUIREMENTS ARE:

AUTO LIABILITY	LIMITS
Bodily Injury	$500,000 per occurrence $1,000,000 aggregate
Property Damage	$1,000,000 per occurrence $1,000,000 aggregate

Hire & Non-Owned Liability to be included

COMPREHENSIVE COMMERCIAL	LIMITS
General Liability	$500,000 each occurrence and aggregate

WORKERS COMPENSATION	LIMITS
	Statutory Coverage Limits

To the above policy, the following **Additional Insured Phrase** shall be added in its entirety: **Shiawassee County, the Board of County Road Commissioners, County Road Commission, and all officers, agents and employees of all of the above, for claims arising out of, under, or by reason of operations covered by this contract for "Chip Seal Program".**

Should the policy be canceled or expire, all activities authorized by the Road Commission shall cease.

SUBCONTRACTING

The approval of the Shiawassee County Road Commission shall be obtained before naming a subcontractor for any substantial amount of work. The contractor shall assure that any subcontractor named has sufficient equipment, insurance, and personnel to properly complete any item of work within the specified time.

CHIP SEAL SPECIAL PROVISIONS DESCRIPTION

This work consists of furnishing all materials, equipment, labor and preparation necessary for application of a single or double chip seal.

MATERIALS ASPHALT EMULSION

The asphalt emulsion shall be **CRS-2M** as follows: Top Seal (Double Seal and Single Seal locations) **CRS-2M** Asphalt Emulsion shall conform to the requirements specified in Table 904-7: Capital Preventative Maintenance Emulsions of the 2020 MDOT Standard Specifications for Construction.

Test ASTM D-244, unless otherwise designated CRS-2M Requirements

(Refer to highlighted items on Table 904-7 included with this document.)

34CS SLAG AGGREGATE

The 34CS Slag Aggregate shall meet the requirements specified in Table 902-7: Capital Preventative Maintenance Final Aggregate Blend Gradation Requirements.

(Refer to highlighted items on Table 902-7 included with this document.)

PHYSICAL REQUIREMENTS

The 34CS Slag Aggregate shall meet the requirements specified in Table 902-8: Capital Preventative Maintenance Aggregate Blend Physical Requirements.

(Refer to highlighted items on Table 902-8 included with this document.)

The coarse aggregate shall be from Michigan Department of Transportation tested material or a certified aggregate manufacturer as described in Michigan Department of Transportation "Materials Quality Assurance Procedures Manual, Aggregate Certification Procedures", and the "Materials Sampling Guide".

EQUIPMENT

All equipment must meet the requirements under Sub-section 505.03 of the 2020 Standard Specification for Construction, except as modified herein:

PRESSURE DISTRIBUTOR

The pressure distributor shall have a ground speed control device interconnected with the asphalt emulsion pump such that the specified application rate will be supplied at any speed. The pressure distributor shall be capable of maintaining the asphalt emulsion at the specified temperature. The spray bar nozzles shall produce a uniform fan spray, and the shutoff shall be instantaneous, with no dripping. Each pressure distributor shall be capable of maintaining the specified application rate within ±0.015 gal/syd. for each load.

AGGREGATE CHIP SPREADER

The aggregate chip spreader shall be self-propelled, be equipped with pneumatic tires, and with a screen to remove oversized material. The spreader shall be capable of uniformly spreading the cover material at the designated rate.

ROLLERS

Three self-propelled pneumatic tired rollers shall be used for rolling cover aggregate immediately after spreading. Pneumatic tired rollers shall have a total compacting width of not less than 60 inches and have minimum contact pressure of 80 pounds per square inch and weighing of not less than 8 tons.

BROOM/SWEEPER

A rotary power broom shall be used for removing loose material from the surface to be treated and for removing loose aggregate after the work is completed. Curb areas require a vacuum/pickup type sweeper.

MISCELLANEOUS

All necessary hand tools, thermometer, and other miscellaneous items shall be provided. Distributors, power brooms, rollers shall be equipped with at least one approved, flashing, rotating or oscillating visible amber light. The Spreader shall be equipped with at least two such lights, one on each side of the Spreader.

PRE-PRODUCTION ON-SITE MEETING

A pre-production meeting between the Contractor and Road Commission Inspector will be held prior to beginning work. The agenda for this meeting will include:

- Review of the Contractor's detailed work schedule.
- Examine traffic control plan.
- Calibration and adjustments to equipment.
- Inspection of the condition of equipment, including transporting units and materials.

- Mix Design: Job- Mix-Formula (JMF) — Coarse aggregate gradation and application rates (Asphalt Emulsion and Coarse Aggregate) (by stationing) JMF shall be provided by the contractor.
- Review Contractor's Quality Control Plan (Yield Check Methods, etc.).
- Designation of Contractor's authorized representative.

SEASONAL LIMITATIONS

The Chip Seal shall be placed when the pavement and atmospheric temperature is 55° F or above. Placement is not permitted if there is rain or threatening weather. Placement is not permitted when temperatures are forecasted to be below 40°F within 24 hours from the time of work. Placement is not permitted when the existing pavement temperature is 130°F or above.

Chip Seals will only be placed from June 1st through September 10th.

DOCUMENTATION

The Contractor shall provide the Road Commission Inspector a daily report with the following information:

- Road Name / Project Number
- Date / Air Temperature / Pavement Temperature / Humidity
- Asphalt Emulsion Temperature
- JMF: Gradation and application rates (coarse aggregate and asphalt emulsion)
- Yield Checks on Asphalt Emulsion (3 per day, minimum)
- Yield Checks on Coarse Aggregate (3 per day, minimum)
- Aggregate Gradation and Moisture Content (1 per day, minimum)
- Length / Width / Total Square Yards
- Contractor's Signature

Other required documentation shall include:

- Aggregate Certification or Shipment of Tested Stock Report (MDOT form 1922)
- Asphalt Emulsion: Per current acceptance procedures

QUALITY CONTROL

The methods described in this section shall be used by the Contractor measured compliance.

If the Contractor's test results exceed any of the identified quality tolerances, placement shall **STOP** and the Road Commission shall be immediately notified. The Contractor shall identify the cause of exceeding any of the identified quality control tolerances and document in detail the corrective action necessary to bring the deficiency into compliance. The Road Commission will give approval prior to resumption of work.

CONSTRUCTION

The Contractor shall follow the Construction Methods as described in the 2020 Standard Specifications for Construction except as modified herein:

- The Contractor shall establish stations at 1,000 feet intervals on the entire project, prior to placing materials. The stations shall be clearly identified and maintained until project completion.

- All pavements to be treated shall be cleaned by the Contractor. The Contractor shall clean the pavement with a motorized power broom to remove all loosen material. The Contractor using a hand broom will clean all depressions not reached by the power broom. The Contractor shall ensure that the outer edges of the pavement to be treated, including 1 foot of the paved shoulder width, are thoroughly cleaned. No material shall be placed until the Road Commission Inspector approves the surface.

- The entire operation shall stay as close to each other as possible. At no time during the operation shall the asphalt emulsion distributor be more than 150 feet ahead of the aggregate chip spreader.

- The longitudinal construction joints shall be placed on painted lane lines or at the outside edge of shoulder.

- Rolling shall be performed immediately after the placement of the coarse aggregate and before the asphalt emulsion has set up and at no time shall there be more than 150 feet of unrolled cover material. A maximum of 2 minutes will be allowed between the spreading of aggregate and completion of the initial rolling of the aggregate. A minimum of 3 complete rolling trips over the coarse aggregate will be required. A complete trip is one pass, forward and backward, over the same path, with the final pass being in the direction of the chip spreader.

  A minimum of 2 rollers shall be used and the rollers shall proceed in a longitudinal direction at a speed not greater than 5 mph.

- Prior to beginning the chip seal operation, the contractor shall protect all utility castings using tarpaper or other approved materials. These protective coverings shall be removed prior to sweeping.

- Before application of the asphalt emulsion for the second seal (**CRS-2M**) the first seal surface shall have all loose stones removed with a power broom.

- The work shall be planned such that at the completion of each day's chip seal operation, all lanes are treated to approximately the same point of ending.

APPLICATION

The contractor shall apply the asphalt emulsion at a temperature between 170°F and 190°F, followed by a uniform application of coarse aggregate.

ASPHALT EMULSION - APPLICATION RATES

Top Seal - (Double Seal and Single Seal Locations) - **CRS-2M** shall be within the range of **0.39 - 0.46** gal/syd. The JMF target rate for the asphalt emulsion shall be **0.42** gal/syd.

If the target rate of 0.42 gal/syd. is not the optimum application rate due to the gradation of the coarse aggregate or due to existing surface conditions of the pavement. The Contractor shall notify the Road Commission Inspector, immediately. The Contractor shall then document the JMF rate(s) by stationing.

The asphalt emulsion application rate as determined by a yield check shall not exceed a tolerance of ±0.01 gal/syd from the established JMF application rate.

COARSE AGGREGATE - APPLICATION RATES

Top Seal (Double Seal and Single Seal Locations) aggregate shall be within the range of 20 - 24 lbs. The JMF target rate for the coarse aggregate shall be 21 lbs/syd.

If the target rate of 21 lbs/syd. is not the optimum application rate due to the gradation of the coarse aggregate or due to existing surface conditions of the pavement, the Contractor shall notify the Road Commission Inspector, immediately. The Contractor shall then document the new JMF rate(s) by stationing.

The coarse aggregate application rate as determined by yield checks shall not exceed a tolerance of ±1.0 lb/syd from the established JMF application rate. The aggregate shall be clean and uniform. Once a JMF gradation is established, the following quality control tolerances shall apply.

Sieve Size	Tolerance
#3/8	-5.0%
#4	+5.0%

The moisture content of the aggregate shall not exceed 4 percent by dry weight, at the time of placement.

FOG SEAL

Fog seal material shall be CSS-1h dilute. Application rate shall be within the range of 0.10 - 0.15 gal/syd. The target rate for fog seal shall be 0.12 gal/syd. Product to be used and application rate shall be test sprayed by the contractor subject to approval. Fog seal application shall be completed within 14 days of chip seal application. Fog seals shall be homogenous in appearance with no drilling or striping with obvious variation in color. The intent is for a uniform black surface. Any change to application rate must be approved by the project manager or Superintendent / Managing Director.

INITIAL ACCEPTANCE

The initial acceptance will not occur until after at least 30 days from the time of placement of the Chip Seal. The Road Commission Representative, in the company of the Contractor shall inspect the work for any deficiencies. These deficiencies will be limited to surface flushing, surface patterns, or loss of stone retention. All corrective work shall be accomplished within 7 working days after notification or an agreed to date. The Contractor shall furnish materials, equipment, and labor to make the identified corrections to the satisfaction of the Road Commission at no additional cost to the contract.

LIMITS OF WARRANTED WORK

Loss of cover aggregate. Areas dislodged and removed from chip seal surface caused by mechanical action of vehicles. Chip seals damaged from snowplows will not be considered defective if both the aggregate and emulsion have been removed from the underlying pavement surface. The allowable loss of cover aggregate shall not exceed 25% of the surface area for each one-mile segment of the chip seal.

WARRANTY REQUIREMENTS

Warranty work will be required for any segment of road not meeting the limits set above. A bond will be required for the Shiawassee County Road Commission work.

WARRANTY PERIOD

The length of warranty will be one year from initial project acceptance.

AMOUNT OF WARRANTY BOND

The Contractor will supply a warranty bond equal to 100% of the warranted work for chip seals.

STOCKPILING AGGREGATE MATERIALS

The Contractor shall secure their stockpile areas at locations near the work. The Road Commission must approve stockpile locations and will require a copy of the contractor's written approval from the property owner.

BROOMING

The Contractor shall perform brooming/vacuuming on the final surface within 24 hours of completing the final surface. Brooming curb and gutter areas shall be done with an approved vacuum/pickup type sweeper. Excess aggregate shall not be placed behind the curb. Brooming may begin within 6 hours of application or delayed up to 48 hours of the application, with approval of the Road Commission Inspector. Liquidated Damages will be assessed for failure to complete brooming within 48 hours of completing a specific roadway location.

MAINTAINING TRAFFIC AND CONSTRUCTION SIGNS

The Contractor shall provide sufficient flagmen to maintain traffic through the chip seal construction area.

The Contractor shall provide flagmen in accordance with the current Michigan Manual of Uniform Control Devices to protect the traveling public, their workforce, and the work.

In addition, the contractor shall provide temporary "FRESH TAR" signs, approved by the Road Commission Inspector shall be placed at each end of the Chip Seal operation. These two signs shall be mounted with the bottom of the sign placed 5 feet above the ground and shall remain at each end of the chip seal location until one hour after the contractor has completed the chip seal

operation. The flagmen and fresh tar signs will not be paid for separately but will be part of the chip seal operation.

The Road Commission will install "ROAD WORK AHEAD" signs and "LOOSE STONES" signs at each end of the project; the contractor when beginning the Chip Seal operations will uncover the signs.

TEMPORARY RAISED PAVEMENT MARKERS

Before applying any asphalt emulsion that would obliterate existing traffic centerlines. The Contractor shall place temporary yellow pavement markers on the existing centerline at intervals of not more than 100 feet. Installation shall be as follows:

- The pavement surface must be clean and dry. Remove and release paper from the adhesive. Place the marker with protective cap in place on the centerline and apply pressure with hand or foot. The reflector must face oncoming traffic after the cover is removed. Installation is to be made prior to the application of chip seal, and the reflector will protrude above the new material, allowing the centerline to be easily located. The reflector has a protective cap, which is to be removed after the Bituminous Seal is completed.

- The temporary markers shall be flexible chip seal and slurry seal markers, Type Y (amber 2- way), manufactured by:

Davidson Plastics Company
18726 East Valley Highway
Kent, Washington 98032
Telephone # (425)251-8140

Stimsonite Corporation
7542 North Natchez
Niles, Illinois 60714
Telephone # (708)647-7717

MEASUREMENT AND PAYMENT

A project is considered complete for payment when all items of work including project clean up are done in accordance with the contract provisions and construction specifications. The contractor may submit a request for payment after approval is given by the project manager. Payments shall be processed within 30 days of receipt of contractor invoice. Payments will receive final approval at a Shiawassee County Road Commission Board meeting. These meetings are held on the 2nd and 4th Tuesday of each month.

The completed work as measured will be paid for at the contract unit price for the following contract items:

PAY ITEM	PAY UNIT
Single Chip Seal and Fog Seal	**Square Yard**
Double Chip Seal and Fog Seal	**Square Yard**
Approach Work	**Lump Sum per 50' of Approach**
Raised Pavement Marker	**Each**
Strip Seal	**Square Yard**

Payment for Chip Seal includes all materials, equipment, and labor for placement of a single or double application of asphalt emulsion and coarse aggregate, brooming, establishment of yield intervals, maintaining traffic and delayed acceptance inspection.

No adjustment in the unit price will be made for an approved rate of asphalt emulsion and/or coarse aggregate that are within the ranges identified in Asphalt Emulsion and Coarse Aggregate Application Rates.

An approved revision to the application rates of asphalt emulsion and/or coarse aggregate outside of the application rates can be made with an adjustment to the unit price. The unit price adjustment will be limited to the material costs either plus or minus from the range limits. The contractor shall provide asphalt emulsion and coarse aggregate unit prices at the pre-construction meeting.

Raised Pavement Marker - Temporary Raised Pavement Markers will be measured by each marker installed and in place 24 to 36 hours after installation and will include the cost of furnishing, installation of marker and removal of the protective cap after each bituminous seal is completed.

The contract unit price shall be payment in full for all labor, materials and equipment needed to accomplish the work.

Projects shall be considered completed only upon application of both chip seal and fog seal if applicable. No partial project invoicing will be allowed.

PENALTY CLAUSE

Liquidated damages for failure to complete all projects awarded will be assessed for the total contract cost for all awarded items, as shown in table 108-1 of section 108 of the above referenced MDOT specifications. Payments will be processed on the 2nd and 4th Tuesday of each month at a regularly scheduled Shiawassee County Road Commission Board meeting. The Contractor shall submit to the Road Commission a request for any road that been completed and approved for payment by the Project Manager. A road is considered completed when all items or work, including project cleanup, are done in accordance with contract provisions and construction specifications.

RENEWAL OPTIONS

The road commission reserves the right to renew the contract for additional one-year terms. Each proposed renewal is to be mutually agreed upon by both parties. Pricing, terms, and conditions of the first year of the contract will remain the same for any subsequent one-year term.

BID SHEET FOR 2027 CHIP SEAL PROGRAM

Thirty (30) miles of single chip seal and fog seal are currently guaranteed for 2027. We anticipate this total will increase as additional township-funded projects are committed.

Single Chip Seal and Fog Seal cost per syd: $_____

Lump sum price per 50' of approach: $_____
(Chip Seal and Fog Seal at gravel intersections)

Strip Seal of various widths cost per syd: $_____
(Note strip seal is to be placed in advance of chip seal)

Double Chip Seal and Fog Seal cost per syd: $_____

Temporary raised pavement markers:
Type Y two-way amber pavement markers $_____

Date _____

Company Name _____

Company Address _____

_____

Signature of Authorized Agent _____

Name Printed _____

Title of Authorized Agent _____

Email _____

Phone Number _____

Table 904-7:
Capital Preventive Maintenance Emulsions[a]

Test	Capital Preventive Maintenance Emulsion Requirements					
	HFRS-2M	CRS-2M	CSS-1mM	CSS-1hM	PPSS	CSEA
Viscosity, Saybolt Furol, T59/D7496:						
At 25°C, sec	—	—	20–100	20–100	20–100	—
At 50°C, sec	75–300	75–300	—	—	—	75–400
Storage stability test, T59/D6930, 24-hour, % difference max.	1	1	1	1	1[b]	1
Demulsibility, T59/D6936:						
35 ml 0.8% dioctyl sodium sulfosuccinate, % min.[c]	—	50	—	—	60	50
35 ml 0.02 N $CaCl_2$, %, min.	—	—	—	—	60	—
50 ml 0.1 N $CaC1_2$, %	—	—	—	—	—	—
50 ml 0.02 N $CaCl_2$, %	≥50	—	—	—	—	—
Particle charge tests, T59/D7402[d]		Positive	Positive	Positive	—	Positive
Sieve test, T59/ D6933, % max.	0.10	0.10	0.10	0.10	0.05	0.10
Miscibility with water, D244[e]	—	—	—	—	—	—
Distillation to 260°C, T59/D6997, % by weight:	[f]	[f],[g]	[f]	[f]	[f]	[g]
Residue, min.	65	65	62	62	63	68
Oil distillate, ml, max., D244	2	3	—	—	2	3.0
Tests on distillation residue:						
Penetration, 25°C, 100 g, 5 sec, dmm, T49/D5	80–150	80–150	70–90	40–90	80–150	70–100
Ductility, 25°C, 5 cm/min, cm, T51/D113	—	—	40	40	—	40
Ductility, 4°C, 5 cm/min, cm, T51/D113	—	—	35	—	—	—
Elastic/recovery, 4°C,% min., T301/D6084	—	—	65	—	—	—
Float test, sec, T50/D139:						
At 50°C, max.	—	—	—	—	—	—
At 60°C, min.	1200	—	—	—	—	—

Table 904-7 (cont.):
Capital Preventive Maintenance Emulsions[a]

Test	Capital Preventive Maintenance Emulsion Requirements					
	HFRS-2M	CRS-2M	CSS-1mM	CSS-1hM	PPSS	CSEA
Solubility in trichloroethylene, % min., T44/D2042	—	—	97.5	97.5	—	97.5
Ash content, %, max., D128	2	2	2	2	—	2
Specific gravity, 25/25°C, min., T228/D70	—	—	—	—	—	—
Toughness/tenacity, 25°C, 50 cm/min., Nm, min., D5801	4.5/3.5	4.5/3.5	—	—	—	9.0/7.0
Elastic recovery, 10°C, % min., T301/D6084	60%	60%	—	—	60%	75%
Tests on residue from evaporation, T59/D6934[h]						
Softening point, ring, and ball, °C, min., T53/D36	—	—	60	57.2	—	—
Viscosity, 60C, Pa•S, T202/D2171	—	—	800[i]	800[i]	—	—
Section number reference	—	505	504	501, 504	503	505

(a) Samples of emulsified asphalt will be taken in accordance with ASTM D140/D140M. Samples must be stored at a temperature of not less than 4°C until tested.

(b) After standing undisturbed for 24 hours, the surface must show no white, milky colored substance but must be a smooth homogenous color throughout. Any visible amount of white, milky colored substance is basis for non-acceptance.

(c) The demulsibility test must be made within 30 days from date of shipment.

(d) If particle charge test is inconclusive, material having a maximum pH of 6.7 is acceptable.

(e) No appreciable coagulation or visible separation in 2 hours.

(f) ASTM D6997, with modifications to include a 204°C (± 6°C) maximum temperature to be held for 15 minutes.

(g) Residue determination and preparation may use the alternative ASTM D6934 method, "Residue by Evaporation," so as to not destroy the properties of any polymer modifiers contained therein.

(h) Residue by evaporation: Oven evaporate an emulsion sample on a glass plate at a maximum temperature of 60°C for 24 hours (forced draft oven recommended) or air dry the sample at ambient temperature for 3 days. Once dry, the sample is scraped from the plate using a razor blade tool.

(i) The minimum viscosity will be obtained using a Cannon-Manning Vacuum Capillary Viscometer Tube No. 14 per T202/D2171.

Table 902-7:
Capital Preventive Maintenance Final Aggregate Blend Gradation Requirements

	Mechanical Analysis, Total % Passing										
Material	**¾ inch**	**½ inch**	**⅜ inch**	**¼ inch**	**No. 4**	**No. 8**	**No. 16**	**No. 30**	**No. 50**	**No. 100**	**No. 200[a]**
27SS	100	85–100	55–80	—	22–38	19–32	15–24	11–18	8–14	5–10	4–7[b]
30SS	—	100	85–100	—	22–38	19–32	15–24	11–18	8–14	5–10	4–7[b]
34CS[c]	100	100	90–100	—	0–15	0–5	—	—	—	—	≤2
CS-T[c]	100	100	100	85–100	—	0–15	—	—	—	—	≤2
2FA	—	—	100	—	90–100	65–90	45–70	30–50	18–30	10–21	5–15[b]
3FA	—	—	100	—	70–90	45–70	28–50	19–34	12–25	7–18	5–15[b]

(a) Includes mineral filler.

(b) No. 200 limits are significant to the nearest whole percent.

(c) All aggregate must be washed.

Table 902-8:
Capital Preventive Maintenance Aggregate Blend Physical Requirements

Material		% Crushed (Min.) MTM 117[k]	Angularity Index (Min.) MTM 118	Uncompacted Void (Min.) AASHTO T304	LA Abrasion (% Loss Max.) MTM 102[f]	Aggregate Wear Index (AWI) (Min.) MTM 111, 112[h]	Soft Particles (% Max.) MTM 110	Sand Equivalent (% Min.) AASHTO T176	Flat, Elongated, or Flat and Elongated (% Max.) ASTM D4791	Absorp. (% Max.) AASHTO T85	Micro-Deval (% Loss Max.) AASHTO T327
27SS[e]		100 / 90	—	40	35	260	5.0[a]	45	25.0[b]	3.0	18
30SS[e]		100 / 90	—	40	35	260	5.0[a]	45	25.0[b]	3.0	18
34CS[j]	ADT ≥ 4,000	100 / 90	—	—	35[g]	260[i]	3.5[a]	—	15.0[b]	—	—
	ADT < 4,000	95 / 85	—	—	35[g]	220	3.5[a]	—	15.0[b]	—	—
CS-T[j]	ADT ≥ 4,000	100 / 90	—	—	35[g]	260[i]	3.5[a]	—	—	—	—
	ADT < 4,000	95 / 85	—	—	35[g]	220	3.5[a]	—	—	—	—
2FA		—	4.0[c]	—	45	260	—	60[d]	—	—	—
3FA		—	4.0	—	45	260	—	60	—	—	—

(a) Sum of shale, siltstone, clay-ironstone, and structurally weak.
(b) For material retained on the No. 4 sieve and above, ensure that the ratio between length to width, width to thickness, and length to thickness is no greater than 3:1.
(c) Angularity Index must exceed 2.0 for at least 50% of the blending sands for slurry seal applications.
(d) Does not apply to slurry seals.
(e) Must be 100% virgin aggregate.
(f) If a blend of different aggregate sources, the abrasion value applies to each source.
(g) Natural aggregate. LA abrasion maximum loss of 45% for iron blast-furnace slag aggregate.
(h) Does not apply to a shoulder chip seal or interlayer application.
(i) Single-chip seals. For double-chip seals, a 260 min. AWI of a 60/40 weighted average in which the top course will be weighted at 60% and base course will be weighted at 40% with the higher AWI aggregate as the top course.
(j) Moisture content at time of placement ≤4%.
(k) XX / YY denotes that XX% of the coarse aggregate has one fractured face and YY% has at least two fractured faces.