MIDLAND COUNTY ROAD COMMISSION
BID FORM

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

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

Item No. 21 – HMA, Ultra-Thin

HMA, ULTRA-THIN
Medium Volume Estimated Quantity 52,500 Syd $_____/SYD

All work shall be completed by November 14, 2015. A safety program shall be required of the successful bidder. The bid price of asphalt may be used for work on MDOT, Village of Sanford, or City of Coleman jurisdictional roadways only if mutually agreed upon by the Contractor and MCRC.

Progress Schedule: begin work when notified by the engineer or otherwise arranged after receiving of Award of Contract.

A certified check, cashier's check, bank money order or bid bond in the amount of 5% of the total bid shall be made payable, without condition, to the Midland County Road Commission. The above price shall include machine paving, aggregate shoulder work, hauling, signs, minor traffic control temporary pavement marking (non-removable 2 foot dash) and all labor and equipment incidental hereto. All joints shall be constructed as butt joints. All quantities are estimated. Projects may be deleted, changed or increased at no change in unit prices.

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
HMA, Ultra-Thin

a. **Description.** This guide specification provides acceptance testing requirements for use on HMA Ultra-Thin Overlay mixture.

b. **Materials.** The HMA and materials shall meet the following requirements:

1. Bond Coat. The bond coat material will be emulsified asphalt conforming to the requirements of Section 904 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, Type SS1h.

2. HMA Ultra-Thin Overlay. The Ultra-Thin HMA Overlay shall be composed of a mixture of aggregate, asphalt binder, and if required, mineral filler, as listed in Table 1.

Table 1 - HMA Ultra-Thin Overlay Mixture Requirements

Parameter	Low Volume Comm. ADT <380	Medium Volume Comm. ADT 380 - 3400	High Volume Comm. ADT >3400
Marshall Air Voids %	4.5	4.5	5.0
VMA % (min.) based on Gsb	15.5	15.5	15.5
Fines/Binder % Max.	1.2	1.4	1.4
Flow (0.01 in.)	8-16	8-16	8-16
Stability Min. (lbs)	1200		

3. Aggregate Gradation and Physical Properties. The combined gradation of the aggregate portion of the mixture, including the mineral filler, shall be within the limits of Table 2. The physical properties of the combined aggregates shall meet the criteria of Table 3.

Table 2 - HMA Ultra-Thin Overlay Aggregate Gradation

Sieve Size	Total Passing Percent by Weight
½ inch	100
3/8 inch	99-100
No. 4	75-95
No. 8	55-75
No. 30	25-45
No. 200	3-8

Table 3 - HMA Ultra-Thin Overlay Aggregate Physical Requirements

Parameter	Low Volume Comm. ADT <380	Medium Volume Comm. ADT 380 - 3400	High Volume Comm. ADT >3400
Percent Crush (min.)	50%	75%	95%
Angularity Index (MTM 118) (min.)	2.5	3.0	4.0
L.A abrasion loss (max.)	40	35	35
Aggregate Wear Index (AWI)	(a)	(a)	(a)
a. AWI of 220 is required for projects with less than or equal to 2000 ADT, projects with ADT greater than 2000 the minimum AWI requirement is 260.			

In addition, the sum of the shale, siltstone, ochre, coal, clay-ironstone and particles which are structurally weak or are found to be non-durable in service shall not exceed 8.0 percent.

4. Performance Graded (PG) Asphalt Binder. Binder selection is based on present day two-way commercial ADT as listed in Table 4. The PG binder shall meet all the requirements in Section 904 of the 2003 MDOT Standard Specifications for Construction.

Table 4 - Asphalt Binder Selection for HMA Ultra-Thin Overlay

Low Volume Comm. ADT <380	Medium Volume Comm. ADT 380 - 3400	High Volume Comm. ADT >3400
PG 64 -22*	PG 64 -28P**	PG 70-22P*
* In areas North of M-46, May use PG 58-28 (Low) or PG 70-28P (High) ** May use another "readily available" polymer modified (P) grade.		

c. **Construction.**

1. Bond Coat Application. The bond coat material will be applied to completely cover the prepared surface at a rate of 0.10 - 0.15 gal/yd2.

2. Mixture Application Rate. The target application rate shall be 90 lb/yd2, unless specified by the engineer to address special circumstances.

3. Mix Design. The Contractor shall submit to the Owner a complete mix design for review prior to the start of production.

4. Quality Control. The Contractor shall provide and follow a Quality Control (QC) plan for the Ultra-Thin HMA Overlay that will maintain adequate QC for production and construction processes applicable to this specification and the contract documents. For QC purposes, the Contractor must perform at least one QC test per day for gradation, AC content, and air voids, and is allowed to take informational cores for application rates. The Owner shall be provided a copy of the QC plan for review, prior to mix production and placement.

   After the job-mix-formula is established, the aggregate gradation and the binder content of the HMA mixture furnished for the work shall be maintained within the Range 1 uniformity tolerance limits permitted for the job-mix-formula specified in Table 5. However, if deviations are predominantly either below or above the job-mix-formula, the Owner may order alterations in the plant to bring the mixture to the job-mix-formula. If two consecutive aggregate gradations on one sieve, or binder contents as determined by the QC tests, are outside Range1 but within Range 2 tolerance limits, the Contractor shall

suspend all operations. Contract time will continue during these times when the plant is down. Before resuming any production, the Contractor shall propose, for the Owner's approval, all necessary alterations to the materials or plant so that the job-mix-formula can be maintained. The Owner, after evaluating for effects on AWI and mix design properties, will approve or disapprove such alterations.

Table 5 – Uniformity Tolerance Limits (for QC and Acceptance)

PARAMETER	* Range 1	Range 2
Air Voids**	± 1.0	± 2.0
Binder Content	± 0.40	± 0.50
% Passing # 8 and Larger Sieves	± 5.0	± 8.0
% Passing # 30 Sieve	± 4.0	± 6.0
% Passing # 200 Sieve	± 1.0	± 2.0
* This range allows for normal mixture and testing variations. The mixture shall be proportioned to test as closely as possible to the Job-Mix-Formula. ** Air Void limits apply to QC testing and are optional for Acceptance testing.		

5. Crushed Particle Content. The crushed particle content of the aggregate used in the HMA mixture shall not be more than 10 percentage points above or below the crushed particle content used in the job-mix-formula nor less than the minimum specified for the aggregate in the project documents.

6. Density. Thoroughly compact the mixture immediately after placement using the number of rollers method.

   Number of Rollers Method. The number of compactive and finish rollers used shall be as specified in Table 6 based on the square yards per hour of Ultra-Thin HMA Overlay being placed.

Average Laydown Rate, square yards per hour	Number of Rollers Required	
	Compaction Rollers	Finish Rollers
Less than 800	1	1*
801 – 2000	1	1
2001 – 5500	2	1
5501 – 7200	3	1

*The compaction roller may be used as the finish roller also.

d. **Acceptance Sampling and Testing.** Acceptance sampling and testing may be performed by the Owner. Each day of production, a minimum of two samples will be obtained for each mix type. Acceptance testing will be performed at the frequency specified by the Owner. No less than three samples shall be obtained for each mix type.

e. **Rejected Mixtures.** If for any one mixture, two consecutive aggregate gradations on one sieve or binder contents as determined by acceptance tests exceed the uniformity tolerance of Range 2 under Table 5, or do not meet the minimum requirements for crushed particle content specified in the project documents, the mixture will be rejected. If such mixtures are placed in a pavement, the remaining portions of the failing acceptance samples (split sample) will be sent to an independent Laboratory to confirm the acceptance test results. If the Laboratory's results do not confirm the acceptance test results, then no price adjustments will be made for the mixture involved. If the Laboratory's results confirm the acceptance test results and if, in the Owner's judgment, the

defective mixture can remain in place, the contract unit price for the defective mixture involved, as determined from acceptance tests, will be decreased on the following basis: The contract unit price for material outside of Range 2 will be decreased 25 percent.

The Owner may take into account the Contractor's QC test results when making acceptance decisions and price adjustments.

f. **Measurement and Payment.** The completed work as measured will be paid for at the contract unit price for the following contract item:

Contract Item (Pay Item)	**Pay Unit**
HMA, Ultra-Thin, Medium Volume	Square Yard
HMA, Wedging (Full Width)	Ton

Payment for HMA, Ultra-Thin, Medium Volume, includes all materials, equipment, labor for preparing the surface, tack coat, placing the HMA, Ultra-Thin Overlay mixture and complying with all requirements. The placement includes placement of a single course of mixture for full width coverage as specified in the plans.

Payment for HMA, Wedging (Full Width), includes all materials, equipment, labor for preparing the surface, tack coat, placing the wedging mixture and complying with all requirements. The placement of the HMA, Wedging is intended as a full width scratch course, with the intent of filling all voids and building up settled areas. The wedging is intended to build slope and consistency, allowing the surface course of HMA, Ultra-Thin to be placed at a consistent depth. It is understood that the scratch course will not be judged on appearance or drag marks in the surface. The average depth for placement will be variable based on existing road conditions. The material for HMA Wedging shall be the same as HMA Ultra-Thin or other approved mixtures with 100% of material passing 1/2". PG- 58-28 would be allowable for this mixture.