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STATE OF LOUISIANA  
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

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WILLIAM D. ANKNER, Ph.D.  
SECRETARY

December 2, 2008

**STATE PROJECT NOS. 848-17-0004, 848-18-0007, and 848-19-0006**  
**JCT. LA 628 – JCT. US 61 and JCT. LA 44 – JCT. US 61**  
**ROUTES LA 3217, LA 3223, and LA 3224**  
**ST. JOHN THE BAPTIST PARISH**

**SUBJECT: ADDENDUM NO. 1 (CONSTRUCTION PROPOSAL REVISION)**

Gentlemen:

The following proposal revision dated 12/02/08 on the captioned project for which bids will be received on Wednesday, December 10, 2008 has been posted on <http://www.dotd.la.gov/cgi-bin/construction.asp>.

1. Revised the special provision entitled **Item S-002, Ultrathin HMA Wearing Course System (3/4 inch (19 mm) Thick) (Alternate A2)**. (5 pages)

Please note this revision in the proposal and bid accordingly. Mandatory electronic bidding is required for this project, and electronic bids and electronic bid bonds must be submitted via [www.bidx.com](http://www.bidx.com) for this letting date.

Sincerely,

RANDAL D. SANDERS, P. E.  
CONTRACTS & SPECIFICATIONS ENGINEER

Attachments

pc: Mr. Brian Buckel  
Mr. Tom Landry  
Mr. Steve Perilloux  
Ms. Anna Hanks  
Ms. Allison Schilling  
Mr. Masood Rasouljan

**ITEM S-002, ULTRATHIN HMAC WEARING COURSE SYSTEM (3/4 INCH (19 mm) THICK) (ALTERNATE A2) (07/08):** The Ultrathin HMAC wearing course system shall consist of a polymer modified emulsion membrane applied with a self priming paver that simultaneously applies an Ultrathin HMAC wearing course. This wearing course system shall be laid a minimum 3/4 inch (19 mm) thick.

**Equipment:** The self priming paver shall be capable of evenly distributing the polymer modified membrane and applying and leveling the ultrathin wearing course concurrently at a rate of 30 to 92 ft/minute (9.1 to 28.0 m/min.). No wheel or other part of the paving machine shall come in contact with the polymer modified emulsion membrane before the hot mix asphalt concrete wearing course is applied. The machine shall incorporate a receiving hopper, feed system, insulated storage chamber for polymer modified emulsion membrane, spray bar, tanks with calibrated load cells, and a variable width heated screed unit. The screed shall have the ability to crown the pavement with vertically adjusted extensions to accommodate the desired pavement profile. Asphalt plant personnel shall be Certified Technicians in accordance with Section 502. Plant equipment must comply with Section 503.

**Materials:** The contractor shall keep accurate records, including proof of deliveries of all materials used in this process. The following specifications apply:

(a) Polymer Modified Emulsion Membrane: The paving equipment supplier shall provide the polymer modified emulsion membrane meeting the following specifications:

Table 1  
Polymer Modified Emulsion Membrane Physical Properties

Test	AASHTO Method	Specification	90% or Remove
Viscosity, @77°F (25°C), SSF	T 59	20-100	N/A
Test on Residue by Distillation:			
%Residue from Distillation	T 59	63+	62-
Solubility in Trichloroethylene %	T44	97.5+	N/A
Penetration, 77°F (25°C)	T49	60-150	59-, 151+
Elastic Recovery, %, @20 cm, 50°F (10°C)	T301	58+	57-

(b) Ultrathin Wearing Course:

(1) Asphalt Cement: The asphalt cement shall be PG 76-22m from a source listed on QPL 41.

(2) Aggregate: The aggregate shall be slag or stone from a source listed on QPL 2.

a. Gradation: Seventy-five (75) percent of the total aggregate shall be either slag or crushed stone meeting Friction Rating I or II and the remaining twenty-five (25) percent of the total aggregate shall be Friction Rating I, II or III. The composite gradation shall conform to Table 2.

Table 2  
Aggregate Gradation

U.S. (Metric) Sieve	%Passing	JMF Sieve Tolerances
3/4 inch (19 mm)	100	±4%
1/2 inch (12.5 mm)	85-100	±4%
3/8 inch (9.5 mm)	60-80	±4%
No. 4 (4.75 mm)	28-42	±4%
No. 8 (2.36 mm)	22-32	±3%
No. 16 (1.18 mm)	15-23	±2%
No. 30 (600 µm)	10-18	±2%
No. 50 (300 µm)	8-13	±2%
No. 200 (75 µm)	2-6	±1.5%

b. Properties: (Certified Test Report shall be submitted with JMF),

Table 3  
Aggregate Physical Properties

Test	Method	Specification
<b>Coarse Aggregate: (plus 4)</b>		
Los Angeles Abrasion, %, Max.	AASHTO T-96	25
Insoluble Residue, %, Min.	ASTM D3042	25
Water Absorption, %, Max.	ASTM C127	2
Flat and Elongated Ratio; 3:1, % Max.	ASTM D4791	25
% Crushed, Two Face, Min.	DOTD TR 306	90
<b>Fine Aggregate: (minus 4)</b>		
Sand Equivalent, Min.	DOTD TR 120	60 <sup>1</sup>
Fine Aggregate Angularity, Min.	DOTD TR 121	45

<sup>1</sup>If sand equivalent test fails, the Methylene Blue Test in accordance with AASHTO TP 57-99 will be required with a specification maximum of 10.

(3) Mineral Filler: Mineral filler, if used, shall meet the requirements of Subsection 1003.06(a)(6).

(4) Additives: Anti-stripping additives will be required and shall be from QPL 57.

**Mix Design:** The contractor shall submit a job mix formula (JMF) for the mixture to be supplied for the project. The mix shall be designed at a minimum 7 percent air voids compacted with a Superpave Gyratory Compactor at 100 gyrations. The design asphalt content shall be a minimum of 4.5 percent and a maximum of 7.0 percent with a maximum draindown of 0.3 percent by weight in accordance with ASTM D 6390. Furthermore, the required film thickness shall be 9-11 microns when calculated using the effective asphalt content in conjunction with the surface area for the composite aggregates in the JMF. The surface area factors are as listed in

Table 6.1 of the Asphalt Institute's MS-2 publication entitled "Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types", Sixth Edition.

The theoretical maximum specific gravity,  $G_{mm}$ , shall be measured and reported on the JMF. The JMF shall indicate proportions of aggregate, anti-strip additive and asphalt cement, composite gradations, and mix temperatures. The JMF shall include the target for polymer modified emulsion membrane application rate and the target mix yield based on the minimum thickness and mix gravity and shall be submitted to and approved by the DOTD District Laboratory Engineer. The yield for bid purposes shall be approximately 80 lb/sq yd (43.4 kg/sq m) for a mix 3/4 inch (19 mm) thick. The JMF should also include the results of the tests for draindown, film thickness, boil test, and retained tensile strength. Volumetrics, stability and flow are not required. The District Laboratory Engineer will approve the mix design based on the use of approved material sources and compliance with specifications herein.

Anti-strip will be required at a minimum rate of 0.5 percent by weight of asphalt and shall be used at a rate that is 0.1 percent greater than that which will produce a 90 percent coating when tested in accordance with DOTD TR-317, (Boil Test). The retained tensile strength shall meet or exceed 80 percent when tested in accordance with DOTD TR 322. Specimens for DOTD TR 322 shall be 6 inches (150 mm) in diameter and shall be compacted in accordance with AASHTO TP 4 to 100 gyrations.

Surface Preparation: The project engineer and contractor shall approve the surface preparation prior to start of operation.

(a) Manhole covers, drains, grates, catch basins and other such utility structures shall be protected and covered. Any vegetation at the road edge shall be cut back..

(b) The surface shall be swept clean of dust, dirt, caked clay, and loose foreign material such as waste sugar cane.

(c) Extended thermoplastic markings and raised pavement markers shall be removed.

Weather Limitations: Ultrathin HMA wearing course system shall comply with the weather limitations of Subsection 502.07(a) except that the surface temperature shall be a minimum of 60°F (15°C) and air temperature must be 60°F (15°C) and rising.

Application: The polymer modified emulsion membrane shall be sprayed by a metered mechanical pressure sprayer at a temperature between 140°F (60°C) and 180°F (80°C). The sprayer shall accurately and continuously monitor the rate of spray, which shall be uniform across the paving width. The undiluted emulsified application rate shall be determined by road conditions and mix type and shall not be less than 0.16 US gal/sq yd (0.725 L/sq m) or more than 0.30 gal/sq yd (1.36 L/sq m) unless approved by the engineer.

The hot mix shall be delivered and applied at a temperature of 315°F (155°C)  $\pm$  15°F (9°C) and laid a minimum 3/4 inch (19 mm) thick within 5 seconds of the polymer modified membrane application. The asphalt mixture shall be smoothed over the full lane width using a heated screed to ensure an even mat.

The asphalt mix plant shall produce sufficient quantity of material prior to starting the paving unit and shall provide a continuous supply of material once the operation has begun to prevent any stopping and starting of the paving train.

The use of an MTV complying with Subsection 503.15 will be required.

Compaction of the wearing course shall be carried out using a minimum of 3 passes of a double drum steel wheel roller of sufficient weight to properly seat the aggregate without crushing the aggregate. No vibration will be allowed except at the transverse joints. All compaction shall take place before the material temperature has fallen below 180°F (80°C).

Opening to Traffic: The new pavement shall not be opened to traffic nor shall any roller sit idle on the pavement until the rolling operation is complete and the material has cooled below 160°F (70°C).

Quality Control and Assurance: At the end of each working day, one gallon (Liter) of polymer modified emulsion membrane shall be sampled for acceptance by the District Laboratory. The contractor shall submit written verification of quantities to the project engineer based on the calibrated load cells required on the machine. The total quantity of material shall be divided by the total area sprayed to determine the average emulsion membrane application rate.

The aggregate shall be stored in a well drained dedicated stockpile and shall be tested by the contractor for water absorption, apparent specific gravity, and gradation prior to paving. Any changes in material shall require a new Job Mix Formula submittal and approval.

The mixture shall also be tested for moisture content once every morning, which shall not exceed 0.5 percent.

The mixture spread rate shall be calculated by dividing the tonnage laid, which is obtained from the weigh tickets, per lot, by the area covered. At the asphalt plant, samples of the hot mix shall be tested for gradation, asphalt cement content, and theoretical maximum specific gravity ( $G_{mm}$ ) at the following frequency. Two (2) samples shall be taken from the first 500 tons (500 Mg) of production. Thereafter, one (1) sample shall be taken from every 500 tons (500 Mg). The test results shall be averaged and the percent payment shall be determined based on the payment adjustment schedules below. The DOTD Certified Asphaltic Concrete Technician will sample and test the mixture during production. The contractor's Certified Asphaltic Concrete Technician shall design and monitor the mixture.

Prior to the beginning of laydown operations and after laydown operations for the project are completed, the contractor shall profile the project using a Department approved profilograph and operator. The Average Profile Index after laydown shall be equal to or less than the original index. Any new highpoints in excess of 0.3 inch in 25 feet or less shall be corrected by diamond grinding. In the event that the final Average Profile Index exceeds the original index the contractor shall correct the finished surface as directed by the Project Engineer.

Measurements: The Ultrathin HMA wearing course system, which includes the polymer modified emulsion membrane and the Ultrathin HMA wearing course, will be measured by the square yard (sq yd) in place.

For acceptance and material disposition, a lot is defined as one day's production. The contractor shall measure and report, by the gallon (L), the quantities of polymer modified emulsion membrane used. The weights (mass) of asphalt mixture used shall be reported by the Ton (Mg) and yield will be measured in pounds (kg) of asphalt mixture per square yard (sq yd) covered. Other additives shall be measured and reported by the contractor and presented to the project engineer for permanent record.

Payment: The Ultrathin HMA wearing course system will be paid for by the square yard (sq yd) placed and accepted. Payment will be subject to the payment adjustment schedules contained herein below. Payment adjustments will be assessed on a per lot basis. The percent payment for the lot will be the lowest value of the seven payment adjustment parameters.

This material shall be eligible for payment adjustment in accordance with the special provision entitled PAYMENT ADJUSTMENT (Asphaltic Cement and Fuels). This item shall be considered equivalent to pay item 502-01 and indexed using PG 76-22m asphalt cement.

Table 4  
Payment Adjustment Schedules

Plant:	Percent of Contract Unit Price per Lot		
	100%	95%	90% or Remove
Theoretical Maximum Specific Gravity ( $G_{mm}$ ) Deviation from JMF Target	Less than 0.017	0.017-0.025	Greater than 0.025
JMF Sieve Tolerance Limits on Extracted Aggregate			
No. 4 (4.75 mm) Sieve	±4.0	± (4.1-8.0)	± (8.1-12.0)
No. 8 (2.36 mm) Sieve	±3.0	± (3.1-6.0)	± (6.1-9.0)
No. 200 (75 µm) Sieve	±1.5	± (1.6-2.5)	± (2.6-3.5)
Roadway:			
Mixture Yield	0.0+	0.1-5.0	5.1+
Negative Deviation from Design	(0.0+)	(0.1-2.7)	(2.8+)
Application Rate, lb/sq yd (kg/sq m)	JMF Target		
Polymer Modified Emulsion	0.16+	0.15-0.13	0.12-
Membrane Rate, gallon/sq yd (L/sq m)	(0.73+)	(0.68 – 0.59)	(0.54-)
	JMF Target		
Polymer Modified Emulsion Membrane Physical Properties	See Table 1	N/A	See Table 1

Payment will be made at the contract unit price under:  
Item S-002, Ultrathin HMA Wearing Course System (3/4 Inch (19 mm) Thick),  
per square yard (sq m).