



Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

July 24, 2006

SUBJECT: FAI Route 39 (I-39)
Section (50-4B) I-4
LaSalle County
Contract No. 66678
Item No. 67, August 4, 2006 Letting
Addendum A

NOTICE TO PROSPECTIVE BIDDERS:

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

1. Revised page 1 of the Schedule of Prices.
2. Revised pages 9 to 15 of the Special Provisions.
3. Revised sheets 2 and 3 of the Plans.

Prime contractors must utilize the enclosed material when preparing their bid and must include any Schedule of Prices changes in their bidding proposal.

Bidders using computer-generated bids are cautioned to reflect any and all Schedule of Prices changes, if involved, into their computer programs.

Very truly yours,

Michael L. Hine
Engineer of Design
and Environment

A handwritten signature in black ink, appearing to read 'Ted B. Walschleger' followed by 'P.E.'.

By: Ted B. Walschleger, P. E.
Engineer of Project Management

cc: Gregg Mounts, Region 2, District 3; D. Lippert; Roger Driskell; Estimates;
Design & Environment File

TBW:RS:jc

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER -

66678

State Job # - C-93-094-06
 PPS NBR - 3-50191-0204
 County Name - LASALLE- -
 Code - 99 - -
 District - 3 - -
 Section Number - (50-4B)I-4

Project Number

Route
 FAI 39

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price	
* DELETED								
* X0325535	ULTRA THIN BIT CON CS	SQ YD	28,900.000					
* X0325536	RAP SET POLY MOD EMUL	GAL	6,358.000					
Z0030250	IMP ATTN TEMP NRD TL3	EACH	3.000					
Z0030350	IMP ATTN REL NRD TL3	EACH	3.000					
Z0047300	PROTECTIVE SHIELD	SQ YD	1,200.000					
50102500	CONC REM SPEC	CU YD	60.000					
50300255	CONC SUP-STR	CU YD	60.000					
50800205	REINF BARS, EPOXY CTD	POUND	17,280.000					
67000400	ENGR FIELD OFFICE A	CAL MO	3.000					
67100100	MOBILIZATION	L SUM	1.000					
70100420	TRAF CONT-PROT 701411	EACH	3.000					
70101605	TC-PROT 701402 SPL	EACH	3.000					
70301000	WORK ZONE PAVT MK REM	SQ FT	4,340.000					
70400100	TEMP CONC BARRIER	FOOT	18,370.000					
70400200	REL TEMP CONC BARRIER	FOOT	18,370.000					
78000200	THPL PVT MK LINE 4	FOOT	14,242.000					
			* REVISED : JULY 21, 2006					

Welding stay-in-place forms to the top flange of the beams will not be allowed.

Permanent Metal Bridge Forms shall have a minimum depth of 2 in. and shall have factory closed ends. Sheet metal closures and Styrofoam fillers shall be used to reduce dead load. Form sheets shall not be permitted to rest directly on top of the beam flanges. All sheets shall have a minimum bearing of 1 in. at each end and shall be center in the bay. All forms shall be securely fastened to form supports. All attachments shall be made by bolts, clips, or other approved means. All form sheets shall be attached by sheet metal screws from the top side. Field cutting of forms, supports and closures when necessary shall be done by saws, shears, or other approved means by the Engineer. No burning will be allowed. Uncoated edges, resulting from shearing or punching are acceptable.

The form sheets shall be attached promptly to prevent lateral movement or uplift. Safety stops shall be provided where necessary.

Transverse deck construction joints shall be located at the bottom of the form flutes. 1/4 inch diameter weep holes shall be field drilled at a 12 inch spacing (max.) along transverse and longitudinal construction joints.

Metal forms shall not be used below longitudinal or transverse open or expansion type joints.

Concrete shall not be deposited on forms from a height greater than 12 in. above the top of the form.

Method of Measurement. This work shall not be measured for payment.

Basis of Payment. This work will not be paid for separately but shall be included in the item for CONCRETE SUPERSTRUCTURE.

ULTRA-THIN BONDED WEARING COURSE (BMPR)

Description. This work shall consist of constructing an ultra-thin bonded wearing course on existing bituminous or portland cement concrete pavement. An ultra-thin bonded wearing course consists of an application of a rapid setting polymer modified emulsion followed immediately with an ultra-thin bituminous concrete surface course. This work shall be according to Section 406 of the Standard Specifications, except as modified herein.

Materials. Materials shall be according to the following Articles/Sections of the Standard Specifications.

Item	Article/Section
(a) Fine Aggregate	1003.03
(b) Coarse Aggregate	1004
(c) Bituminous Material (Note 1)	1009
(d) Mineral Filler	1011
(e) Rapid Setting Polymer Modified Emulsion (Note 2)	

Revised 07/24/2006

Note 1. The bituminous material shall conform to Article 1009.05 of the Standard Specifications for an SBR or SBS PG 70-22.

Note 2. The supplier shall certify that the rapid setting polymer modified emulsion meets the following requirements, prior to the start of mix production.

Tests on Emulsion	Method	Min.	Max.
Viscosity, Saybolt Furol @ 25°C (77°F), s	AASHTO T59	20	100
Storage Stability Test, 24 h, % ^{1/}	AASHTO T59	--	1
Sieve Test ^{2/}	AASHTO T59	--	0.05
Residue by Distillation, % ^{3/}	AASHTO T59	63	
Oil Distillate by Distillation, %	AASHTO T59	--	2
Demulsibility, % 35 ml, 0.02 N CaCl ₂ <u>or</u> 35 ml, 0.8% dioctyl sodium sulfosuccinate	AASHTO T59	60	--

Tests on Residue From Distillation	Method	Min.	Max.
Penetration	AASHTO T49	60	150
Elastic Recovery, %	AASHTO T301	60	--

1/ After standing undisturbed for 24 hours, the surface shall show no white, milky colored substance, but shall be a smooth homogeneous color throughout. The material may be released prior to completion of the test based on approval of the Department.

2/ The sieve test will be waived if successful application of the material has been achieved in the field.

3/ AASHTO T59 with modifications to include a 190°C ± 5°C (375°F ± 10°F) maximum temperature to be held for a period of 15 minutes.

Equipment. Equipment shall be according to the following Articles/Sections of the Standard Specifications.

Item	Article/Section
(a) Tandem Roller (Note 1)	1101.01
(b) Hot Mix Plant	1102.01
(c) Spreading and Finishing Machine (Note 2)	1102.03
(d) Heating Equipment	1102.07

Note 1. A minimum of two tandem rollers (T_B), operating in the static mode, sufficient to match paving production will be required. The rollers shall have a properly operating water spray and scraper system.

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Note 2. The spreading and finishing machine shall be capable of spraying the rapid setting polymer modified emulsion, applying the surface course, and providing a smooth surface to the mat in one pass at the rate of 9 m/min (30 ft/min) or greater. The surface course shall be spread over the rapid setting polymer modified emulsion in less than five seconds after the application of the rapid setting polymer modified emulsion during normal paving speeds. No wheel or other part of the paving machine shall come in contact with the rapid setting polymer modified emulsion before the surface course is applied. The self-priming paving machine shall also have the following:

- (1) a receiving hopper with a minimum of two heated twin screw feed augers,
- (2) an integral storage tank for rapid setting polymer modified emulsion,
- (3) integral twin expandable emulsion spray bars located immediately in front of the asphalt spread augers and ironing screed,
- (4) variable width vibratory heated ironing type screed. The screed shall have the ability to be crowned at the center both positively and negatively and have vertically adjustable extensions to accommodate the desired pavement profile.

Mixture. A mix design meeting the following design criteria shall be supplied.

SIEVES	4.75 mm - Type A		9.5 mm - Type B		12.5 mm - Type C	
	Design General Limits, % Passing	Production Tolerance, %	Design General Limits, % Passing	Production Tolerance, %	Design General Limits, % Passing	Production Tolerance, %
19 mm	--	--	--	--	100	--
12.5 mm	--	--	100	--	85 - 100	--
9.5 mm	100	±5	85 - 100	±5	60 - 80	±5
4.75 mm	40 - 55	±5	24 - 41	±5	24 - 41	±5
2.36 mm	22 - 32	±5	19 - 32	±5	19 - 32	±5
1.18 mm	15 - 25	--	12 - 22	--	12 - 22	--
600 µm	10 - 18	--	9 - 16	--	9 - 16	--
300 µm	8 - 13	--	7 - 13	--	7 - 13	--
150 µm	6 - 10	--	5 - 10	--	5 - 10	--
75 µm	4 - 5.5	±1.5	4 - 5.5	±1.5	4 - 5.5	±1.5
Asphalt Content	4.8 - 6.2	±0.3	4.8 - 6.2	±0.3	4.6 - 6.2	±0.3

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SIEVES	#4 – Type A		3/8 in. - Type B		1/2 in. - Type C	
	Design General Limits, % Passing	Production Tolerance, %	Design General Limits, % Passing	Production Tolerance, %	Design General Limits, % Passing	Production Tolerance, %
3/4 in.	--	--	--	--	100	--
1/2 in.	--	--	100	--	85 - 100	--
3/8 in.	100	±5	85 - 100	±5	60 - 80	±5
#4	40 - 55	±5	24 - 41	±5	24 - 41	±5
#8	22 - 32	±5	19 - 32	±5	19 - 32	±5
#16	15 - 25	--	12 - 22	--	12 - 22	--
#30	10 - 18	--	9 - 16	--	9 - 16	--
#50	8 - 13	--	7 - 13	--	7 - 13	--
#100	6 - 10	--	5 - 10	--	5 - 10	--
#200	4 - 5.5	±1.5	4 - 5.5	±1.5	4 - 5.5	±1.5
Asphalt Content	4.8 - 6.2	±0.3	4.8 - 6.2	±0.3	4.6 - 6.2	±0.3

The film thickness of the asphalt coating on the rock shall be a minimum of 9 µm (0.35 mils) when calculated using the effective asphalt content in conjunction with the surface area for the aggregates in the job mix formula according to the following method.

$$\text{Formula: } T_F = \frac{V_{\text{asp}}}{\sum [(SA_i)(W_i)]}$$

Where: T_F = Average film thickness, microns (in.)
 V_{asp} = Effective volume of asphalt cement, cu cm (cu in.)
 SA = Surface Area Factor, sq m/kg of aggregate (sq ft/lb of aggregate)
 W = Weight of aggregate retained on sieve, kg (lb)
 i = Particular sieve

Surface area factors:

Sieve size	Surface Area (SA) Factors, sq m/kg (sq ft/lb)
Percent passing maximum sieve size	0.41 (2)
12.5 mm (1/2 in.)	0.41 (2)
9.5 mm (3/8 in.)	0.41 (2)
4.75 mm (No. 4)	0.41 (2)
2.36 mm (No. 8)	0.82 (4)
1.18 mm (No. 16)	1.64 (8)
600 µm (No. 30)	2.87 (14)
300 µm (No. 50)	6.14 (30)
150 µm (No. 100)	12.29 (60)
75 µm (No. 200)	32.77 (160)

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The mixing and compaction temperatures shall be according to Illinois Modified AASHTO T 312.

Draindown from the loose mixture shall not exceed 0.10 percent when tested according to Illinois Modified AASHTO T 305. The draindown shall be tested at the job mix formula asphalt content plus 0.5 percent. The temperature shall be the mixing temperature plus 15 °C (59 °F). The temperature shall not exceed 180 °C (350 °F).

The mixture designer shall determine if an additive is needed in the mix to prevent stripping. The determination will be made on the basis of tests performed according to Illinois Modified AASHTO T 283. To be considered acceptable by the Department as a mixture not susceptible to stripping, the conditioned to unconditioned split tensile strength ratio (TSR) shall be equal to or greater than 0.85 for 6 in. (150 mm) specimens. Mixtures, either with or without an additive, with TSRs less than 0.85 for 6 in. (150 mm) specimens will be considered unacceptable.

If it is determined that an additive is required, the additive may be hydrated lime, slaked quicklime, or a liquid additive, at the Contractor's option. The liquid additive shall be selected from the Department "Approved List for Hot-Mix Asphalt Anti-Strip Additives", and may be limited to those which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Engineer. The method of application shall be according to Article 1102.01(a)(11).

The mixture shall not contain reclaimed materials.

CONSTRUCTION REQUIREMENTS

General. Article 406.04 of the Standard Specifications shall apply, except the mixture shall only be placed when the pavement and ambient air temperature are at least 10 °C (50 °F) at the time of placement and the forecast is for rising temperatures.

Preparation of Existing Surfaces. Prior to placing the ultra-thin bonded wearing course, the surface of the existing pavement shall be cleaned using a mechanical or vacuum sweeper.

Longitudinal and transverse joints and cracks 6 mm (1/4 in.) and wider shall be sealed using an approved polymer modified joint filler material. Overbanding shall be avoided.

Preparation of Mineral Aggregates, Asphalt Cement, and Bituminous Mixtures. Preparation of aggregates shall be according to Article 406.09, except the aggregates shall be heated in such a manner as to assure that the mixing temperature is uniformly maintained. The aggregates shall be dried to less than 0.3 percent residual moisture by weight. This may require the aggregate to be processed twice through the drier.

Mix Formula. The proportions of the mix shall be within the following compositions limits by weight:

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Aggregate	93.8 - 95.4%
Asphalt Cement (Note 1)	4.6 - 6.2%

Note 1. The range of asphalt content is based on the varying physical properties of the coarse aggregate that can be used for the manufacture of ultra-thin bonded wearing course. The amount of anti-stripping agent will not be included in this percentage.

Placement of Emulsion and Surface Course. The rapid setting polymer modified emulsion shall be spray applied immediately prior to the application of the surface course so that no wheel or other part of the paving machine shall come in contact with the rapid setting polymer modified emulsion before the surface course is applied. The process of spreading the rapid setting polymer modified emulsion, spreading the surface course, and screed compacting shall be performed in under five seconds during normal paving speeds resulting in a homogeneous surface course that can be opened to traffic when the surface temperature of the mat is 70 °C (160 °F) or less.

- (a) The rapid setting polymer modified emulsion shall be sprayed by a metered mechanical pressure spray bar at a temperature of 50 - 80 °C (120 - 180 °F). The sprayer shall accurately and continuously monitor the rate of spray and provide a uniform application across the entire width to be overlaid. The rate of application shall be determined by the mix design according to the following method.
 - (1) Summary of method. The quantity of polymer modified emulsion to be applied shall be calculated based on the volumetrics of laboratory specimens and the nominal maximum aggregate size of the mix. The in-place air voids of the mixture shall be filled to 70% of the height of the nominal maximum aggregate size.
 - (2) Determination of In-Place Air Voids. Two 150-mm (6-in.) specimens shall be prepared according to AASHTO T 312 to 80 gyrations. The percent air voids shall be determined according to AASHTO T 269. The air void determination shall be the average of the two specimens. 2.5 percent air voids shall be added to the lab determined air voids to approximate in-place air voids.
 - (3) Calculation. Calculate the volume of 1 sq m (sq yd) of mix at a depth of 70 percent of the nominal maximum aggregate size. Multiply the volume of mix at the 70 percent height of the maximum aggregate size times the percent of in-place air voids as determined by the specimen previous section. Convert the volume to L (gal). Express the result in L/sq m (gal/sq yd).

The Engineer will make field adjustments to the calculated application rate no greater than ± 0.25 L/sq m (± 0.05 gal/sq yd) based on the existing surface condition. Once the target application rate is established, the tolerance shall be ± 0.05 L/sq m (± 0.01 gal/sq yd).

- (b) The maximum speed of the paver shall not be limited.

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Compaction. Compaction shall consist of each area of the mat receiving a minimum of two passes with a tandem roller, before the material temperature has fallen below 80 °C (180 °F).

Quality Control/Quality Assurance. Material testing shall be according to the special provision, "Quality Control/Quality Assurance of Bituminous Concrete Mixtures", except the following tests will not be required.

- (a) Bituminous Core Density
- (b) Nuclear Density
- (c) G_{mm} and G_{mb} testing

Additionally, the Contractor shall have a representative present during construction that is familiar with the lay down of product and its design methods.

Method of Measurement. The polymer modified emulsified asphalt emulsion will be measured for payment as specified in Section 1009.

The ultra-thin bituminous concrete surface course will be measured in place and the area computed in square meters (square yards). The measured width shall not exceed that shown on the plans.

Basis of Payment. The rapid setting polymer modified emulsion will be paid for at the contract unit price per liter (gallon) for RAPID SETTING POLYMER MODIFIED EMULSION.

The ultra-thin bituminous concrete surface course will be paid for at the contract unit price per square meter (square yard) for ULTRA-THIN BITUMINOUS CONCRETE SURFACE COURSE.

CALL-OUT

Description: This work shall consist of mobilizing the necessary personnel, equipment and materials required for the Contractor to respond to each work order issued for the purpose of removing the concrete wearing surface, concrete deck planks and replacing with reinforced concrete superstructure.

Exact locations and sizes of bridge deck patching shall be determined by the Engineer and the Contractor shall be notified of their locations and sizes prior to the mobilization of his work forces.

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