



Wisconsin Department of Transportation

Division of Transportation Systems Development

Bureau of Project Development
4822 Madison Yards Way, 4th Floor South
Madison, WI 53705

April 10, 2020

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

NOTICE TO ALL CONTRACTORS:

Proposal #05: 5630-06-61, WISC 2020 128
Sauk City – IH39
CTH DL to Acro Drive
STH 78
Columbia County

Letting of April 14, 2020

This is Addendum No. 03, which provides for the following:

Special Provisions:

Revised Special Provisions	
Article No.	Description
3	Prosecution and Progress

Added Special Provisions	
Article No.	Description
23	Resin Binder High Friction Surface Treatment

Deleted Special Provisions	
Article No.	Description
21	Asphaltic Binder Enhanced Friction Surface Treatment, Item SPV.0180.02

Schedule of Items:

Added Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
SPV.0180.03	Resin Binder High Friction Surface Treatment	SY	0	1,771	1,771

Deleted Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
SPV.0180.02	Asphaltic Binder Enhanced Friction Surface Treatment	SY	1,771	-1,771	0

Plan Sheets:

Revised Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of changes to sheet)
28	Miscellaneous Quantities (changed item for SPV.0180.02)
29	Miscellaneous Quantities (changed item for SPV.0180.02)

The responsibility for notifying potential subcontractors and suppliers of these changes remains with the prime contractor.

Sincerely,

Mike Coleman

Proposal Development Specialist
Proposal Management Section

ADDENDUM NO. 03

5630-06-61

April 10, 2020

Special Provisions

3. Prosecution and Progress.

Replace 1st paragraph with the following:

Begin work within ten calendar days after the engineer issues a written notice to do so. Notice to proceed will be provided no sooner than August 3, 2020.

21. DELETED

23. Resin Binder High Friction Surface Treatment, Item SPV.0180.03.

A Description

This special provision describes providing a high friction surface treatment (HFST) composed of aggregate in a resin binder on HMA or concrete pavements.

B Materials

B.1 Resin Binder

Supply a two-part thermosetting resin binder which is compatible with the pavement type, bonds to the pavement surface, holds the aggregate firmly in place in a broad range of climates including below-freezing temperatures, and meets the requirements specified in Table 1. Supply a primer if recommended by the resin binder manufacturer.

Table 1. Resin Binder Properties

Property	Requirements	Test Method*
Viscosity	7 — 30 poises	ASTM D2556 l-pint specimen
Gel Time	10-minute minimum	AASHTO M 235M/M 235 Type III
Ultimate Tensile Strength	2,000 — 5,000 psi @ 7 days	AASHTO M 235M/M 235 Type III
Elongation at Break	30% - 70% V 7 days	AASHTO M 235M/M 235 Type III
Compressive Strength	> 1000 psi @ 3 hrs & > 5000 psi 7 days	ASTM C579
Water Absorption	< 1.0 % 24-hr	AASHTO M 235 M/M 235 Type III

Shore D Hardness	60 — 80 C: 7 days	ASTM D2240** Type I precision, Type D method
Cure Rate	< 3 hours (Drv Through Time)	ASTM D1640 50-55 wet mil thickness**
Adhesive Strength	250 psi @ 24 hours or 100% substrate failure	ASTM D4541 **

* Prepare samples per manufacturer's recommendation; cure two sets of specimens at 73 + 20 F and at 50 + 20 F; and test all specimens at 73 + 2° F

** Conduct testing on applicable pavement type

B.2 Aggregate

Furnish calcined bauxite aggregate that is fractured or angular in shape; resistant to polishing and crushing; clean and free of surface moisture; free from silt, clay, asphalt, or other organic materials; compatible with the resin binder; and meet the properties and gradation requirements in Tables 2 and 3. Check with resin binder manufacturer for any compatibility requirements or concerns. The calcined bauxite will be delivered to the construction site in clearly labeled packaging; which protects the aggregate from any contaminants on the jobsite and from exposure to rain or other moisture.

Table 2. Aggregate Properties

Property	Requirements	Test Method
Moisture Content	< 0.2%	AASHTO T 255
Fine Aggregate Angularity	> 45%	AASHTO T 304, Method A
LA Wear	< 10% loss @ 100 revolutions and 25% loss 500 revolutions	AASHTO T 96
Freeze-Thaw Soundness	< 9% loss @ 50, 16, or 25 cycles using Procedure A, B, or C. respectively	AASHTO T 103
Aluminum Oxide	+87%	ASTM C 25

Table 3. Aggregate Gradation (AASHTO T27)

Sieve Size	% Passing by Weight
No. 4	100
No. 6	95-100
No. 16	0-5
No. 30	0-1

B.3 Approval of High Friction Surface Treatment

A minimum of 20 working days before applying HFST, submit product data sheets and specifications from the manufacturer, and a certified test report from an independent laboratory verifying that the resin binder and the calcined bauxite aggregate meet all the requirements specified in Tables 1, 2 and 3. Documents must be dated within three years of project letting date; must be representative of the material used on the project.

If resin binder has not been previously used in Wisconsin, also submit a list of at least five reference projects where the resin binder has been used for similar applications and in locations that have similar climatic conditions as Wisconsin. Supply a description of the projects along with contact information of the facility owner.

If the engineer requests, provide samples of the resin binder and aggregate for department testing before applying HFST.

C Construction

C.1 General

The contractor will provide documentation showing HFST application experience from at least three previous projects completed for WisDOT or other agencies.

Conduct a meeting with the resin binder manufacturer representatives before applying HFST to establish procedures for maintaining optimum working conditions and coordination of the work. Submit recommended application procedures, including quality control practices, to the engineer for approval. Ensure that a resin binder manufacturer representative is on site to provide technical assistance and quality assurance during surface preparation and for application of HFST.

Ensure that the resin binder components maintain their original properties during storage and handling. Store all aggregate in a dry environment and protect from contaminants on the job site.

C.2 Pavement Surface Preparation

C.2.1. Pavement Surface Repair

Remove visibly unsound or disintegrated areas of the pavement surface as the plans show or the engineer directs.

Check with resin binder manufacturer to ensure that products used for pavement repairs or patches are compatible with the resin HFST. Ensure that any new concrete or repairs are fully cured before placing the HFST. Allow a minimum 30-day curing time after placing new asphalt or concrete pavement before installing the HFST.

C.2.2 Surface Preparation

Cover and protect utilities, drainage structures, expansion joints on bridge decks, and other structures within or adjacent to the application location to prevent materials from adhering to or entering those structures.

Remove pavement markings that are within the treatment area. Cover existing pavement markings adjacent to the application if they are to remain in place.

Pretreat all joints and cracks, or any portion of cracks, that are greater than 1/4-inch wide, with the mixed binder resin system specified herein. Once the binder resin in the pretreated area has galled, the installation may proceed.

Completely remove any grease, oil or other deleterious materials resting on the pavement surface with a mild detergent solution, rinsed with clean potable water, and dried using a hot compressed air lance. Ensure the pavement surface has no curing compound, loosely bonded mortar, pavement marking, or other foreign matter resting on the pavement surface.

Sufficiently clean HMA pavement surface using mechanical sweepers and high-pressure air wash with sufficient oil traps, just before applying HFST. Mechanically sweep all surfaces to remove dirt, loose aggregate, debris, and deleterious material. Vacuum sweep or air wash using a minimum of 180 cfm of clean and dry compressed air, all surfaces to remove all dust, debris, and deleterious material. Maintain air lance perpendicular to the surface and the tip of the air lance within 12 in. of surface.

Clean concrete pavement surface by shot blasting and vacuum sweeping. Shot blast all surfaces to remove all curing compound, loosely bonded mortar, surface carbonation, and deleterious material. After shot blasting, vacuum sweep or air wash, with a minimum of 180 cfm of clean and dry compressed air, all surfaces to remove all dust, debris, and deleterious material. Maintain air lance perpendicular to the surface and the tip of the air lance within 12 in. of the surface.

If the engineer requires additional verification of adequate surface preparation of the pavement, test the bond strength according to ASTM D4541. The surface is acceptable if the tensile bond strength is greater than or equal to 250 psi, or failure is in the substrate. Repeat cleaning, and testing, if needed, until passing test results are obtained or the surface is acceptable to the engineer.

Keep vehicles and unnecessary equipment off the cleaned surface; only allow HFST application equipment on the clean surface. Apply HFST as soon as possible after pavement surface preparations are completed.

C.3 Application of the HFST

Do not apply the HFST if any of the following exists:

- Pavement surface is wet, damp, or has received rainfall in the previous 24 hours.
- Pavement surface is not sufficiently clean.
- Ambient air or pavement surface temperature is below 50° F or below the manufacturer's recommendations
- If the anticipated weather conditions would prevent adequate curing of the HFST.
- Rain is predicted before HFST completion or proper cure is achieved.
- Pavement preparation is inadequate or didn't pass pull-off test.

Close treatment areas to traffic until HFST is completely cured and pavement surface has been vacuum-swept.

Construct HFST to the full width of the existing pavement surface, or as the plans show. Extend the HFST application 2'-3' onto the shoulders if application site is on a curve where no rumble strip exists. If the rumble strip exists, apply HFST only on the main lane not on the shoulder.

Apply a primer to the pavement surface if recommended by the resin binder manufacturer, and according to their application recommendations. Abide by the established quality control practices and adhere to any additional manufacturer recommendations for HFST application.

Blend and mix the resin binder components at the manufacturer's specified ratio using equipment capable of providing the desired results.

Apply the resin binder uniformly over the pavement surface manually or with automated equipment at a uniform thickness of 50-65 mils (25-32 ft²/gal). Use enough resin to cover the pavement surface and sufficiently embed half the thickness of the aggregate; do not apply so much that it covers the aggregate and creates a slick surface. Adjust application rate, as needed, based on the pavement surface type, profile, and condition.

If using automated equipment, the binder resin system manufacturer shall approve the use of automated continuous application device with their material. Ensure that the equipment features positive displacement, volumetric metering, and can store, mixing, heating, monitoring, and distributing the binder components at the proper mix ratio. Adjust the pressure and the speed of the equipment to achieve the proper application thickness. Coverage rate is based upon expected variance in the surface profile of the pavement.

Do not contaminate the wet binder or allow the binder material to separate or cure, and impair bonding of the aggregate.

Immediately after applying the resin binder, distribute a sufficient quantity of dry calcined bauxite aggregate to completely cover the resin binder by hand broadcasting or by using a standard chip spreader or equivalent machine. Ensure aggregate is placed within five minutes of the resin binder placement, before it begins to cure. When broadcasting, sprinkle or drop the aggregate onto the resin binder vertically. Do not distribute aggregate in a way that will cause it to roll in the resin binder before coming to a rest; do not push the aggregate into position with a broom or any other hand tool. If using a chip spreader, the machine shall follow closely behind the crew or equipment applying the resin binder. Immediately cover any visible wet or bare spots, or areas with excessive binder, with additional calcined bauxite aggregate before the resin binder begins to set.

Allow the HFST to properly cure, adhering to manufacturer recommendations for minimum cure times at applicable temperatures.

After the HFST is fully cured, remove excess loose surface aggregate by sweeping, blowing, or vacuuming. Do not tear or otherwise damage the surface. Excess calcined bauxite aggregate that is recovered by a vacuum sweeper can be reused if clean, uncontaminated and dry. Remove and replace damaged areas or areas with excess or insufficient aggregate coverage. Uncover pavement markings and repair damages that occur by covering and uncovering markings. Clean expansion joints, utilities, and drainage structures of all debris before opening to traffic.

Additionally, within 3 to 7 days after opening to traffic, the contractor shall vacuum sweep the pavement surface to remove loosened aggregate from the high friction surface area, the shoulders, and any other areas within and immediately adjacent to the HFST site.

D Measurement

The department will measure Resin Binder High Friction Surface Treatment by the square yard acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.03	Resin Binder High Friction Surface Treatment	SY

Payment for Resin Binder High Friction Surface Treatment is full compensation for testing materials; for surface preparation; for providing the HFST; for cleanup including uncovering and restoration of pavement markings; and for vacuum sweeping and disposing of excess material after the completion and again 3 to 7 days after completion.

The department will pay for pavement repairs, and traffic control separately under other contract bid items or, absent the appropriate bid items, as extra work.

Schedule of Items

Attached, dated April 10, 2020, are the revised Schedule of Items Page 4.

Plan Sheets

The following 8½ x 11-inch sheets are attached and made part of the plans for this proposal:

Revised: 28, 29

END OF ADDENDUM

Addendum No. 03
 ID 5630-06-61
 Revised Sheet 28
 April 10, 2020

REMOVALS

LOCATION	WIDTH		FIRST PASS	SECOND PASS	204.0105 REMOVING PAVEMENT BUTT JOINTS (SY)	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS (SY)	204.0120 REMOVING ASPHALTIC SURFACE MILLING (SY)	SPV.0180.01 REMOVING DISTRESSED PAVEMENT MILLING (SY)	NOTES
	204.0105 REMOVING PAVEMENT BUTT JOINTS (SY)	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS (SY)							
CURVE WIDENING									
6+66 to 9+99	2						79		LENGTH FROM FC TO PT PLUS TAPERS
13+27 to 24+73	2						260		
29+67 to 32+58	2						70		
53+31 to 57+10	2						90		
61+44 to 64+96	2						84		
167+13 to 169+58	2						60		
200+38 to 208+01	2						175		
225+27 to 227+87	2						63		
253+52 to 255+59	2						51		
261+20 to 263+72	2						61		
273+52 to 276+00	2						61		
312+50 to 314+56	2						51		
323+24 to 323+93	2						21		
344+04 to 345+60	2						40		
348+22 to 351+65	2						82		
369+37 to 371+90	2						62		
TOTALS					24	25	122358	6021	

ASPHALTIC ITEMS

LOCATION	WIDTH		FIRST PASS	SECOND PASS	Depth (in)	Area (sq)	211.0400 PREPARE FOUNDATION FOR ASPHALTIC SHOULDBERS (STA)	455.0605 TACK COAT *	460.0105.S HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP VOLUMETRICS (EACH)	460.0110.S HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP DENSITY (EACH)	460.5224 HMA PAVEMENT 4 LT 58-28 \$ (TON)	465.0105 ASPHALTIC SURFACE (TON)	465.0475 ASPHALTIC CENTERLINE RUMBLE STRIPS 2-LANE RURAL (LF)	SPV.0180.03 RESIN BINDER HIGH FRICTION SURFACE TREATMENT (SY)	SPV.0195.01 ASPHALTIC SURFACE WEDGING (TON)	
	FIRST PASS	SECOND PASS														
1+75 to 1+83	13.67	13.5	3.5	25			2				4.9		8			
1+83 to 123+50	13.67	13.5	3.5	36727			2571				7198.5	205.8	12167		343	
123+50 to 405+92	13.42	13.25	1.75	83679			5858				8200.6	468.7	28242		155	
405+92 to 406+00	13.42	13.25	1.75	0									8			
SIDEROADS																
CTH DL			3.5	227												
DAHLKE DR			3.5	51			16				44.5					
BLAU DR			3.5	55			4				10.0					
INDIAN FARM RD			3.5	0			4				10.8					
DURNWARDS GLEN RD			3.5	0												
PETRA RD			1.75	0												
OWEN PARK RD			1.75	0												
MESSER RD			1.75	0												
PETRA RD (NORTH)			1.75	0												
WALKER RD			1.75	32							3.2					
SHANKS RD			1.75	0												
BECH RD			1.75	0												
OLD CNTY U RD			1.75	36							3.6					

CONTINUED ON NEXT PAGE

ALL ITEMS ON THIS PAGE ARE CATEGORY 0010

PROJECT NO: 5630-06-61

HWY: STH 78

COUNTY: COLUMBIA

MISCELLANEOUS QUANTITIES

SHEET 28

E

FILE NAME: _____ PLOT DATE: _____

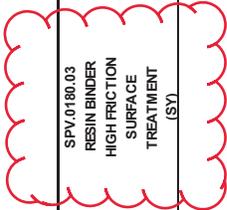
PLOT BY: _____ PLOT NAME: _____

ORG DATE: _____ ORIGINATOR: DIST _____

PLOT SCALE: 1:1

ASPHALTIC ITEMS

LOCATION	WIDTH	FIRST PASS	SECOND PASS	Depth (ft)	Area (sq)	211.0400 PREPARE FOUNDATION FOR ASPHALTIC SHOULDBERS (STA)	455.0605 TACK COAT *	460.0105.S HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP VOLUMETRICS (EACH)	460.0110.S HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP DENSITY (EACH)	460.5224 HMA PAVEMENT 4 LT 58-28 S (TON)	465.0105 ASPHALTIC SURFACE (TON)	465.0475 ASPHALTIC CENTERLINE RUMBLE STRIPS 2-LANE RURAL (LF)	SPV.0180.03 RESIN BINDER HIGH FRICTION SURFACE TREATMENT (SY)	SPV.0195.01 ASPHALTIC SURFACE WEDGING (TON)
DRIVEWAYS														
73+75 RT	4			3.5	18	-	2	-	-	3.6	-	-	-	-
74+60 LT	4			3.5	25	-	2	-	-	4.9	-	-	-	-
162+40 LT	4			1.75	22	-	2	-	-	2.2	-	-	-	-
109+20 LT	4			1.75	11	-	1	-	-	1.1	-	-	-	-
128+25 LT	4			1.75	10	-	1	-	-	1.0	-	-	-	-
162+40 LT	4			1.75	24	-	2	-	-	2.4	-	-	-	-
206+15 RT	4			1.75	15	-	2	-	-	1.5	-	-	-	-
252+85 LT	4			1.75	12	-	1	-	-	1.2	-	-	-	-
253+35 RT	4			1.75	12	-	1	-	-	1.2	-	-	-	-
272+50 LT	4			1.75	21	-	2	-	-	2.1	-	-	-	-
275+50 LT	4			1.75	22	-	2	-	-	2.2	-	-	-	-
286+30 RT	4			1.75	11	-	1	-	-	1.1	-	-	-	-
315+25 RT	4			1.75	20	-	2	-	-	2.0	-	-	-	-
317+25 RT	4			1.75	18	-	2	-	-	1.8	-	-	-	-
CURVE WIDENING														
5+27 to 11+40	2			3.5	79	12.26	6	-	-	15.5	-	-	1771	-
13+27 to 24+73	2			3.5	260	22.92	19	-	-	51.0	-	-	-	-
29+67 to 32+58	2			3.5	70	5.82	5	-	-	13.8	-	-	-	-
53+31 to 57+10	2			3.5	90	7.58	7	-	-	17.7	-	-	-	-
61+44 to 64+96	2			3.5	84	7.04	6	-	-	16.5	-	-	-	-
167+13 to 169+58	2			3.5	60	4.90	5	-	-	11.8	-	-	-	-
200+38 to 208+01	2			3.5	175	15.26	13	-	-	34.3	-	-	-	-
225+27 to 227+87	2			3.5	63	5.20	5	-	-	12.4	-	-	-	-
253+52 to 255+59	2			3.5	51	4.14	4	-	-	10.0	-	-	-	-
261+20 to 263+72	2			3.5	61	5.04	5	-	-	12.0	-	-	-	-
273+52 to 276+00	2			3.5	61	4.96	5	-	-	12.0	-	-	-	-
312+50 to 314+56	2			3.5	51	4.12	4	-	-	10.0	-	-	-	-
323+24 to 323+83	2			3.5	21	1.38	2	-	-	4.2	-	-	-	-
344+04 to 345+60	2			3.5	40	3.12	3	-	-	7.9	-	-	-	-
348+22 to 351+65	2			3.5	82	6.86	6	-	-	16.1	-	-	-	-
369+37 to 371+90	2			3.5	62	5.06	5	-	-	12.2	-	-	-	-
GUARDRAIL REPLACEMENT														
44+45 to 48+07	2			3.5	107.6	-	8	-	-	21.1	-	-	-	-
75+41 to 77+53	2			3.5	19.8	-	2	-	-	3.9	-	-	-	-
170+31 to 172+43	2			3.5	15.3	-	2	-	-	3.1	-	-	-	-
UNDISTRIBUTED														
TOTALS														
						116	8596	1	2	15790	675	40425	1771	498



Addendum No. 03
ID 5630-06-61
Revised Sheet 29
April 10, 2020

ALL ITEMS ON THIS PAGE ARE CATEGORY 0010

PROJECT NO: 5630-06-61	COUNTY: COLUMBIA	HWY: STH 78	MISCELLANEOUS QUANTITIES	SHEET 29	E
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FILE NAME: _____ PLOT DATE: _____ PLOT BY: _____ PLOT NAME: _____ ORG: _____ PLOT SCALE: 1:1



Proposal Schedule of Items

Proposal ID: 20200414005 Project(s): 5630-06-61

Federal ID(s): WISC 2020128

SECTION: 0001

Contract Items

Alt Set ID:

Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0098	648.0100 Locating No-Passing Zones	7.660 MI	_____.	_____.
0100	649.0770 Temporary Marking Raised Pavement Marker Type II	810.000 EACH	_____.	_____.
0102	650.8000 Construction Staking Resurfacing Reference	40,425.000 LF	_____.	_____.
0104	650.9910 Construction Staking Supplemental Control (project) 01. 5630-06-61	LS	LUMP SUM	_____.
0106	650.9920 Construction Staking Slope Stakes	1,073.000 LF	_____.	_____.
0108	690.0150 Sawing Asphalt	1,691.000 LF	_____.	_____.
0110	740.0440 Incentive IRI Ride	30,600.000 DOL	1.00000	30,600.00
0112	SPV.0060 Special 01. Verify Landmark Reference Monuments	3.000 EACH	_____.	_____.
0114	SPV.0060 Special 02. Landmark Reference Monuments Special	2.000 EACH	_____.	_____.
0116	SPV.0180 Special 01. Removing Distressed Pavement Milling	6,021.000 SY	_____.	_____.
0120	SPV.0195 Special 01. Asphaltic Surface Wedging	498.000 TON	_____.	_____.
0122	SPV.0180 Special 03. Resin Binder High Friction Surface Treatment	1,771.000 SY	_____.	_____.
Section: 0001			Total:	_____.
			Total Bid:	_____.

