STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0016

Janet T. Mills
GOVERNOR

Bruce A. Van Note
COMMISIONER

March 2, 2020
Subject: Pavement Milling, Cold In- Place Recycling, HMA Overlay, with Drainage & Safety Improvements
State WINs: 023685.00 & 024467.00
Location: **Jackman, Moose River, Dennistown Plantation & Sandy Bay Township**
Amendment No. 3

Dear Sir/Ms.:

Please make the following changes to the Bid Documents:

In the Bid Book:

ADD the attached SPECIAL PROVISION - SECTION 108 - RECYCLED ASPHALT PAVEMENT WITH BITUMINOUS ADDITIVE PERFORMANCE GRADED BINDER PRICE ADJUSTMENT, 1 page, dated March 2, 2020.

ADD the attached SUPPLEMENTAL SPECIAL PROVISION - SECTION 311 - Cold In-Place Recycled Asphalt Pavement - (Traveling Pugmill with emulsion or foamed asphalt technology), 4 pages, dated February 27, 2020.

The following questions have been received:

Question: Would MDOT be open to alternative equipment to those specified in Section 311.044 Portable Mixing Unit? Due to limited availably of a Traveling Pugmill, would like to know if Cold In-Place equipment that performs the mixing in the cutter housing of the down cutting CIR mill be permitted to be used on the project? The proposed equipment would still incorporate a Screening/Sizing Unit as required in Section 311.043.

Response: See the attached SUPPLEMENTAL SPECIAL PROVISION - SECTION 311 - Cold In-Place Recycled Asphalt Pavement - (Traveling Pugmill with emulsion or foamed asphalt technology), 4 pages, dated February 27, 2020.

Question: Paragraph number 7 of Section 311.02 states "A contract modification will be executed if percentages changes from the requirements above for added emulsion, Portland cement or lime changes by more than 0.10%". How will this adjustment be made if the unit

weight of the in-place recycled material "125 pcf" used in the section for bidding purposes changes? Gallons and tons of add product are determined by the percentage added by weight of the material being created by the JMF. Hence, the volume of material used at 3% of 125pcf is different from 3% of 135pcf. Will this adjustment be done based on total product used vs total product estimated at 125pcf?

Response: Yes. The 125 pcf would be a target used for estimating and emulsion and cement quantity purposes only for the bid, and the actual gallons or cement (percentages) to be added are determined by the weight of the material being created by the JMF. Pay adjustments for total emulsion and cement usage can be made if the actual percentages increase or decrease.

Question: Will the Department consider an escalation de-escalation for the emulsion for the Cold In Place item?

Response: Yes, see the attached SPECIAL PROVISION - SECTION 108 - RECYCLED ASPHALT PAVEMENT WITH BITUMINOUS ADDITIVE PERFORMANCE GRADED BINDER PRICE ADJUSTMENT.

Question: If deemed necessary to add stone for the Cold In Place item would the department consider adding an item or would it be considered incidental?

Response: New aggregate, if required by the contract or job mix, shall meet the requirements of Section 411.02 - Untreated Aggregate Surface Course. If the addition of new aggregate is anticipated in the contract, such as to correct existing cross slope or profile, then it is usually carried in the schedule of items or construction notes. If the addition of new aggregate is required to correct material deficiencies as part of a JMF that is supplied by the Contractor, the Department will request a price based on the quantity and type of materials needed and will be added by Contract Modification.

Question: Would the Department consider a foam injection alternative to the Cold In Place?

Response: The Department would allow the use of a foamed asphalt injection system instead of an emulsion injection as long as it can be demonstrated that the foaming and blending system produces an equal, or higher quality end product. The 311 Special Provision has been amended by a Supplemental Special Provision to allow this option, dated February 27th.

Consider these changes and information prior to submitting your bid on **March 4, 2020**.

Sincerely,

George Macdougall

George M. A. Macdougall P.E.
Contracts & Specifications Engineer

Jackman, Moose River
Dennistown Plantation
Sandy Bay Township
March 2, 2020

SPECIAL PROVISION
SECTION 108
RECYCLED ASPHALT PAVEMENT WITH BITUMINOUS ADDITIVE PERFORMANCE GRADED BINDER PRICE ADJUSTMENT

Price adjustments will be based on the variance in costs for the performance graded binder component of recycled asphalt pavement with bituminous additive. They will be determined as follows:

Performance Graded Asphalt Binder The quantity of asphalt cement will be determined by taking the quantity of recycled asphalt pavement with bituminous additive **(205,430 s.y.)** and multiplying by (**0.0060 for CIPR) or** (**0.0090 for Foamed Asphalt)** for item times the difference in price in excess of 5 percent between the base price and the period price of asphalt cement. Adjustments will be made upward or downward, as prices increase or decrease.

Recycled Asphalt Pavement with Bituminous Additive The quantity of recycled asphalt pavement with bituminous additive will be determined from field measurements and shown on the progress estimate for each pay period.

Base Price The base price of performance graded binder to be used is the price per standard ton current with the bid opening date. This price is determined by using the average N.E. Barge Price, FOB, as listed in the Asphalt Weekly Monitor.

Period Price The period price of performance graded binder will be determined by the Department by using the average N.E. Barge Price, FOB, listed in the Asphalt Weekly Monitor current with the pay period ending date that the work is accomplished.

February 27, 2020

SUPPLEMENTAL SPECIAL PROVISION
SECTION 311
Cold In-Place Recycled Asphalt Pavement
(Traveling Pugmill with emulsion or foamed asphalt technology)

The following sections of Special Provision Section 311 – Cold In-Place Asphalt Pavement (Traveling Pugmill) has been amended to provide options for equipment and processing. All sections of Special Provision 311 not amended or added too by this document shall be considered unchanged.

311.031 Emulsified Asphalt The emulsified asphalt binder shall be a high float asphalt emulsion grade HFMS-2, or a cationic slow-set grade CSS-1, or CSS-1H that meets the requirements of Section 702.04.

The Department may allow the use of foamed asphalt technology as an alternative to an emulsified asphalt additive if it can be demonstrated that the process can be successfully achieved, and the final treated product is of equal or higher quality.

If a foaming technology is proposed, the asphalt binder used in the foamed asphalt process shall be Performance Grade of 58-28 meeting the requirements of AASHTO M320.

If a foaming technology is proposed, the Contractor will supply a mix design and provide the following information prior to construction:

1. Percent of asphalt to be used.
2. Percent of water to be used in the foaming process.
3. Quantity of cement to be added.
4. Optimum moisture content for proper compaction and dispersion of foamed asphalt.
5. Additional aggregate (if required).

A mix design has been provided by the Department establishing targets for asphalt binder, water and Portland cement for bidding purposes only. The recycled pavement on this project will be treated with the following material proportions for foaming technologies unless otherwise proposed and approved:

PG 58-28 Asphalt Binder	2.50 %
Water needed to ensure proper foaming	2.50 %
Portland cement (Type I or II)	1.00 %

The Department will evaluate and approve the foamed mix design once submitted.

Should the Department approve or require adjustments from the target values provided for bid purposes, a contract modification will be executed for the increased or decreased percentage change for asphalt, Portland cement or lime changes by more than 0.10%. Positive and negative price adjustments will be made. The price adjustment will be based upon receipted bills for materials delivered the project site. If a price adjustment is warranted, the contractor will supply the Department with all receipted bills for PG asphalt binder, Portland cement or lime for the entire project. Adjustments in water content exceeding the initial targets shall not be paid for directly but shall be considered incidental.

The modified milling or recycling machine for foaming technologies shall, as a minimum, have the following features:

a. A minimum power capability of 1000 horsepower.
b. Two microprocessor-controlled systems, complete with 2 independent pumping systems and spraybars, to regulate the application of foamed asphalt stabilizing agent, separate from water (for increasing the moisture content of the recycled material), in relation to the forward speed and mass of the material being recycled.
c. Two spray bars shall each be fitted with self-cleaning nozzles at a maximum spacing of one nozzle for each 6 in width of the chamber.
d. The foamed asphalt shall be produced at the spraybar in individual expansion chambers into which both hot asphalt and water are injected under pressure through individual and separate small orifices that promote atomization. The rate of addition of water into hot asphalt shall be kept at a constant (percentage by mass of asphalt) by the same microprocessor.
e. An inspection (or test) nozzle shall be fitted at one end of the spraybar that produces a representative sample of foamed asphalt.
f. An electrical heating system capable of maintaining the temperature of all asphalt flow components above the required 347°F.
g. A single asphalt feed pipe installed between the modified milling or recycling machine and the supply tanker. Circulating systems that incorporate a return pipe to the supply tanker shall not be used.
h. The recycler shall be fitted with a front breaker bar system to ensure that the reclaimed material is broken down to the 2” sizing requirements.

For foaming technologies, only tankers with a capacity exceeding 2500 gal shall be used to supply the recycling machine with asphalt at the required 347°F temperature. Unless otherwise approved, each tanker shall be fitted with two recessed pin-type tow hitches, one in front and the other behind, thereby allowing the tanker to be pushed from behind by the recycling machine, and to push a water tanker in front. No leaking tanker will be permitted on the job site. In addition, each tanker shall be equipped with the following:

a. A thermometer to show the temperature of the contents in the bottom third of the tank.
b. A rear feed valve, with a minimum internal diameter of 3 in, capable of draining the contents of the tank when fully opened.

c. Insulation to retain heat.
d. A calibrated dipstick marked at intervals of no more than 25 gal, for measuring the contents of the tank

EQUIPMENT
(Emulsion or Foaming technologies)

311.040 Equipment The existing bituminous pavement shall be recycled in a continuous operation using a recycling train consisting of the following major components. The recycling equipment and operations may be combined onto one unit:

311.041 Mainline Cold Milling Machine The unit shall be self-propelled with a down cutting drum, and be automated to continuously adjust and maintain treatment depth and cross slope as directed. The cutting drums shall be a minimum of 10 feet in width, with the ability to add extensions to the drum or have hydraulically extendable milling heads that will treat the required width in one pass. Dust suppression systems are required. The unit shall be capable of recycling the pavement for the entire lane width to the required dimensions in one pass. The forward speed of the recycler may be reduced, and sizing or blending dwell time increased to achieve the 2" particle sizing requirements.

311.043 Screening and Sizing Unit This unit shall be capable of reducing and sizing the recycled asphalt pavement to the specified gradations prior too, or after mixing with the asphalt emulsion, cement or lime additives. The screening unit may an independent unit, part of the recycler, windrow pick up machine, mounted on the paver surge hopper, or other configuration that will enable the screening of recycled materials, capture of any oversize particles, and be configured to allow offloading of any oversize particles to be either wasted or reincorporated into the work as required. Oversize particles shall not be included in the final mix. Some manufacture of waste through a screening process will be allowed. If more than 5% of the recycled material is screened off as waste, the contractor will be required, at no additional compensation, to re-introduce the material ahead of the train to be reprocessed. If more than 10% of the of the recycled material is screened off, in addition to returning the oversized material back ahead of the train to be re-introduced to be processed, then forward speed of the recycler shall be reduced to achieve the 2" particle sizing requirements. The contractor may propose an alternative to slowing the recycling process but must demonstrate the effectiveness of the alternative while meeting the blending and particle sizing requirements.

311.044 Portable Mixing Unit The unit shall be capable of producing a uniform, thoroughly mixed, cold mix asphalt product.

The mixing unit shall be equipped with a computer-controlled system that can adjust emulsion or foamed asphalt percentages based upon the mass of recycled material, by weight, being processed by the mixing unit prior to the addition of the emulsion or liquid asphalt. The pumps and metering systems shall be calibrated to the manufacturer's

tolerance at the start of the contract and will be checked for conformance at random intervals as the works progresses.

The mixing unit may be of the milling / blending configuration, equipped with a metering device which will continuously meter and maintain the amount of emulsified asphalt being added to the process to a tolerance of ± 0.25% of the total.

The bituminous additive control unit shall be equipped with a flow meter and a total delivery meter. A positive displacement pump capable of accurately metering the required quantity of bituminous additive down to a rate of 4 gal/min into the recycled material is required.

The pump shall be equipped with a positive interlock system that will shut off automatically when material is not being pumped into the mixing chamber.

Each mixing machine shall be equipped with a meter capable of registering the rate of flow and total delivery of the bituminous additive introduced into the mixture.

The unit shall be designed to either deposit the mixed product onto the roadway in a sized windrow, or capable of depositing the product directly into a paver hopper.

311.045 Placing Equipment Recycled materials may be conveyed into a paver by means of a recycler out feed conveyor, or windrow pick up conveyor. If a pick-up conveyor is to be utilized to transfer the windrow into a paver hopper, the pickup conveyer machine shall be capable of removing the entire windrow down to the underlying material. The use of a screening unit will be required to remove oversize particles before being conveyed into the paver surge hopper. The paver utilized to place the recycled product shall conform to Section 401.09, with the addition of a minimum capacity 12-ton surge hopper insert.

Payment to be made under:

	Pay Item	Pay Unit
311.33	3 inch Cold In-Place Recycled Asphalt Pavement	Square Yard
311.34	4 inch Cold In-Place Recycled Asphalt Pavement	Square Yard
311.35	5 inch Cold In-Place Recycled Asphalt Pavement	Square Yard