

## **ITEM 402.2502 18 - SAWING AND SEALING JOINTS IN NEW HOT MIX ASPHALT OVERLAYS USING HOT APPLIED SEALANT**

### **DESCRIPTION.**

Saw cut, clean and seal transverse joints in new Hot Mix Asphalt (HMA) overlays and shoulders. Construct transverse HMA pavement joints over, and in line with, the existing underlying transverse Portland cement concrete joints contained in the contract documents and as directed by the Engineer.

### **MATERIALS.**

**Sealant.** Use a sealant meeting the requirements of §705-02, Highway Joint Sealants, and ASTM D6690 Type II; Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements. Deliver the sealant in the manufacturer's original sealed container legibly marked with the following information:

- Manufacturer's name.
- Trade name of sealant.
- Manufacturer's batch or lot number.
- ASTM D6690, Type II.
- Minimum application temperature.
- Maximum (or Safe) heating temperature.

Provide the Engineer with a copy of the manufacturer's recommendations pertaining to heating and application of the sealant prior to commencing work.

**Bond Breaker Tape.** Use ordinary masking tape or a suitable bond breaker tape designed for use with hot poured sealants. The width of the tape shall be equal to the width of the saw cut (-3mm, +0 mm).

### **CONSTRUCTION DETAILS.**

**General.** Saw cut, clean and seal transverse joints as a single operation within seven (7) days after placing the top course of the HMA pavement. Saw cut, clean and seal joints that are damaged by traffic at no additional cost to the State.

If the top course is to be placed the following Spring, saw cut all underlying courses to provide a 25 mm deep by 3 mm wide channel to facilitate and control reflective cracking. Provide a means of properly referencing the saw cut to be made in the top course. Saw cut all underlying courses within seven (7) days after they are placed and before any evidence of reflective cracking has developed. Do not seal these saw cuts. Include saw cutting underlying courses in the unit bid price.

**Saw Cutting of Transverse Joints.** Saw cut transverse joints to the appropriate dimensions shown in Figure I and Figure II. Locate saw cut joints directly over the existing Portland cement concrete pavement joints using a pins and stringline method. The details of the method for locating the saw cuts are to be approved by the Engineer. Saw cutting blades shall be of such size and configuration that the desired dimensions of the saw cut can be made with one pass. Either dry or wet cutting will be allowed. No spacers between blades will be allowed.

Extend transverse saw cut joints the full width of the pavement and into the asphalt shoulder to a distance one meter beyond the edge of the underlying Portland cement concrete pavement edge or as shown in the contract documents. Transverse joints that are offset at the longitudinal joint by more than 25 mm measured between the centers of the joint cavities, require separate saw cuts terminating at the longitudinal joints.

**Joint Preparation.** Prepare joints for sealing on the same day that they are to be sealed.

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Wash wet saw cut joints with a water blast (345 kPa minimum) after sawing to remove any sawing slurry, dirt, or deleterious matter adhering to the joint walls or remaining in the joint cavity. Wash slurry from the pavement surface when the wet process is used. Blow or brush dry dust and material from the pavement surface when the dry saw cut process is used.

Use a high pressure air lance or hot air lance to thoroughly clean and dry saw cut joints of dust, dirt, foreign material, sand and any other extraneous materials immediately prior to sealing joints. Do not burn, scorch or ignite the adjoining pavement when using a hot air lance.

Install suitable traps or devices on the compressed air equipment to prevent moisture and oil from contaminating the joint crack surfaces. Maintain these devices and see that they are functioning properly.

Protect the public from potentially objectionable and/or hazardous airborne debris.

**Bond Breaking.** Place bond breaker tape in the bottom of the saw cut joint after it is cleaned and dried. Sealant Melting. Heat and melt the sealant in a melter constructed either as a double boiler filled with a heat-transfer medium between the inner and outer shells, or with internal tubes or coils carrying the sealant through a heated oil bath and into a heated double wall hopper. The melter will be equipped with separate thermometers to indicate the temperature of the heat transfer medium and the sealant material, positive temperature controls and with a mechanical agitator or a recirculating pump to assure a homogeneous blend of the sealant. Maintain the sealant at the pouring temperature  $\pm 5^{\circ}\text{C}$  indicated on the material packaging.

Check the discharge temperature of the sealant with a non-contact infrared thermometer. Discharge the sealant at a temperature between the manufacturer's recommended pouring and safe heating temperatures indicated on the material packaging. Submit an alternate method for measuring the discharge temperature to the Engineer for approval if desired.

Sealing is not permitted if the melter and discharge temperatures do not meet the requirements described above. Equip the discharge hose with a thermostatically controlled heating apparatus or insulate it to maintain the proper sealant pouring temperature. Holster the discharge hose to the melter if it is not thermostatically heat controlled. Circulate the sealant from the discharge hose and the melter to maintain the proper sealant pouring temperature.

Do not use sealant material heated beyond the safe heating temperature.

If the manufacturer's recommendations allow the sealant to be reheated or heated in excess of six hours, recharge the melter with fresh material amounting to at least 20 percent of the volume of the material remaining in the melter.

**Sealing.** Sealing is to be done when ambient air temperature is at or above  $5^{\circ}\text{C}$ .

Seal the joint by placing the applicator wand in the recess and carefully discharge the sealant. Strike-off the sealant flush with the pavement surface using a squeegee or sealing shoe pressed firmly against the pavement. The level of the sealer will not be greater than 3 mm below the pavement or shoulder surface after the sealant

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has cooled. If the sealant sinks into the joint more than 3 mm below the pavement surface, clean it with high pressure air and fill it to 3 mm below the pavement surface. Properly sealed joints shall be watertight and present a neat fine line.

Do not allow traffic on the sealed joint until the sealant has cured so as not to track. Use a low pressure, light spray of water to accelerate cooling of the sealant. Blotting the sealant with fine aggregate is not allowed.

Remove and dispose sealant in excess of the amount depicted in Figure I or that has not bonded to both sides of the reservoir. Clean sealed joints damaged from traffic with high pressure air and reseal them to meet the specified amount at no additional cost to the State.

**METHOD OF MEASUREMENT.**

The Engineer will measure the number of meters of joints properly saw cut and sealed in conformance with this specification.

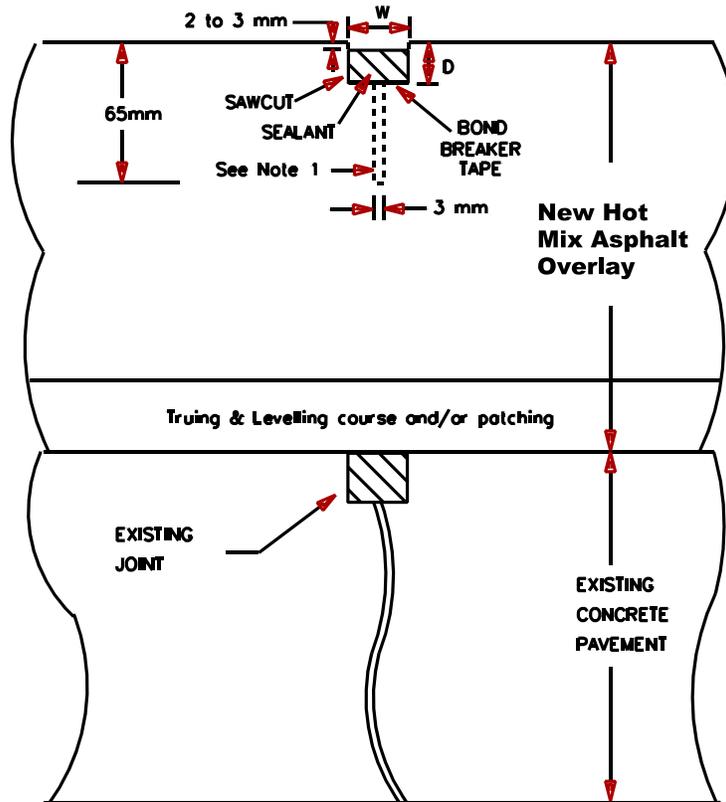
**BASIS OF PAYMENT.**

In the unit bid price, include the cost of all material, equipment and labor necessary to complete the work.

<b>Item No.</b>	<b>Item</b>	<b>Pay Unit</b>
402.2502-18	Sawing and Sealing Joints in New Hot Mix Asphalt Overlays Using Hot Applied Sealant	Meter

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**DETAILS FOR TRANSVERSE JOINTS IN HOT MIX ASPHALT OVERLAYS**

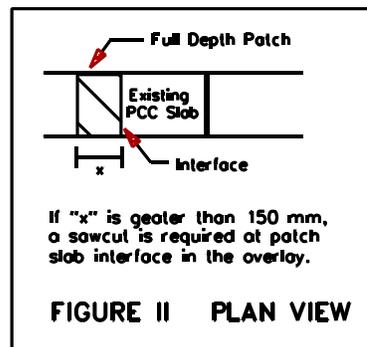


**FIGURE I**

**SAWCUT DIMENSIONS**

SLAB LENGTH (m)	W (mm)	D (mm)
< 15	13	16
16 to 19	16	16
20 to 23	19	16
24 to 27	22	19
28 to 31	25	22

**Note 1: When the total thickness of hot mix asphalt over the existing joint exceeds 115mm, a 3mm wide sawcut shall be included in the joint geometrics to a minimum depth of 65mm.**



**If "x" is greater than 150 mm, a sawcut is required at patch slab interface in the overlay.**