

ROUTING, HEAT LANCING AND SEALING CRACKS/JOINTS

SPECIAL PROVISIONS

SCOPE OF WORK

It is intended that this work shall consist of routing, heat lancing, and sealing the existing transverse and longitudinal cracks and joints and random cracks in bituminous pavement surfaces.

The quantity shown for bidding purposes has been approximated. Actual payment for the work will be determined by field measurements of the work completed. Cracks and joints to be filled will be designated by the Inspection Engineer.

TRAFFIC CONTROL

Traffic control for the work contained in this contract shall be considered as incidental to the contract. All traffic control and protection including placement, removal, material, labor and devices shall be as needed to provide a safe work place and maintain quality work procedures. All traffic control devices and layout must comply with local standards.

ROUTING AND SEALING CRACKS/JOINTS

1.0: SCOPE OF WORK

This item shall consist of routing old sealants, dirt and incompressibles from joints and cracks, and heat lancing, cleaning and sealing joints and cracks in the pavements. This work shall include the proper routing and cleaning of all joints and cracks to be sealed and furnishing and install hot pour liquid crack sealer in accordance with these specifications.

2.0: MATERIALS

2.1: GENERAL: All materials proposed for use shall be approved by the Inspector prior to the initiation of their construction.

2.2: HOT POUR LIQUID CRACK SEALER: The hot pour liquid crack sealant shall be Crafc0 Polyflex Type 3 (warm climates) or Polyflex Type 2 (cool climates) Sealants. Storage and heating instructions and cautions will be supplied with each shipment. The sealant must be able to be reheated to application temperature at least once after the initial heat up without degradation of sealant specifications. Sealant shall have an application life at application temperature up to 12 to 15 hours.

3.0: EQUIPMENT

3.1: GENERAL: All machines, tools and equipment used in the performance of work required by these specifications will be subject to the approval of the Inspector and maintained in a satisfactory working condition at all times.

3.2: JOINT AND CRACK CLEANING MACHINE: The joint and crack routing machine shall be a CrafcO Model 200 Pavement Cutter or equal. The routing machine shall be portable and capable of routing existing asphalt and concrete surfaces along and adjacent to the joint and crack. The unit shall be capable of following random cracks and be designed to adjust cutting widths. The unit shall be equipped with a cutterhead clutch and shall have an adjustable depth control. The machine shall be capable of cutting approximately 1,000 to 1,200 LF/Hour of cracks or joints with an experienced operator. Joints and cracks shall be routed to a 3/4" (19 mm)W x 3/4" (19 mm) D configuration for typical applications. A low profile configuration of 1.5" (40 mm) W x 3/8" (10 mm) D may be used in colder climates for enhanced thermal movement performance. If crack sealing is performed on chip seal or slurry, the low profile configuration depth should be 5/8" (15 mm) D.

3.3: HEAT LANCE: The heat lance shall be capable of producing air temperature up to 2500°F and constructed of suitable hardware. Same shall be provided with separate valves to control propane, burner air, and lance air. The fuel and the burner air shall be mixed only at the point of combustion before leaving the burner tube. A separate air lance tube shall pass inside the burner chamber and be orificed to a maximum 1/4" (6 mm). At the fuel source, the propane shall be controlled by a high-pressure regulator to control fuel pressure from 5 PSI to 30 PSI and to prevent flashback. Burner BTU should range from 20,000 to 500,000 BTU. A wheel kit constructed to keep the unit at the proper height and angle from the pavement and to prevent debris from striking the operator should be used. Caution should be taken when using the heat lance to not overheat and oxidize the pavement. A slight darkening (bleeding) of the pavement is acceptable.

3.4: MELTER APPLICATION: The melter applicator unit shall be a self-contained double boiler device with the transmittal of heat through a heat transfer oil. It must be equipped with an on board automatic heat controlling device to permit the attainment of a predetermined temperature, then, maintain that temperature as long as required. The unit shall also have a means to vigorously and continuously agitate the sealant. The sealant shall be applied to the pavement under pressure supplied by a gear pump with a direct connecting applicator tip. The pump shall have sufficient pressure to displace designated sealant at a rate of at least three (3) gallons (11.4 L) per minute. Approved models are CrafcO Super Shot or EZ Pour applicators. Melter applicators shall be approved for use by the sealant manufacturer.

4.0: CONSTRUCTION METHODS

4.1: PREPARATION OF JOINTS AND CRACKS: The joints and cracks shall be routed and cleaned to a minimum configuration of ¾" (19 mm) W x ¾" (19 mm) D to create a 1 to 1 ratio reservoir for sealant placement or to a low profile configuration (See Section 3.2) for high thermal movement applications. No sealant material shall be placed until the joints and cracks have been cleaned of all loose dirt, old material and are sufficiently dry.

Following the initial routing and cleaning operation all joints and cracks will be heat lanced to clean and remove moisture. Heat lancing may be deemed unnecessary by the Inspector if pavement is sufficiently dry. Both side walls of the cracks and joints must be refaced with the router to assure optimum sealant adhesion. The joints and cracks shall be inspected and approved by the Inspector prior to placing the crack sealant material.

Final joint and crack cleaning will be the same day of the sealing operation except as otherwise approved by the Inspector.

4.2: APPLICATION OF JOINT AND CRACK SEALING MATERIAL: No sealant material shall be installed until joints and cracks to be sealed have been inspected and approved. Manufacturer's application instructions shall be followed for the hot pour sealant which is specified in Paragraph 2.2.

The sealant material shall not be applied when the weather is foggy or when rain threatens. When the atmosphere or pavement temperature is below 40°F, a heat lance is to be used to warm the pavement just prior to sealing operations. The pavement surface must be clean and dry. The polymeric asphalt rubber sealant temperature, when applied, shall be in accordance with the manufacturer's recommendations.

Joints and cracks shall be sealed with hot pour material as designated in Paragraph 2.2. The sealant shall be applied in the crack or joint reservoir uniformly solid from bottom to top and shall be filled without formation of entrapped air or voids. The sealant shall be heated in accordance with the manufacturer's recommended procedures.

Many joints and cracks in concrete have weakened or spalled surfaces on the sides. It is recommended that the crack be slightly overfilled then leveled with a 3" sealing disk or v-shaped squeegee to create a neat bandaid extending ± 1" on each side of the crack or joint for surface strength and waterproofing.

If the pavement being sealed will be overlaid with HMA within six months of sealant application, the sealant shall be recessed ¼" (6 mm) in the crack or joint reservoir with no overband.

On two lane roads or where traffic may be likely to come in contact with the hot sealant before it cures, the contractor shall spray Crafcro Detack over the hot sealant to prevent

material pickup on vehicle tires. The application rate is approximately one gallon of Detack to fifty gallons of sealant.

4.3: PAVEMENT CLEANING: Old material and other debris that result from cleaning and sealing cracks shall be picked up and disposed or prior to opening the pavement at the end of each work day.

5.0: METHOD OF MEASUREMENT:

Cleaning and sealing joints and cracks to be paid for shall be the actual number of lineal feet, pounds of sealant, or pavement surface of joints and cracks routed, cleaned, heat lanced and sealed and accepted by the Inspector.

6.0: BASIS OF PAYMENT:

This item will be paid for at the contract unit prices per lineal foot, pounds of sealant or pavement surface area of routing, cleaning, heat lancing and sealing cracks and joints in the pavement. Price and payment shall constitute full compensation for all traffic control protection, routing, preparation and disposal of loose materials; and for the materials, labor, equipment, tools, supervision and incidentals necessary to complete this item.

Payment will be made under: ROUTING AND SAWING, HEAT LANCING, AND SEALING CRACKS/JOINTS.