

and sealed as directed by the Engineer.

Cracks shall be routed following the crack as nearly as possible, approximately 20 mm (3/4 inch) wide by 20 mm (3/4 inch) deep as close to a 1:1 ratio as possible. Immediately ahead of sealer placement, dust and debris shall be blown from the crack with a power brush/blower or with compressed air with a minimum pressure of 620 kPa (90 psi). If compressed air is used, the pneumatic tool lubricator must be bypassed and a filter installed on the discharge valve to keep water and oil out of the lines.

The sealant shall be applied using the methods and equipment recommended by the sealant manufacturer. Hot asphalt sealer shall be continuously, mechanically agitated during heating so that localized heating does not occur. Poured crack sealer shall not be placed when the air temperature in the shade is less than 4 °C (40 °F.).

Sealant shall be placed in the clean, dry crack. The crack shall be slightly overfilled and immediately squeegeed to provide a "band-aid" type effect approximately 50 mm (2 inches) wide flush with the pavement surface with the edges feathered out.

The sealant shall be allowed to cure before opening to traffic. The sealant should be tack free in about 10 minutes. When necessary, the sealant may be dusted with fine sand, portland cement or mineral filler, or covered with tissue paper to prevent tracking.

**451.05 Method of Measurement.**

- (a) Crack Routing. Routed cracks will be measured for payment in meters (feet), measured along the routed crack.
- (b) Crack Filling. Filling of cracks will be measured for payment in kilograms (pounds) of sealant used. The cost of cleaning the crack shall be included in the price bid for crack filling. The quantity of sealant used will be determined by counting the containers of sealant used, multiplied by the indicated kilograms (pounds) of each container.

**451.06 Basis of Payment.** This work will be paid for at the contract unit price per meter (foot) for CRACK ROUTING (PAVEMENT) and at the contract unit price per kilogram (pound) for CRACK FILLING, which prices shall include routing and cleaning the cracks and furnishing and pouring the sealant.

**SECTION 452. CRACK AND JOINT SEALING  
PORTLAND CEMENT CONCRETE PAVEMENT**

**452.01 Description.** This work consists of routing, cleaning and sealing longitudinal shoulder joints, transverse and longitudinal random cracks, centerline joints, contraction joints and transverse expansion joints in P.C. concrete pavement.

**452.02 Materials.** Materials shall meet the requirements of the following Article of Section 1000 - Materials:

Item	Article/Section
(a) Hot Poured Joint Sealer .....	1050.02

**452.03 Equipment.** The routing machine to be used for routing cracks and joints shall have a cutter that consists of radially located steel cutters mounted on a circular cutter head. The routing machine shall also be capable of cutting a uniform square shape approximately 20 mm by 20 mm (3/4 inch by 3/4 inch) in either a straight or irregular line. A double-jacketed kettle shall be used for heating the sealer.

## CONSTRUCTION REQUIREMENTS

**452.04 General.** The longitudinal shoulder joint between the edge of pavement and the newly placed bituminous shoulder, the transverse and longitudinal random cracks in other than continuously reinforced pcc pavement, contraction joints and the centerline joints shall be routed or sawed to approximately 20 mm (3/4 inch) wide by 20 mm (3/4 inch) deep as close to a 1:1 ratio as possible. When routing or sawing the longitudinal shoulder joint, the router or saw used shall be capable of following the path of the joint without causing excessive spalling or damage to the adjacent rigid pavement. If old sealants are present in the joint or crack, they shall be removed prior to routing or sawing.

Immediately ahead of the sealer placement, dust and debris shall be blown from the joint or crack with a power brush/blower or with compressed air at a minimum pressure of 620 kPa (90 psi). If compressed air is used, the pneumatic tool lubricator must be bypassed and a filter installed on the discharge valve to keep water and oil out of the lines.

Hot asphalt sealer shall be continuously, mechanically agitated during heating so that localized heating does not occur. Poured crack sealer shall not be placed when the air temperature in the shade is less than 4 °C (40 °F.).

Areas along the longitudinal shoulder joint, the transverse and longitudinal random cracks (where applicable), the contraction joint or centerline where a void exists that exceeds 20 mm (3/4 inch) depth shall be provided with a backer rod to control the depth of sealant. The void shall be routed (if necessary) to provide a depth from the top of the backer rod to the top of the pavement of 20 mm (3/4 inch).

The areas where backer rod will be required shall be as directed by the Engineer. The backer rod diameter shall be 3 mm (1/8 inch) wider than the routed joint. The backer rod shall be a closed-cell, plastic-foam, heat resistant, chemically inert, waterproof, rod compatible with the sealant used.

Sealant shall be placed in the clean, dry crack or joint. The crack or joint shall be slightly overfilled and immediately squeegeed to provide a "band-aid" type effect approximately 50 mm (2 inches) wide flush with the pavement surface with the edges feathered out.

The sealant shall be allowed to cure before opening to traffic. The sealant should be tack free in about 10 minutes. When necessary, the sealant may be dusted with sand or covered with tissue paper to prevent tracking.

The procedure for routing, cleaning and sealing longitudinal random cracks will be the same as the longitudinal shoulder joint, except the crack reservoir shall be sealed flush rather than providing an oversealed or "band-aid" type effect.

Transverse expansion joints shall be routed to create an approximate 25 mm (1-inch) deep reservoir. The walls of the joint shall be cleaned and refaced. The

reservoir shall be filled flush with sealant.

**452.05 Method of Measurement.**

- (a) Joint or Crack Routing or Sawing. Routed or sawed joints or cracks will be measured for payment in meters (feet) measured along the routed or sawed joint or crack.
- (b) Joint or Crack Filling. Filling of joints or cracks will be measured for payment in kilograms (pounds) of sealant used. The amount of sealant used will be determined by counting the containers or sealant used, multiplied by the indicated kilograms (pounds) of each container.

**452.06 Basis of Payment.** This work will be paid for at the contract unit price per meter (foot) for JOINT OR CRACK ROUTING (PC CONCRETE PAVEMENT AND SHOULDER) and JOINT OR CRACK ROUTING BITUMINOUS SHOULDER, and at the contract unit price per kilogram (pound) for JOINT OR CRACK FILLING.

Furnishing and installing backer rod when required by the Engineer will be paid for according to Article 109.04.