

**SECTION 413 - CLEANING AND SEALING JOINTS AND CRACKS**

**413.01--Description.** This work consists of routing, sawing and/or cleaning, sealing joints and cracks in existing pavement as designated by pay items in the contract proposal and as detailed on the plans and described herein. All work shall be in reasonably close conformity with these specifications and the details shown on the plans, or as directed.

When called for on the plans, this work shall also consist of saw cutting, cleaning and sealing transverse joints in new bituminous concrete overlays. Bituminous concrete pavement joints shall be constructed over, and in line with, the existing underlying transverse portland cement concrete joints in accordance with plans, specifications, and as directed by the Engineer.

**413.02--Materials.** Unless otherwise designated on the plans or in the contract documents, the joint sealing material may be cold or hot poured material meeting the requirements of Subsection 707.02.1.

The joint sealing material for sealing transverse joints in new bituminous pavement shall be a hot-poured elastic type conforming to the requirements of 707.02.1.3. The bond breaker tape shall consist of regular masking tape or a suitable bond breaker tape designed for use with hot-poured sealants. The width of the tape may be equal to but not more than 1/8" narrower than the width of the saw cut.

Unless otherwise specified in the plans or in the contract documents, the aggregate materials shall be size 89. The aggregate material shall conform to the applicable requirements of Section 703.

**413.03--Construction Requirements.**

**413.03.1--Equipment.** The equipment shall be that necessary for routing, sawing, cleaning and pouring the joint material as specified. When required, heating equipment shall meet the requirements of Subsection 702.03. Pouring equipment shall be subject to the approval of the Engineer and shall be capable of pouring the joints and cracks to the required elevation while the material is at the proper temperature. Cleaning equipment shall consist of mechanical or hand operated devices capable of thoroughly cleaning the joints, cracks and adjacent surfaces to the satisfaction of the Engineer. Air compressors shall be equipped with suitable traps and/or filters capable of removing moisture and oil from the compressed air.

**413.03.2--Construction Methods.**

**413.03.2.1--Cleaning and Sealing Joints and Cracks.** Joints and cracks to be sealed shall be cleaned by routing, sawing and/or sand blasting to the minimum

dimensions specified. Other methods of cleaning joints and cracks shall be approved by the Engineer. The surface which is to receive the new joint sealing material shall be dry and free of all lubricants, tar, asphalt, discoloration and stain as well as all other forms of contamination leaving a clean newly exposed surface. The adjacent surfaces of the pavement shall be cleaned to the extent necessary to prevent foreign matter from entering the joint before pouring. If necessary, re-cleaning shall be performed immediately prior to pouring.

Before pouring, suitable baffles shall be inserted in the top portion of the open joint, or other approved methods used as necessary, to control the flow of the material into the joint.

Should a joint or crack be deeper than the required dimension, a backer rod of the appropriate size shall be inserted into the opening to prevent the material from being placed in excess of the required depth.

Cracks shall be cleaned and sealed in the same manner as for joints. The Engineer may permit small cracks to be cleaned only by compressed air and sealed with joint sealing material.

Traffic shall not be allowed to travel over the sealed joints/cracks until the joint sealing material is dry enough to prevent tracking. When approved by the Engineer, the Contractor may place concrete sand or other approved material over the joint/crack to prevent tracking.

**413.03.2.2--Cleaning and Filling Joints.** Joints to be filled shall be cleaned by routing, sawing and/or sand blasting to the minimum dimensions specified. Other methods of cleaning joints shall be approved by the Engineer. The surface which is to receive the new joint sealing material shall be dry and free of all lubricants, tar, asphalt, discoloration and stain as well as all other forms of contamination leaving a clean newly exposed surface. The adjacent surfaces of the pavement shall be cleaned to the extent necessary to prevent foreign matter from entering the joint before pouring. If necessary, re-cleaning shall be performed immediately prior to pouring.

Before pouring, suitable baffles shall be inserted in the top portion of the open joint, or other approved methods used as necessary, to control the flow of the material into the joint.

Should a joint or crack be deeper than the required dimension, a backer rod of the appropriate size shall be inserted into the opening to prevent the material from being placed in excess of the required depth.

After the joint is filled to the required depth with joint sealing material, add aggregate material until the joint is even with the adjacent roadway.

Traffic shall not be allowed to travel over the sealed joints/cracks until the joint sealing material is dry enough to prevent tracking. When approved by the Engineer, the Contractor may place concrete sand or other approved material over the joint/crack to prevent tracking.

#### **413.03.3--Sawing and Sealing Transverse Joints in Asphalt Pavement.**

**413.03.3.1--General.** The Contractor's operation shall be conducted so that sawcutting of transverse joints, cleaning, and sealing is a continuous operation. The entire sawing and sealing operation shall be completed within seven (7) days after the placement of the final wearing course, unless the approved traffic control plan or sequence of operations provide otherwise. Traffic shall not be allowed on sawed unsealed joints. When intermediate lifts must be exposed to traffic for over seven (7) days, the Contractor shall be required to make an interim 1/8-inch wide saw cut which is one third (1/3) as deep as the hot mix asphalt layer. This interim saw cut does not require sealing. Costs of this interim cut(s) is to be absorbed the pay item for sawing and sealing transverse joints in asphalt pavement.

Saw cutting shall be done only after the hot mix asphalt has cooled to ambient temperature.

**413.03.3.2--Sawcutting of Transverse Joints.** The Contractor shall sawcut transverse joints in the pattern and to the dimensions shown on the plans or as directed by the Engineer. The sawcut joints shall be directly over the existing portland cement concrete pavement joints and shall be accurately located by a method employing pins and stringline. The pins shall be accurately located prior to paving. Details of the Contractor's method for locating the sawcuts shall be subject to the approval of the Engineer.

The blade or blades shall be of such size and configuration that the desired dimensions of each sawcut can be made with one pass. No spacers between blades will be allowed. Either dry or wet cutting will be allowed.

The transverse sawcut joints shall normally extend the full width of the pavement unless otherwise shown on the plans or directed by the Engineer. Existing transverse joints that are offset at the longitudinal joint by more than one inch, measured between the centers of the joint cavities, shall require separate sawcuts terminating at the longitudinal joint.

**413.03.3.3--Cleaning.** Dry sawed joints shall be thoroughly cleaned with a stream of air sufficient to remove dirt, dust or deleterious matter adhering to the joint walls or remaining in the joint cavity. Wet sawed joints shall be thoroughly cleaned with a 50 psi minimum, water blast immediately after sawing to remove any sawing slurry, dirt or deleterious matter adhering to the joint walls or remaining in the joint cavity. Wet sawed joints shall be blown with air to

provide dry joint surfaces prior to sealing.

All sawing slurry from the wet sawing process shall be immediately flushed from the pavement surface. Dry dust and material from the dry sawing process shall be blown or brushed off the pavement surface.

The Contractor shall be required to provide protective screening, subject to the approval of the Engineer, if cleaning operations are capable of causing damage to or interference with traffic in adjacent lanes.

**413.03.3.4--Sealing.** Just prior to sealing, each joint shall be thoroughly cleaned of all foreign material and the joint faces shall be clean and surface dry when the seal is applied.

After cleaning, and just prior to sealing, a bond breaker tape shall be placed in the bottom of the sawcut joint.

Sealant material shall be at the pouring temperature recommended by the manufacturer when applied to the joints. Hot applied sealant material shall be stirred during heating so that localized overheating does not occur.

The sealant shall fill the joint such that, after cooling, the sealed joint conforms to the details shown on the plans or as directed by the Engineer. The pouring shall be performed in such a manner that the material will not be spilled on the exposed surfaces of the asphalt pavement. Any excess material on the surface of the asphalt pavement shall be removed immediately and the pavement surface cleaned. The use of sand or similar material as a cover for the seal will not be permitted. Poured joint sealing material shall not be placed when the air temperature in the shade is less than 50°F., unless approved by the Engineer.

**413.04--Method of Measurement.** Joint sealer material will be measured by the gallon for separate payment only when the proposal has a pay item for joint material.

Accepted joints and cracks, cleaned, sealed and/or filled, will be measured by the linear foot or mile as indicated in the contract proposal.

Sawed and sealed joints in new asphalt pavement will be measured by the linear foot of joint complete in place and accepted by the Engineer. Sawing, bond breaker tape and joint sealant material will not be paid for as separate items but will be included in the unit price per linear foot for sawing and sealing transverse joints in asphalt pavement.

**413.05--Basis of Payment.** Joint sealer material will be paid for by the gallon when measured as prescribed above, which price shall be full compensation for all materials, equipment, tools, labor and incidentals necessary to complete the

work.

Joints and cracks, cleaned, sealed and/or filled, will be paid for by the linear foot or mile as prescribed in above, which price shall be full compensation for all materials, equipment, tools, labor and incidentals necessary to complete the work.

Sawing and sealing transverse joints in new asphalt pavement, accepted and measured as prescribed, will be paid for at the contract unit price per linear foot; which price shall be full compensation for locating and transferring the location of existing joints to establish new joint locations, for all required sawing, for furnishing all materials, including bond breaker tape and joint sealant materials, for all cleaning, pouring, trimming, cleanup and disposal of all excess and waste, for protective screening; for all pertinent operations necessary and incidental to the construction as indicated herein, and for all equipment, tools, labor, and incidentals necessary to complete the work.

The cost of maintenance of traffic and protective services as required by the Department's Traffic Control Plan shall be included in the cost of items bid. This shall include all required individual traffic control devices.

Payment will be made under:

413-A: Joint Sealer Material	- per gallon
413-B: Cleaning and Sealing Joints	- per linear foot or mile
413-C: Cleaning and Sealing Cracks	- per linear foot or mile
413-D: Cleaning and Filling Joints	- per linear foot or mile
413-E: Sawing and Sealing Transverse Joints in Asphalt Pavement	- per linear foot

### ~~SECTION 423 - GROUND IN RUMBLE STRIPS~~

~~**423.01 - Description.** This work consists of grinding rumble strips at the locations indicated on the plan, in accordance with the details on the plans, and the requirements set out herein.~~

~~**423.02 - Blank.**~~

~~**423.03 - Construction Requirements.**~~

~~**423.03.1 - Equipment.** The equipment shall consist of a rotary type cutting head~~