

ITEM 18502.4402 M - SAWING AND SEALING PAVEMENT AND SHOULDER JOINTS IN NEW PORTLAND CEMENT CONCRETE PAVEMENTS - (6M AND 19M SLABS)

DESCRIPTION

Under this item the Contractor shall construct and seal longitudinal and transverse joints on newly constructed portland cement concrete pavement and shoulders in accordance with the plans and specifications, and as ordered by the Engineer.

MATERIALS

- A. Preformed Elastic Joint Sealers.** Materials shall meet the requirements specified in the following subsections:

11 and 18 mm sealers - §705-10 Preformed Elastic Longitudinal Joint Sealers

21, 32 and 41 mm sealers -§705-12 Preformed Elastic Transverse Contraction and Expansion Joint Sealers

Sealer lubricant -§705-13 Lubricant For Preformed Elastic Joint Sealer

- B. Silicone Joint Sealants.** The sealant shall be a one part silicone appearing on the Department's Approved List of silicone joint sealants. The sealant shall be installed as per the manufacturer's instructions except as modified herein.

The silicone sealant shall be pumped directly from plastic pails or drums by compressed air powered extrusion pumps designed for moisture curing silicone sealants. Teflon seals and packing and teflon lined hoses are recommended to prevent moisture permeation. Sealant application nozzles shall be designed so that sealant is applied within the confines of the joint. The sealant shall be applied so that it completely fills the width of the joint to a level below the surface of the slab.

- C. Backer Rod.** The backer rod material for silicone joint sealants shall be closed cell polyethylene foam. The diameter of the backer rod shall be 25% greater than the width of the joint. When placed in the joint the backer rod shall: support the sealant at its proper depth, prevent the sealant from leaking around and underneath it, and allow the sealant to deform freely when the joint expands and contracts.

CONSTRUCTION DETAILS

- A. General.** The provisions of §502-3 pertaining to construction, curing, repairing and sealing joints shall apply except for the modifications herein.

The Contractor shall have the option of using either preformed elastic joint sealers or silicone joint sealants, except that only one type of sealing material shall be permitted on the contract for all joint types.

Tables 1A and 1B reference appropriate construction details for preparing and sealing joints under different conditions. The referenced figures can be found in the Standard Sheets and/or this specification.

TABLE 1A

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CONSTRUCTION DETAILS FOR THE PREPARATION AND SEALING OF JOINTS UNREINFORCED CONCRETE - 6 m SLAB LENGTH

| Joint Type | Preformed Sealer | Silicone Sealant |
|---|---|-------------------------|
| <u>Transverse</u> Pavement and Shoulder | Figures I & II and Standard Sheet 502-2R1 (edge of pavement detail) | Figures I & III |
| <u>Longitudinal</u> 7 m pavement constructed as one unit | Figure V (for first stage saw cut only) and Standard Sheet 502-2R1 (for second stage saw cut and sealer dimensions) | Figures V & VI |
| Lanes constructed separately | Standard Sheet 502-2R1 | Figure VII |
| Shoulder/pavement | Standard Sheet 502-2R1 | Figure VII |

TABLE 1B

CONSTRUCTION DETAILS FOR THE PREPARATION AND SEALING OF JOINTS REINFORCED CONCRETE - 19 m SLAB LENGTH

| Joint Type | Preformed Sealer | Silicone Sealant |
|---|---|-------------------------|
| <u>Transverse</u> Pavement and Shoulder | Standard Sheet 502-2R1 | Figures I & IV |
| <u>Longitudinal</u> 7 m pavement constructed as one unit | Figure V (for first stage saw cut only) and Standard Sheet 502-2R1 (for second stage saw cut and sealer dimensions) | Figures V & VI |
| Lanes constructed separately | Standard Sheet 502-2R1 | Figure VII |
| Shoulder/pavement | Standard Sheet 502-2R1 | Figure VII |

- B. Sawing.** Joints are normally sawn in a two stage operation. The first stage saw cut is to establish a plane of weakness in the concrete where the shrinkage crack will occur. The second stage saw cut is to form the proper sized reservoir for the joint sealer. The first stage saw cut is not required for the longitudinal joint when lanes are placed separately.

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1. **Transverse Joints in Portland Cement Concrete Shoulders.** The joints shall extend in a straight line with transverse pavement joints across the shoulders as required by the plans. When preformed sealer is used, the saw cut shall be extended vertically down the edge of the shoulder to accommodate the joint seal. See the standard sheet for PREFORMED ELASTIC JOINT SEALERS FOR SAWED JOINTS for "Transverse Joint Seal Installation Details at Edge of Pavement," where the word "pavement" is used, substitute "shoulder."
 2. **Portland Cement Concrete Shoulder/Pavement Joints.** The joints shall be sawn as specified in §502-3 for longitudinal joints except the dimensions shall be those shown in the appropriate figures.
- C. **Cleaning.** The contractor shall be responsible for protecting traffic and property from hazards or damage resulting from the joint cleaning operation. Materials and methods used for this purpose will be subject to the approval of the Engineer.

When using air blasting equipment, suitable traps or devices shall be installed on the air equipment to prevent moisture and oil from contaminating the joint surfaces. The Contractor shall maintain these devices to insure proper functioning.

Immediately after sawing the joint reservoir, the resulting slurry shall be completely removed from the joint and immediate area by flushing with a jet of water under pressure and by the use of other tools as necessary. The removed material and debris shall be cleared from the pavement to prevent re-contamination of the joint.

When sealing with silicone sealants, all joints shall be sandblasted. Both faces of the joint shall be thoroughly blasted to the bottom of the intended joint reservoir. The operator of the sandblaster shall tip the nozzle of his equipment so that the blast medium is directed against one face at a time. A clean joint face shall have a noticeably abraded, uniformly appearing surface. Immediately prior to the placement of the preformed sealer or the backer rod material for silicone, all joints shall be blown with an air stream of sufficient power to remove any remaining loose material.

- D. **Sealing.** Tables 1A and 1B give the appropriate figures contained in this specification, or Standard Sheets, to be referenced in sealing of various joint and sealer combinations.
1. **Preformed Joint Sealers.** The joint sealer shall be installed across the full width of pavement and portland cement concrete shoulders and down the full vertical face of the exposed shoulder edges.
 2. **Silicone Sealant.** Prior to sealing, backer rod shall be rolled into the joint in a manner that accurately sets the proper depth and does not rip, tear or puncture the rod surface. Sealing shall only be performed when pavement or ambient temperatures are 5_C or above and rising. Sealing shall not be performed when moisture is present on the pavement surface. To achieve the specified recess, sealant shall be either placed as such with self-leveling types or tooled with tooled types.

METHOD OF MEASUREMENT

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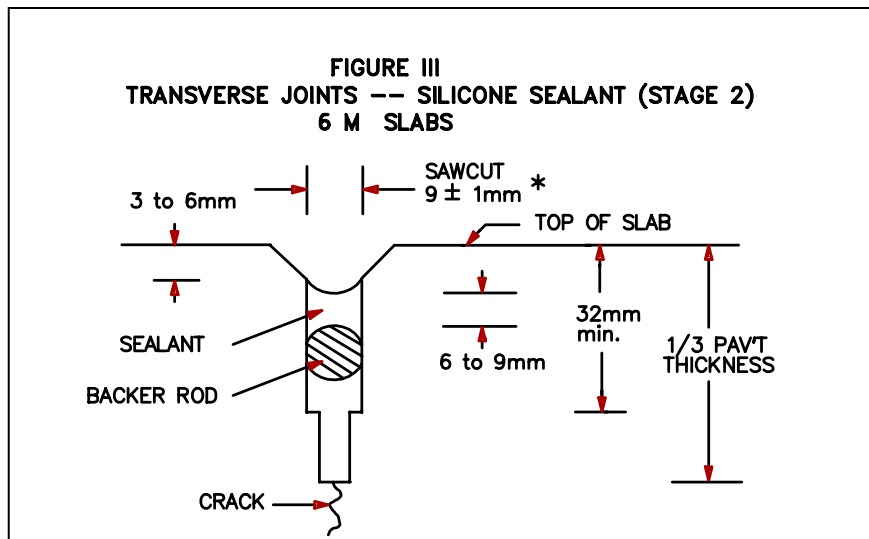
The quantity of pavement and shoulder joints sawed and sealed shall be measured by the meters of sealed joints incorporated into the work in accordance with the contract documents, excluding the length of sealer (preformed) turned down at the pavement or shoulder edges.

BASIS OF PAYMENT

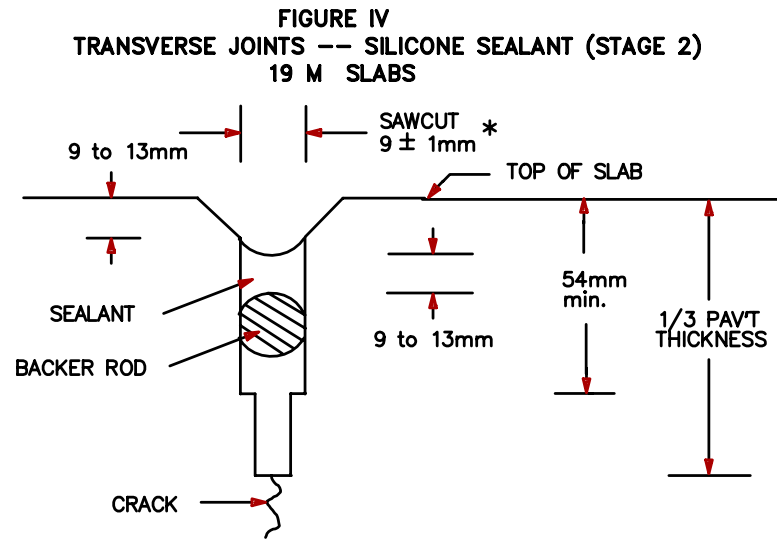
The unit price bid for sawing and sealing pavement and shoulder joints shall include all labor, materials and equipment required for sawing, cleaning and sealing.

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**FIGURE 1
ALL TRANSVERSE JOINTS - STAGE 1**



See St'd Sheet on Preformed Elastic Joint Sealers for Beveled Edge Detail
* After October 15, See Subsection 502-3



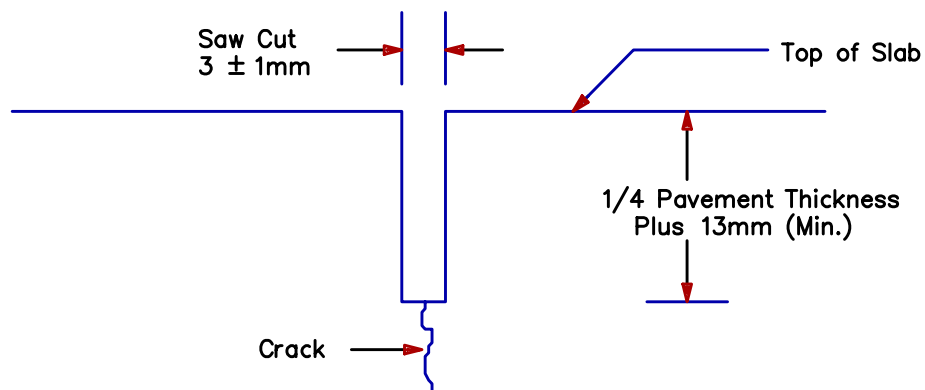
See St'd Sheet on Preformed Elastic Joint Sealers for Beveled Edge Detail
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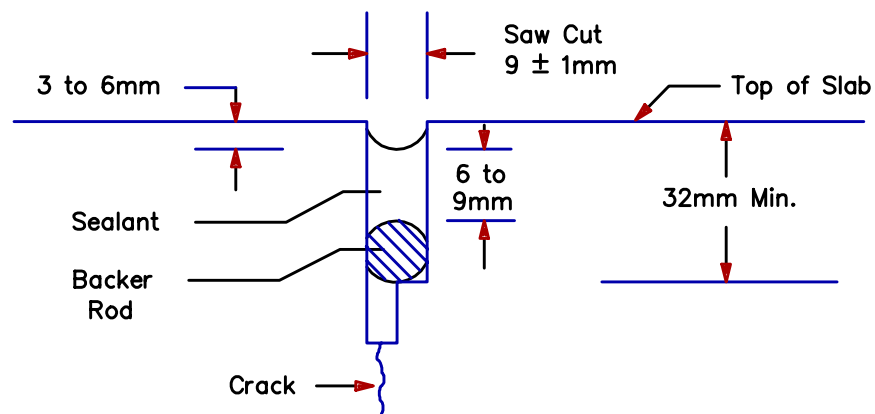
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**FIGURE V
LONGITUDINAL JOINTS
7 m Pav't. Constructed As One Unit
Preformed Seal and Silicone Sealant - Stage 1**



**FIGURE VI
LONGITUDINAL JOINTS
7 m Pav't Constructed As One Unit
Silicone Sealant - Stage 2**



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DISAPPROVED AS PER EI 02-003

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