

**ITEM 04502.8034 M - INSTALLATION OF LONGITUDINAL JOINT TIES FOR FULL DEPTH**

**PORTLAND CEMENT CONCRETE PAVEMENT REPAIRS**

**DESCRIPTION:** Furnish and install longitudinal joint ties at locations shown on the plans or where directed by the Engineer.

**This Specification**

**MATERIALS AND EQUIPMENT:** has been

Longitudinal Joint Ties ..... **Disapproved** ..... §705-14

For the drilling and grouting method, use the drop in type longitudinal joint tie depicted in the Standard Sheets, except substitute a 600 mm length deformed bar. All tie bars used shall be free of materials deleterious to bond.

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Anchoring Material and Dispensing Equipment. Use a pourable anchoring material appearing on the Approved List for §701-07, Anchoring Materials - Chemically Curing. The anchoring material must also

- be a two component structural epoxy,
- contain 100 % solids epoxy,
- be dispensed from side-by-side cartridges using either manually or pneumatically powered injection guns, and
- be dispensed through a static mixing nozzle such that the material is thoroughly and homogeneously mixed without any hand mixing.

**Drills.** Use a hydraulic, boom mounted, gang drill with a minimum of three independently powered and driven drills capable of drilling the required holes in approximately 30 seconds. Use tungsten carbide drill bits. The forward and reverse travel of the drills must be controlled by mechanically applied pressure. Mount the drill on a suitable piece of equipment such that it is quickly transported and positioned at each repair. The drill rig frame must rest atop the pavement when holes are being drilled. The drill may not rest on pneumatic tires during drilling. Hand-held drills will not be permitted.

**CONSTRUCTION DETAILS:**

Longitudinal joint ties shall be installed where indicated in the contract plans, or where ordered by the Engineer. Where conditions permit, and with the approval of the Engineer, the Contractor may substitute and install a two piece push in type longitudinal joint tie as depicted on the Standard Sheets, as an alternative to the drilling and grouting method described in this specification. The tie bar with female thread connector placed in the initial pour shall be rigidly secured by chairs or other approved supports to prevent displacement. A plug shall be used to seal the female threads and keep the connection clean. Alternate tie bars which do not appear on the Standard Sheets shall be submitted to the Director, Materials Bureau for evaluation and approval.

**Spacing.** Regardless of the installation method used, place the end ties in a slab 300 - 375 mm from the transverse joints. Space the ties between the end ties 600 mm apart, maximum.

**Drilling Holes.** Holes for ties shall be drilled perpendicular to the longitudinal joint line, parallel to the pavement slab top surface, and centered at half of the slab thickness below the top slab surface. Drill holes such that the hole diameters are 3 mm (± 1 mm) larger than the tie diameter and the hole depths are 125 mm (+25 mm/- 0 mm). Repair any damage to the existing concrete that results from drilling

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as directed by the Engineer at no cost to the State. Replace worn bits if the hole diameter is within 2 mm of the dowel diameter.

**This Specification has been Disapproved AND REPLACED BY A ITEM**  
Cleaning Holes. Clean the drilled holes with oil-free and moisture-free compressed air. The Engineer will check the compressed air stream purity with a clean white cloth. The compressor must deliver air at a minimum pressure of 3.4 m<sup>3</sup> per minute and develop a minimum nozzle pressure of 0.63 MPA. Insert the nozzle to the back of the hole to force out all dust and debris.

Tie Installation. Place the anchoring material in the back of the hole using a nozzle or wand of sufficient length. Push the tie into the hole while twisting at least one full revolution. Insert the tie such that the anchoring material is evenly distributed around the bar. Use sufficient amounts of anchoring material such that it slightly extrudes out the hole as the bar is inserted.

**METHOD OF MEASUREMENT** The number of longitudinal joint ties, of the two piece connector type and the drill and grout type, furnished and installed to the satisfaction of the Engineer.

**BASIS OF PAYMENT:** In the unit bid price, include the cost of all labor, materials, and equipment necessary to complete the work. Saw cutting concrete, concrete removal, subbase preparation, new concrete, and joint sealing will be paid for under separate items.