

ITEM 18502.5001 M - CROSS STITCHING LONGITUDINAL CRACKS IN PORTLAND CEMENT CONCRETE PAVEMENT

DESCRIPTION. Drill holes and anchor deformed bar reinforcement diagonally across longitudinal cracks.

MATERIALS AND EQUIPMENT.

Longitudinal Joint Ties. Use 1 piece drop in type longitudinal joint ties depicted in the M502 Standard Sheet, Longitudinal Joint Ties, except the length is as discussed below in Deformed Bar Installation. Use an epoxy coating appearing on the Approved List for “Epoxy Coatings for Longitudinal Joint Ties” or “Epoxy Coatings for Steel Reinforcing Bars” that is applied by an applicator appearing on the Approved List for “Applicators for Steel Reinforcing Bars”. At least 7 days prior to drilling holes, provide the Engineer:

- Material certification from the rolling mill as to the type and grade of steel used.
- The brand of epoxy coating and the name and address of the Manufacturer.
- The name and address of the epoxy coating applicator.
- Material certification from the epoxy coating applicator that the bars have been coated, tested, and meet the requirements of §705-14, Longitudinal Joint Ties.

The Department may perform supplementary sampling and testing of the ties to ensure conformance with §705-14.

Anchoring Material and Dispensing Equipment. Use a pourable, 2 component, 100% solids structural epoxy meeting §701-07, Anchoring Materials - Chemically Curing, dispensed:

- From side-by-side cartridges by manual or pneumatically powered injection guns.
- Through a static nozzle that homogeneously mixes the material without any hand mixing.

Drills. Use a hydraulic drill with tungsten carbide bits. Control the forward and reverse travel of the drills by mechanically applied pressure. Mount the drill on a suitable piece of equipment such that it is quickly transported and positioned. Rest and reference the drill rig frame on and to the pavement surface such that the drilled holes are cylindrical and repeatable in terms of position and alignment on the surface being drilled. Hand-held drills are not permitted.

CONSTRUCTION DETAILS.

Drilling Holes. Drill the end holes in a slab 450 - 500 mm from the transverse joints. Drill interior slab holes at 400 - 500 mm spacings. Drill such that the:

- Holes are oriented at a 30 - 35° angle to the pavement surface.
- Hole centerlines are perpendicular to the crack (in plan view) at each location being drilled.
- Adjacent holes are drilled in opposite directions across the crack.
- Longitudinal centers of drilled holes are at the crack.
- Hole diameters are in accordance with the anchoring material Manufacturer’s written recommendations. Provide those recommendations to the Engineer before drilling any holes.
- Hole bottoms are no more than 25 mm from the slab bottom.

Repair cracks that result from drilling with a full-depth repair as indicated in the contract documents.

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Cleaning Holes. Clean the drilled holes (and chipped areas at the surface resulting from drilling at an angle) in accordance with the anchoring material Manufacturer's written recommendations. Provide those recommendations to the Engineer before drilling any holes. As a minimum, clean 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 m³ 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. Use ties of sufficient length such that, when anchored, the top of the tie is 45 - 50 mm from the pavement surface and the center of the tie is at the crack. When using new cartridges of anchoring material, ensure the initial material exiting the nozzle appears uniformly mixed. If it is not uniformly mixed, waste the material until uniformly mixed material extrudes. Place the anchoring material in the back of the hole using a nozzle or wand of sufficient length. Insert the bar such that the anchoring material is evenly distributed around the tie and slightly extrudes out the hole as the tie is inserted. Trowel the anchoring material smooth to the pavement surface, filling any chipped areas.

METHOD OF MEASUREMENT. The work will be measured for payment as the number of ties satisfactorily cross stitched.

BASIS OF PAYMENT. Include the cost of all labor, material, and equipment necessary to satisfactorily perform the work in the unit price bid for Cross Stitching Longitudinal Cracks in Portland Cement Concrete Pavement. No payment will be made for extra work required to repair damage to the adjacent pavement that occurred during drilling.