ITEM 01502.04 M - PARTIAL DEPTH PORTLAND CEMENT CONCRETE REMOVAL - CORING METHOD
ITEM 01502.05 M - PARTIAL DEPTH PORTLAND CEMENT CONCRETE REMOVAL - SAW CUTTING METHOD

DESCRIPTION. Partial depth (100 mm maximum) portland cement concrete (PCC) pavement removal prior to patching.

MATERIALS AND EQUIPMENT. No materials specified.

Coring Equipment. Use trailer or truck mounted core rigs with diamond impregnated bits capable of coring 100 mm into the pavement. The core rig shaft must be capable of moving in multiple directions to readily position the bit over the removal area. Use a bit of sufficient diameter, 360 mm maximum, to remove the entire repair area to sound concrete. Maintain an adequate supply of bits to ensure uninterrupted operation. Provide a template equal in diameter to the bit outer diameter to mark removal areas prior to coring. Provide a steel sleeve having an outer diameter equal to the core bit outer diameter that is inserted into the core to protect the surrounding pavement during Concrete Removal described below.

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Saw Cutting Equipment. Use diamond blade saws capable of making straight, 100 mm deep, saw cuts. Saws must be equipped with guides, blade guards, water cooling systems, and cut depth control. Maintain an adequate supply of saws, new blades, and other parts at the site to ensure uninterrupted operation.

Chipping Hammers. Use chipping hammers weighing no more than 13.5 kg (including bit and muffler) equipped with sharp spade bits. Provide the Engineer with specifications from the hammer manufacturer. Use a maximum air pressure of 700 kPa (measured at the compressor) to power the hammer. Provide an air pressure gauge at the compressor that allows the Engineer to easily monitor air pressure. Maintain an adequate supply of hammers, new bits, and other parts at the site to ensure uninterrupted operation. The Engineer will halt operations if concrete to remain in place is damaged by the hammers.

Milling Machines. Use a milling machine with a 300 mm (minimum) wide milling head. The machine must be equipped with a mechanism that maintains the milling operation at a preset depth.

CONSTRUCTION DETAILS. Remove PCC as detailed in the contract documents or as directed by the Engineer. The Engineer will convene a pre-repair meeting seven to fourteen days before the planned start of removal. Inspection personnel and the Contractor shall attend to coordinate all aspects of patch preparation and inspection.

Determine Repair Boundary - Coring. If a coring item is specified, the repair boundary is determined by placing the template described above in Coring Equipment over the repair area and marking the boundary with spray paint. The template must be positioned such that the repair boundary extends completely into sound concrete. If a joint or crack crosses the repair boundary, position the template such that the joint or crack crosses through the middle third of the repair boundary. If the template can not be positioned such that the repair boundary extends completely

into sound concrete, or a joint or crack can not be accommodated in the middle third, determine the repair area in accordance with Determine Repair Boundaries - Saw Cut. The Engineer must approve the repair boundary before coring begins.

Determine Repair Boundary - Saw Cut. Sound the area surrounding the repair with a 1 - 1.5 kg hammer to identify delaminated areas and include them within the repair boundary. Extend repair areas 75 - 150 mm beyond the visible deterioration or delaminations, whichever is larger. Combine repair areas within 150 mm of each other into one repair. Keep repair areas as square as possible. Avoid irregular repair shapes. Mark the repair boundary outlines with spray paint. The Engineer must approve the repair boundary before saw cutting begins.

Core Repair Boundary. Core 50 - 100 mm into the pavement. Core sufficiently deep to ensure sound concrete is reached and new concrete faces are exposed.

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Saw Cut Repair Boundary. Diamond blade saw cut the repair boundaries 50 - 100 mm deep. Cut at right angles to the pavement joints and vertical to the pavement surface. Over run the cuts such that the entire repair area is cut to the same depth. Additional saw cuts of the same depth as the boundary cuts may be made within the repair area to facilitate concrete removal.

Concrete Removal - Coring. Use the steel sleeve described above in Coring Equipment and a chipping hammer to remove concrete within the core. Remove concrete such that (1) the repair bottom is at a uniform depth, ± 25 mm and (2) sound concrete is exposed along all faces. The Engineer will inspect the repair to verify sound concrete is exposed. Discontinue removal if:

- Pavement joint hardware is encountered,
- The required repair depth exceeds 100 mm, or
- The PCC surrounding or below the removal area is unsound.

In this instance the Engineer will determine the required repair, typically full depth removal and replacement or partial depth removal by the saw cutting method.

Concrete Removal - Saw Cuts. Use chipping hammers or a combination of chipping hammers and milling machines to remove concrete within the saw cuts. Remove concrete such that (1) the repair bottom is at a uniform depth, ± 25 mm and (2) sound concrete is exposed along all faces. The Engineer will inspect the repair to verify sound concrete is exposed. Do not operate milling machines within 25 mm of the saw cuts. Use chipping hammers in these locations to establish the proper repair depth. Discontinue removal if:

- Pavement joint hardware is encountered,
- The required repair depth exceeds 100 mm, or
- The PCC surrounding or below the removal area is unsound.

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In this instance the Engineer will determine the required repair, typically full depth removal and replacement.

Damage to Adjacent Pavement. Damage to surround pavement will be treated in accordance with §502-3.15, Damaged or Defective Pavement.

Traffic Maintenance. Remove concrete such that the patching material is placed and cured in the opening to traffic time frame included in the contract documents, if any.

METHOD OF MEASUREMENT.

Coring Method. The number of removal areas.

Saw Cut Method. Square meters of removal areas calculated to the nearest 0.01 m^2.

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BASIS OF PAYMENT. In the unit bid price for both methods, include the cost of all equipment and labor necessary to remove the PCC. Payment for either method will be made if the Engineer requires a new repair after removal because

- Pavement joint hardware is encountered,
- The required repair depth exceeds 100 mm, or
- The PCC surrounding or below the removal area is unsound.

No additional payment will be made for extra work directed by the Engineer resulting from damage to the adjacent pavement from removal.