

## **ITEM 502.65960025 - CRACKING AND SEATING EXISTING PCC PAVEMENT**

### **1. DESCRIPTION:**

- 1.01 The Contractor shall crack and seat an existing Portland cement concrete (PCC) pavement, including PCC shoulders, within the limits shown on the plans, (or within revised limits established by the Engineer in writing) before placing a Hot-Mix Asphalt (HMA) overlay.

### **2. MATERIALS:**

#### **2.01 Equipment Requirements:**

- A. **Cracking Equipment:** A self-propelled, self-contained unit equipped with:

1. A 6-ton guillotine-type drop weight having a striking surface 5.5 feet wide by 4 inches thick. Weight and dimensions are minimums.
2. An adjustable drop height.
3. A readily visible and accurate measure or rule that allows the inspector to observe the drop height.
4. A skirt or shield at the pavement level that surrounds the strike area and protects traffic from flying debris.

Alternate equipment may be submitted to the Engineer for approval consideration. Such a submission is not cause for a time extension as provided in §108-04.

- B. **Seating Equipment:** A roller conforming to the requirements of §203-3.13B with a minimum mass of 50 tons.

### **3. CONSTRUCTION DETAILS:**

- 3.01 All Construction Details shall be performed by the Contractor unless stated otherwise.

- 3.02 **Preparation:** Before cracking, perform the following as indicated on the Contract Plans or as ordered by the Engineer:

- A. Remove existing HMA overlays or overlay patches (including those on shoulders) having areas greater than 100 feet<sup>2</sup>.
- B. Install functional underdrains a minimum of two (2) weeks before cracking begins.
- C. Identify locations of existing drainage facilities beneath the pavement. Do not crack within ten (10) feet of culverts and storm drains having less than ten (10) feet of cover. If such a culvert traverses the pavement, and the slab above it contains no existing open cracks, make a full-depth; full-width transverse sawcut; 3/8 inch wide maximum; in the PCC slab above the culvert centerline. If the culvert is skewed relative to the pavement centerline, make multiple transverse cuts such that either a sawcut or open crack occurs at ten (10) foot increments where cracking is not allowed. There are no restrictions regarding cracking adjacent to pavement underdrains.

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### **3. CONSTRUCTION DETAILS:** (cont'd)

#### **3.02 Preparation:** (cont'd)

- D. Consult utility companies and municipalities to determine cracking limits near their facilities and abide by their recommendation. If the utility company or municipality offers no recommendation, do not crack within 20 feet of the utility. If the utility traverses the pavement, and the slab above it contains no existing open cracks, make a full-depth; full-width transverse sawcut; 3/8 inch wide maximum; in the PCC slab above the utility centerline. If the utility is skewed relative to the pavement centerline, make multiple transverse cuts such that either a sawcut or open crack occurs at ten (10) feet increments where cracking is not allowed.
- E. Clean cracks and joints greater than 3/8 inch wide in accordance the special specification, Cleaning and Filling Joints and Cracks. Leave these cracks and joints unfilled during cracking and seating.

#### **3.03 Test Sections:**

- A. Select an initial drop height and strike spacing. The maximum strike spacing is 24 inches. The drop height shall be as great as possible while producing minimal spalling at the strike. The Engineer will then designate a test section within the cracking and seating payment limits. Crack the test section normal to the centerline using the initial settings. Wet the pavement surface and retrieve pavement cores when and where directed by the Engineer to ensure induced cracks are full-width and full-depth.
- B. If an acceptable crack pattern results as determined by the engineer, begin production cracking with the initial drop height and spacing. An acceptable crack pattern consists of a network of full-depth, full-width cracking with minimal surface spalling to the Engineer's satisfaction. If induced cracks are not full-width or full-depth, multiple passes or closer strike spacings will be required as determined by the Engineer. The Engineer may at any time require additional test section(s) be established if the original combination of drop height, strike spacing, and number of passes proves inadequate elsewhere in the project.

**3.04 Production Cracking:** Crack the pavement in the direction of travel unless otherwise approved by the Engineer. Do not strike the pavement within 18 inches of transverse joints to avoid undue joint spalling.

**3.05 Seating:** After cracking, seat the entire cracked pavement with a minimum of two (2) roller passes. A "pass" is defined as one (1) movement of the roller, traveling parallel to the pavement centerline, over any point of the pavement in either direction. Multiple, parallel roller passes are required to cover the entire cracked pavement width. Complete seating before preparation to paving and within one (1) week of cracking.

**3.06 Preparation to Paving:** After seating and before placing the first HMA course, perform the following as indicated on the Contract Plans or as ordered by the Engineer.

- A. Remove pavement areas having poor or uneven support, make subbase and/or subgrade repairs, and replace excavated PCC with full-depth HMA. The Engineer will determine, with input from the Geotechnical Engineer, the required excavation depth and replacement materials. Replace excavated PCC with "**25 F9 Binder Course HMA, 80 Series Compaction**" or "**37.5 F9 Base Course HMA, 80 Series Compaction**".

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### **3. CONSTRUCTION DETAILS: (cont'd)**

#### **3.06 Preparation to Paving: (cont'd)**

A. (cont'd)

Compact HMA in accordance with §402-3.07, Compaction, using a minimum of two (2) lifts of approximately equal thickness. Compact subbase and/or subgrade courses in accordance with §203-3.12, Compaction.

- B. Remove loose pieces of PCC or asphalt from the pavement surface and repair spalled areas. If removing loose pieces results in a depression less than one (1) inch deep to sound concrete, that depression may be swept clean and left un-patched prior to paving. This type of spalling may have been present before cracking or a result of cracking. Sweep clean similar spalls deeper than one (1) inch, patch with truing and leveling HMA, and compact. Repair full-depth spalling in accordance with the Special Specification, Repair of Spalled Areas, Joints, and/or Cracks in PCC Pavement.

- C. Re-clean and fill cracks and joints 3/8 inch or greater in width. Clean these cracks and joints with a compressed air stream having a minimum gauge pressure of 80 PSI (measured at the source) with the cleaning jet held one (1) inch above the pavement surface. Fill with Asphalt Filler meeting the requirements of §702, Bituminous Materials, designation 702-0700; or §402, Hot Mix Asphalt (HMA) Pavement, as determined by the Engineer.

- D. Shim faults and ruts.

- E. Reconstruct shoulders.

- F. Clean the pavement in accordance with §633-3.01, Cleaning Existing Pavement and/or Shoulders.

- G. Apply tack coat in accordance with §407 – Tack Coat.

Traffic may be maintained on the cracked and seated pavement provided loose material has been removed and spall repairs have been made as described above, or remaining spalls pose no danger to passing vehicles as determined by the Engineer.

#### **3.07 Paving:**

- A. Seat the entire pavement width before placing the first HMA course. Cracking is not allowed in lanes adjacent to paved lanes.
- B. Place the first HMA course with two (2) weeks after the completion of the seating operation. Seasonal limitations in §402-3.01, Weather and Seasonal Limitations, apply. Place a minimum HMA thickness of 3 ½ inches over all cracked and seated areas before paving ceases for the winter.

### **4. METHOD OF MEASUREMENT:**

- 4.01 The Engineer will compute the number of square yards from the payment lines shown on the plans or from revised payment limits established in writing before performing the work.

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**5. BASIS OF PAYMENT:**

- 5.01 In the unit price bid per square yard, include the costs of furnishing all labor, materials, and equipment necessary to crack and seat the existing PCC pavement and remove loose surface material.
- 5.02 The following will be paid for under their respective items: Work Zone Traffic Control, HMA Removal, Underdrain, Sawcutting PCC Pavement, Full-Depth Pavement Removal, Subbase and/or Subgrade Repairs, Cleaning and Filling Joints and Cracks, Repairing Spalls, Shim, Constructing Shoulders, Cleaning the Pavement Prior to HMA Placement, Tack Coat and HMA Courses.