

STATE**OF****TENNESSEE**

(Rev. 9.26.22)

January 1, 2021

SPECIAL PROVISION**REGARDING****CRACKING AND SEATING CONCRETE PAVEMENT****Description**

This work consists of cracking and seating portland cement concrete pavement in accordance with these specifications, the lines and grades shown on the plans or as directed by the Engineer.

Equipment

The cracking operation shall be performed with an impact hammer capable of delivering the necessary energy to produce uniform cracks perpendicular to the surface of the pavement and extending the full depth of the pavement. The breaker shall be equipped with a plate type shoe designed to prevent penetration into the existing surface. A screen shall be provided to protect vehicles in the adjacent lane from flying chips during the fracturing process if the need is determined by the Engineer.

The compaction shall be performed with a pneumatic tire roller meeting the requirements in **407.07** but weighing at least 35 tons.

Construction Requirements

At least two (2) weeks prior to Crack and Seating, the underdrain systems must be installed to allow the existing base to drain and dry out.

The existing concrete pavement shall be broken into diamond or square shapes of approximately four (4) to five (5) square feet in area, with no individual dimension greater than thirty (30) inches. The work shall be performed in such a manner as to produce a well-defined, uniform crack extending from the pavement surface, full depth, to the bottom of the concrete pavement.

The cracking operations shall be performed in such a manner as to prevent destruction of the transverse and/or longitudinal joints of the concrete pavement. Cracking of the concrete pavement shall be confined to an area eighteen (18) inches from any transverse joint, longitudinal joint or edge of concrete pavement.

Before cracking operations begin, the Engineer will designate a test section of approximately 500 feet in one travel lane. Crack the test section using varying energy and striking plans until a pattern is established that will produce a uniform pattern of cracks of the shape and dimensions

described above through the entire thickness of the concrete slab. Verify that the striking pattern is producing full-depth cracks in the test section by taking a minimum of ten (10) core samples from the test section at locations designated by the Engineer. The cores shall be a minimum of four (4) inches in diameter and shall be taken using the same procedures as will be used for verification during production.

When cracking the test sections, furnish and apply water to dampen the pavement surface after cracking, so the size and shape of the pattern can be readily determined.

Any areas where the subgrade is found to be weak or unsuitable shall be repaired satisfactorily and all unsuitable materials shall be removed and replaced at no additional cost. Replace the concrete with base materials meeting the requirements of **303**.

During production, furnish core samples for verification of full-depth cracking for every 1,000 linear feet of travel lane of cracked pavement. Core samples shall be taken at locations designated by the Engineer immediately after cracking and prior to rolling.

The Engineer will determine by inspection of the core if the work is being performed satisfactorily. If a core taken as described above does not indicate that the cracking process is satisfactory, the Contractor may elect to take one (1) additional core at a location designated by the Engineer. If the second core indicates satisfactory performance of the work, proceed with the cracking operation. However, if the second core indicates unsatisfactory performance of the work, repeat the cracking operation over the entire area represented by the unsatisfactory cores. Work shall not progress until another test section is completed and an acceptable pattern has been established. At any time, the Engineer may request additional verification cores to be taken if it is suspected that full depth cracks are not being achieved.

Furnish and apply additional water at locations during production cracking at frequencies established by the Engineer. Adjustments shall be made to the energy or striking pattern when the Engineer deems necessary, based on the check sections.

After cracking, the broken concrete shall be rolled with a pneumatic tire roller weighing at least 35 tons. Rolling shall continue until the surface material is well seated and is thoroughly and uniformly compacted. A minimum of 7 roller passes shall be made over each section of pavement.

Placing of the first course of the bituminous pavement shall follow the cracking and seating operations as closely as is practicable and, in no case shall the broken pavement remain exposed more than 24 hours. In the event that this 24 hour requirement is exceeded, cracking operations shall be suspended until all existing broken pavement is covered by at least one bituminous paving course. No more than 7,000 Linear Feet of pavement shall be broken ahead of this paving operation.

Exercise care during cracking to protect and prevent damage to underground utilities and drainage facilities, and personal property. The Contractor shall be responsible for locating all sub-surface utilities and drainage structures. Cracking will not be permitted within five

horizontal (5) feet of these installations. Repair any damage to utility and drainage structures or personal property, at no additional cost to the Department.

To minimize reflective cracking at existing joints (longitudinal and transverse), a pavement interlayer fabric or geogrid shall be placed at a minimum of one foot (1') on each side of the joint. Fabrics must meet the requirements of AASHTO M 288, Section 10, Paving Fabric Requirements, and be approved by the Department prior to use. Geogrids shall have a minimum ultimate strength (ASTM D6637) of 6700 lb/ft and a minimum mass per unit area of 16.0 oz/sy. Install fabrics and geogrids in accordance with manufacturer recommendations.

Prior to paving, thoroughly sweep the crack and seated pavement with a mechanical broom and apply a heavy application of tack coat (0.15 gal/sy) to the surface.

Method of Measurement

The Department will measure Cracking and Seating Concrete Pavement by the square yard in accordance with **109**. No measurement for payment will be made for water used in this work.

Basis of Payment

The Department will pay for accepted quantities, complete in place, at the contract prices as follows:

| Item No. | Description | Unit |
|-----------------|--------------------------------------|-------------|
| 504-01 | Cracking & Seating Concrete Pavement | Square Yard |

Such payment shall be full compensation for furnishing all labor, equipment, materials, and incidentals, including interlayer fabric or geogrid, necessary to crack and seat portland cement concrete pavement to complete the work.