602.11 GRINDING. This work consists of grinding existing pavement roadway surfaces in accordance with plan details and the following requirements.

(a) General Requirements: Areas of the pavement surface as designated on the plans shall be ground to eliminate joint and crack faults and to provide a constant pavement cross slope within the designated grinding limits in each lane. Adjacent sides of transverse joints or cracks in excess of 1/8-inch (3 mm) difference in plane when checked with a 3-ft (1 m) straightedge, shall be reground until flush. Extra depth grinding will not be required to texture small low areas but the depth shall be sufficient to provide 98 percent texture coverage.

(b) Equipment: Grinding shall be accomplished by sawing with an industrial diamond abrasive which is impregnated in the saw blades. The saw blades shall be assembled in a cutting head mounted on a machine designed specifically for diamond grinding that will produce the required texture and smoothness level without damage to the concrete pavement or joint faces. The saw blades shall be 1/8-inch (3 mm) wide and there shall be a minimum of 55 to 60 blades per 12 inches (300 mm) of cutting head width depending on the hardness of the aggregate. Grinding equipment that causes ravels, aggregate fractures, spalls or disturbance to the joints will not be permitted. Grinding equipment shall be capable of working in a closed lane, adjacent to an open traffic lane.

Each grinding machine shall weigh a minimum of 16 tons (14.5 Mg) and be powered with at least 300 horsepower (225 kw). Each machine shall be capable of cutting a path 3 to 4 ft (0.9 to 1.2 m) wide and within 12 inches (300 mm) of the face of the concrete curb. Sufficient equipment shall be furnished to complete the project in the working time specified.

Vacuuming equipment shall be provided for the removal of the slurry residue and excess water.

(c) Operations: The grinding operations shall produce a consistent cross slope without abrupt edges between passes of the grinding machine. When tested with a 12-foot (3.7 m) straightedge perpendicular to centerline, the variation shall not exceed 1/4 inch (6 mm). The slurry produced shall not be permitted to flow across active traffic lanes and shall be collected and disposed of before being blown by traffic or wind. When practical, slurry may be disposed of on the slope near the shoulder edge as the machine progresses down the roadway, unless otherwise directed.

Grinding shall follow removal of raised pavement markers, patching, and load transfer restoration, but should precede joint sealing, striping and replacement of raised pavement markers.

Grinding shall be performed in a longitudinal direction and shall begin and end at lines normal to the pavement centerline. The area ground shall not be left slick or polished but shall have a "corduroy-like", longitudinal line type texture. The entire travel way shall be ground as indicated on the plans or as directed by the project engineer.

Before grinding operations begin, the lane to be ground shall be profiled by the contractor with an approved profilograph and any designated test sections containing low areas of concern shall be brought to the attention of the project engineer by the contractor. These low sections will not be required to meet the specified Profile Index but the finished profile shall provide a 70 percent improvement over the "before-grinding" profile. The contractor shall utilize this "before-grinding" profile trace to select areas that may require multiple grinding passes.

(d) Final Surface: After the grinding is completed the pavement shall be tested with a profilograph for smoothness. Tangent sections and pavements with horizontal curves having a radius greater than 2000 ft (600 m) shall have a maximum Profile Index of 7 inches per mile (110 mm/km). Pavement with horizontal curves having a radius from 1000 to 2000 ft (300 to 600 m) shall have a maximum Profile Index of 9 inches per mile (145 mm/km).

The pavement texture, which is a function of blade width, blade spacing and cutting head alignment, shall be inspected after each new or rebuilt cutting head has ground 1000 ft (300 m). Grooves shall be approximately 1/8-inch (3 mm) wide. The fins between the grooves shall be approximately 1/10-inch (2.5 mm) thick and the typical height of the fins above the bottom of the grooves shall be approximately 1/16 inch (1.2 mm). Blade spacing shall be adjusted as necessary when the results fail to come within 25 percent of this criteria. If standing fins are not easily knocked off by foot, more blades with a closer spacing may be required. If, in the engineer's opinion, the fin height is not adequate to provide good skid resistance, blades shall be removed and a wider spacer used.

602.12 LONGITUDINAL SHOULDER JOINT. This work consists of constructing a longitudinal joint in designated asphaltic concrete shoulder surfacing adjacent to the portland cement concrete pavement in accordance with plan details and the following requirements as directed.

Joints shall be formed by sawing a slot approximately 1/2-inch (13 mm) wide and 1/2-inch (13 mm) deep in the asphaltic concrete shoulder adjacent to the portland cement concrete pavement. The slot shall be flushed with water immediately after sawing.