

Special Specification 3004

Diamond Grinding and Grooving Pavement



1. DESCRIPTION

Diamond grind and/or groove existing pavement surfaces and remove resulting residue at locations shown on the plans or as directed.

2. EQUIPMENT

Provide machinery, tools, and equipment necessary for proper execution of the work. Do not use flailing devices. Use machines that:

- have a self-propelled machine built for grinding and/or grooving pavements;
- provide enough power, traction, and stability to maintain specified depth of cut and cross slope; and
- are able to achieve a uniform depth of cut, flush to all inlets, manholes, bridge joints, and other appurtenances within the paved area.

In addition, for continuous operations, use machines that:

- have 50 to 60 diamond blades per foot, mounted on a multi-blade arbor;
- have dual longitudinal controls capable of operating on both sides automatically from any longitudinal grade reference, which includes string line, ski, mobile string line, or matching shoe; and
- have transverse controls to control cross slope at a given rate. Table 1

3. CONSTRUCTION

Demonstrate grinding and/or grooving work to receive approval of the operation procedure and the use of grinding and/or grooving and residue removing equipment.

- 3.1. **Grinding.** Perform grinding in a longitudinal direction beginning and ending at lines perpendicular to the pavement lane lines. Start grinding at the outside edge of the pavement, and continue across the lane surface to the opposite outer edge of the traffic lane or pavement. Grind surfaces on both sides of transverse joints or cracks, and finish the surfaces in essentially the same plane.

The finished cross slope shall mirror the pre-grind cross slope and shall have no depressions or misalignment of slope greater than 1/4 inch (6.35 millimeters) in 12 feet (3.66 meters) when measured with a 12-foot (3.66 meter) straightedge placed perpendicular to the centerline. The straightedge shall also be used perpendicular to the centerline to ensure the contractor is not grinding a "W" into the roadway surface when grinding wheel-rutted surfaces. Areas of deviation shall be reground. Straightedge requirements will not apply across longitudinal joints or outside the ground area.

Transition auxiliary and ramp lane grinding from the mainlane edge as directed. Terminate grinding at bridge joints.

Produce a uniform surface with a longitudinal corduroy-type texture that eliminates joint and crack faults. Provide positive lateral surface drainage by maintaining a constant cross-slope across each lane.

- 3.2. **Grooving.** Groove 0.10–0.16 in. wide with a land area 0.70–0.80 in. between the grooves. Groove 0.19 in. deep unless otherwise as shown on the plans. Meet the groove tolerances ± 0.02 in. for width and ± 0.06 in. for depth under normal pavement conditions unless otherwise directed. Do not groove ground asphaltic pavement unless otherwise shown on the plans.

- 3.3. **Repairs.** As directed, perform repairs in accordance with Item 720, "Repair of Spalling in Concrete Pavement," if spalls are 0.25–3 in. in depth.
- 3.4. **Ride Quality.** Unless otherwise shown on the plans, measure ride quality in accordance with Item 585, "Ride Quality for Pavement Surfaces," Surface Test Type A, after completion of grinding and/or grooving and residue removal operations.
- 3.5. **Removal of Residue.** Immediately and continuously, remove the slurry or residue resulting from the grinding operation. Keep pavement in a washed clean condition, free of slipperiness from the slurry, etc. Do not permit the residue to flow across shoulders or lanes occupied by traffic or into gutters or other drainage facilities.

4. MEASUREMENT

- 4.1. **Continuous Diamond Grinding of Concrete Pavement.** Continuous diamond grinding of concrete pavement will be measured by the square yard of surface area ground and accepted, within the limits shown on the plans.
- 4.2. **Spot Diamond Grinding of Concrete Pavement.** Spot diamond grinding of concrete pavement will be measured in place at locations determined by the Engineer.
- 4.3. **Continuous Diamond Grinding of Asphaltic Pavement.** Continuous diamond grinding of asphaltic pavement will be measured by the square yard of surface area ground and accepted, within the limits shown on the plans.
- 4.4. **Spot Diamond Grinding of Asphaltic Pavement.** Spot diamond grinding of asphaltic pavement will be measured in place at locations determined by the Engineer.
- 4.5. **Continuous Diamond Grooving of Concrete Pavement.** Continuous diamond grooving of concrete pavement will be measured by the square yard of surface area grooved and accepted, within the limits shown on the plans.
- 4.6. **Spot Diamond Grooving of Concrete Pavement.** Spot diamond grooving of concrete pavement will be measured in place at locations determined by the Engineer.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Continuous Diamond Grinding of Concrete Pavement," "Spot Diamond Grinding of Concrete Pavement," "Continuous Diamond Grinding of Asphaltic Pavement," "Spot Diamond Grinding of Asphaltic Pavement," "Continuous Diamond Grooving of Concrete Pavement," or "Spot Diamond Grooving of Concrete Pavement." This price is full compensation for grinding the pavement surface; repairing of concrete pavement damaged during grinding and/or grooving operations, including spalls or partial depth failures; loading, hauling, and disposing of the residue material; labor; tools; equipment; and incidentals. Demonstration work to receive approval for use of equipment will not be paid for unless work is performed in accordance with the Contract and is accepted.

Repairs to existing pavement necessary due to the Contractor's failure to comply with contract requirements will not be paid for directly. Repairs to existing pavement due to other causes will be paid for in accordance with pertinent items or under Force Account as directed by the Engineer.