SPECIAL SPECIFICATION

3257

Diamond Grinding and Grooving Pavement

1. Description. Diamond grind and 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.

   A. Diamond Grinding Equipment. Utilize diamond grinding equipment that:

      • has diamond blades mounted on a self-propelled machine designed for grinding and texturing pavement;
      • weighs a minimum 35,000 lbs. (grinding head included);
      • has sufficient size to grind a strip at least 4 ft. wide, and can produce overlapping match lines out of the wheel path;
      • will not cause ravels, aggregate fractures, spalls, or disturbance to the transverse or longitudinal joints; and
      • has a positive means of vacuuming the grinding residue from the pavement surface and will leave the pavement in a clean condition.

   B. Diamond Grooving Equipment. Utilize diamond grooving equipment that:

      • utilizes diamond blades mounted on a multi-blade arbor on a self-propelled machine, which has been built for grooving of pavement;
      • has a grooving machine with a depth control device that can adjust the cutting head height to maintain the depth of groove specified; and
      • has a grooving machine with devices to control alignment.

3. Construction. Perform and schedule construction operations to produce a neat, uniform finished surface. Transition auxiliary or ramp lane grinding from the edge of the mainline as required to provide drainage and an acceptable riding surface. Complete pavement repair operations, if required, before performing any grinding.

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

Produce a finished cross slope that mirrors the pre-grind cross slope and has no depressions or misalignment of slope greater than 1/4 in. per 12 ft. when measured with a 10-ft. straightedge placed perpendicular to the centerline. Also use the straightedge perpendicular to the centerline to ensure the Contractor does not grind a “W” into the roadway surface when grinding wheel-rutted surfaces. Regrind any areas of deviation. 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.

1. **Final Surface Finish.** Produce a pavement surface that is true to grade and uniform in appearance with a longitudinal line-type texture. Cut the line-type texture with corrugations that:
   - are parallel to the outside pavement edge;
   - present a narrow ridge corduroy type appearance;
   - have peaks of the ridges 1/8 in. ± 1/16 in. higher than the bottoms of the grooves; and
   - have evenly spaced ridges with dimensions within the limits of Table 1.

   **Table 1**

<table>
<thead>
<tr>
<th>Dimension Description</th>
<th>Limestone</th>
<th>Gravel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land width between grooves, in.</td>
<td>0.090 to 0.110</td>
<td>0.080 to 0.095</td>
</tr>
</tbody>
</table>

Select the number of grooves per foot to produce the previously described surface finish for each aggregate type that may be present in the concrete surface on the project. The Engineer may require removal of unbroken fins at the Contractor’s expense. Grind to produce a pavement with a minimum of 98% of any 100 ft. section of treated surface textured, and to remove the transverse tine texture from existing pavement surfaces. Depressed pavement areas due to subsidence or other existing localized causes will be excluded from this requirement when approved by the Engineer.

B. **Grooving.** Produce longitudinal grooves that are parallel to the pavement centerline. Begin and end longitudinally grooved areas with lines perpendicular to the pavement centerline.
Place longitudinal grooves across the pavement width to within 6 in. of the longitudinal joint or edge of pavement. Construct grooves with a depth of 3/16 in. +/- 1/16 in.; a width of 1/8 in. +/- 1/32 in.; and spaced at 3/4 in. +/- 1/16 in., center to center, unless otherwise shown on the plans.

Do not groove ground asphaltic pavement unless otherwise shown on the plans.

C. **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. As directed, clean and seal existing joints and cracks in accordance with Item 438, “Cleaning and Sealing Joints and Cracks (Rigid Pavement and Bridge Decks).”

D. **Smoothness Requirements.** Unless otherwise shown on the plans, measure ride quality in accordance with Item 585, “Ride Quality for Pavement Surfaces.”

Depressed pavement areas due to subsidence or other localized causes will be excluded from the smoothness requirements. These areas will be reviewed and approved by the Engineer.

Bumps exceeding 0.3 in. per 25 ft. will not be allowed in the finished ground surface.

E. **Slurry Removal.** Remove and dispose of residue from the pavement surface in a manner to satisfy environmental regulations. 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.**

A. **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.

B. **Spot Diamond Grinding of Concrete Pavement.** Spot diamond grinding of concrete pavement will be measured in place at locations determined by the Engineer.

C. **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.

D. **Spot Diamond Grinding of Asphaltic Pavement.** Spot diamond grinding of asphaltic pavement will be measured in place at locations determined by the Engineer.

E. **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.

F. **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; 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, and cleaning and sealing existing joints and cracks will be paid for in accordance with pertinent items or under Force Account as directed.