

**KANSAS DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION TO THE  
STANDARD SPECIFICATIONS, EDITION 2007**

Delete SECTION 838 and replace with the following:

**SECTION 838**

**GRINDING REHAB CONCRETE PAVEMENT**

**838.1 DESCRIPTION**

Grind the existing concrete pavement roadway surface to eliminate joint faulting and restore cross slope drainage, surface texture and riding characteristics.

**BID ITEM**

Grinding Concrete Surface

**UNITS**

Square Yard

**838.2 MATERIALS** - None specified.

**838.3 CONSTRUCTION REQUIREMENTS**

**a. Equipment.**

(1) Profilograph. Use a California type profilograph, prequalified by the Bureau of Materials and Research, to determine the pavement profile. If approved by the Bureau of Materials and Research, other types of profilographs that produce results compatible to the California type profilograph may be used. If the profilograph has a mechanical recorder, provide a ProScan electronic scanner with motorized paper transport to reduce the trace. Use the motorized paper transport when scanning the profilograph traces. The Bureau of Materials and Research can provide the information necessary for the Contractor to obtain a ProScan electronic scanner. If approved by the Bureau of Materials and Research, other types of automated trace reduction equipment may be used. If the profilograph has a computerized recorder, the trace produced is evaluated without further reduction.

(2) Grinding Machine. Provide a self-propelled grinding machine specifically designed to grind and texture portland cement concrete pavement using diamond blades mounted on a multi-blade arbor.

The arbor must contain enough blades to provide at least a 36 inch wide cutting head and provide 55 to 60 evenly spaced grooves per foot.

Do not use equipment that causes excessive ravels, aggregate fractures or spalls. Use equipment that provides a flat plane surface without crown and a uniform texture for the full width of the lane. Grind a nominal depth of 3/16 inch. Transverse grooving is not required.

Use vacuum equipment or other continuous methods to remove grinding slurry and residue. Remove from the project and properly dispose of the material. Do not allow the grinding slurry to flow across lanes being used by traffic, onto shoulder slopes, into streams, lakes, ponds or other bodies of water, or gutters or other drainage facilities. Do not place grinding slurry on foreslopes.

Bush hammers or other impact devices are prohibited.

**b. Profilograph Operation.** Provide an operator for the profilograph certified according to KT-46, Part V.

Determine the pavement profiles for each lane according to the procedures for 1 lane shown in Kansas Test Method KT-46. Additional profiles may be taken only to define the limits of an out-of-tolerance surface variation. The Engineer may use a 10 foot straightedge (or other means) to detect irregularities outside the required trace paths. The Engineer may also use the straightedge to delineate the areas that require corrective action.

A pavement section is a continuous area of pavement surface 0.1 mile long by 1 lane wide (12 feet nominal). A partial pavement section resulting from an interruption (such as a bridge) of the continuous pavement surface is subject to the same testing and evaluation as a whole section.

On surfaces excluded from profilograph testing, the Engineer will determine the pavement smoothness using a 10 foot straightedge. The Engineer will select the locations to be tested. The variation of the surface from the testing edge of the straightedge shall not exceed 1/8 inch between any 2 contacts, longitudinal or transverse.

**c. Finish Requirements.**

(1) Provide a control profilograph prior to performing any grinding work. This control trace will be used to identify the required smoothness for the project. If other repairs are performed on the project prior to grinding, such as pavement patching, perform the control trace, prior to that construction commencing.

(2) Grind and texture the entire surface of the pavement in the longitudinal direction. Grind at least 95% of the surface area in each 100 foot section and both sides of the transverse joints and cracks in the same plane. Provide positive lateral drainage by maintaining a constant cross slope between grinding passes in each lane. Maintain a uniform transverse slope that matches the existing cross slope to the extent possible with no depressions or humps greater than 0.25 inch in 12 feet when tested with a string line or straightedge. Do not exceed by more than 0.0625 inch the vertical alignment between adjacent passes of the cutting head. Begin and end grinding lines normal to the direction of vehicle travel. Grind the surface so corrugations are parallel to the pavement edge with ridges 0.0625 inch, ±0.03125 inch higher than the valleys of the corrugations.

Finish-grind the surface so that each segment has a final profile index a maximum of 35% of the control profilograph trace or 30 inches per mile whichever is greater. Correct all deviations in excess of 0.30 inch in a length of 25 feet within each section regardless of the profile index value.

(3) After completing the pavement grinding, profile the pavement with the same California type profilograph used to establish control profilograph trace. Run 2 traces in each corrected lane. Run a trace 36 inches from the longitudinal joint between the lanes, and another trace 36 inches from the shoulder edge of the lane.

Determine a profile index in inches/mile for each section of corrected pavement surface. A pavement section is defined as a continuous area of finished pavement 0.1 mile in length and one 12 foot lane (nominal) in width. A partial section resulting from an interruption of the continuous pavement surface is subject to the same evaluation as a whole section. Within 2 days after the corrections to the roadway surface are made, provide the Engineer with the profilogram and its evaluation.

(4) Perform additional grinding to attain the required profile index provided the maximum depth of removal does not exceed 0.75 inch.

(5) The Engineer may perform profilograph testing on the surface for monitoring and comparison purposes. The Engineer may test the entire project length if determined the Contractor's test results are inaccurate. If the Engineer performs profilograph testing on the project and determines the Contractor's results are inaccurate, the Contractor will be charged \$640.00 per mile per trace (minimum charge is \$800.00).

(6) Correct all irregularities exceeding the specified tolerance using equipment and methods approved by the Engineer. After the irregularities are corrected, the Engineer will retest the area to verify compliance with the specified tolerance.

**838.4 MEASUREMENT AND PAYMENT**

The Engineer will measure grinding of concrete pavement surface by the square yard.

A Grinding Concrete Surface Smoothness pay adjustment per 0.1 mile section per lane will be based on the average of the profile index of the 2 traces per 0.1 mile section per lane. Payment will be made according to **TABLE 838-1**.

<b>TABLE 838-1: SCHEDULE FOR ADJUSTING PAYMENT FOR GRINDING EXISTING PAVEMENT</b>	
<b>Average Profile Index Inch per mile per 0.1 mile section</b>	<b>Contract Price Adjustment Per 0.1 mile section per lane</b>
10.0 or less	\$135.00
10.1 to 15.0	\$95.00
15.1 to 18.0	\$50.00
18.1 to 30.0	0.00

Payment for "Grinding Concrete Surface" at the contract unit price is full compensation for the specified work. Payment for "Grinding Concrete Surface Smoothness" will be shown as an added item to the contract.