DIVISION 500 - PCC Pavement and Non-structural Concrete Construction

SECTION 501 PCC PAVEMENT, BASE, AND SHOULDERS

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501.02.17 Miscellaneous Equipment.

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501.02.22 Profiler. The Department will use a profiler conforming to Subsection 410.02.

501.02.23 Profilograph. The Department will use a Rainhart Profilograph Catalog No. 860 with a 0.1 inch blanking band according to ASTM E 1274 and will determine the Profile index (PI).

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501.03.19 Surface Tolerances and Testing Surface.

A) Edge Slump. Prevent and correct the slumping of the pavement, base, or shoulder edges. Ensure that edge slump does not exceed 1/8 inch when the Plans indicate the edge of the pavement, base, or shoulder being constructed is to be abutted by subsequently constructed pavement, base, or shoulders, either by this Contract or future contracts. Ensure that edge slump does not exceed 1/4 inch where the edge is not to be abutted by subsequent pavement, base, or shoulder. Measure the edge slump with a straightedge laid on the pavement, base, or shoulder perpendicular to the edge.

Use a planing device or a device consisting of multiple saws to perform corrective work. Use rotary grinders only on isolated irregularities less than 50 square feet. Prohibit the use of bush hammers or other impact devices. Texture all areas of the concrete corrected by grinding in the same manner as the undisturbed pavement, base, or shoulder. When the specified texture is the transverse grooves, texture the ground areas by sawing the transverse grooves. Provide a final surface comparable to the adjacent pavement that does not require corrective work for texture, appearance, or skid resistance. Complete all corrective work within a section before the Department checks the thickness tolerance of that section. The Department will allow corrective work by diamond grinding according to Subsection 503.03.

B) Ride Quality. When the Contract specifies that ride quality requirements apply, the Department will determine the ride quality of the pavement as in terms of a Profile Index (PI) and Rideability Index (RI).

1) PI. The Engineer will test pavement surface with the profilograph as soon as practical, preferably before the Contractor saws the final joint. The Department will be using the profilograph to test other projects. Cooperate in the scheduling of testing as necessary in order that the testing can be performed efficiently on all projects.

When the pavement is 12 feet wide or less, the Department will take pavement profiles 3 feet from each edge and parallel thereto. When the pavement is placed wider than 12 feet, the Department will take profiles 3 feet from and parallel to each edge and at the approximate location of each planned longitudinal joint. The Engineer will exclude from testing all pavement within 20 feet of any discontinuity in the pavement such as bridges. However, the Engineer will require these excluded areas to meet the 1/8-inch longitudinal tolerance with a 10-foot straightedge.

The Engineer will determine an average PI for each section. The Department will consider a PI section to be 1,000 linear feet of full lane width pavement. When a test section at the end of a lane is less than 1,000 feet, the Department will include it in the preceding 1,000-foot test section. When an average PI of 12 inches per mile is exceeded in any section the Engineer will suspend the paving operation and will not allow paving to resume until the corrective action is taken. Regardless of the PI, remove all areas represented by high points

having deviations in excess of 0.3 inch in 25 feet or less using methods the Engineer approves. The Engineer will determine deviations in excess of 0.3 inch from the profilograph.

When the section's average PI is between 8 and 12 inches per mile, correct pavement deviations to achieve a ride quality of a maximum PI of 8 inches or accept an adjustment to the contract unit price. For sections with an average PI of 12 inches or greater per mile, the Department will require corrective work.

2) RI. The Department will test the ride quality of the pavement for incentive payments when the PI is 8 or less and the Contractor either makes a request at least 2 weeks in advance or completes all main line paving.

The Department will determine the RI by applying a linear transform, determined by correlation, to the values (average of 2 wheel paths) determined by ASTM E 1926. Thoroughly clean the surface of all dirt and other foreign matter immediately before the Department performs the testing.

The Department will divide and test each traffic lane using one-mile test sections starting at the beginning of the lane and proceeding in the direction of traffic. The Department will exclude discontinuities, such as a bridge, from the measurement. When a test section adjacent to a discontinuity or at the end of a lane is less than one mile long, the Department will include that section with the adjacent section. When requested, the Department will retest the pavement after any corrective work is completed. The Department will create a strip chart showing the elevation and distance traveled upon request.

When the Contract does not specify that ride quality requirements apply, straightedge the pavement or shoulder in the presence of the Engineer. Place a 10-foot straightedge parallel to the centerline to bridge all depressions and touch all high spots. Perform straight edging as soon as the concrete has hardened sufficiently to support walking, but not later than 10:00 AM of the day following the placing of the concrete. Plainly mark all high spots, indicated by a variation exceeding 1/8 inch from the straightedge, that are 6 inches or more from the pavement, base, or shoulder edge.

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501.04.07 Ride Quality. The Department will not measure the PI or RI as a separate pay unit, but will use the RI or PI to calculate a ride quality adjustment for PCC Pavement. When the Contract specifies that the Department will measure the ride quality, the Department will use the RI for incentive payments and, if none, will use the PI for acceptance and disincentive payments.

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501.05.02 Ride Quality. The Department will apply a Ride Quality Adjustment for each section tested. The Department will calculate the Ride Quality Adjustments by multiplying PCC Pavement payment for each test section by its appropriate ride quality Pay Value found in the Ride Quality Adjustment Schedule.

Code	Pay Item	Pay Unit
2069-2071, 2073, 2075, 2084, 2086, 2088	PCC Pavement Non-Reinforced, thickness	Square Yard
2072, 2077, 2078, 2081-2083, 2087, 2089	PCC Pavement Non-Reinforced Shoulder, thickness	Square Yard
2061, 2064, 2065	PCC Base, thickness	Square Yard
2695	Rumble Strips, Type 3	Linear Foot
----	Rideability Testing	Each
2060	PCC Pavement Diamond Grinding	See Subsection 503.05

Schedule for Adjusted Payment for Thickness Deficiency	
Thickness Deficiency (inches)	Price Adjustment (Percent of Contract Unit Bid Price)
0.00 to 0.20	100
0.21 to 0.30	80
0.31 to 0.40	72
0.41 to 0.50	68
0.51 to 0.75	57
0.76 to 1.00	50

Greater than 1.00	[1]

[1] Remove and replace these areas with concrete of the specified thickness at no expense to the Department when the Engineer directs.

Ride Quality Adjustment Schedule	
Rideability Index	Pay Value[1]
4.15 or higher	+0.03
4.10 to 4.14	+0.02
4.05 to 4.09	+0.01
Average for PI (inches per mile)[2]	Pay Value
8 or less	0.00
over 8, up to 9	-0.02
over 9, up to 10	-0.05
over 10, up to 12	-0.08
over 12	Corrective work required

[1]Contractor may correct areas to achieve a positive adjustment. The Department will perform additional requested testing and retesting for corrective work at a cost of $150.00 per lane mile. The Department will deduct charges for requested additional testing and retesting for corrective work from monies due on the Contract.
[2] The Department will apply the unit bid price adjustment to the total area of the 1,000-foot section of the traffic lane represented by the Profile Index. The Department will not make payment in excess of 50 percent for any main line pavement that has an average Profile Index in excess of 12 inches per mile until the Contractor completes the corrective work and the Department reprofiles and verifies that the average Profile Index has been reduced to 12 inches per mile or less.

The Department will consider payment as full compensation for all work required under this section.

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503.03.09 Ride Quality. Conform to Section 410 with the following exceptions:

1) The lift thickness adjustment does not apply.
2) All references are to PCC pavement in lieu of asphalt pavement.
3) All references are to diamond grinding in lieu of paving.
4) Achieve an RI of 3.60 or greater for each one-mile section and an RI of 3.80 or greater for each traffic lane.
5) Perform corrective work to achieve the required RI by regrinding the entire width of the traffic lane at areas having a low RI. The Engineer may exclude pavement areas where grinding alone will not correct deficiency.
6) The Department will create a strip chart when the test results show that the RI is less than 3.80 or upon request for higher RI values.