traffic and traffic caused by his own employees and agents until the pavement is opened to traffic.

Any damage to the pavement occurring prior to the opening of the pavement to traffic by the State shall be repaired or the pavement replaced.

H. Riding Surface Tests:

1. Surface Test (Profilograph) and Correction: The finished surface of all mainline pavement shall be tested and corrected to a smoothness as described herein. Mainline pavement is defined as all pavement for traffic lanes and climbing lanes, but excluding concrete base, acceleration and deceleration lanes, and all taper sections, pavement widening, shoulders, and side street returns. Pavement on horizontal curves having a baseline radius of curvature of 6 degrees or greater and super elevation transitions of such curves will also be excluded.

The surface smoothness of pavement not classified as mainline pavement shall be determined by the Surface Test (straightedge) as described hereinafter. The smoothness of the pavement surface will be determined by using a California Type Profilograph over each designated lane to develop a Profile Index. The equipment shall be furnished and maintained by the Contractor, and will be operated by the Engineer in accordance with Department test methods.

The Contractor shall furnish paving equipment and employ methods that produce a riding surface having a Profile Index of 12 inches per mile (190 millimeters per kilometer), or less. The profile will terminate 50 feet (15 meters) from each pressure relief joint or existing pavement which is joined by the new pavement.

Pavement profiles will be taken 3 feet (1 meter) from and parallel to each edge of pavement for pavement placed at a 12-foot (3.7-meter) width or less. When pavement is placed at a greater width than 12 feet (3.7 meters), the profile will be taken 3 feet (1 meter) from and parallel to each edge and at the approximate locations of each planned longitudinal joint. Additional profiles may be taken only to define the limits of an out of tolerance surface variation.

During the initial paving operations, either when starting up or after a long shut down period, the pavement surface will be tested with the profilograph as soon as the concrete has cured sufficiently to allow testing. Membrane curing damaged during the testing operation shall be repaired by

the Contractor as directed by the Engineer. The purpose of this initial testing is to aid the Contractor and the Engineer in evaluating the paving methods and equipment. Once the initial pavement smoothness, paving methods, and paving equipment are acceptable to the Engineer, the Contractor may proceed with the paving operation. Subsequent to the aforementioned initial testing, daily profiles of each day's paving will be run as soon as possible, preferably during the next working day following placement of the pavement.

A daily average Profile Index will be determined for each day's paving. A day's paving is defined as a minimum of 1000 linear feet (300 meters) of full-width pavement placed in a single day. If less than 1000 linear feet (300 meters) is paved, the day's production shall be grouped with the subsequent day's production. If an average Profile Index of 20 inches per mile (315 millimeters per kilometer) is exceeded in any daily paving operation, the paving operation will be suspended and will not be allowed to resume until corrective action is taken by the Contractor. In the event that paving operations are suspended as a result of the average Profile Index exceeding 20 inches per mile (315 millimeters per kilometer), subsequent paving operations will be tested in accordance with the initial paving testing procedures.

For the purpose of determining pavement sections where corrective work or pay adjustments will be necessary, the pavement will be evaluated in 0.1-mile (150-meter) sections. Within each 0.1-mile (150-meter) section, all areas represented by high points having deviations in excess of 0.5 inches in 25 feet (13 millimeters in 7.6 meters) or less shall be removed by the Contractor with an approved grinding device or a device consisting of multiple saws. The final texture of the concrete pavement shall be such that texture, appearance, and skid resistance are comparable to adjacent sections that do not require corrective work. The use of a bush hammer or other impact device will not be permitted. Deviations in excess of 0.5 inches (13 millimeters) will be determined from the profilogram in accordance with Department Test Methods.

After removing all individual deviations in excess of 0.5 inches in 25 feet (13 millimeters in 7.6 meters), additional cutting shall be performed if necessary to reduce the Profile Index.

On those 0.1-mile (150-meter) sections where corrections are necessary, second profilograph runs will be performed to verify that corrections have produced an average Profile Index 20 inches per mile (315 millimeters per kilometer) or less. If the initial average Profile Index is less than 12 inches per mile (190 millimeters per kilometer), only the areas in excess of 0.5-inch (13-millimeter) deviations will be re-profiled for correction verification.

After removing all individual deviations in excess of 0.5 inches (13 millimeters), as stated above, additional correction shall be performed if necessary to reduce the average Profile Index to 20 inches per mile (315 millimeters per kilometer) or less. All correction work shall be completed prior to determinations of pavement thickness.

2. Surface Test (Straightedge) and Corrections: As soon as the concrete has hardened sufficiently, the pavement surface, except as specified herein above for mainline pavement, shall be tested by the Contractor with an approved 10-foot (3-meter) straightedge placed both transversely and longitudinally to the centerline at sufficient intervals to check the surface profile. Areas showing high spots of more than 1/8 inch (3.2 millimeters), exclusive of tining corrugations, shall be marked by the Engineer and removed by the Contractor to an elevation where the area or spot will not show surface deviations in excess of 1/8 inch (3.2 millimeters) when tested with a 10-foot (3-meter) straightedge. Correction of surface irregularities and resulting surface finish shall conform to the requirements specified herein for mainline pavement.

I. Flexural Testing of Concrete: The flexural strength of the concrete pavement shall be monitored by the evaluation of compressive strength cylinders. The compressive strength specimens shall be cast and cured in the field in accordance with ASTM C 31 (AASHTO T 23). After proper curing, these cylinders shall be transported to the Division of Materials Testing for strength evaluation.

J. Opening to Traffic: Vehicular traffic shall be excluded from the pavement until sufficient curing has taken place. The pavement shall be opened to traffic with the attainment of a compressive strength of 3,500 psi (25 megapascals).

Any damage to the pavement from traffic or any other causes, occurring prior to acceptance of this contract, shall be repaired by the Contractor at his own expense.

In order to expedite the opening of a pavement, or part thereof, to traffic, the Engineer may direct the Contractor to supply a concrete with a higher cement factor, or the substitute TYPE III Portland Cement for the type being used. The mix design for this concrete must be approved by the Engineer. The State shall only pay the extra cost per ton (metric ton) for the cement used.

If the Contractor wants to increase the early strength of the pavement in order to facilitate his plan for the paving sequence, he may substitute TYPE III Portland Cement, or use a concrete with a higher cement factor. The mix design for this concrete must be approved by the Engineer. The extra costs for the cement used shall be borne by the Contractor.

4.01.04—Method of Measurement: It is the intent of these specifications that the pavement shall be constructed strictly in accordance with the thickness and widths shown on the plans. The State will not be liable for payment for any thickness and widths in excess of that required.

A. Pay Adjustment for Surface Smoothness: Payment to the Contractor will be based on the average Profile Index per 0.1-mile (150-meter) section according to the following table:

AVERAGE PROFILE INDEX		**CONTRACT UNIT PRICE ADJUSTMENT**
Inches per mile per 0.1-mile section		% of pavement unit bid price
(Millimeters per kilometer per 150-meter section)		
0-6	(0-95)	106
over 6-8	(95-125)	104
over 8-10	(125-160)	102
over 10-12	(160-190)	100
over 12-14	(190-220)	98
over 14-16	(220-250)	96
over 16-18	(250-285)	94
over 18-20	(285-315)	92
over 20	(over 315)	

When the average Profile Index exceeds 12 inches per mile per 0.1-mile (190 millimeters per kilometer per 150-meter) section, but does not exceed 20 inches per mile per 0.1-mile (315 millimeters per kilometer per 150-millimeter) section, the Contractor may elect to accept a contract unit price adjustment in lieu of reducing the average Profile Index.

The unit bid price adjustment will be computed using the designed thickness of Portland Cement pavement or as adjusted under Section 4.01.04. This unit bid price adjustment will apply to the total area of the 0.1-mile (150-meter) long section for the lane width represented by the profile (usually 12 feet (3.7 meters) wide). No payment will be made for any pavement which has an average profile index in excess of 20 inches per mile (315 millimeters per kilometer) until corrective work has been completed by the Contractor and the pavement re-profiled to verify that the average Profile Index has been reduced to 20 inches per mile (315 millimeters per kilometer) or less.

B. Pay Adjustment for Pavement Thickness:

1. Determination of Pavement Thickness: The pavement thickness shall be measured after surface correction is completed.

The thickness of fixed form pavement shall be determined by using measurements and/or elevations obtained by the Contractor and submitted to the Engineer prior to the placement of concrete. Thickness measurements using cores tested in accordance with AASHTO T 148 shall remain the option of the Engineer.

The thickness of slip form pavement will be determined by average caliper measurements of cores tested in accordance with AASHTO T 148.

For the purpose of establishing an adjusted unit price for pavement, units to be considered separately are defined at 1,000 lineal feet (300 meters) of pavement in each traffic lane starting at the end of the pavement bearing the smaller station number. The last unit in each lane shall be 1,000 feet (300 meters) plus the fractional part of 1,000 feet (300 meters) remaining. One core will be taken at random by the Department in each unit. When the measurement of the core from a unit is not deficient more than 0.2 inch (5.1 millimeters) from the plan thickness, full payment will be made. When such measurement is deficient more than 0.2 inch (5.1 millimeters) and not more than 1.0 inch (25.4 millimeters) from the plan thickness, two additional cores