

ITEM 04502.0602 M - CEMENT CONCRETE PAVEMENT, UNREINFORCED, CLASS C
PROFILOGRAPHED

DESCRIPTION

The requirements of Section 502, Portland Cement Concrete Pavement, shall apply for all cement concrete pavement work in this contract, except those requirements which are here-in-after designated for mainline and ramp pavement. Mainline and ramp pavement shall be as designated in the schedule shown on the plans. Cement concrete pavement for acceleration and deceleration lanes, median cross-overs, shoulders, approach slabs and bridge decks are not considered mainline pavement.

CONSTRUCTION

Under Subsection 502-3.02, Equipment: add a new paragraph

D. Profilograph. The profilograph shall conform to the requirements of the profilograph as specified in the contract documents.

The requirements of Subsection 502-3.09C, Testing the Surface are deleted for mainline pavement for straight edge positions parallel to the centerline of the pavement. Any testing of the plastic concrete pavement surface to control surface smoothness parallel to the pavement centerline shall be the responsibility of the Contractor.

Under Subsection 502-3.09D, Texturing, delete the entire paragraph and add a new paragraph D. Texturing:

D. Texturing. Immediately after finishing and prior to applying the curing compound, texture the concrete surface with a set of irregularly spaced spring steel tines perpendicular to the pavement centerline. Use rectangular tines 3 mm wide, 0.7 mm thick, and approximately 125 mm long. Use tines with the following center-to-center spacing in millimeters:

16/25/22/16/32/19/25/25/25/25/19/22/25/22/10/25/25/25/32/38/22/25/22/25.

Produce tine texture 3 - 4 mm deep with minimal dislodging of aggregate as determined by the Engineer. Multiple tine passes in the same area are not permitted unless the surface is re-finished between passes.

Operate the tine head manually or mechanically. In either case, hold the tines as near an angle of 45E with the concrete surface as possible to minimize mortar dragging. Keep the tines free of hardened concrete. If the tine texture is manually placed, or if the mechanical equipment does not operate off the same referencing system as the paver, provide a 75 - 100 mm blank at each transverse joint saw cut location.

The requirements of Subsection 502-3.13 Surface Test, are deleted for mainline and ramp pavement for straight edge positions parallel to the centerline of the pavement. The following requirements are to be added:

502-3.13 Surface Test. In accordance with written Department instruction, after the concrete has hardened sufficiently, the Engineer shall test the pavement surface in the wheel paths with a California Type profilograph and develop a Profile Trace. The wheel paths mentioned herein will be considered to be longitudinal lines located parallel to the centerline of the pavement and approximately 1 meter measured transversely, inside all lane edges.

ITEM 04502.0602 M CEMENT CONCRETE PAVEMENT, UNREINFORCED, CLASS C PROFILOGRAPHED (con't)

All objects on the surface of the pavement, including curing covers if used, shall be removed by the Contractor prior to the profilograph measurements. Curing covers, if used, shall be properly replaced by the Contractor after the measurements are taken. Necessary traffic control and survey stationing for initial measurements or any subsequent measurements shall also be provided by the Contractor.

The Profile Trace will be converted to a Preliminary Profile Index and a Listing of Bumps in accordance with written Department instructions. The Profile Index is a measure of surface smoothness. It is determined by summing the vertical deviations outside a 5 millimeter blanking band, as indicated on the Profile Trace. The units of this measure are millimeters per kilometer.

Bumps are high points on the Profile Trace and correspond to high points or bumps on the pavement surface. They are determined by locating vertical deviations outside a 10 millimeter maximum for a 7.5 meter span, as indicated on the Profile Trace.

The Preliminary Profile Index, bump locations, and the Profile Trace shall be made available to the Contractor for his review as soon as practicable after measurements are taken. The intent of this procedure is to inform the Contractor of the pavement surface characteristics for information only. The contractor may utilize this information for action during subsequent paving operations if necessary.

Any bumps exceeding a vertical height of 10 millimeters in a 7.5 meter span as indicated on the Profile Trace shall be satisfactorily corrected by diamond grinding or by pavement removal and replacement at the option of the contractor. The bumps shall be considered satisfactory when a check measurement by the profilograph shows that the bumps are 10 millimeters or less. Diamond grinding shall be performed with equipment specifically designed as bump cutters. The texture produced by diamond grinding may be either longitudinal or transverse to the pavement centerline. The texture in the ground areas shall be similar to that of the adjacent pavement sections.

After any bumps have been corrected and retested with the profilograph, the Final Daily Profile Index shall be determined for each day's paving. A day's paving is defined as the actual full width pavement placed in a single pass in a single day, provided that it is at least 300 linear meters. If less than 300 linear meters is paved, that day's production shall be grouped with the subsequent day's production.

No Final Daily Profile Index shall exceed 80 millimeters per kilometer for a Level 1 segment and 190 mm per kilometer for a Level 2 segment. Should any Final Daily Profile Index exceed this maximum, the contractor shall correct, at the Contractors expense, any portion of the pavement such that the Final Daily Profile Index shall be reduced to 80 millimeters per kilometer for a Level 1 segment and 190 mm per kilometer for a Level 2 segment or less. Any bumps exceeding 10 millimeters in the corrected sections shall be removed in accordance with the provisions of this specification. A Final Daily Profile Index shall then be remeasured and recorded. Note: Pavement segments will be designated in the plans as Level 1 or Level 2.

Under Subsection 502-3.15, Defective or Damaged Concrete, delete the entire paragraph and add a new paragraph:

502-3.15 Defective or Damaged Concrete. Repair or replace all damaged or defective concrete which occurs prior to final acceptance. Perform these repairs as described in the contract documents or as directed by the Engineer at no cost to the Department. Damage and defects include, but are not limited to, cracking, spalling,

ITEM 04502.0602 M CEMENT CONCRETE PAVEMENT, UNREINFORCED, CLASS C PROFILOGRAPHED (con't)

honeycombing, or imperfections caused by inadequate pavement protection, traffic, and/or construction practices.

Under Subsection 502-3.16, Thickness Tolerance, delete the entire paragraph and add a new paragraph:

502-3.16 Plastic Thickness Determination. The cement concrete pavement shall be constructed to the nominal thickness shown on the plans. In a slip form paving operation, anchor flat 16 gauge (1.52 mm thick), 150 x 150 mm rigid steel or plastic plates to the permeable base (or subbase) surface 600 mm from both placement edges at 100 m intervals. Clearly mark the plate locations on the subbase, permeable base, or previously placed concrete immediately adjacent to the placement. Provide the Engineer with a round, rigid, non-aluminum probe, having a 3 - 6 mm diameter. The Engineer will determine the plastic thickness of the concrete by inserting the probe to the plate and measuring the insertion depth. The plate thickness will be added to the insertion depth to determine concrete thickness. Keep several probes at the project.

In a slip form paving operation, the measured plastic thickness must equal or exceed the thickness required in the contract documents. Slip formed concrete having substandard plastic thicknesses will be rejected in 100 m segments. If two consecutive measurements indicate a substandard thickness, stop paving and reestablish the paving operation such that acceptable thicknesses are being obtained.

BASIS OF PAYMENT

Under Subsection 502-5 add a new paragraph:

502-5.06 PCC Pavement, Unreinforced, Profilographed. In the unit bid price, include the cost of all materials, equipment, and labor necessary to place, spread, consolidate, finish, texture, cure, and diamond grind the portland cement concrete pavement. No payment will be made for areas rejected with substandard thicknesses as described in Plastic Thickness Determination.

The Payment Adjustment Table below identifies the specified smoothness requirements with incentives for profilographed pavements.

**ITEM 04502.0602 M CEMENT CONCRETE PAVEMENT, UNREINFORCED, CLASS C
PROFILOGRAPHED (con't)**

PAYMENT ADJUSTMENT TABLE

Final Daily Profile Index (mm/km)	Level 1 Adjustments (% of Item Bid Price)	Level 2 Adjustments (% Of Item Bid Price)
0-14.9	105	105
15 -29.9	104	104
30 - 44.9	103	103
45 - 59.9	102	102
60 - 79.9	101	101
80	100	Not Applicable
80 + - 190	Diamond grind	100
190 +	Diamond grind	Diamond grind

Payment adjustments and diamond grinding requirements will be determined for each successive 160 m placement interval. Diamond grinding up to, and including, 7 % of the surface area of a 160 m placement interval is allowed to receive payment adjustments. No adjustments will be made if more than 7 % of the 160 m placement is ground to meet the 100 % Final Daily Profile Index. Diamond grind the entire 160 m placement at no cost to the Department if 20 % or more of its surface area must be ground to meet the 100 % Final Daily Profile Index.

Transverse joint supports, longitudinal joint ties, constructing and sealing all joints, metal reinforcement for concrete pavement, and the profilograph itself will be paid under their respective items.

Progress payments will be made after (1) the pavement has been properly placed and cured and (2) the Engineer determines an acceptable Preliminary Daily Profile Index has been achieved. Payment will be made, at the unadjusted unit bid price, for 90% of the quantity placed. The balance, including any smoothness adjustments, will be paid after any necessary repairs are made and the Final Daily Profile Index has been determined.