PORTLAND CEMENT CONCRETE INLAY OR OVERLAY (BMPR)

Effective: January 1, 2005

Description. This work shall consist of constructing a portland cement concrete inlay or overlay. Work shall be according to Section 420 of the Standard Specifications except as modified herein. Articles 420.05, 420.10, 420.14, 420.19, and 420.20 shall not apply.

Materials. Materials shall be according to the following.

Item	Article/Section
(a) Portland Cement Concrete (Note 1)	1020
(b) Synthetic Fibers (Note 2)	
(c) Protective Coat	1023.01

Note 1. Class PV concrete shall be used except the cement factor for central mixed concrete shall be 360 kg/cu m (6.05 cwt/cu yd).

The cement factor for Class PV concrete shall not be reduced if a water-reducing or high range water-reducing admixture is used.

The Class PV concrete shall have a compressive strength of 20,700 kPa (3,000 psi) or flexural strength of 3,800 kPa (550 psi) at 14 days.

Note 2. Synthetic fibers shall be Type III according to ASTM C 1116. The synthetic fiber shall be a monofilament with a minimum length of 13 mm (0.5 in.) and a maximum length of 50 mm (2.0 in.), and shall have an aspect ratio (length divided by the equivalent diameter of the fiber) between 80 and 100. The synthetic fiber shall have a minimum modulus of elasticity of 9,000,000 kPa (1305 ksi) and a minimum tensile strength of 500,000 kPa (72.5 ksi).

The synthetic fibers shall be added to the concrete and mixed per the manufacturer's recommendation. The dosage rate shall be 2.4 kg/cu m (4.0 lb/cu yd).

The Department will maintain an "Approved List of Synthetic Fibers".

Equipment. Equipment shall meet the requirements of Article 420.03 except, the mechanical saw used for cutting relief joints shall be equipped with an upcutting blade and a restricting skid plate to prevent spalling of the finished saw cut.

CONSTRUCTION REQUIREMENTS

Preparation of Existing Pavement. The area to be overlaid shall be milled as shown on the plans. When patching is required, the patches shall be milled or their surface given a rough texture.

Following milling, the surface shall be cleaned as follows.

(a) Plan Thickness less than 125 mm (5 in.). For these inlays or overlays, the surface shall be cleaned with high-pressure water. A 13,800 kPa (2,000 psi) minimum operating pressure shall be maintained for the high-pressure water spray.

(b) Plan Thickness of 125 mm (5 in.) or greater. For these inlays or overlays, the surface shall be cleaned with a mechanical broom, compressed air, or water.

The prepared surface shall meet the approval of the Engineer prior to proceeding with the work.

Forms and Form Setting. This work shall be according to Article 420.06 except wood forms of a height equal to the proposed inlay or overlay thickness may be used. Shims or wedges may be used to raise the forms to the specified plan elevation.

Treatment of Structures in the Pavement. Pavement round-outs shall be used at structures in the pavement. This work shall be as shown on the plans.

Placing. This work shall be according to Article 420.07 except standing water on the existing pavement surface shall be removed prior to concrete placement.

Relief Joints. Joints shall be constructed at the locations and spacings shown on the plans. Field adjustments to the transverse joint locations will be permitted provided no transverse joint exceeds the planned spacing by more than ten percent.

The joints shall be mechanically sawed or hand tooled to 1/4 the depth of the inlay or overlay, and shall be a minimum 3 mm (1/8 in.) and a maximum 6 mm (1/4 in.) wide. Sawed joints shall be constructed as soon as the concrete will support the weight of the saw and operator without disturbing the final finish. Hand tooled joints shall be edged with an edging tool having a 3 mm (1/8 in.) radius. Care shall be taken to minimize displacement of the finished surface.

Final Strike Off, Consolidation, and Finishing. This work shall be according to Article 420.11 except, when a Type B final finish is specified, it shall be followed by a rough broom finish struck perpendicular to the direction of traffic flow. The rough broom finish shall be performed over the entire surface including tooled joints.

Opening to Traffic. This work shall be performed according to Article 420.16 except, curing may be discontinued and the pavement opened to traffic when a flexural strength of 3,800 kPa (550 psi) or a compressive strength of 20,700 kPa (3,000 psi) is attained.

Basis of Payment. This work will be paid for at the contract unit price per square meter (square yard) for PORTLAND CEMENT CONCRETE INLAY or PORTLAND CEMENT CONRETE OVERLAY, of the thickness specified.