

1.0 GENERAL

1.1 Scope

1.1.1 The work shall consist of constructing a concrete base to the lines, grades and cross-sections shown on the Plans or as designated by the Engineer.

1.2 Related Sections

1.2.1 Section 2500 – Supply of Portland Cement Concrete

1.2.2 Section 2220 – Subbase Course

1.2.3 Section 2230 – Granular Base Course

1.2.4 Section 2130 – Subgrade Preparation

2.0 PRODUCTS

2.1 Concrete

2.1.1 Shall conform to Section 2500 for Supply of Portland Cement Concrete having a 28 day compressive strength of 32 MPa.

2.2 Reinforcing Steel

2.2.1 All reinforcing steel shall conform to the requirements of CSA G30.12-M, Billet-Steel Bars for Concrete Reinforcement.

3.0 EXECUTION

3.1 Placing

3.1.1 The subgrade shall be brought to an even surface conforming to the specified cross-section. Place granular material, minimum 100 mm thick, onto prepared subgrade. Granular material shall be compacted to a minimum of 95% of the Standard Proctor Dry Density. Acceptable granular materials include subbase course, base course or recycled material. If recycled material is used, it must meet the specifications for subbase or base and must be approved by the Engineer.

3.1.2 If granular base course is specified, the granular base course shall be placed on the subgrade conforming to the specified cross section. The maximum un-compacted lift thickness shall not exceed 150 mm and the minimum overall base course depth shall not be less than 200 mm. Placement of the base course shall be carried out following Specification 2230.

3.1.3 Immediately prior to placing the concrete, the granular material shall be lightly sprayed with as much water as will be absorbed readily without surface ponding. It should have sufficient moisture content to ensure proper concrete curing occurs.

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- 3.1.4 After mixing, the concrete shall be deposited rapidly upon the gravel layer to the required depth of the pavement in successive batches. The concrete shall be spread evenly and compacted by means of vibration until the water flushes to the surface. The finished surface of the concrete must conform at every point to the cross-section of the finished pavement with a maximum tolerance of ± 10 mm vertically.
- 3.1.5 The minimum depth of concrete base course is 200 mm unless otherwise specified.
- 3.1.6 Should the concrete base course require an asphaltic concrete wearing surface, the concrete surface shall be roughened immediately before initial setting of the concrete. This is to provide a sufficient surface area for the asphaltic material to bond to the concrete. The roughening of the surface shall be accomplished in such a manner and with such tools as approved by the Engineer.
- 3.1.7 If the concrete base course does not require an asphaltic concrete wearing surface, the concrete base course shall be provided with a broom finish.
- 3.2 Slip-Form Paver
- 3.2.1 The use of a slip-form paver as an alternative construction method shall be allowed provided that prior to use, the specifications for the slip-form paver shall be submitted to the Engineer for written approval. Requirements contained in the specifications for concrete base course shall also apply to the slip-form method unless modified below.
- 3.2.2 The slip-form paver shall spread, consolidate, screed, and float finish the concrete in one pass. The machine shall be of ample strength to withstand severe use and shall be adjustable for loss of cross-section due to wear.
- 3.2.3 The forms shall extend the full depth of the pavement, and shall not have an inward slope or batter of more than 15 mm. The forms shall be of sufficient length that the concrete will remain stable and rigid at the edges by the time the forms have passed.
- 3.3 Construction Joints
- 3.3.1 Where it is practical, the concrete (base) extension must be placed in one continuous section. At cold joints between existing and new concrete base or when construction joints are allowed, 10M steel dowels, 600 mm long, shall be placed at 1.0 metre intervals unless otherwise designated by the Engineer.
- 3.3.2 Where width of concrete base is less than 300 mm in parking lanes, dowels may be left out.
- 3.4 Protection of Concrete Base
- 3.4.1 All classes of traffic and hauling shall be excluded from the concrete base by the erection of suitable and substantial barricades until the concrete has

hardened sufficiently to sustain it. The concrete shall be tested by concrete field cured cylinders or by concrete cores and have met minimum strength or surpassed minimum cure time as follows:

SPECIFIED CONCRETE STRENGTH	MINIMUM STRENGTH	MINIMUM CURE TIME
32 MPa	9 MPa	3 days
32 MPa	12 MPa	4 days
32 MPa	20 MPa	7 days

3.4.2 The Contractor shall maintain on the job, sufficient canvas or other suitable covering to protect all freshly laid concrete from the action of the elements.

3.5 Curing

3.5.1 After the concrete has been finished to cross-section and as soon as the concrete has set sufficiently, the entire surface shall be sprayed with a concrete curing compound in a manner and in such quantity as will be directed by the Engineer. All concrete surfaces that are left exposed to the air after removal of forms shall be sprayed with curing compound in a similar manner. The curing compound shall be applied by means of power sprayer.

3.5.2 The compound shall adhere to damp concrete having a horizontal or vertical surface and form a continuous film when applied according to the manufacturer's instructions. When dried, the Compound shall not be tacky and must adhere to the concrete surface even under normal pedestrian traffic conditions. The film shall not render the concrete surface slippery. The compound shall be clear or translucent, resinous base, non-bituminous. It shall contain a fugitive dye, readily distinguishable upon the concrete for at least four hours after application. The colour shall become inconspicuous within seven days of application. The Compound shall equal or exceed the ASTM "Specification for Liquid Membrane-Forming Compounds for Curing Concrete," Designation C309. The water retention efficiency tests shall be carried out in accordance with ASTM C156.

3.6 Materials Testing Requirements for Quality Control Materials Testing

3.6.1 Minimum frequency of materials testing shall be in accordance with Section 2500 for Supply of Portland Cement Concrete.