

MUNICIPAL STANDARDS

SPECIFICATIONS

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7.1 SCOPE OF WORK

This section includes the supply and delivery of materials, equipment, labour and services necessary for the construction of manually-placed or machine-placed insitu and pre-cast concrete kerb and channel.

7.2 STANDARDS

The following Australian Standards and Standard Drawings are referred to:

Australian Standards

AS 3972 Portland and Blended Cements

AS 2758.1 Aggregates and Rock for Engineering Purposes – concrete aggregates

AS 2876 Concrete Kerb and Channels (Gutters) - Manually or Machine Placed

Standard Drawings

SD 1003 Urban Roads - Standard Vehicle Crossing

SD 1004 Urban Roads - Kerb Ramps

SD 1005 Urban Roads - Kerb Profiles

7.3 MATERIALS

7.3.1 Ready-Mixed Concrete

Concrete used in the construction of in-situ kerb and channel shall be ready-mixed concrete manufactured and supplied by a concrete manufacturer in accordance with Municipal Standards Specifications Part 9, Construction of Minor Concrete Structures.

Manually-placed concrete shall be normal grade N20 concrete and shall have the following properties:

- | | | |
|----|------------------------|--------------|
| a) | Minimum strength | 20 MPa |
| b) | Maximum aggregate size | 20 mm |
| c) | Maximum slump | 60 +/- 15 mm |

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Machine-placed concrete shall be Class B and shall have the following properties:

- | | |
|---------------------------|--------------------------------|
| a) Minimum strength | 20 MPa |
| b) Maximum aggregate size | 12.5 mm |
| c) Maximum slump | Nil (absolute maximum 12.5 mm) |
| d) Minimum cement content | 280 kg/m ³ |

The concrete shall be mixed with sufficient water to produce a consistency that maintains the design profile after extrusion. The combined aggregate grading shall be arranged so that not more than 80 per cent passes the 6.7 mm. AS sieve.

7.3.2 Mortar

Mortar for finishing shall consist of not less than one (1) part cement to three (3) parts of sand, or approved equivalent, by loose pour volume. The water quantity shall be just sufficient to obtain thorough mixing and adequate workability.

- a) Cement
Cement shall be Type A Portland cement complying with AS 3972.
- b) Sand
Sand shall be composed of sharp tough grains, free of mica, clay or foreign matter and shall be in accordance with AS 2758 Part 1.
- c) Water
Water for use in mortar shall be clean and free of all substances harmful to concrete and reinforcing steel.
- d) Bedding
The bedding material shall consist of sub-base material in accordance with Municipal Standards Specifications Part 6, Material and Pavement Construction.

7.4 PROFILES

The selection and position of the kerb and channel shall be in accordance with the Drawings. Kerb and channel profiles shall be in accordance with Standard Drawings or as otherwise shown on the Drawings.

7.5 PLACING

Construction shall be in accordance with Municipal Standards Specifications Part 9, Construction of Minor Concrete Structures and the following clauses:

7.5.1 Base preparation

- a) New Pavement
All kerb and channel shall be bedded on an extension of the road pavement, which shall be equal in thickness to the depth of the pavement, but shall not be less than 75 mm. The bedding shall be placed and compacted in accordance with AS 2876. The bedding shall be

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lightly watered and dowels for joints shall be available on site and fixed in place where necessary.

b) Existing Pavement

The excavation for bedding for kerb and channel shall be to the depth of the existing pavement and in any case shall be to a minimum of 75 mm below the base of the kerb and channel. Excavation shall extend 500 mm into the existing pavement from the face of kerb or invert of channels, and 150 mm behind the back of the kerb or channel.

The sides of the excavation shall extend at an inclination of 45 degrees beyond these limits. The bedding shall be placed and prepared in accordance with Clause 7.5.1 a).

c) Pre-cast kerbing

Where pre-cast kerb is to be installed on the top of the pavement, it shall be swept clear of dust and loose stone prior to installation.

7.5.2 Pouring

Kerb and channel shall be poured to the specified line, level and minimum grade as shown on the Drawings or as directed by the Superintendent.

Pouring of the kerb shall generally be carried out using a self propelled kerb and channel paving machine designed to compact and extrude the final profile and capable of automatically adjusting the mould position while in operation.

Manually-placed concrete shall be placed in bays of 3.0 metres in length.

7.5.3 Formwork

Templates of the finished shape and profile shall be provided at 3.0 metre centres. Forms shall be firmly held in place and capable of easy release and removal. End forms shall be provided at the end of each pour.

7.5.4 Joints

Joints shall be located as shown on the Drawings and shall be formed in accordance with AS 2876.

Unless otherwise approved by the Superintendent, contraction or shrinkage control joints shall be cut in machine laid kerb and channel at 3.0 metre centres using a template and the joints finished with a suitable grooving tool.

Insert R10 mild steel dowels into the back of the kerb at 1.0 metre centres in accordance with standard drawings SD 1006 where concrete footpath is to be laid adjacent to the kerb.

7.5.5 Surface Finish

All kerb and channel shall be finished to a smooth steel trowel finish in accordance with AS 2876. Machine-placed kerb and channel shall be rendered with a mortar in accordance with AS 2876.

7.5.6 Pre-cast Units

Pre-cast units shall be installed by spiking through each unit or tags cast into it, using two (2) spikes of at least 10 mm diameter, driven at least 100 mm into the underlying pavement, or when approved by the Superintendent, by proprietary adhesive applied in accordance with the manufacturer's instructions.

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7.6 PROTECTION AND CURING

7.6.1 Protection

Newly finished concrete surfaces shall be protected from premature drying and damage by rain, frost or vandalism for a period of twenty-four (24) hours after pouring.

Sufficient signs, barricades and lights shall be erected to protect the newly-laid work from traffic.

7.6.2 Curing

Concrete may be cured by covering with hessian kept wet for a period of not less than seven (7) days, or by other methods as approved by the Superintendent.

7.7 ACCEPTANCE

7.7.1 Inspections

Inspections, sampling and testing of the concrete may be carried out in accordance with AS 2876.

The Contractor shall notify the Superintendent to allow inspection of the following stages of the work :

- a) Preparation of the sub-grade;
- b) Compaction of the base and set-out of the kerb and channel alignment prior to pouring;
- c) Completion of the work.

The Superintendent may inspect the laying of the concrete and shall reject any concrete that has not the correct property, texture, depth, shape or level.

7.7.2 Tolerances

Unless otherwise specifically permitted in writing by the Superintendent, the tolerances on the concrete mix and construction shall be in accordance with AS 2876.