



## Section 5: Kerb and gutter

Sutherland Shire Public Domain Technical Manual  
Part D: Specification

**SUTHERLANDSHIRE**

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Part D: Specification**

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## Section 5: Kerb and gutter

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## 5 Kerb and gutter

### 5.1 Scope

This *work* section provides for the construction of kerb and gutter, kerb only, dish drains, laybacks and kerb ramps. Where this section refers to “kerb” the term shall be taken to mean kerb and gutter, kerb only, dish drains, laybacks and kerb ramps.

### 5.2 Standards and guidelines

The following table indicates the Australian Standards, *SSC standard drawings* and / or RMS Standards applicable to this section:

SSC	<i>SSC standard drawing series – Drawing number SSC-05</i>
RMS	<i>QA Specification R15 Kerbs and gutters</i>
AS 2876	<i>Concrete kerbs and channels (gutters) – Manually or machine placed</i>

This list is not exhaustive and may not include all standards that may apply to the *work* to be undertaken. It is the responsibility of the *contractor* to ensure that all relevant standards are met.

### 5.3 Materials and components

#### 5.3.1 Kerb & gutter, kerb only, dish drains, laybacks & kerb ramps

All concrete compressive strength shall be as indicated in the *SSC standard drawings*. For manually formed kerbs, the concrete slump at the forms shall be no greater than 75mm. Concrete for use in kerb extrusion machines shall have zero slump.

All concrete and reinforcement shall comply with Section 4: Concrete works.

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### 5.3.2 Joints

#### *Expansion joints*

The jointing material shall be bitumen impregnated fibre board and shall extend to the full depth and width of the concrete section.

#### *Dowel joints*

Refer *SSC standard drawings*.

## 5.4 Construction

### 5.4.1 General

Kerb and gutter, kerb only, dish drains, laybacks and kerb ramps are to be constructed in locations shown in the *approved design drawings* to the dimensions detailed in the *SSC standard drawings*.

Prior to the placement of concrete in forms, the *PDC* shall inspect the formwork and reinforcing and verify that its location and level are in accordance with the *approved design drawings*.

Concrete shall be placed and compacted so that it fills the whole of the formwork without voids and shall be screeded and finished using a steel float to work the coarse aggregate back from the exposed surfaces. All corners and edges shall be left neatly rounded using an edging tool.

### 5.4.2 Demolition of existing kerb and gutter

The *contractor* is responsible for the demolition and disposal of kerb as detailed in the *approved design drawings*.

### 5.4.3 Preparation for kerb and gutter

The subgrade shall be trimmed to a level that provides for the full depth of the compacted kerb base and shall be compacted to density specified for the adjoining road pavement.

The width of the excavation shall allow for compaction of the adjacent road pavement.

#### 5.4.4 Kerb base

The kerb shall be constructed on a compacted base of recycled DGS material, minimum thickness of 100mm as defined in Section 7: Roadways. Immediately prior to the placement of concrete, the sub-base shall be wetted to assist curing and reduce shrinkage.

The kerb base shall be extended a minimum 150mm into the footway measured from the back of kerb – refer to *SSC standard drawings*.

#### 5.4.5 Kerb & gutter and kerb only

Concrete kerb and gutters and kerb only shall be cast in-situ either by kerb extrusion machines for long lengths or by pouring concrete into forms for shorter lengths.

##### ***Kerb Extrusion Machines***

Concrete used in kerb extrusion machines shall have a density not less than 96% of density achieved in a specimen cylinder prepared in accordance with AS 1012.

The *contractor* shall carry out concrete core tests in order to confirm compliance with density requirements in accordance with AS 1012. Intervals of such tests shall be one test per lot. A lot shall be the kerb and channel cast in one day's production. The location for testing shall be the kerb and gutter tray or where there is no gutter, the top of the kerb, on the steepest downhill grade on which the kerb machine is travelling.

One core tests shall be conducted per lot. Sampling shall be completed by a NATA accredited (or SSC laboratory).

The *contractor* shall fill holes left after core sampling with a suitable concrete mix coloured to match the kerb and channel within 48 hours of testing.

All formed kerbs, gutters, dishes and laybacks shall have a steel trowel surface finish.

##### ***Joints***

Expansion joints shall be constructed at 6m intervals and where the gutter abuts gully pits, and vehicle crossings.

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### 5.4.6 Kerb and gutter adjacent to cement concrete pavement

Where they are adjacent to concrete road pavements, concrete kerbs and gutters may be formed separately or formed together with the pavement base slab.

Where kerbs are constructed separately from the concrete base slab, they shall be tied to the base slab using 1m long, 12mm diameter hot dipped galvanised steel deformed tie bars. The tie bars shall be cast into both the gutter and the pavement base slab or inserted into holes drilled into the gutter and bonded using epoxy binder.

Where kerb and gutter is to be constructed, the kerb shall be integral with the gutter. A 450mm wide concrete gutter shall be used on all kerb types unless shown otherwise in the *approved design drawings*.

The joints in kerb and gutter shall coincide with transverse joints in the concrete pavement base slab.

### 5.4.7 Road pavement adjustment

Road pavement works shall be carried out as necessary after completion of kerb and gutter construction. Refer Section 7: Roadway pavements.

At locations where carriageway resurfacing or reconstruction is not specified in the *approved design drawings*, the existing pavement shall be adjusted as necessary to match the new kerb whilst providing cross falls in the range between 1% and 4% toward the lip of the gutter. Where the finished surface of the pavement will be > 30mm below the existing pavement surface the full depth of pavement shall be removed and a new pavement of the specified composition and thickness shall be provided.

### 5.4.8 Curing and protection of concrete

The curing and protection of freshly placed concrete shall be as per Section 4: Concrete works.

### 5.4.9 Drainage outlets

Where indicated in the drawings, drainage holes shall be provided through the full thickness of the kerb as shown in the *SSC standard drawings*.

A drainage outlet shall be provided in the kerb near the downstream boundary of each allotment which is capable of draining stormwater to the street and/or where indicated in the *approved design drawings*.

#### **5.4.10 Dish drains**

Dish drains other than at intersections shall be cast in-situ either by kerb extrusion machine or by manual methods of setting up forms and placing concrete in accordance with the *SSC standard drawings*.

Dish drains at intersections shall be cast in-situ by manual methods of setting up forms and placing concrete incorporating reinforcement in accordance with the *SSC standard drawings*.

#### **5.4.11 Laybacks**

For vehicular footpath crossings, refer Section 6: Footpath pavements.

Where extruding kerb on the high side of the road carriageway, laybacks are to be formed by cutting down the kerb and shall not extend behind the back of kerb.

Where constructing laybacks in the existing kerb and gutter and where extruding kerb on the low side of the carriageway, standard laybacks shall be provided as shown in the *approved design drawings*.

#### **5.4.12 Kerb ramps**

Kerb ramps shall be constructed at all intersections as detailed in the *SSC standard drawings*.

The surface of kerb ramps shall have a medium broom finish.

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### 5.5 Quality

#### 5.5.1 Tolerances

Item	Activity	Tolerances
1.	Level and alignment	<ul style="list-style-type: none"><li>— Where the longitudinal grade is &lt;2%, plus or minus 5mm</li><li>— Where the longitudinal grade is 2% or greater, the tolerance shall be Plus 10mm or Minus 10mm. In all cases, variations in level shall not be localised.</li><li>— Localised low spots where water is trapped along the gutter, particularly at kerb ramps, shall not be accepted.</li></ul> <p>The tolerances in the horizontal plane shall be:</p> <ul style="list-style-type: none"><li>— Lateral position - 15 mm in 15 m provided that the variation is not localised.</li><li>— Chainage of vehicular crossings - 150 mm.</li><li>— Dimensions of vehicular crossings - 25 mm.</li></ul>
2.	Kerb radii and chamfers	<ul style="list-style-type: none"><li>— Radii and chamfers for cast in-situ concrete shall vary no more than +/-5mm from the specified radius.</li></ul>

### 5.5.2 Schedule of hold points and check points – Kerb and gutter

<b>Construct new concrete kerb and gutter</b>	
<b>1. Work process:</b>	<b>Kerb setout</b>
<i>Hold point or check point:</i>	<i>Hold point - PDC</i>
<i>Required notice:</i>	By arrangement with <i>PDC</i>
<i>Required action:</i>	The <i>PDC</i> shall inspect the proposed layout prior to releasing the <i>Hold point</i> .
<b>2. Work process:</b>	<b>Placement and compaction of DGB base</b>
<i>Hold point or check point:</i>	<i>Check point</i>
<i>Required notice:</i>	NA
<i>Required action:</i>	The <i>contractor</i> is to have the compaction of the base material tested by a NATA registered laboratory (or SSC laboratory) before proceeding with works that will reduce access to the subgrade.
<b>3. Work process:</b>	<b>Installing concrete formwork and reinforcement</b>
<i>Hold point or check point:</i>	<i>Hold Point</i>
<i>Required notice:</i>	By arrangement with the <i>PDC</i>
<i>Required action:</i>	The <i>PDC</i> shall inspect the concrete formwork and reinforcement and all corrections shall be made, prior to authorising the release of this <i>Hold point</i> .

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<b>4. Work Process:</b>	<b>Locating drainage outlets</b>
<i>Hold point or check point:</i>	<i>Hold point - PDC</i>
<i>Required notice:</i>	By arrangement with <i>PDC</i>
<i>Required action:</i>	The <i>PDC</i> shall inspect marks placed by the contractor indicating the location of roofwater outlets prior to authorising the construction of kerb and gutter.
<b>5. Work Process:</b>	<b>Compaction of extruded concrete in K &amp; G construction</b>
<i>Hold point or check point:</i>	<i>Check point</i>
<i>Required Notice:</i>	NA
<i>Required Action:</i>	The density of concrete of extruded kerbs shall be tested by a NATA registered (or SSC laboratory) for compliance with the specification.
<b>6. Work Process:</b>	<b>Carriageway adjustment placement and compaction of DGB base</b>
<i>Hold point or check point:</i>	<i>Check point</i>
<i>Required notice:</i>	NA
<i>Required action:</i>	The <i>contractor</i> shall have the compaction of the base material tested by a NATA registered laboratory (or SSC laboratory) before proceeding with works that will reduce access to the subgrade.
<b>7. Work Process:</b>	<b>Final Inspection and certification of all <i>works</i></b>
<i>Hold point or check point:</i>	<i>Hold point</i>
<i>Required notice:</i>	Submit a complete set of certification for all <i>Hold points</i> and test results for all <i>Check points</i> at least seven (7) working days prior to final inspection.
<i>Required action:</i>	Council's representative will review the PCA's certification, Hold Point certification and Check Point test results and carry out a final site inspection in the company of the PCA and the contractor prior to authorising the release of the hold point.