Design and Construction Note
Book 400
Standard Kerb Types
and Installation Details

Version 1.1

Book 400 - Amendments

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Issued For Use
Backdrafted Re-Issued For Use
Standard Kerb Types and Installation Details

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Standard Kerb Types and Installation Details

Foreword

The City of Perth has adopted an approach for street enhancement projects to introduce more resilient granite kerbs to city centre streets; maintaining exposed aggregate concrete footpaths for the majority of situations; and identifying high profile locations for granite footpaths. This approach provides for a staged transition towards full granite footpaths in the future.

The kerb material required for street enhancement projects varies depending on the level of amenity proposed, as addressed in Book 300 - Standard Footpath Design and Installation Details. The various levels of amenity call for three types of kerb material to be used in street enhancement projects and can be found in the following chapters:

- Chapter 401 - Standard Granite Kerbs
- Chapter 402 - Standard Precast Concrete Kerbs
- Chapter 403 - Standard In-situ Concrete Kerbs

These chapters set out the standard dimensions and installation details for the different kerb types.

For further information regarding footpath design and installation details refer:

*Book 300 - Standard Footpath Design and Installation Details*
Granite Kerbs

1) Performance Specification:

<table>
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<tr>
<th>Property</th>
<th>Specification</th>
<th>Test Method</th>
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<tr>
<td>Bulk Specific Gravity</td>
<td>Minimum 2.7 t/m³</td>
<td>Tested by Std ASTM C97</td>
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<tr>
<td>Water Absorption (mean)</td>
<td>(% by weight) 0.12%</td>
<td>Tested by Std ASTM C97</td>
</tr>
<tr>
<td>Modulus of Rupture (Dry)</td>
<td>15MPa</td>
<td>Tested by Std ASTM C99</td>
</tr>
<tr>
<td>Modulus of Rupture (Soaked)</td>
<td>12MPa</td>
<td>Tested by Std ASTM C99</td>
</tr>
<tr>
<td>Compressive Strength</td>
<td>140MPa</td>
<td>Tested by Std ASTM C99</td>
</tr>
<tr>
<td>Slip resistance</td>
<td>Minimum - W rating</td>
<td></td>
</tr>
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</table>

Granite Kerbs must comply with the minimum specification requirements as set out in ASTM C615/C615M-11 - Standard Specification for Granite Dimension Stone.

2) Testing of Paving:

All proposed kerbs must have test results to confirm the above properties are fulfilled. Testing to be irrespective of orientation and be performed on exfoliated finished samples. The required methods and standards of testing are:

ASTM Standards:
- C97/C97M Test methods for absorption and bulk specific gravity of dimension stone.
- C119 Terminology relating to dimension stone.
- C170/C170M Test method for compressive strength of dimension stone.
- C241/C241M Test method for abrasion resistance of stone subjected to foot traffic.
- C880/C880M Test method for flexural strength of dimension stone.
- D7102 Test method –intact rock core specimens.

Australian Standards:
- AS4586-2004 Slip resistance classification of new pedestrian surface materials

3) Approval of Test Results:

The appropriate specimens should be prepared from the supplied samples and the above test work has to be done prior to supply of paving.
**Standard Kerb Types and Installation Details**

**Granite Kerb Types**

- **BARRIER KERB**
  - LENGTH VARIES: 800-1200mm

- **FLUSH KERB**
  - LENGTH VARIES: 800-1200mm

- **MOUNTABLE KERB**
  - LENGTH VARIES: 800-1200mm

- **LINTEL KERB**
  - LENGTH: 1200mm
Design and Construction Note

401.02
Standard Kerb Types and Installation Details
Granite Transition Kerbs

Reviewed: 17/10/2018

MOUNTABLE TRANSITION KERB
- LENGTH: 800mm

FLUSH TRANSITION KERB (TYPE A)
- LENGTH: 800mm (Pedestrian Ramps)
  1200mm (Vehicle Ramps/Cross-overs)

FLUSH TRANSITION KERB (TYPE B)
- LENGTH: 800mm (Pedestrian Ramps)
  1200mm (Vehicle Ramps/Cross-overs)
550mm RADIUS PIECE

1300mm RADIUS PIECE - CONVEX

1300mm RADIUS PIECE - CONCAVE

3000mm RADIUS PIECE - CONVEX

3000mm RADIUS PIECE - CONCAVE

General Note:

1. These standard pieces are to be used for square and splayed parking bays. For more information on parking bays in areas with granite kerbs refer Design & Construction Notes: Book 300 - Standard Footpath Design and Installation Details
2. Other standard granite kerb radii (2m, 3m, 5m, 6m, 7m, 9m, 10m & 20m) convex or concave are available. These are costed per linear metre and procured on a project by project basis.
LINTEL KERB FOR SIDE ENTRY DRAINAGE

- LENGTH: 1200mm

General Note:

1. For more information on the installation of the Water Harvesting Lintel Kerb and surrounding 'Water Harvesting' structures, Refer Design & Construction Note 702.03 Water Harvesting Tree-Pit
2. For more information on the installation of the Side Entry Drainage Lintel Kerb and surrounding drainage structures, Refer Design & Construction Note 202.09 Standard Side Entry Pit - Granite Kerb
**Design and Construction Note 401.05**

**Granite Kerb and Footing Cross-Sections**

Reviewed: 17/10/2018

**BARRIER KERB**

**FLUSH KERB**

**SEMI-MOUNTABLE KERB**

**MOUNTABLE KERB**

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Design and Construction Note
401.06
Standard Kerb Types and Installation Details
Granite Kerb Grout Joints and Expansion Joints
Reviewed: 17/10/2018

MIN 5000 (TO NEAREST FULL KERB)
(MINIMISE CUTS TO STANDARD KERB LENGTH)

GRANITE KERB

GRANITE KERB GROUTING
REFER DETAIL 401.08

PLAN - GRANITE KERB GROUT AND EXPANSION JOINTS

EXPANSION JOINT
REFER DETAIL 401.07

GRANITE KERB

95% MMDD COMPACTED SUB-GRADE

CONCRETE FOOTING

JOINT IN CONCRETE FOOTING SHOULD BE ALIGNED TO EDGE OF GRANITE KERB

ELEVATION - TYP EXPANSION JOINT
Standard Kerb Types and Installation Details

Standard Granite Kerb

Grout and Expansion Joints

Reviewed: 17/10/2018

Design and Construction Note

401.07

TYP EXPANSION JOINT DETAILS

EMER-SEAL PU40 POLYURETHANE SEALANT OR APPROVED EQUIVALENT COLOUR TO MATCH GRANITE KERB

STIFFJOINT FILLER (BY PARCHEM) NON-ABSORBENT, SEMI-RIGID, POLYETHYLENE. OR APPROVED EQUIVALENT

MORTAR MIX (MUST NOT EXTEND OVER JOINT OPENING)

STIFFJOINT FILLER (BY PARCHEM) NON-ABSORBENT, SEMI-RIGID, POLYETHYLENE. OR APPROVED EQUIVALENT

THROUGH GRANITE & CONCRETE FOOTING

TYP EXPANSION JOINT DETAILS
GRANITE KERB

5mm KERB JOINT FILLED WITH EPOXY GROUT.
PAREX DAVCO SLATE AND QUARRY GROUT
AND PAREX DAVCO GROUT CURE (diluted 50/50
with water) COLOUR TO MATCH GRANITE KERB.
SUPPLY & INSTALL TO MANUFACTURER’S
RECOMMENDATIONS.

CONCRETE FOOTING

5%MMDD
COMPACTED
SUB-GRADE

TYP GROUTING DETAILS
Precast Concrete Kerbs

1) Concrete
All concrete used in the manufacture of precast kerbing shall have a minimum compressive strength of 25MPa at 28 days. It shall have a maximum aggregate size of 14mm.

2) Mixing
The mixing shall be done with approved mechanical equipment and the quality of the concrete shall be in accordance with AS1379-1997. Compaction of the poured material shall be effected by an approved type vibrator. Care is to be taken to ensure that the materials are not separated by excessive vibration.

3) Casting Mould
The mould shall be of an approved strength and stiffness to resist vibration and ramming stresses. The mould shall be close-jointed to prevent leakage.

4) Tolerances
The finished kerb shall conform to the following tolerances:
- length: ±3.0mm
- width: ±1.5mm
- height: ±3.0mm

5) Demarcation
Curved kerbs shall have the radius clearly marked on one of the unexposed faces.
General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification.
2. Kerb heights at bus stops to be 150mm.
End Elevation

SECTION A

**PRECAST FLUSH KERB**
LENGTH: 600mm

**General Note:**

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification.
**General Note:**

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification.
Design and Construction Note
402.04
Standard Kerb Types and Installation Details
Precast Concrete Radius Kerb
0.55m Radius
Reviewed: 17/10/2018

General Note:
1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification.

Precast Concrete Radius Kerb - 0.55m Radius
ARC LENGTH: 864mm
QTY PER QUADRANT: 1
**Design and Construction Note**

**402.05**

**Standard Kerb Types and Installation Details**

**Precast Concrete Radius Kerb**

**1.30m Radius**

Reviewed: 17/10/2018

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**CONVEX KERB**

25mm RADIUS BEVEL

1.30m RADIUS

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**END ELEVATION**

2 PIECES OF 1.30m RADIUS CONVEX KERB

400x400x60mm PAVERS

PARKING BAY

2 PIECES OF 1.30m RADIUS CONCAVE KERB

25mm BEVEL

1.30m RADIUS

---

**CONCAVE KERB**

25mm RADIUS BEVEL

1.30m RADIUS

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**TYPICAL USE**

**PRECAST CONCRETE RADIUS KERB - 1.30m RADIUS**

ARC LENGTH: 510.5mm

QTY PER QUADRANT: 4

CONVEX & CONCAVE

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**General Note:**

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification.
General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification.
CONVEX KERB

PRECAST CONCRETE RADIUS KERB - 3.0m RADIUS
ARC LENGTH: 524mm
QTY PER QUADRANT: 6
CONVEX & CONCAVE

CONCAVE KERB

END ELEVATION

TYPICAL USE

General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification.
PRECAST CONCRETE RADIUS KERB - 6.0m RADIUS

ARC LENGTH: 589mm
QTY PER QUADRANT: 16
CONVEX & CONCAVE

General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification.
Design and Construction Note
402.09
Standard Kerb Types and Installation Details
Concrete Pre-Cast Kerb
Water Harvesting - Concrete Kerb

Reviewed: 17/10/2018

GENERAL NOTES
1. 40MPa Concrete minimum.
2. 35mm Minimum cover.
3. 200mm Minimum lap.

CENTERLINE OF LETTERBOX KERB TO MATCH CENTERLINE OF TREE-GRATE

PLAN VIEW

SECTION

END ELEVATION

Sheet 1 of 1
In-situ Concrete Kerbs

1) Use of In-situ Concrete Kerbs
In-situ concrete kerbs is the preferred method of construction for semi-mountable and mountable kerbs in areas where concrete kerbs are to be used. Generally, in-situ kerbs shall only be used in locations when there is no possibility of using standard precast kerbs; for reasons such as precast radius pieces do not fit (and cannot be altered to fit) for on-site requirements.

2) Concrete
All concrete used in the manufacture of in-situ kerbing shall have a minimum compressive strength of 32MPa at 28 days. It shall have a maximum aggregate size of 14mm & slump 80mm maximum.

3) Bedding and Keying In
In-situ concrete kerbs shall be layed directly on to the base course material. In situations where this cannot be achieved, in-situ concrete kerbs are to be keyed in at 1500mm centres. To key in kerbs, the asphalt surface shall be cut to a depth of 50mm, prior to laying the kerbs.

4) Tolerances
The kerb shall have no deviation exceeding 5mm to the design line & level.

5) Shrinkage Joints
Shrinkage joints shall be provided at 1000mm intervals, sawn at right angles to the longitudinal line of the kerb.

6) Expansion Joints
Expansion joints shall be provided at 2000mm intervals and are to be sawn with a diamond saw, not less than 12 hours after the kerbing has been initially placed. The width of the joint shall be 7mm, extending the full section of the kerb except at gully pits and tangent points, where the expansion joints should be formed to be 13mm wide. All expansion joints shall be sealed with a strip of ‘Sarmprene’ foam to a depth of 25mm and top sealed with ‘Butyle’ mastic seal. The seal shall finish 3mm below the face and top of the kerb.

6) Curing
After initial set, Concrete surfaces shall be cured for a minimum period of 7 days with a sprayed application of CALCURE CR or approved equivalent, applied by the method and rate specified by the manufacturer. Curing compound is to be applied not less than two hours after surface finishing of the concrete.

For more information about kerbing design refer to www.mainroads.wa.gov.au
IN-SITU CONCRETE BARRIER KERB

General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer Design and Construction Note 403.00 - In-situ Concrete Kerbs General Specification.
2. Kerb height at bus stops to be 150mm.
General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer Design and Construction Note 403.00 - In-situ Concrete Kerbs General Specification.
General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer Design and Construction Note 403.00 - In-situ Concrete Kerbs General Specification.

IN-SITU CONCRETE MOUNTABLE KERB
In-situ Concrete Semi-Mountable Kerb

General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer Design and Construction Note 403.00 - In-situ Concrete Kerbs General Specification.