

1 Scope

This specification details the procedure and minimum standard of construction for vehicular crossings, concrete foot pavement and associated works constructed on the public footway by private contractors under the supervision of Council.

This specification is to be read in conjunction with Council's standard drawings for vehicular crossings and footways as well as the issued design levels and Work Permit approved and referenced drawings.

2 Inspections

Council must inspect the work at the following stages:

- **Pre-pour stage -**

For concrete works - when formwork is setup, base course laid and reinforcement fixed in place and laid on chairs.

For stormwater drainage connections and pipes within the footway/road reserve - following laying of pipes and prior to backfilling (refer clause 12.4).

- **Final stage -** Following completion of all works and backfilling.

You will need to contact Council's Work Permit Section on **9707 9020** to book an inspection. Inspections need to be booked at least 48 working hours prior to being required. Details of the contractor's name and their Public Liability insurance for a minimum cover of \$20,000,000.00 and must have Canterbury Bankstown Council mentioned as an interested party needs to be sent to Work Permit Section **prior to booking the pre-pour inspection** via

Fax: (02) 9707 9560 or Email: workpermits@cbc.city.nsw.gov.au

Inspection times are as follows:

Monday to Friday	7.00 am to 1.00 pm
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A pre-pour inspection **must be approved** before continuing with the placement of concrete. In case the concrete is poured prior to inspection, Council may require reconstruction of the work, and will require as a minimum that core samples are provided to determine the depth of concrete, base course, reinforcement size and depth to the reinforcement. Certification by a practicing Civil Engineer for the work carried out will also be required.

3 Premature and Additional Inspections

Where inspections are booked prematurely and the site inspection reveals that the work carried out is incomplete or inaccurate, a re-inspection fee will be charged.

It is noted that the application fee includes the first pre-pour and first final inspections only. All additional inspections will attract re-inspection fees. All fees are in accordance with Council's Adopted Fees and Charges.

4 Remedial Works

Where work is not completed to the standard of this specification the applicant / contractor will be given 48 hours to rectify the works. Upon failing to do so, Council may arrange for the work to be carried out at the applicant's expense.

5 Levels and Dimensions

The design levels & dimensions for the vehicular crossing are on the attached plan labelled 'Design Levels'. The location of the property boundary needs to be established by survey. Council does not accept any responsibility for identification of the location of the property boundary.

Unpaved footways are to be shaped to an evenly graded surface between top of kerb, the property boundary, the vehicular footway crossing, and any concrete foot paving, to remove surface irregularities or sharp changes in grade. The desirable grade is 1 in 14 (7.1%) and *the* absolute maximum grade is 1 in 8 (12.5%). It is the applicant / contractor's responsibility to ensure these grades are achieved.

For foot paving construction and reconstruction, the desirable footpath cross fall is 2 - 2.5% towards the road. See Standard Drawing S-027. The desirable maximum longitudinal footpath grade is 1 in 14 (7.1%) and *the* absolute maximum grade is 1 in 8 (12.5%), where approved.

The vehicular crossing is to be constructed in the location as indicated on the attached design plan. Also, the vehicular crossing (including wings) is to be a minimum of 0.5m clear of any stormwater drainage pit lintels, 0.6 m clear of power poles and should be located a minimum of 2.0m clear of the trunk of street trees. Removal of street trees will only be approved in accordance with Council's DCP Part E2 - Tree Preservation Order.

6 Acceptable Types of Vehicular Crossings

Only the following type of vehicular crossings shall be used:

- Plain grey concrete with broomed surface finish.

Existing foot paving within the proposed vehicular footway crossing and any affected foot paving required to provide adequate transitions is to be removed and reconstructed as part of the vehicular crossing works.

The following table sets out the minimum standard of construction.

Construction Type	Concrete	Reinforcement	Basecourse
Light Duty Vehicular Crossing	125mm Thick 32 MPa	SL72 Fabric 50mm Top Cover	100 mm Thick Road Base*. See Std Dwg S-007
Medium Duty Vehicular Crossing	150mm Thick 32 MPa	SL82 Fabric 50mm Top Cover	100 mm Thick Road Base*. See Std Dwg S-008
Heavy Duty Vehicular Crossing	200mm Thick 32MPa	SL82 Fabric 50mm Top Cover	150 mm Thick Road Base*. See Std Dwg S-009
Extra Heavy Duty Vehicular Crossing	225mm Thick 32MPa	SL82 Fabric Top & Btm. 50mm Top & Btm Cover	150 mm Thick Road Base*. See Std Dwg S-010
Concrete Foot paving	80mm Thick 25 MPa OR 125mm Thick (where specified/directed) See Std Dwgs S-027, S-029. 25MPa	No Reinforcement For 80mm Thick Concrete SL 62 Fabric, 50mm Top Cover For 125mm Thick Concrete.	70 mm Thick Road Base* for 80mm Thick Concrete 100mm Thick Road Base for 125mm Thick Concrete. See Std Dwgs S-027, S-029.

* Road Base can be fine crushed rock graded to DGB20 or crushed recycled concrete graded to DGS20.

7 Construction Requirements In Vicinity Of Street Trees

Special treatments for any proposed trench excavation and construction of concrete footpath, vehicular crossings and kerb and gutter are required, when this infrastructure is located in close proximity to street trees. Refer to Council's standard drawing S-209 for details. The requirements contained in this drawing shall be complied with.

8 Traffic Control and Safety for People

Adequate traffic control shall be provided by the applicant/contractor for any work within the road reserve, including the footway, in accordance with *AS1742.3-2002 Traffic Control Devices for works on roads* and other relevant Australian Standards. The traffic control measures shall also include provision specifically for the safe movement of pedestrians in accordance with the above standards. The traffic control measures shall include the required safety fencing, barricades, reflective tape, lighting, signs, temporary roadways and footways etc necessary for public traffic & pedestrian movement. Adequate illumination is to be provided at night for signs and barriers.

Any work involving temporary lane closure, partial closure of road and/or which requires vehicles to be directed onto the 'wrong side' of the road, the applicant shall provide a Traffic Management Plan to Council's Traffic and Transport Section for approval.

Excavated material or construction equipment is not to be left on public footways or roadways. Should removal of any construction materials and debris, or clearing of any part of the road reserve be necessary for environmental, safety or asset protection reasons, Council will carry out the work at the applicant's expense.

9 Public Liability Insurance

The Applicant / Contractor shall indemnify Council, by providing and maintaining current Public Liability Insurance (\$20 million dollars minimum and must have Canterbury Bankstown Council mentioned as an interested party) and shall be responsible for any injury or loss, which the Council or any persons may suffer through the construction of this vehicular crossing and any associated works in the footway/road reserve, until a Final Work Permit Compliance Certificate is received from Council.

The Contractor / Applicant shall provide Council with copy of the details of insurance specified above (including cover for construction in public footways and roadways) before commencing the work. A copy of the certificate of currency faxed to Council's Work Permits Team on 9707 9560 is acceptable.

10 Environmental Protection

Measures shall be taken to prevent sediment loss (or any other pollution) onto roadways and into Council stormwater drainage systems. *Sediment and concrete washdown waste is a major pollutant in waterways. The Applicant / Contractor is required to :*

- Provide and maintain sediment control devices in accordance with Council's DCP Part E1 - Demolition and Construction, and around inlet pits and soil stockpile. Standard Drawing S-014 provides minimum requirements in some applications.
- In particular do not stock pile materials on public footways and roadways.
- Remove all soil and other materials spilt onto public footways, gutters and roadways with a shovel and broom at the end of each day's work.
- Topsoil and turf all disturbed or damaged grass areas.

11 Public Utilities

Every precaution needs to be taken to locate and protect all public utility services, private services, Council stormwater drainage structures, and property. Any damage to these assets and services during construction shall be repaired by the appropriate authority at the contractor's cost. It is the applicant's responsibility to arrange for **DIAL BEFORE YOU DIG**® searches by calling **1100**.

You may need to adjust the levels of public utility services to match finished surface levels or achieve the desirable grades as stated in Section 5 of this specification. Relocation or adjustment of any services (eg. Mains, pits, conduits, poles etc) are to be arranged with the responsible Public Utility Authority at the applicant's cost.

12 Materials and Construction

The materials and construction shall be in accordance to Aus-Spec specification C271-Minor Concrete Works, the relevant Council drawing Nos. S - 007 (Standard Light - Duty Vehicular Crossings), S - 008 (Standard Medium - Duty Vehicular Crossings), S - 009 (Standard Heavy - Duty Vehicular Crossings), S - 010 (Standard Extra Heavy - Duty Vehicular Crossings), S - 027 Standard Foot paving For Residential Footways, S - 209 Standard Street Tree Treatments and any other documents attached to this specification.

In particular you will need to pay attention to:

12.1 Excavation (or Fill)

- Existing concrete must be saw cut prior to excavation (at existing joints, or as directed by Council's Work Permit Officer).
- Trim sub grade evenly to required levels. Soft or yielding material shall be replaced with sound material, approved by Council's Work Permit Officer and evenly compacted.
- Fill is to be crushed stone road base or equivalent (not sand), fully compacted as approved by Council's Work Permit Officer.

12.2 Base course

- Refer to Section 6 of this specification. The base course It is to be uniformly compacted to 100% standard compaction (as in AS1289), and trimmed evenly to a tolerance within 10mm to achieve the required design levels on the attached drawing.

12.3 Laybacks

- Redundant laybacks are to be saw cut, removed and replaced with kerb and gutter in accordance with details shown on Council's standard drawings. In light duty cases and where the street gutter is in good condition, the redundant layback may be sawcut 100mm out from the invert of gutter and replaced with kerb in accordance with the detail shown on the vehicular crossing standard drawings. If the gutter is damaged, or in areas of heavy traffic, construction of the kerb and gutter will be necessary. This may be indicated on the design plan or Council's Work Permit Officer may direct on site for this work to be carried out.
- **Laybacks are to be plain grey concrete only.**

12.4 Stormwater Drainage Connections to Kerb and Gutter

- Stormwater drainage pipes crossing the public roadway and footway, shall be installed in accordance with standard drawing S - 107. The location, material type and layout of the stormwater elements within the road reserve and footway shall be in accordance with the approved plan attached to the Work Permit approval and any site instructions given by the Work Permit Officer. An inspection by Council's Work Permits Officer is required for all the stormwater drainage elements within the footway/road reserve and in connection to Council's drainage system, prior to backfilling.
- Pipes not part of a current building approval, being reinstated or relocated as a result of constructing a vehicular footway crossing, shall be equivalent to existing, but in any case, of a standard no less than 100mm diameter extra heavy - duty sewer grade PVC pipes. The pipe connection outlet to the kerb shall be located a minimum of 0.3 metres clear of the top of the vehicular crossing wing and to Council's specifications.
- Where stormwater drainage trenches cross existing concrete vehicle crossings, the contractor shall saw cut the concrete prior to opening the trench. Saw cuts are to be square to edges. Diagonal cuts are not permitted.
- Vehicular crossings shall be restored to have a maximum of two sections from the street gutter to the property boundary. Restored crossing sections are to be reinforced in accordance with the reinforcement requirements in clause 6 above. All new concrete is to be dowelled / tied to existing concrete using N12 deformed bars, 450 mm long at 300mm centres.
- All trenches in unpaved sections of the footway are to be backfilled with approved material, compacted, graded and turfed in accordance with Council's standard drawing S - 108. All disturbed areas are to be turfed.
- Any connection to the roadway gutter is to be made according to Council's standard drawing S - 107, in a neat and tidy manner to the satisfaction of Council's *Work Permit* Inspector.

12.5 Other Additional Works

- The Applicant is responsible for other additional works that are required to ensure that the approved works join smoothly to existing features. These works may include the following. Relocation or adjustment of any utility authority services are to be arranged with the responsible Public Utility Authority, at the applicant's cost:
- Removing redundant structures, and relocating structures clear of the crossing.
- Adjustments to existing adjoining vehicular crossings, joined laybacks, existing foot paving, drainage pits and pipelines, public utility structures such as Telstra pits, etc.
- Removal of redundant vehicular crossings and reinstatement of kerb and footway.
- Relocation of power poles.
- Reshaping of the footway to provide smooth transitions and crossfalls to concrete structures.

12.6 Formwork

- Formwork shall carry construction loads without deformation, be mortar-tight, and lightly lubricated to ensure non - adhesion of concrete.
- Forms can be removed 24 hours after the placing of concrete.

12.7 Steel Reinforcement

- Steel fabric (SL62 and SL82 to AS/NZS 4671) is to be free from substances, which would reduce the bond between concrete & steel (e.g. millscale, loose rust, mud, mortar, etc).
- Steel fabric shall be positioned as shown in the attached standard drawing (or as directed by Council's *Work Permit Officer*), be lapped more than 200mm & secured by wire-ties, and supported on bar chairs (spaced at less than 1000mm centres).

12.8 Concrete

- Concrete vehicular crossings can only have a plain finish, which meets minimum surface requirements specified below. Note: If in the future, Council or any of the Public Utility Authorities damage the crossing by the laying of pipes, cables, etc or if any other damage is sustained, Council does not guarantee to replace the shape and/or size, when restoring the damage.
- Council may require compressive strength testing, at the contractor's cost to determine concrete strength.
- Concrete shall not be placed during extremely cold, hot or in wet weather. Concrete shall be supplied in quantities for immediate use, be placed in the forms without segregating the aggregate, be placed before the concrete has developed initial set, and be compacted by spading or slicing to completely fill every part of the form.
- After removal of forms, any rough or porous parts shall be thoroughly scabbled and dressed with mortar (i.e. 2:1 sand: cement ratio).

12.9 Surface Requirements for Pavements

All surfaces must meet the following minimum requirements:

- Abrasion Resistance: Less than 5.5 cc abraded volume in accordance with the relevant NATA test.
- Slip Resistance: Greater than pendulum friction values recommended in AS / NZ S 3661.1 for non-slip surfaces. The minimum in - service coefficient of friction varies from 0.4 for flat surfaces to 0.65 for gradients of 20%.
- Sealing of vehicular crossings and spray on top of concrete surface, is not permitted.

The following type of finish for vehicular crossings may be accepted:

(i) Plain Concrete

Broom Finish

Note: Steel trowel finish to vehicular crossing and foot paving surfaces shall **not** be allowed under any circumstances

12.10 Joints

- Expansion joints (between all existing and new concrete) shall be pre-formed bitumen impregnated fibreboard, 10mm thick to full concrete depth. Expansion joints for concrete foot paving shall be placed at spacing not exceeding 6 metres. The joints shall be flush with the concrete surface. An expansion joint shall also be placed at the back of the layback for light and medium duty vehicular crossings.
- Weakened plane (dummy) joints shall be 5mm - deep, 5mm - wide, tooled grooves as shown on the attached drawings. Dummy joints shall also be placed at 1.2 m spacing in concrete foot paving.

12.11 Curing and Protection

- Concrete shall be kept damp for 3 days after placing and protected from damage.
- Damaged, defaced or unsatisfactory sections shall be removed and reconstructed as directed by Council's Work Permit Officer.
- Light and Medium duty vehicular footway crossings can be trafficked by light vehicles 3 days after placing concrete. Heavy duty and Extra Heavy duty crossings with 32 MPa concrete can be trafficked 5 days and 7 days respectively, after placing concrete.

12.12 Backfilling

- After removal of all formwork, disturbed areas of the unpaved footway are to be backfilled with topsoil to all concrete edges, smoothly shaped to match Council issued public footway design levels (with transitions, where required, complying with the grades specified in clause 5), then top - dressed and turfed as necessary. The area shall be cleaned up and left in a neat and tidy state. Grass seeds will not be accepted.
- Where the work carried out involves reconstruction of the street gutter, it is necessary to attach an edge board to the surface of the road adjacent to the lip of gutter, to allow use of the correct edging tool. In these situations, the edge of the road pavement shall be sawcut after the concrete has set, to provide a straight edge and then backfilled with compacted **AC10 hot mix** in accordance with the relevant Council drawing Nos. S-007, S-008, S-009, S-010. Concrete backfill will not be accepted.