



City of  
**Bayswater**

# **CROSSOVER APPLICATION BOOKLET SPECIFICATIONS FOR CONTRACTORS**

## **August 2024**

61 Broun Avenue, Morley WA 6062

Telephone: 9272 0622

Facsimile: 9272 0665

Postal address: PO Box 467, Morley WA 6943

Email: [mail@bayswater.wa.gov.au](mailto:mail@bayswater.wa.gov.au)



## **2. TECHNICAL SPECIFICATION**

### **2.1 GENERAL**

Most of the scheduled work will originate from the City's Engineering Works operational business unit within the Infrastructure and Assets Directorate. Concrete works may also be required by the City's other operational areas from time-to-time (i.e., Project Services, Parks and Gardens etc.).

The City of Bayswater requires the Contractor to provide, in its entirety, all labour, materials, plant, resources, and equipment necessary to conduct the below works in accordance with the Contract documents

#### **2.1.1 Summary of works**

- Dilapidation survey
- Prior notification to the owners/occupier
- Responsibility regarding existing services
- Protection of work and public
- Guarding against vandalism
- Excavation
- Verge shaping
- Compaction
- Forming
- Supply of concrete
- Placing and finishing
- Stripping of edge forms
- Installation of handrails and bollards
- Installation of pram ramps
- Backfill
- Reinstatements
- Provision of As Constructed Documentation
- Miscellaneous items related to works
- And other works outlined in the Price Schedule

The City reserves the right to undertake in part or in total any works detailed in this Contract, in particular excavations and construction

#### **2.1.2 Scope of Work**

##### **2.1.2.1 Crossovers**

The crossover works to be performed by the Contractor will consist of the construction and repair of concrete crossings in road reserves from the constructed road to the private property or fence line, in accordance with the City's standard drawings.

- The City's total volume of new crossover construction (refer Drawing 16/18) can vary substantially from year to year.
- Concrete entrance apron – 600mm wide. The apron, is to be provided, when instructed to do so, at crossover entrances where the full crossover will not be constructed as part of the scope of works. The apron is virtually the front portion of a normal crossover consisting of flaring at each end and tapering in thickness from 220mm at the road end to 100mm at the driveway end.
- For residential crossovers, the depth of concrete will be 100mm minimum. Concrete used will be 25MPa at 28 days minimum
- For commercial crossovers (heavy duty), the depth of concrete will be 150mm minimum, Concrete strength will be 25MPa at 28 days minimum.
- Crossovers must be constructed at right angles to the road, in cul-de-sacs, and at some other locations, approval may be given by the Authorised Officer for variations to this requirement
- Crossovers (including wings) at corner sites will be constructed by the Contractor closer than 6m from the property line intersection point (refer drawing 40/07)

**Crossover Preparation Work will include the following**

- Saw cutting of concrete where required (front and rear of existing driveways and through footpaths and road pavements) to a straight edge
- Saw cutting and removal of existing kerbing
- Boxing out (including cutting of tree roots less than 150mm diameter)
- Disposal of all excavated material (e.g., sand, tree roots, grass, concrete, bitumen)
- Preparation of sub-grade including required bedding sand, watering, and compaction

**Crossover Concrete Work will include the following**

- Supply and placement of formwork
- Supply and placement of expansion material
- Supply, place, cut and support steel reinforcing mesh
- Forming, supply, placement and finishing of concrete (including admixture for high early strength) and transition crossover splays into existing kerbing expansion material
- Guarding of Concrete against all damage
- Backfill including reinstatement of works (refer Clause 2.3.21 Reinstatement: including bitumen, reticulation and brick paving) and compaction of backfill
- Repair of damaged asphalt where the new crossover meets the road gutter line in accordance with the reinstatement requirements of this specification

**2.1.2.2 Footpaths**

Footpath works will consist of cast in-situ concrete paths on Road Verges, in Pedestrian Access Ways and other areas within the City of Bayswater in accordance with this Specification and as shown on plans or as directed by the Authorised Officer.

The works required under this Contract include:

- Construction of new footpaths.
- Replacement and reconstruction of existing paths with new in situ concrete paths.

The City's total volume of footpath construction can vary substantially from year to year, consisting mostly of residential standard 100mm thick concrete path.

**Footpath preparation work will include the following:**

- Saw cutting where required (through crossovers, roads, kerb)
- Boxing out (including cutting of tree roots less than 150mm diameter)
- Disposal of all excavated material (e.g., sand, tree roots, grass, concrete, bitumen)
- Preparation of sub-grade including required bedding sand watering and compaction
- Verge shaping where identified

**Footpath Concrete Work will include the following:**

- Supply and placement of formwork
- Supply and placement of expansion material
- Supply and placement of locking joints adjacent to all trees locations
- Supply, place, cut and support steel reinforcing mesh
- Forming, supply, placement and finishing of concrete (including admixture for high early strength)
- Guarding of Concrete against all damage
- Stripping of formwork
- Backfill including reinstatement of works (refer Clause 2.3.21 Reinstatement: including bitumen, reticulation and brick paving) and compaction of backfill

**2.1.2.3 Maintenance (Repair Works) and other associated concrete works**

The City's total volume of maintenance works and other associated concrete works can vary substantially from year to year. These works to be performed by the Contractor will include



### **Repair of cast in-situ concrete paths and concrete infill to islands**

- The section of the path or crossover under repair must be cut and removed at the closest construction joint rather than at mid-panel
- These tasks will involve various steps, including the removal of broken sections and associated disposal costs, as well as the removal and disposal of tree roots, backfilling, and compacting to ensure the integrity of the repaired areas, as specified under clause 2.1.2.2 Footpath preparation works and Footpath Construction works.

### **Construction of pram ramp**

The Contractor will be required to install Pram Ramps for new cast in-situ concrete footpath and/or replace damaged pram ramps in existing footpath locations on Road Verges, in Pedestrian Access Ways and other areas within the City of Bayswater. This will involve

- Cutting, removing and disposing of existing concrete panel.
- The installation of Pram Ramp in accordance to Drawing 05/18
- Backfill and reinstatement as required.

### **Footpath Grinding**

The Contractor shall also be responsible for the grinding of footpaths when required to rectify uneven surfaces or trip hazards. Grinding shall be conducted in accordance with relevant safety standards and local regulations. Tasks associated with grinding include

- Assessment of footpath surfaces to identify uneven areas or trip hazards.
- Execution of grinding activities using appropriate machinery and equipment.
- Removal of excess material resulting from grinding.
- Inspection of the ground surfaces post-grinding to ensure smoothness and compliance with safety standards.

If any sections within the path cannot be ground due to severe damage, the Contractor shall promptly measure the dimensions of these sections and notify the Authorised Officer.

### **2.1.3 Standards**

The supply, delivery and laying of concrete crossovers and footpath shall conform to the following standards to the extent that they are relevant:

- AS 1012.9:2014 – Methods of testing concrete, Method 9: Compressive strength tests – Concrete, mortar and grout specimens
- AS 1379:2007 – Specification and supply of concrete
- AS 1478.1:2000 – Chemical admixtures for concrete, mortar and grout. Part 1: Admixtures for concrete
- AS 2758.1:2014 – Aggregates and rock for engineering purposes, Part 1: Concrete aggregates
- AS 3600:2018 – Concrete structures
- AS 3972:2010 – General purpose and blended cements
- AS 4663:2013 – Slip resistance measurement of existing pedestrian surfaces
- AS 4671:2019 – Steel for the reinforcement of concrete
- ASTM C309-19 – Standard specification for liquid membrane-forming compounds for curing concrete
- MRWA Traffic Management for Works on Roads Code of Practice (Mar 2024)

## **2.2 GENERAL CONSTRUCTION CRITERIA**

### **2.2.1 Dimensions and Scales on Drawings**

All dimensions indicated on drawings will be checked on-site by the Contractor prior to the commencement of work

Discrepancies identified by the Contractor will be referred to the Authorised Officer for determination.

### **2.2.2 Survey**

The Authorised Officer may, from time to time, provide Temporary Bench Marks for reduced levels based on Australian Height Datum and also pegs to indicate road centre lines, the boundaries of necessary road reserves and lots. The Contractor is responsible for accommodating these reference points and any further pegging deemed necessary by the Authorised Officer. This includes accurately offsetting the provided reference points and facilitating additional pegging as required.

In the event of constructing new crossovers, the Contractor must liaise with the Authorised Officer to establish the level at the property boundary.

### **2.2.3 Variations**

Variations by the Contractor from the Contract Drawings or Specifications will NOT be made without the written approval of the Authorised Officer.

### **2.2.4 Dilapidation Survey**

Where existing buildings are located within 50m of any work area, the Contractor shall have a dilapidation survey of the works area completed in order to assess claims of damage against the Contractor.

### **2.2.5 Prior Notification to The Owners/Occupiers**

Footpath construction (capital works), the City will provide letters to the owner/occupiers giving a minimum of two (2) weeks' notice prior to commencement of works.

Footpath repair works, the Contractor will need to notify the Authorised Officer in advance of any repair works they plan to undertake. This notification will not only facilitate the coordination of activities but will also enable the Authorised Officer to be aware if any residents call through regarding the repair works, ensuring efficient handling of inquiries or concerns.

The Contractor will be responsible for giving immediate prior notice to the owner/occupier with regard to timing of work, access to their property and removal of obstructing vehicles for all works undertaken.

Upon commencement of the Contract, the Contractor shall submit their notification template to the Authorised Officer for approval prior to releasing notifications.

### **2.2.6 Responsibility regarding existing services**

The Contractor will be held responsible for

- Any damage to existing services and damage to such services will be made good at the expense of the Contractor.
- Notifying the Authority concerned and the Authorised Officer immediately of any damage that is caused to their services.
- Obtaining service information (One Call / Before You Dig Australia) before commencing
- Obtaining all necessary permits, and locating all services prior to excavation

The Authorised Officer will arrange for any necessary relocation of existing utilities where required.

### **2.2.7 Protection of work and public**

All necessary precautions will be taken to:

- Protect the work, private property (including reticulation and approved verge treatments).
- Safeguard the public.
- Allow reasonable access to all properties during progress of work.
- Protect all land monuments, property marks and all public and private property from disturbance or damage until the Authorised Officer has witnessed or otherwise recorded their location.

#### **2.2.8 Traffic Management**

The Authorised Officer will provide all traffic management for the Contractor to ensure the safety of works during construction, including upto 2 hours of aftercare for any works located in the middle of the road.

Once the works are completed, aftercare will be removed. Protection of the works after concrete has been laid remains the responsibility of the contractor. If the works are not deemed to be adequately protected, any repairs needed for the damaged works will be at the contractor's cost.

#### **2.2.9 Warning Signs and Barricades**

Every endeavour must be made to allow reasonable access to properties during progress of the work and the Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient lights, danger signals, signs and other traffic control devices.

Warning signs, barricades, ribbons, erected by the Contractor on completion of work shall conform to the current MRWA Traffic Management for Works on Roads Code of Practice, AS 1742.3 and Council Policy. Warning signs, barricades etc. will be removed 48 hours after works have been completed.

#### **2.2.10 Guarding Against Vandalism**

The Contractor will be responsible for guarding against damage due to vandalism. All panels damaged due to vandalism shall be replaced within 5 working days of damage at the Contractor's cost.

#### **2.2.11 Tip Fees**

The Contractor will pay for all tipping fees (to be included in fee structure)



## **2.3 TECHNICAL CONSTRUCTION CRITERIA**

### **2.3.1 Excavation**

Excavation when carried out by a Contractor shall be as follows:

- The excavation by the Contractor will be carried out to the levels, lines and grades as given for a job site.
- All excavation will be executed cleanly to produce a sound base, free of depressions or soft spots or any deleterious materials to give the minimum required depth of the concrete works.
- The Contractor must repair any damage to reticulation systems caused by excavation.
- Reticulation in close proximity to the work will be cut, capped, and removed prior to construction, and reinstated during the backfill operation.
- Excavation carried out through an existing bitumen crossover will be neatly cut to facilitate later bitumen reinstatement.
- The removal of excavated material from the site of the works and leaving the site in a clean and tidy condition will be the responsibility of the Contractor.
- The Contractor shall ensure sufficient dust control is in place during excavation works.

### **2.3.2 Verge Shaping**

Prior to the pouring of concrete, any verge that was left with a steep drop greater than 1:4 (1 in 4 or 25%) shall be graded back to an extent that mowing of the verge (whether it has grass or not) by the residents would still be possible. The Authorised Officer shall bear the costs related to this operation where the width of the verge shaping is more than 500mm

Additionally, if the verge is elevated more than 100mm above the finishing level of the footpath, the City will cover the expenses for shaping the verge.

### **2.3.3 Compaction**

All sub grades (i.e., underside of concrete) will be thoroughly compacted to produce a minimum Perth penetrometer reading of seven blows per 300mm (calibrated to 95% Maximum Dry Density), and cut to grade.

### **2.3.4 Forming**

Forms will be of such cross-section and strength and so secured by the Contractor to resist the pressure of the concrete when placed, without springing or settlement.

- The method of connection between sections will be such that the joints will not move in any direction.
- The maximum deviation of the top surface of the form will not exceed 4mm in 3 metres of the inside face and not more than 4mm in 3 metres longitudinally.
- The form, when set, will be uniformly supported for its entire length at the specified elevation.
- All forms will be clean prior to use by the Contractor and treated such that when stripped, concrete will not adhere to the Form

### **2.3.5 Grade and Alignment**

The Contractor shall check and correct alignment and grade elevations immediately before placing the concrete. If the form has been disturbed or any grade has become unstable, the form shall be reset and rechecked.

- All urban paths shall be laid at a 2% lateral positive grade falling to the top of the adjacent kerb.
- The maximum permissible grade for 600mm apron is 1 in 5 (20%), the section extending from the apron to a width of 1.8 metres behind the kerb should maintain a grade of 2% unless otherwise directed by the Authorised Officer
- To assist drainage, a cross fall of not less than 1 in 50 (2%) shall be provided at right angles to the centre line of the pavement grading towards the road and approved by the Works Coordinator.

### 2.3.6 Reinforcement

Steel reinforcing mesh, will be cast into all footpaths and crossovers where required

- All steel reinforcing mesh used in concrete construction shall be clean of all loose surface rust, oil, or other coatings detrimental to bonding with concrete.
- Steel reinforcing mesh shall be of type SL82 and have a tensile strength of 500MPa in line with AS 4671 (D500SL82).
- Steel reinforcing mesh shall be sufficiently supported by 75mm plastic bar chairs or other self-supporting instrument approved by the Authorised Officer to ensure adequate cover on the top and bottom faces.
- The Contractor shall provide sufficient notice to the Authorised Officer (not less than 24 hours) to visually inspect the installation of steel reinforcing mesh in order for the relevant rate to be charged by the Contractor.

### 2.3.7 Concrete

Premixed concrete to be supplied and used by the Contractor, will comply with AS 1379: The Specification and Supply of Concrete, in all respects.

- Concrete will have a minimum compressive strength of 25 MPA at 28 days.
- The maximum aggregate size shall be 20mm.
- The Slump at the point of delivery shall be 75mm  $\pm$  15mm.
- A high early strength cement or additive will be used by the Contractor to give rapid hardening as per AS 1478 Chemical Admixtures for Concrete.

### 2.3.8 Recycled Concrete

Premixed recycled concrete can be supplied and used by the Contractor if requested and agreed by Authorised Officer, will comply with AS 1379: The Specification and Supply of Concrete, in all respects

- Concrete will have a minimum compressive strength of 25 MPA at 28 days.
- The maximum aggregate size shall be 20mm.
- The Slump at the point of delivery shall be 75mm  $\pm$  15mm.
- A high early strength cement or additive will be used by the Contractor to give rapid hardening as per AS 1478 Chemical Admixtures for Concrete.
- All supplied recycled concrete shall be accompanied by a NATA approved test certificate attached to the invoice for works.
- Testing of concrete shall be undertaken as per the following table and in accordance with AS 1012 'Methods of Testing Concrete'. Responsibility lay with the Contractor to demonstrate to the City conformance to the Australian Standard

Item	Tests Required	Result required
Every batch	Concrete Compression tests on three test cylinders (1 at 7 days), 2 at 28 days) Minimum one set of three (3) cylinders tested per batch	As per AS 1012

Where the product does not achieve the specification, to the satisfaction of the Authorised Officer, the Supplier will be instructed to replace the defective product at the Supplier's cost.



Material used in recycled concrete shall confirm to the below

Item	Details
Cement	Cement shall comply with AS 3972 Portland and Blended Cements.
Aggregates	Aggregates shall comply with AS 2758.1 Aggregates and Rock for Engineering Purposes.
Concrete	All concrete shall comply with AS 1379 Specification and Supply of Concrete. If the Authorised Officer so directs, an approved high strength additive will be applied by the Supplier to give rapid hardening. The additive shall comply with AS 1478 Chemical Admixtures for Concrete. Payment for concrete with additives will be per cubic meter supplied and delivered. Rates shall be determined by quotation.
Pre-mixed Concrete	Pre-mix concrete shall be manufactured and delivered in accordance with the requirements of AS 1379.

### 2.3.9 Stencilled and Textured Concrete

- Pattern: as requested
- Colour: as requested. Colour Hardener mixture and application method according to manufacturer's specification.
- Ensure the concrete surface is completely dry before applying the stencil. Stencil must be secured to the concrete surface to minimise colour bleeding and achieve clean crisp lines in the final design.
- Apply Colour Hardener: minimum 2 coats for pedestrian areas and minimum 4 coats for vehicle traffic areas.
- Stencil must be removed without damaging the edges.
- Coarse finish surface being Broom Finish or Sponge Finish.
- Apply Anti-slip finishes and textures to the concrete surface on inclines areas where grading more than 3% using Non-Slip glass additives as per manufacturer's specifications.
- Surface hardness should not less than 7 on MOHS scale
- Skid resistance test should be not less than average skid resistance value 65
- Average abraded volume as BDRI test method B6 should be equal or less than value of 2.05cm<sup>3</sup>

### 2.3.10 Water

The supply of water needed for the proper carrying out of the work on a job (e.g., to obtain the compaction specified herein) will be the responsibility of the Contractor.

Unauthorised use of property owners' water will not be tolerated and may result in terminating the Contract.

### 2.3.11 Placing and Finishing

All work performed by the Contractor will be of the highest quality, uniform appearance and executed in a tradesman-like manner, including;

- The concrete shall be deposited on the subgrade in such a manner as to require as little rehandling as possible.
- The subgrade shall be thoroughly moistened but not saturated before concrete placement begins, to reduce water absorption. Any necessary hand spreading shall be done with shovels or concrete rakes, but not tined rakes.
- Thorough compaction of concrete against the faces of forms and along the full length of the footpath by hand tamping or vibrating screed.
- The addition of water to the surface of the concrete to assist in finishing operations may be allowed in hot weather conditions. If permitted by the Authorised Officer, such water shall be applied as a fog spray.

- Screeding by hand finishing methods. The screed board shall be operated perpendicular to the centre line of the footpath and shall be moved forward one half its length after each pass. Irregularities in the surface shall be corrected by adding or removing concrete. All disturbed places shall be again straight-edged
- Not undertaking final finishing until bleed water has disappeared from the surface.
- A dry cement shake shall not be used to absorb bleed water.
- Brooming (approximately 2mm deep) the final finish with joints and edges polished smooth with jointing and edging tool. (Deep broom finish might be required occasionally.)
- Removing and thoroughly cleaning off any concrete slurry from adjoining structures such as Telstra boxes, Driveways, etc.
- Broom finishes shall be perpendicular to the direction of pedestrian traffic (i.e., for footpath panels – perpendicular to kerbing, and for pram ramps – parallel to the adjacent kerbing)
- Before final finishing is complete and before the concrete has taken its initial set, the edges of the pavement shall be carefully finished with an edger of the radius shown on the plans.
- The final non-slip finish shall be broom finish
- All concrete works are to be fully “picture-framed” to a width of 75mm or match internal concrete finish to the satisfaction of the Authorised Officer. No “ridges” exceeding 3mm shall be present after finishing of concrete works.
- Concrete works where a panel has been replaced shall have its end joints matched to the adjacent panel.
- After concrete construction, the site shall be left in a clean and tidy manner and no aggregate, sand, cement grout, or other construction materials shall be left on the verge, road, or surrounding areas. Any damage to verge (including tyre marks left on verge) shall be made good to the satisfaction of the resident and Authorised Officer at the Contractor’s expense.
- The Contractor shall protect the newly laid concrete against being damaged or defaced by the installation of appropriate temporary barricades and signs.
- Under no circumstances is the surface of a road to be used as a mortar board for mixing cement, concrete, slurry, etc.
- No concrete slag, waste, rocks, grout or either material that cause interruption to the mowing of verges shall be present following concrete construction.

### **2.3.12 Return of Kerbing**

- Crossing wings will be shaped by the Contractor to rise gradually to meet existing adjacent kerbing in a gently tapered manner, so as to not interfere with pedestrian traffic.
- The transition between the wing and kerb will not form a point lower than any crest or drainage provision in the crossover adjacent to the road.
- Expansion joints 10mm thick to be constructed wherever new concrete abuts existing concrete including the existing kerbing. The expansion joint material will be continuous from form to form and extend vertically the full depth of the panels using foam plastic, or bitumen impregnated canite type or a similar material approved by the Authorised Officer.

### **2.3.13 Drainage**

The crossover must be constructed such that stormwater cannot flow from the roadway onto the crossover and into the property and vehicle undercarriages will not make contact with the surface of the crossover when driven over at normal speed.

The crossover should generally be constructed such that:

- The crossing rises from 20mm above the gutter level to a height of no less than 100mm above the gutter level; or to the level of the top of the adjacent existing kerbing, whichever is greater, at a point of 0.6 metres behind the Kerb line, or to guidelines; or,
- To specific levels given by the Authorised Officer.



### **2.3.14 Joints**

#### **2.3.14.1 Expansion Joints**

Expansion joints 10mm thick will be constructed

- The expansion joint material will be continuous from form to form and extend vertically the full depth of the panels using foam plastic, or bitumen impregnated canite type or a similar material approved by the Authorised Officer.
- The joint material shall at no point protrude above the surface of the concrete.
- Wherever new concrete abuts existing concrete, particularly at property boundaries where new crossovers adjoin existing concrete driveways.
- Where necessary, driveways will be sawn to allow provision of expansion material so that driveway gaps are of consistent width and in a straight line
- At a maximum interval of 10 metres where more than 10 metres of concrete is poured in one run (any concrete poured within private property will be included in this measurement).
- Where individual lengths of path are less than 10m at least one-expansion joint will be placed.
- Where paths are repaired expansion material shall be placed at the extremities of the repair.
- Expansion joints will be placed at right angles to the centre line of the footpath or crossover. Expansion joints not placed at right angles to the centre line of the footpath shall result in rejection of adjacent panels and subsequent replacement at the expense of the Contractor.
- Expansion joints shall be tightly placed around all drainage structures, manholes, light poles, and/or other obstructions in the path alignment.
- Expansion Joints shall be placed:
  - at all deviations of alignment
  - at the junction of cut ends of kerbs and crossover wings
  - at each side of handrails or other structures (Bollards, Barriers etc.); or
  - as instructed by the Authorised Officer.

#### **2.3.14.2 Footpaths with Locking Joints**

When instructed, the Contractor shall construct footpaths using locking joints in accordance with the following:

- Locking Joints (refer Drawing 05/18) shall be approved by the Authorised Officer and be a freely available, proven pre-manufactured type.
- Locking Joints to extend the full width and depth of the path and thoroughly lock the joint against all movement.
- Locking Joints are to be compatible with:
  - Spacing of Locking Joints for footpaths equal to or in excess of 2.5 metres wide should be 5 metres.
  - Spacing of Locking Joints for footpaths less than 2.5 metres wide should be twice the width of the path.
  - Spacing of Expansion Joints shall not exceed 50 metres on straight sections of footpaths (may replace a Locking Joint if appropriate). On meandering footpaths (e.g., in Parks etc.) spacing will be between 50 metres and 30 metres as instructed
- Locking Joints shall be sealed with caps to suit the colour of the concrete footpath, and shall be flush with the footpath surface.
- The Contractor shall install locking joints at all locations where the path abuts trees.

#### **2.3.14.3 Contraction Joints**

- No "ridges" exceeding 3mm shall be present after cutting in of contraction joints in concrete works
- The grooves shall be equal to at least one-third the depth of the slab
- Sawed contraction joints shall be created by sawing grooves in the pavement with an approved concrete saw. Sawing shall begin only when the concrete is sufficiently hard to prevent ravelling, but before uncontrolled shrinkage cracking occurs.



Contraction joints shall be provided consisting of minimum 5mm grooves placed into the surface of the concrete prior to setting with an approved tool and shall conform to the following:

#### **Footpaths**

Spacing of the joints will not exceed 2.5 metres along the footpath and will be placed at right angles to the centre line and extend to the full width of the path.

#### **Crossovers**

As directed by the Authorised Officer and placed;

- Along the crossover – property line junction;
- Along the edges of existing or future footpath construction;
- Across the crossover from the wing junction points on opposite sides parallel to the kerb;
- Along the centre of the crossover at 90 degrees to the kerb line,
- And from the wing junction points at 90 degrees to the kerb line (refer Drawing 16/18).
- Grooved jointing will match existing on abutting driveways on private property shall be made, where possible by the Contractor.

#### **2.3.15 Curing**

The Contractor shall be solely responsible for the appropriate curing of the concrete mix.

- Following each pour the Contractor shall inform the Authorised Officer of their intended method of curing the mix.
- If no method is proposed the Contractor shall supply an approved curing compound as soon as possible.
- To reduce evaporation losses, the concrete will be cured for at least 48 hours after placement using a liquid membrane compound. Liquid membrane compounds shall comply with ASTM Standard Specification C309-19, "Liquid Membrane Forming Compounds for Curing Concrete".
- The compound will be applied to the concrete surface strictly in accordance with the manufacturer's instructions.
- Compounds which adversely affect the non-slip character of the concrete surface or decrease the quality of surface finish shall not be used.

##### **2.3.15.1 Wet Weather Protection**

The Contractor will be responsible for wet weather damage.

- Materials to protect the surface of new works (e.g., polythene sheeting) will be provided by the Contractor and will always be available on-site.
- Any works damaged by wet weather shall be replaced by the Contractor at its cost

##### **2.3.15.2 Hot Weather Protection**

During hot weather, precautions shall be taken to avoid premature stiffening of the fresh concrete mix and to reduce water absorption and evaporation losses.

When the temperature of the surrounding air exceeds 32°C during placement or is predicted over the following 2 days the requirements of Clause 4.4 of AS 3600 Concrete Structures Code shall apply unless otherwise directed by the Authorised Officer.

#### **2.3.16 Stripping of edge forms**

- Forms are only to be removed from the concrete after a period of at least 8 hours has elapsed from time of placement.
- This time period may be reduced with the approval of the Authorised Officer depending upon weather conditions
- Stripped formwork shall not, at any time, be left or placed on verges

### **2.3.17 Surface finish**

- The final non-slip finish shall be broom finish.
- All concrete works are to be fully "picture-framed" to a width of 75mm or match internal concrete finish to the satisfaction of the Authorised Officer. No "ridges" exceeding 3mm shall be present after finishing of concrete works.
- The addition of colouring to the concrete, if requested by a ratepayer, will be the responsibility of the Contractor. The financial arrangements will be between the Contractor and the ratepayer with no involvement by the City.

### **2.3.18 Abutment of Two Crossovers**

The Contractor subject to receiving the approval of the Authorised Officer may combine two cross overs abutting one another

- The combined width will not exceed 12 metres and shall be delineated by jointing at the extremities of the crossovers as approved by Authorised Officer.
- A pedestrian refuge will be created between the two driveways where the combined width would exceed 12 metres.
- The refuge will be one metre minimum width for a single residential crossing and three metres minimum width for a multiple residential and commercial crossing.
- The grade between two crossovers shall not exceed 1:6 (1 in 6)

### **2.3.19 Installation of handrails and bollards**

The Contractor will be required occasionally to install handrails, bollards and street signs in accordance with MRWA drawing 9831-5649-3 for new cast in-situ concrete footpath and/or locations where handrails, bollards and street signs have been damaged on Road Verges, in Pedestrian Access Ways and other areas within the City of Bayswater. This will involve:

- Cutting, removing and disposing of existing damaged concrete panel and or handrails, bollards or street signs.
- Install handrails, bollards or street signs
- Backfill and reinstate.

**NOTE:** the City of Bayswater will supply, handrails, bollards or street signs as required.

### **2.3.20 Backfill**

The contractor shall be responsible for keeping the worksite clear and free from rubbish or debris during the course of the project.

Once the works are finished, the contractor must remove all plant and materials from the site and leave it in a clean and tidy condition.

The contractor shall remove the excess concrete, debris, or any other unwanted material from the area designated for backfilling. Once the area is clear, they can proceed with the backfilling process as below.

- The Contractor shall be responsible for pickup clean yellow sand, or brown topsoil material (as agreed with the Authorised Officer) from the City's Works Depot (15 Wright Street, Bayswater) and backfilling within two days of completion of path and/or crossover. Backfill must be levelled out to blend in with existing verge and uniformly compacted.
- Any difference of built-up lawn level and newly constructed crossover/footpath levels shall be graded out over a 1.5m distance to provide a safe grade of 25% (1 in 4).

### **2.3.21 Reinstatement**

Reinstatement of kerbing, verge treatments, reticulation, asphalt driveways, bituminous surfaces, concrete, and/or brick paving disturbed as a result of the construction of footpaths and/or crossovers or during the course of the work shall be the responsibility of the Contractor.



#### **2.3.21.1 Bitumen**

The Contractor will repair bitumen surfaces which have been excavated to suit the crossover, footpath and pram ramps. The requirements are as follows

- Saw cut at the extent of the asphalt repair to a straight edge;
- Repair the bitumen surface with hot mix asphalt to a minimum thickness of 30mm in accordance with the City's Asphalt Specification to a minimum distance of 500mm into existing asphalt.
- Cold mix is permissible for widths less than 100mm extending the frontage of the crossover to be repaired.
- Hot mix is required for areas greater than 100mm in width.

#### **2.3.21.2 Reticulation**

- All practical care should be taken to not damage existing lawn reticulation on verge areas
- Where the reticulation requires to be relocated or modified, the Contractor shall make good all reticulation repairs or modifications with new for old parts,
- The reinstatement of reticulation shall be to the satisfaction of the resident and the Authorised Officer.
- all reticulation repairs and modifications under this contract shall be kept in good working order and condition for a period of three (3) calendar months from the date of Practical Completion.
- Where the City of Bayswater owns and maintains the reticulation the City will provide repairs or modifications for the Contractor
- For the construction of new footpaths where there are no existing footpaths, modifications to the spacing of rows of the reticulation system may be required due to the reduction of width of the turfed area.

#### **2.3.21.3 Brick Paving**

For existing brick paved crossovers, the area between the apron and the existing crossover shall be filled with compacted crushed limestone or road base immediately upon removal of form work until brick paving is laid. The temporary infill shall be ramped to provide smooth vehicle transition.

The reinstatement of brick paving shall be to the satisfaction of the resident and the Authorised Officer. All header courses and edge restraints are to be reinstated and excess pavers disposed of following confirmation with the Authorised Officer.

#### **2.3.22 Post Completion Maintenance**

The Contractor shall maintain all works constructed under this contract in good order and condition for a period of three (3) calendar months from the date of declaration of Practical Completion. Practical Completion shall only be declared on these items as a whole.

The Contractor shall make good, at his or her own expense, any damage or deterioration in the works, or caused by the workmanship which occur during the above period of maintenance.

#### **2.3.23 Provision of As Constructed Documentation**

The Contractor shall be responsible for completion and submission to the Authorised Officer of as constructed documentation including details of project, dimensions, location, dilapidation photos, project dates, and concrete dockets within 10 days of project completion to be submitted with invoice prior to payment by the City.



#### **2.3.24 Thickness of Concrete**

- Thickness of concrete for footpaths and crossovers under this Specification are 100mm and 150mm depending on individual application and loading considerations. The specific thickness as required for each individual project will be as indicated on Drawings 16/18 or as directed by the Authorised Officer.
- The Authorised Officer if in doubt as to the thickness of the completed footpath, may require core testing for determining actual thickness and for outlining areas of deficient thickness. Cores may be taken randomly by the City
- Where concrete for footpaths and crossovers is found to be less than the nominated thickness, the area is to be replaced at the Contractor's expense along with associated testing costs. A non-conformance report shall be issued to the Contractor and filed with reference to the Contract.

#### **2.3.25 Testing**

The Authorised Officer will need evidence that the concrete supplied to the work meets the City's required standard.

- An independent NATA registered laboratory shall be employed by the City for Quality Assurance monitoring purposes.
- The cost of such monitoring shall be the responsibility of the City except in the event of non-compliance, in which case the costs will be borne by the Contractor.
- Acceptance by the City of the quality of concrete will be based on the provisions of AS 3600.
- Evidence of compliance with any specified requirements shall be provided to the Authorised Officer. This includes copies of batching tests from the supplier, delivery dockets showing properties of purchased concrete and all other documentation of such nature.

#### **2.3.26 Tolerances**

Crossover/footpath works by the Contractor will be undertaken to the following tolerances:

- Crossing surfaces will be true to line and not deviate more than 10mm under a 3-metre straight edge.
- The thickness of finished concrete will be 100mm residential, and 150mm commercial, (-0mm, +10mm).
- Surface irregularities, including abutting to service authority manholes, etc., will not exceed 3mm.

#### **2.3.27 Programming and Advance Notice of Works for Construction of New Footpaths, Crossovers and Pram Ramps**

Once every week but generally on Thursday afternoon, via email, the works required for the following week will be confirmed. The Contractor is expected to provide adequate resources to meet each week's requirements fully. If the Contractor is not able to provide adequate resources to meet the weekly requirements the City may obtain additional resources without notice. The Contractor must reasonably meet weekly commitments without the need to work on weekends. Work on weekends in this instance will be at the Contractor's cost

The Authorised Officer will provide initial notification of the works required two weeks in advance. If the Contractor anticipates being unable to meet the agreed timeframe, they are responsible for notifying the residents accordingly.

#### **2.3.28 Timeliness of Works for Crossovers and Maintenance of Footpaths**

The delay period between receipt of Works Orders and commencement of work will not be greater than two (2) weeks.

- The construction period for will not exceed five working days (i.e., from start of work to completion of backfill).
- Excavations will NOT be left open over weekends or public holidays without the approval of the Authorised Officer.

<b>Read and Retain This Part</b>
----------------------------------

- Wherever possible, crossovers and footpaths should be boxed-out and concrete poured in the same day. The maximum period between boxing-out and pouring of concrete by the Contractor will be 24 hours.
- Repair of footpaths deemed to be in a hazardous condition shall be undertaken within 24 hours or as agreed with the Authorised Officer.

In the event that the Contractor fails to respond to a Work Order and the City having not received an appropriate response after proving reasonable notice of such failure, the City shall be entitled to make alternative arrangements in order to meet the work program.

#### **2.3.29 Measurement of Areas and "Minimum Charge"**

"MINIMUM CHARGE" is area less or equal to 15m<sup>2</sup> in total, in accordance with the Price Schedule

For the purpose of determining which rate is applicable in situations where several small work areas (less or equal to 15m<sup>2</sup> in total) are to be constructed that are in proximity to each other the following shall apply:

- If the distance between work areas is less than 100m then those areas will be counted as one "work area" and only one "minimum charge" from the Price Schedule shall be applied. In certain circumstances and at the discretion of the Authorised Officer this distance may exceed 100m if reasonable relocation of the Contractor's work equipment is not required.
- One work area is defined as a combination of works which includes footpath works, crossover works, or a combination of both footpath and crossover works.

#### **2.3.30 Works Requested by Others in Verge Areas**

The Contractor shall not perform works requested by others in verge areas that may be contrary to existing City policies or guidelines.

Any additional work requested by others that does comply with existing City policies and guidelines and intended to be constructed simultaneously with City instructed work shall only be performed following consultation and clearance by the Authorised Officer.