SHIRE OF PEPPERMINT GROVE

APPLICATION FOR CROSSOVER CONSTRUCTION

OWNER OF LAND: Surname:_____ Given Names:_____

Address:_____

_____Phone Number:_____

Contact Person:_____ Mobile: _____

APPLICANT: CONTRACTOR ☐ LANDOWNER ☐

Name/Company:_____

Address:_____
(for correspondence)

_____

Contact Person: _____ Contact Number: _____

PROPERTY DETAILS: LOT NO: _____ HOUSE NO: _____

STREET: _____

TYPE OF CONSTRUCTION: CONCRETE ☐ ASPHALT ☐

BRICK PAVING ☐ CONCRETE BLOCK PAVING ☐

OTHER ☐ Please specify……..

Please attach to this application a site plan (1:100) showing the following details:

- Location of proposed crossover
- Location of crossovers adjoining properties
- Locality of nearest crossroad
- Name of Street Frontage
- Distance from the nearest side boundary
- Dimensions of proposed crossover
- Location of Street Trees

CONDITIONS AND SIGNATURE:
I hereby accept the conditions as set out in the Shire of Peppermint Grove Policy on Vehicle Crossovers.

Applicant's Signature: _____ Date: ___/___/___

OFFICE USE ONLY: **APPROVAL:** **GRANTED** ☐ **REFUSED** ☐

APPROVING OFFICER SIGNATURE: _____ DATED: ___/___/___

SHIRE OF PEPPERMINT GROVE

VEHICULAR CROSSOVERS
(Concrete, Brick Paved & Bitumen)

GENERAL REQUIREMENTS

AND

SPECIFICATIONS

General Enquiries: Administration Officer - 9286 8600

Technical Enquiries: Manager Infrastructure Services – 9384 9376

Facsimile: 9286 8610

Email: admin@peppermintgrove.wa.gov.au

Web: www.peppermintgrove.wa.gov.au

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GENERAL REQUIREMENTS

GENERAL REQUIREMENTS

1. Introduction

This document has been prepared to provide customers of the Shire of Peppermint Grove with information regarding the Shire's requirements for vehicular crossovers and ensure a uniform approach to the construction of vehicle crossovers within the Shire of Peppermint Grove.

The Shire of Peppermint Grove does not have a register of preferred contractors for the construction of crossovers. It is the owners responsibility to engage a suitably qualified private contractor or have the crossover constructed under contract with their builder.

2. Statutory Requirements

Under the provisions of the Local Government Act 1995 (Schedule 9, clause 7) and the Local Government (Uniform Local Provisions) Regulations 1996 (Regulation 12), property owners must make application to the Shire of Peppermint Grove for approval to construct a crossover prior to the works on the verge commencing.

3. Road Reserves (Verges)

The portion of land between a road and the boundary of private property is called the road reserve or verge. The purpose of a road reserve (verge) is to allow the placement of services and infrastructure such as communication cables, drainage, gas, power, street furniture (bus stops) and footpaths. As and when works are required to these services, they are accessible to service authorities and Local Government with minimal disruption to the property owner.

Approval to undertake any works on a verge is to be obtained from the Shire prior to works commencing.

The type of road e.g. main road, regional road or local road, determines which area of government has ‘ownership’ or ‘management’ of the road reserve abutting that road. Therefore roads within the Shire of Peppermint Grove fall into two categories and these are defined as follows:-

Main Roads and Highways

Main Roads Western Australia is responsible for major roads, highways and freeways and within the Shire of Peppermint Grove this means, Stirling Highway.

Local and Regional Roads

For the Shire of Peppermint Grove this means any road that is not a major road or highway.

3.1. Local Roads

Where a crossover connects the property boundary with a local road, approval for the crossover shall, in the first instance be sought from the Shire of Peppermint Grove. There is no application fee applicable and the processing of the Crossover Application will be undertaken within 10 working days.

3.2. Main Roads (e.g. highways, major roads)

Where a crossover connects the property boundary with a main road (e.g. Stirling Highway), approval for the crossover shall in the first instance be sought from the Commissioner Main Roads WA. If not already obtained by the applicant during the planning approval stage of their development, the Shire will liaise with Main Roads on the applicant's behalf. Therefore processing of the Crossover Application may exceed the 10 working day turnaround.

4. Crossover Application Process

4.1. General

If you are upgrading an existing crossover and you do not require a building permit you need to submit a Crossover Application Form to the Shire for approval prior to the construction of your crossover. If you require a building permit your crossover will not be assessed as part of the application (you still must demonstrate the location of the crossover on the site plan), you are required to submit a separate crossover application as you will be issued an approval notice which covers your crossover. An application form is available from the Shire's website at www.peppermintgrove.wa.gov.au, in person from the Shire's Administration Office at The Grove 1 Leake Street, Peppermint Grove or by contacting the Administration Officer on the number stated on the front of this document.

Processing of your application may take up to 10 working days and the assessment will look at (as a minimum) the proposed location of the crossover, proximity to power poles, proximity to street trees, any pathway on the verge and scheduled road/drainage/pathway works over the next 12 months. Should your application be approved, a Crossover Approval Notice will be sent to you in the mail and this notice will detail any conditions applicable to the construction of the crossover and generally, a copy of the approved plan for the crossover.

Once your Crossover Application has been approved you must ensure that a copy of the Shire's General Requirements and Specifications for Vehicular Crossovers and your Crossover Approval Notice is provided to your Contractor or Builder so that they are aware of the obligations associated with the content of these documents or if you are constructing the crossover yourself, you also need to read this document carefully.

4.2. Who Can Construct My Crossover?

The construction of your crossover, once approved by the Shire, can be constructed by any of the following:-

(a) By your Builder

You may have already included the construction of the crossover in the contract between you and your builder. A Crossover Application is still required to be submitted for approval as the construction of the crossover does not fall within the approval of your Building Licence. You will need to ensure that your Builder has a current copy of the Shire's Vehicular Crossovers (Concrete, Brick Paved and Bitumen) General Requirements and Specifications and a copy of your Crossover Approval Notice.

(b) A Private Contractor sourced from the Yellow Pages or a Local Newspaper

Again, you will need to ensure that the Contractor you engage has a current copy of the Shire's Vehicular Crossovers (Concrete, Brick Paved and Bitumen) General Requirements and Specifications and a copy of your Crossover Approval Notice.

5. COUNCIL SUBSIDY

5.1. Residential Properties

Regulation 15 of the Local Government (Uniform Local Provisions) Regulations 1996 states that where a crossing (hereafter called a crossover) constructed is:

(a) to the first crossover constructed to the private land and
(b) a standard crossover or a type that is superior to a standard crossing;

The Shire is obliged to bear 50% of the cost, as estimated by the Local Government, of a standard grey concrete crossover.

A Standard crossover is defined by the Shire of Peppermint Grove as:-

- a minimum of 3.0 metres wide at the property boundary;
- constructed in either reinforced grey concrete;
- a crossover that is constructed to the Shire's Specifications and
- a crossover that is for a residential property.

5.2. Commercial and Industrial Properties

There is no subsidy applicable to crossovers for commercial or industrial properties.

5.3. Eligibility for a Crossover Subsidy

To be eligible to claim the Crossover Subsidy you must submit a Crossover Subsidy Application Form and meet the following eligibility criteria:-

a) The crossover is the first crossover to the property or an upgrade from a bitumen crossover to a standard crossover;
b) The crossover is a standard crossover as defined in clause 5.1;
c) Crossover Subsidy Application is received within 6 months of the crossover being constructed;
d) The crossover accesses a residential property;
e) Documentary evidence (delivery receipt or tax invoice) is attached to the Crossover Subsidy Application Form which clearly states that either F62 reinforcement mesh (for concrete crossovers) or limestone sub-base (or equivalent for brick paved crossovers) has been included in the construction of the crossover (refer to the Shire's Technical Specifications) at the applicant's property address; and
f) All conditions of the Crossover Approval Notice have been met.

A desktop assessment of the Crossover Subsidy Application will be undertaken and where criteria (a) to (e) inclusive are in order, a site inspection will be undertaken to confirm compliance with eligibility criteria (f) and the Shire's Technical Specification.

5.3.1. **Private Contractor or Applicant**

For the successful processing of the Crossover Subsidy Application and subsequent payment, the Property Owner must meet all the requirements stated in Clause 5.3.

6. CROSSOVER CONSTRUCTION MATERIALS

6.1. Residential Crossovers

Crossovers to residential properties must be constructed in either reinforced coloured concrete or brick paving in accordance with the Shire's specifications.

Cobble Stones, slate products **are not** an approved construction material for crossovers within the Shire of Peppermint Grove for the following reasons:

- Discolouration/staining is more prevalent should sealing not be maintained;
- Should the Shire (or any service authority) be required to undertake works through the verge where crossovers are located i.e. road, drainage, underground power, gas, telecommunications, the reinstatement of the affected portion of the crossover to match the existing section i.e. colour and texture cannot be achieved.

6.2. Commercial/Industrial Crossovers

Crossovers for commercial and industrial properties may be constructed in bitumen, concrete or brick paving in accordance with the Shire's specifications.

7. CROSSOVER CONSTRUCTION

The construction of crossovers shall be executed in accordance with the Shire's Specifications. Any variation to these Specifications must be approved in writing by the Manager Infrastructure Services prior to the construction of the crossover. Where a property owner fails to obtain prior written approval for any variation to the Shire's Specifications, the Shire may give written notice of corrective works to be undertaken by the property owner at the property owners cost.

8. WARRANTIES

All materials and workmanship used in the construction of crossovers shall be in accordance with the Shire's Specification and any materials or workmanship that are inferior to those specified shall be rejected and the works made good to the Shire's satisfaction.

The work shall be carried out with minimum disruption to pedestrians and vehicular traffic. Every precaution shall be taken to ensure the safety of persons and property. All excavations, materials, plant and equipment must be made safe, barricaded and provided with warning lights, during the hours of darkness to the satisfaction of the Manager Infrastructure Services. All works are to be carried out in accordance with the Occupational Safety and Health Act 1984 and its Regulations as amended.

Any damage which may occur to any Shire infrastructure assets or private property during the course of works or which subsequently becomes evident shall be the sole responsibility of the Applicant or their Contractor. The Applicant or their Contractor shall be held responsible for the repair, replacement, legal claims or any other claim which may arise from the carrying out of any such work.

9. RESPONSIBILITY OF THE APPLICANT AND/OR THE CONTRACTOR

The Applicant and/or their Contractor is responsible for the following items:-

(a) Where required, the cutting of the existing semi-mountable or barrier kerbing with a concrete saw and removing existing kerbing without damage to remaining kerbing and road pavement.

(b) The removal and disposal of all surplus materials from the site of the works and leaving the site in a clean and tidy condition at all times.

(c) The reinstatement of kerbing, concrete, brick paving or bituminous road surfaces damaged during the course of the work during the construction of the crossover.

(d) The reinstatement of verge area adjoining the crossover.

(e) Crossovers that are no longer required or no longer connect with an internal driveway are deemed redundant. Under the Division 2 – Vehicle Crossings, Subdivision 2 – Redundant Vehicle Crossovers, Clause 2.5 of Shire's Local Laws for Activities and Trading in Thoroughfares and Public Places, redundant crossovers must be removed and the verge, footpath and kerb reinstated at the cost of the Applicant.

(f) Application to the relevant public utility authorities for approval to alter any utility service that is in conflict with the proposed crossover. Any costs incurred in the alteration of any service and subsequent reinstatement of the verge shall be borne by the Applicant.

(g) With regard to footpaths, comply with the requirements of Clause 10.4 of the Technical Specification.

(h) The cost of any traffic management that may be required to ensure the safety of road users, Contractors and pedestrians during the construction of the crossover. Only qualified traffic management personnel shall be used and all traffic management shall be in accordance with Main Roads Western Australia's code of Practice "Traffic Management for Roadworks" and Australian Standard AS1742.3-2002.

(i) That Perth One Call - Dial Before You Dig on Telephone No. 1100 or via **www.1100.com.au** has been contacted to determine the location of services such as water mains, telecommunications cables, gas mains and sewer mains within the section of the verge to be excavated.

(j) The property owner is required to maintain the crossover once constructed.

VEHICULAR CROSSOVER TECHNICAL SPECIFICATION

GENERAL PROVISIONS

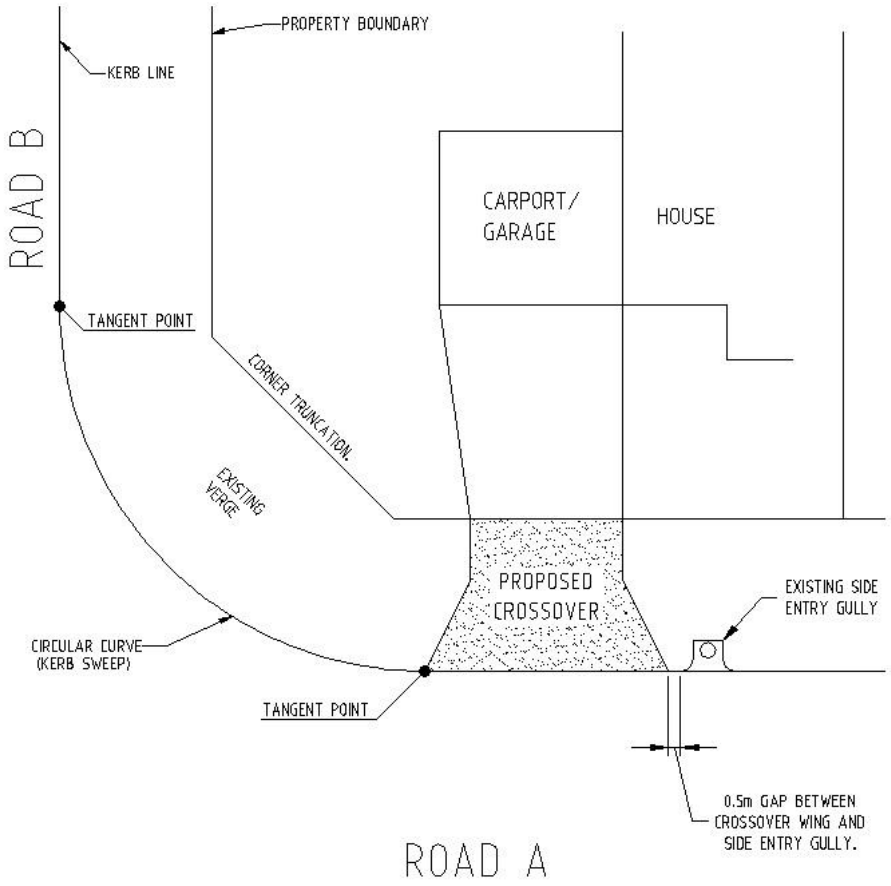
10. LEVELS, PATHWAYS AND OTHER FEATURES

All levels for grading, surface finishing, jointing or other construction requirements shall be as outlined in the Specification and attached Drawings, or as directed in writing by the Manager Infrastructure Services or his delegated representative.

10.1. Clearances

Crossover shall have the following minimum clearances:

Side Boundary (at front property line)	0.5m
Street Trees	1.5m
Drainage side entry pits	0.5m
Western Power poles	0.6m
Minimum distance from intersection point at corner sites (refer diagram below)	



10.2. Crossover Location

Crossovers are to be constructed perpendicular to the adjoining road alignment with a minimum clearance of 0.5 metres from the side boundary and shall align with the internal access (driveway) into the property.

10.3. Street Trees

Where a street tree is within 1.5 metres of the proposed crossover, the Applicant shall submit a written request to the Shire's Manager Infrastructure Services requesting an assessment of the street tree with regard to the street tree's relocation or removal and replacement (size and species dependant). For public liability purposes, all works associated with the removal and replacement of any street tree shall be undertaken by the Shire at the Applicant's/Owner's cost.

10.4. Pathways and Kerbs

A pathway is to take priority over any crossover constructed within a verge. Where a crossover is required to cross a pathway, the Applicant or their Contractor shall execute the following:-

10.4.1. **Residential**

- Where the existing pathway is in-situ concrete, in good condition, and is a minimum of 100mm thick, the pathway shall be retained and the crossover constructed to match up with it.

- Where the existing pathway is in-situ concrete, is in poor condition, or is less than 100mm thick, the pathway is to be neatly saw cut along the nearest expansion joints to the proposed crossover alignment and removed. The pathway is then to be reinstated in 100mm thick grey in-situ concrete and including F62 reinforcement mesh and the balance of the crossover constructed either side of the pathway in accordance with the Shire's Specifications. Also refer to Specification Schedule 3.

- Where the pathway is situated along the edge of the kerb, the pathway and kerb shall be modified in accordance Specification Schedule 3. Applicants have the option to either:-

  (a) Remove the section of pathway to the nearest expansion joint closest to the proposed crossover and reinstate in grey 100mm thick in-situ concrete and including F62 reinforcement mesh and forming a ramp from the road to the pathway and crossover; or

  (b) Removing the kerb, saw cutting and removing a 500mm wide section to the width of the proposed crossover and then constructing a concrete ramp up to the remaining section of the pathway.

10.4.2. **Commercial/Industrial**

Where existing pathway is situated within the proposed crossover, the pathway shall be removed.

10.5. Verge Levels

Where necessary, the Contractor shall liaise with the Manager Infrastructure Services or his delegated representative on construction levels, setting out, inspection and measuring-up of works and adjustment of pathway heights abutting proposed crossover for the purpose of matching into an existing internal pavement level. However, in general crossover levels shall match up with:-

(a) The existing verge level if it is of uniform height with the adjacent verges.

(b) Refer to Drawings STD 7 - 1s and STD 7 - 3s for verges at 2% grade

(c) Refer to Drawings STD 7 - 2s and STD 7 - 4s for verges exceeding 2% grade

(d) Where a doubt exists on any of the above all queries to be referred to the Manager Infrastructure Services or his delegated representative for determination prior to construction.

10.6. Manholes/Service Pits

Where the crossover covers an existing Shire of Peppermint Grove drainage manhole, the lid is to be adjusted so as to be flush with the finished surface. For commercial and industrial crossovers, the lid of the Shire's drainage manhole is to be replaced with a trafficable (heavy-duty) type. Where the manhole or service pit belongs to a Public Utility, the applicant is to liaise with the relevant public utility and ensure that their requirements are satisfied prior to the construction of the crossover.

Where a doubt exists on the above, all queries are to be referred to the Manager Infrastructure Services or his delegated representative for determination prior to construction.

10.7. Australian Standards

These specifications are to be read, where applicable, in conjunction with the most current version of the following Australian Standards and where any discrepancy arises between the two, the Shire's specifications shall prevail.

- AS3727: Guide to residential pavements;
- ASTM Standard Specification C309-74 “Liquid Membrane Forming Compounds for Curing Concrete”;
- AS1379: Ready Mixed Concrete;
- AS1289.5: Methods of Testing Soil for Engineering Purposes;
- AS1012: Methods of Testing Concrete;
- AS1160-1996 and Amendments: Bituminous Emulsions for the Construction and Maintenance of Pavements;
- AS2150-2005: Hot Mix Asphalt – A Guide to Good Practice; and
- Relevant parts of AS 2891.

BRICK PAVED CROSSOVERS

11. BRICK PAVED CROSSOVERS

11.1. Brick Pavers

Brick pavers used for vehicular crossovers shall be fit for purpose in accordance with the manufacturer's specifications and be either concrete or clay brick pavers with a minimum thickness of 60mm. Any materials used which are inferior to those specified or directed by the Manager Infrastructure Services shall be liable to rejection and replacement at the Applicants or Contractor's cost. Please refer to Specification Schedule 1.

11.2. Concrete Kerbing

Fully mountable kerb shall, if not already existing along the road kerb line, be installed for the crossover. Approved transition road kerbing shall be provided at each end of the fully mountable kerb to match the existing kerb section. Refer to Drawing No. STD 3s and Specification Schedule 3.

11.3. Sub-Grade Preparation - Formation

Excavation for the crossover shall be undertaken to the levels, lines and grades as set out on the site by the Contractor as per these specifications and attached schedules, and all excavation shall be executed cleanly and efficiently to provide for a compacted sound sub-grade, free of depressions or soft spots or any deleterious materials to the required depths.

The surface shall be levelled and compacted using a mechanical plate compactor or similar approved method, until a compaction of 95% modified compaction as provided under AS1289.5 (Methods of Testing Soil for Engineering Purposes - Soil Compaction & Density Tests) is achieved. In sand, this may be deemed to be satisfied if a Standard Penetrometer Test result of 7 blows per 300mm is achieved within the first 450mm.

The whole of the sub-grade shall be prepared in a manner so as to ensure adequate drainage and protection against storm water and sub-soil flows. Sub-grade preparation shall extend to the rear face of all edge restraints.

11.4. Base Preparation

The base material (limestone or approved equivalent) shall be placed at optimum moisture content and spread such that the final minimum compacted thickness is achieved as per Specification Schedule 1. The materials shall be worked to the correct lines and levels and thoroughly compacted. Alternative base materials such as rock base and natural gravel are permitted.

The base course shall extend in width to at least the rear face of all edge constraints. The upper layer of base course shall be sufficiently dense to prevent downward infiltration of bedding sand. Base course tolerance shall be ±5mm of nominated design levels. The surface of the base course shall not deviate by more than 10mm from the base of a 2 metre long straight edge placed in any direction of an area of specified uniform gradient or crossfall. No ponding shall be permitted on base course surface. Sand bedding material shall not be used as a levelling material to compensate for base course not complying with the approved tolerance.

11.5. Edge Restraint

The perimeter of the crossover shall be provided with restraining barriers. Restraints shall be robust enough to withstand vehicle impact and prevent lateral movement of bricks as such movement could cause pavement failure.

Where the crossover has required the removal of existing kerbing, the contractor SHALL construct a fully mountable kerb prior to laying the brick paving. The mountable kerb shall be parallel to the roadway and blend into the existing kerbing at each end. Paving bricks shall be laid commencing from the rear face of the kerb. Refer Specification Schedule 3 and Drawing No. STD 6s for approved patterns.

Edge restraints shall be taken vertically down to base course and shall be supported on the compacted base course which shall not be less than 100mm thickness below the restraint. All concrete edge restraints shall have minimum compressive strength of 32MPa. Refer to Drawing No. STD 4s for approved edge restraints.

11.6. Sand Bedding

Only even graded siliceous sand shall be used. Sand shall be non-plastic and free from deleterious materials such as stones, roots, clay lumps and excessive organic material. Sand shall be protected from excessive change in moisture content and shall have uniform moisture content when laid.

Bedding sand shall be screeded slightly ahead of laying operations and maintained in a loose condition and protected from pre-compaction (including rain and pedestrian traffic) Any surface irregularities exceeding 5mm shall be loosened, raked and re-screeded before laying pavers.

For manual placing of paving units, the bedding sand shall be maintained at a uniform density but as loose as screeding operations will permit. For mechanical placing, bedding sand shall be uniformly and firmly, but not fully, compacted.

11.7. Laying Paving Units

Paving units shall be laid in accordance with the manufacturer's specifications in a herringbone, basket weave or stretcher bond pattern. Refer Drawing No. STD 6s for laying patterns.

Paving units shall be placed by hand or mechanically in clusters on the screeded sand bedding to nominated patterns as per schedule. Care shall be taken to ensure that a gap of 2-4mm (nominal 3mm) is maintained between paving bricks and that no units are in direct contact with each other.

The first row shall be laid against an edge restraint or previously completed paving or an established straight line. It shall be laid at a suitable angle to achieve the required orientation and pattern.

Full units shall be used first followed by edge or closer units. Closer units shall consist of not less than 25% of full units and shall be cut to size to suit the joint widths. Spaces of less than20% paving brick size shall be in-filled with concrete of 1 part cement and 2 parts fine aggregate and sand by weight.

11.8. Compaction of Brick Pavement

After laying the paving units, sheets of plywood of minimum thickness 12mm shall be laid on the pavement which shall then be compacted with 2 passes of high frequency low amplitude plate compactor having an area sufficient to cover a minimum of 12 pavers. Compaction shall continue, where necessary, until lipping between adjoining units has been eliminated.

Any units damaged during compaction shall be removed and replaced. Compaction shall be complete and the crossover shall be brought to design profile before spreading or placing of sand filling in the joints.

11.9. Filling Joint

As soon as practicable after compaction and prior to acceptance of traffic, dry sand for joint-filling shall be spread over the pavement and swept into the joints. Sand used for bedding is NOT suitable for joint filling. Sand shall be free of soluble salts or contaminants that could cause efflorescence. Cement in joint-filling is not permitted.

To ensure complete filling of joint, both sand and paving units shall be as dry as practicable when spreading and brooming take place. A further two passes of the plate compactor shall be applied and the joints refilled with sand as necessary until all joints are completely filled. Excess joint-filling sand shall be removed from the crossover on completing the works.

CONCRETE CROSSOVERS

12. CONCRETE CROSSOVERS

12.1. Base Preparation

Excavation for the crossover shall be undertaken to the levels, lines and grades as set out on the site by the contractor as per the specifications and attached schedules, and all excavation shall be executed cleanly and efficiently to provide for a compacted sound sub-grade, free of depressions or soft spots or any deleterious materials to the required depths.

Compaction is achieved by watering and vibratory compaction to give a result of 7 blows per 300mm of Standard Penetrometer Test. Overall even compaction must be achieved with no less than 6 test sites evenly spaced within the crossover chosen to achieve the minimum result.

The base shall be thoroughly and evenly moistened but not saturated prior to placing concrete. All deleterious material shall be removed from the base before placing concrete. Please refer to Specification Schedule 1.

12.2. Saw Cutting

Where existing pavement requires saw-cutting at the fence-line, it should be performed with particular care to ensure a straight cut.

12.3. Reinforcement

F62 reinforcement mesh is to be placed with a minimum cover of 40mm to the bottom of the slab.

12.4. Laying of Concrete

Concrete shall be evenly placed to the depth stated in Specification Schedule 1 of these Specifications and shovelled into position continuously and spaded, especially at all edges to give maximum density. No break in operation shall be permitted from time of placing to finish.

The concrete strength shall be in accordance with Specification Schedule 1 and shall be coloured to match the internal driveway.

Colouring shall be applied in strict accordance with the manufacturer's specification. Any early defects that show up should be immediately rectified to the satisfaction of the property owner.

The applicant/contractor shall be wholly responsible for the consistency of colour of the crossover and shall indemnify the property owner/client and make good all defects for the duration of any defects liability period.

12.5. Finishing

The finish shall be obtained by rendering to correct levels, and wood float or boom finished to provide a non-slip surface free of any depressions, marks, irregularities, honey comb sections or accumulation of the fine density secretions liable to cause excessive surface wear. The final surface finish shall be to the satisfaction of the Manager Infrastructure Services or his delegated representative who shall reserve the right to require the removal of or the correction of any surface deficiencies or finish.

Where required, and/or where directed, any portion of the surface may be required to be treated with a multi-grooved grooving tool with grooving of 200mm centres worked parallel to kerb line to minimise the slipping effect. A steel trowel finish is NOT PERMITTED on a vehicle crossing.

12.6. Jointing

Plain contraction joints finished with an approved jointing tool shall be located as follows:

(a) along the crossover-property line junction;

(b) along the edges of existing or future pathway construction;

(c) across the crossover from the flaring points on opposite sides parallel to the kerb, and additional joints parallel and not greater than 2.0 metres apart;

(d) along the centre of the crossover at 90^{o} to the kerb line and at not greater than 2.0 metres apart.

Expansion joints are required at the junction with kerbing and all service pits or manholes. Joint filler shall consist of 12mm wide by 100mm deep bituminous impregnated canite material or other approved material.

12.7. Wet Weather Protection

The applicant/contractor will be responsible for wet weather damage. Materials to protect the surface of new works should be available and used during wet weather periods.

12.8. Hot Weather Protection

During hot weather when the air temperature exceeds 35^{o} C, precautions should be taken by the applicant/contractor to avoid premature stiffening of the fresh concrete mix and to reduce water absorption and evaporation losses.

The subgrade is to be thoroughly moistened, but not saturated, immediately before concrete placement begins to reduce water absorption.

12.9. Clean-up and Make Good

The applicant/contractor shall remove and cart all rubbish, debris and waste resulting from its activities from the crossover construction site to a registered land fill tip site that is managed in a socially and environmentally responsible manner.

Any damage to pathways, verges (including reticulation) and to the work area, generally which occurred as a result of the applicant/contractor carrying out works, shall be made good at the applicant/contractor's cost.

BITUMINOUS CROSSOVERS
(COMMERCIAL / INDUSTRIAL PROPERTIES ONLY)

13. BITUMINOUS CROSSOVERS

Bituminous crossovers are permitted for commercial and industrial properties and a general specification is located at Specification Schedule 2.

13.1. Base Course and Water Binding

13.1.1. **Sub Base and Base Course Material**

This may be either approved gravel or road base or limestone and is to be placed to the various minimum consolidated thicknesses as set out in the schedule.

13.1.2. **Water Binding**

The surface shall be shaped and corrected as necessary to ensure that the final shape of the paved surface can be achieved with not less than the minimum thickness specified of bituminous concrete.

The surface when water bound shall be compacted with a vibrating roller and swept clean of any loose material.

13.2. Surfacing

When the base course has been completed to the Manager Infrastructure Services or his delegated representative's satisfaction and dried sufficiently to permit the successful application of the asphalt wearing course, the surface shall be thoroughly swept and tack coat applied.

The tack coat shall be an anionic bitumen emulsion (slow setting) applied uniformly and thinly over the whole area to be treated. It shall be applied only to a clean dry surface at an application rate of 0.55 litres per square metre.

A 7mm nominal aggregate asphalt wearing course of 40mm compacted thickness shall then be applied in accordance with the following:

13.2.1. **Metal**

Metal shall be a mixture of clean aggregate of 6.5mm, 4.75mm and 3.2mm to be rescreened and held in storage bins for direct use in the mixing plant. The flakiness index of the aggregate shall not exceed 35%.

13.2.2. **Sand**

Sand shall be clean, sharp and free from any silt, clay, salt or other foreign matter.

13.2.3. **Bitumen**

Bitumen shall be class 160 residual asphaltic bitumen conforming to the requirements of the separation for bitumen when sampled and tested in accordance with Australian Standard AS

2891. The mixing temperature of the bitumen shall not be more than 160^{o} C or less than 40^{o} C. Only black coloured asphalt is accepted by the City at this time for crossover construction.

NOTE: In certain instances 50mm compacted thickness of 10mm nominal aggregate asphalt is required in accordance with Specification Schedule 2.

13.2.4. **The Mix**

The mix - shall be of the following proportions:

AS Sieve	% Mineral Aggregate Passing Sieve (by weight)
9.5mm Sieve	100%
4.75mm Sieve	68-88%
2.36mm Sieve	49-67%
1.18mm Sieve	37-53%
600 um Sieve	25-41%
300 um Sieve	15-27%
150 um Sieve	8-16%
75 um Sieve	4-8%
Bitumen	5-7%
Stability (Marshall)	5.5 kilo newtons
Marshall Flow Values	2-4mm
Voids	3-5%

The mix should contain 1.5% by weight of hydrated lime. The mixing time shall be controlled to ensure a minimum dry mixing time of 15 seconds and a mixing time of 30 seconds.

13.2.5. **Temperatures**

Maximum Aggregate Temperature	190^{o}c
Maximum Bitumen Binder Temperature	160^{o}c
Temperature of Mix at Delivery to Work Site	Between 120^{o}c & 150^{o}c

13.3. Surfacing Procedures

The mix shall be spread only during daylight hours and when weather conditions are suitable.

Particular workmanship is required adjacent to kerbs, manholes and other Public Utility fittings in the crossover. The method of placing the mixture shall be to the entire satisfaction of the Manager Infrastructure Services or his delegated representative.

Joints between old and new pavements shall be carefully made in such a manner as to ensure a thorough and continuous bond between the old and the new surfaces. The edge of the old surface course may require to be cut back for its full depth and sufficient distance to expose a fresh face. The fresh mixture shall be raked against the joint to the proper depth and grade.

After spreading and striking off, and while still hot, the mixture shall be thoroughly compacted by a vibrating roller with a minimum static weight of 0.4 tonne and a minimum drum width of 700mm. Rolling shall commence on the outer edges and progress towards the centre then continue until all roller marks are eliminated and no further compression is possible, or as directed by the engineer. At places not accessible to the roller thorough compaction must be achieved by means of hot tampers.

The surface, after compaction and rolling, shall be smooth and true to the required shape and grade. Any mixture which becomes loose or broken, mixed with dirt, or is in any way defective, shall be removed and replaced with fresh mixture compacted to conform with the surrounding area.

13.4. Concrete Kerb Tapering

The existing concrete kerb at each end of the crossover shall be tapered down gently to blend in with the level of the crossover.

SCHEDULES AND DRAWINGS

SPECIFICATION SCHEDULE 1:
CONSTRUCTION OF CONCRETE & BRICK PAVED CROSSOVERS

ITEM	CROSSOVER TYPE			
	Residential	**Multi Residential (>10 Car Bays)**	**Light Industrial & Commercial (<30 Car Bays)**	**Heavy Duty Industrial & Commercial**
GENERAL CONDITIONS				
Minimum width of crossover at property line	3m	6m but small residential developments 4.5m subject to approval by Mgr Infrastructure Services or his delegated Rep.		
Maximum width of crossover at property line	6m	6m	11m	11m
Minimum width of crossover at kerb line	6m	7.5m	9m	
Maximum width of crossover at kerb line	9m	9m	14m	
Alignment of crossover	90^{o} to the property line and road unless otherwise approved by Manager Infrastructure Services or his delegated representative.			
Crossover flaring (verge : kerb line)	1.5mR	1.5mR	3.0mR	Vehicle to determine
Step-up at road channel (brick paved & concrete)	30mm	30mm	30mm	30mm
Minimum setback from side boundary	0.5m	0.5m	0.5m	0.5m
BRICK PAVED CROSSOVERS				
Minimum compacted thickness of base (unbound fine crushed rock or gravel)	100mm	150mm	150mm	200mm
Compacted thickness of graded sand	20-40mm	20-40mm	20-40mm	20-40mm
Minimum thickness of pavers in herringbone (H), basket weave (B) or stretcher bond (S):-				
• Concrete paver units interlocking on 2 faces in H, B or S	60mm (H,B or S)	60mm (H)	80mm (H)	Not permitted
• Concrete paver units interlocking on 4 faces in H, B or S	60mm (H,B or S)	60mm (H)	80mm (H, B or S)	80mm (H)
• Concrete pavers unkeyed units H, B or S	60mm (H)	80mm (H, B or S)	80mm (H)	Not permitted
• Clay pavers minimum thickness in herringbone pattern only	60mm (H)	60mm (H)	75mm (H)	75mm (H)
CONCRETE CROSSOVERS				
Concrete thickness	100mm	125mm	150mm	200mm
Steel reinforcement mesh	F62	F62	F62	F62
Minimum high strength at 28 days	20 MPa	20 MPa	25 MPa	32 MPa
Concrete Colour	To match internal driveway		Grey	Grey
*** Note: the above schedule shall be read in conjunction with Attached Drawings**				

SPECIFICATION SCHEDULE 2
CONSTRUCTION OF BITUMEN CROSSOVERS
(Industrial / Commercial Properties only)

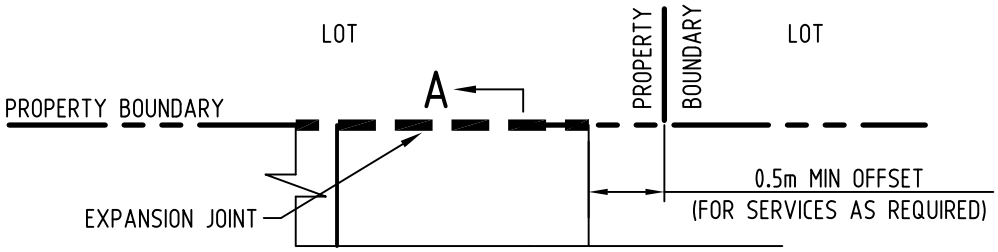
ITEM	LIGHT INDUSTRIAL & COMMERCIAL (< 30 Car Bays)	HEAVY DUTY INDUSTRIAL & COMMERCIAL
Minimum depth of excavation	265mm	300mm
Minimum compacted thickness:	See Note 1	See Note 2
Sub-base	150mm limestone	150mm limestone
Base	100mm gravel/ roadbase	100mm gravel/ roadbase
Asphalt (Black)	40mm minimum	50mm minimum

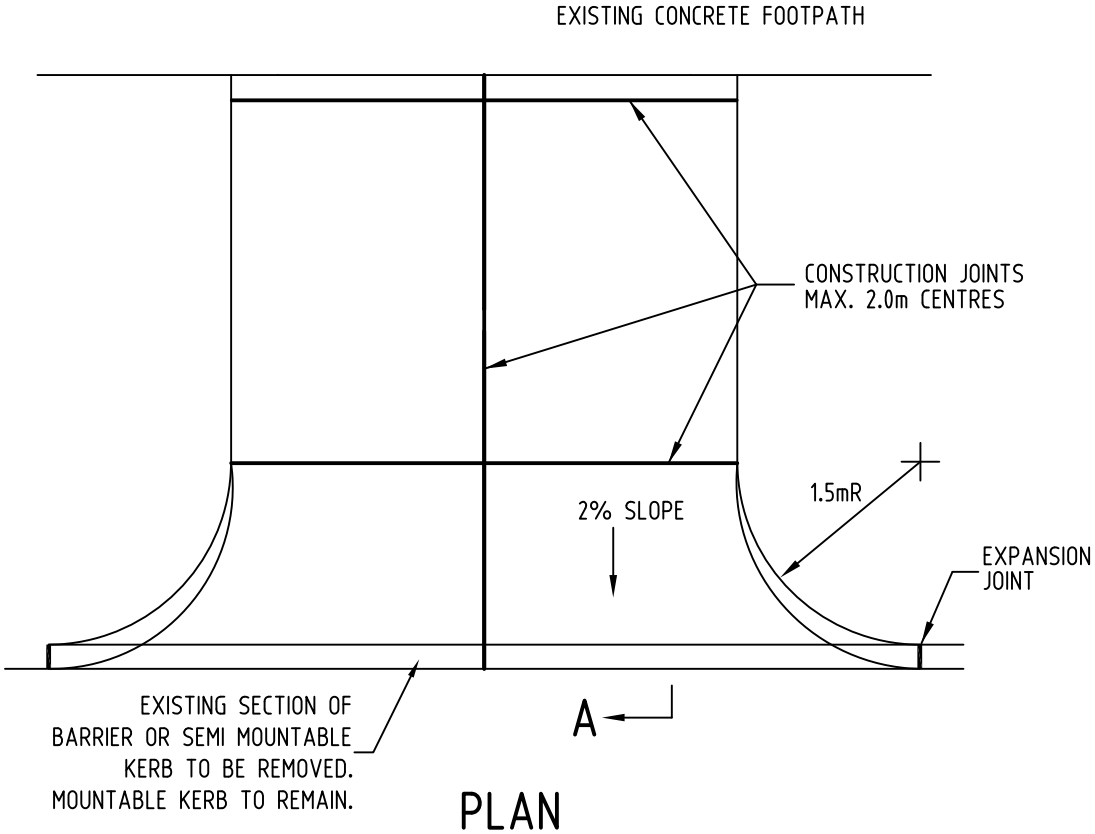
Note 1: 225mm road base with 40mm asphalt is acceptable

Note 2: 250mm road base with 50mm asphalt is acceptable

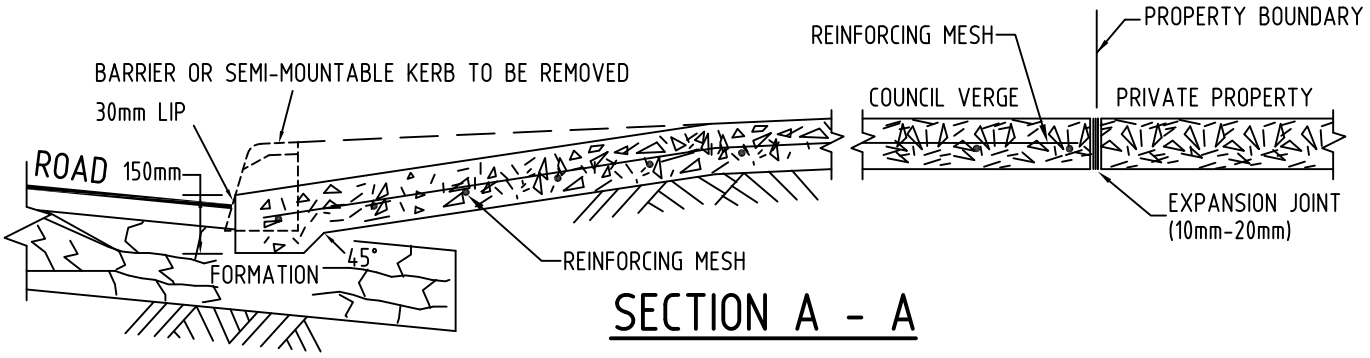
PATHWAYS AND KERBS TO BE LAID TO COUNCIL SPECIFICATIONS

ITEM	PATHWAYS	KERBS (Fully Mountable)
Excavation Works		
Minimum depth of excavation	100mm	150mm
Existing sub-grade and sub-base of existing footpath and kerb to be retained for construction of new footpath and mountable kerb.		
Width	To match width of existing pathway either side of crossover	300mm
Step up at road channel	Not Applicable	30mm
Concrete		
• Thickness	100mm	As per Drawing
• Minimum high strength at 28 days	25MPa	25MPa
• Colour	Grey	Grey
Reinforcement	F62 steel mesh	Fibre reinforcement
In-situ Concrete Finish	Non-slip wood float or broom	Smooth and even
Contraction joints	"Lock Joint" ribbed joint moulding at 4.0m (approx) spacing	Every 2.5m and 12mm wide and an approved butyl mastic compound filler and foam or polyurethane backing placed in each expansion joint.





PLAN



SECTION A - A

NOTE:
SEE SPECIFICATION FOR THE CONSTRUCTION OF VEHICLE CROSSOVERS AND REFER TO THE SCHEDULE OF REQUIREMENTS

EXPANSION JOINTS

1. SUITABLE EXPANSION JOINT MATERIAL: MELJOINT OR LOCK JOINT
2. EXPANSION JOINT TO BE THE FULL THICKNESS OF THE CONCRETE
3. EXPANSION JOINT MUST BE PROVIDED AT THE PROPERTY BOUNDARY

AMDT	DATE	DESCRIPTION

SCALE AS SHOWN
ORIGINAL DRAWING SIZE A4
DRAWN A.LA SPADA
DATE DRN. JULY 2012

SHIRE OF PEPPERMINT GROVE

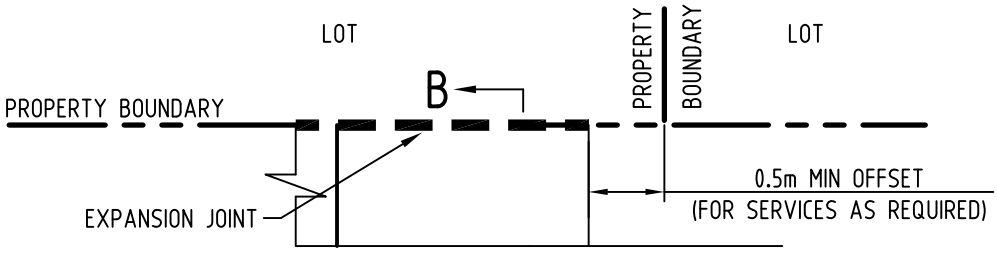
SHIRE OF PEPPERMINT GROVE INFRASTRUCTURE SERVICES

CROSSOVER DETAIL

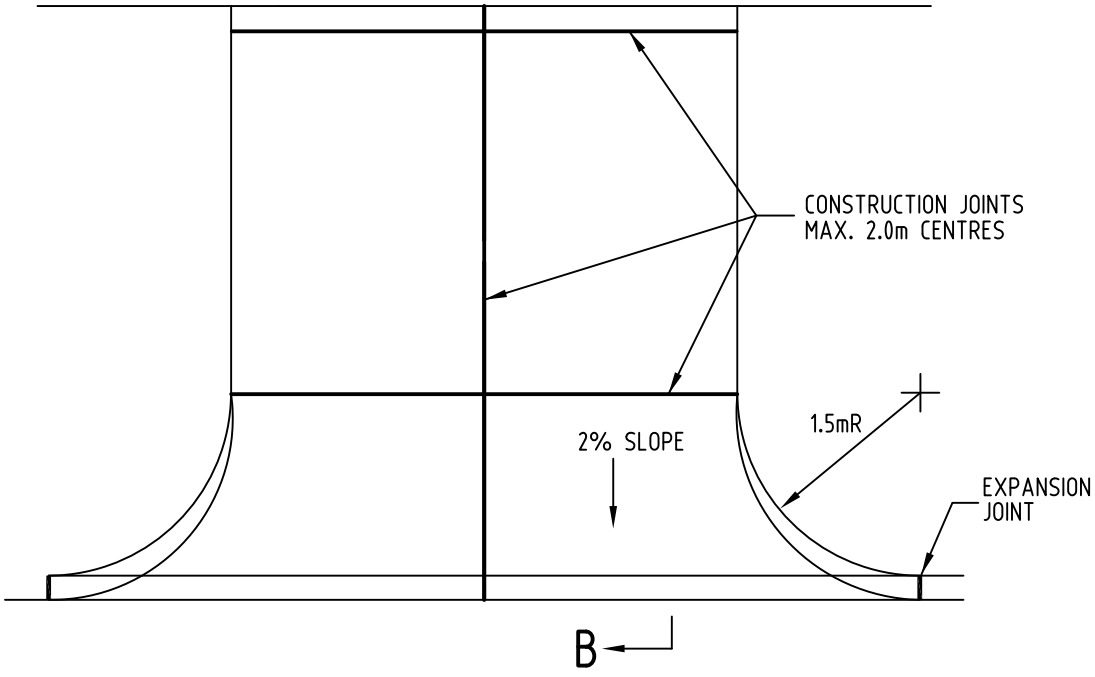
CONCRETE TYPE 'A', BARRIER/SEMI-MOUNTABLE OR NO KERBING

DRAWING No : STD 1s

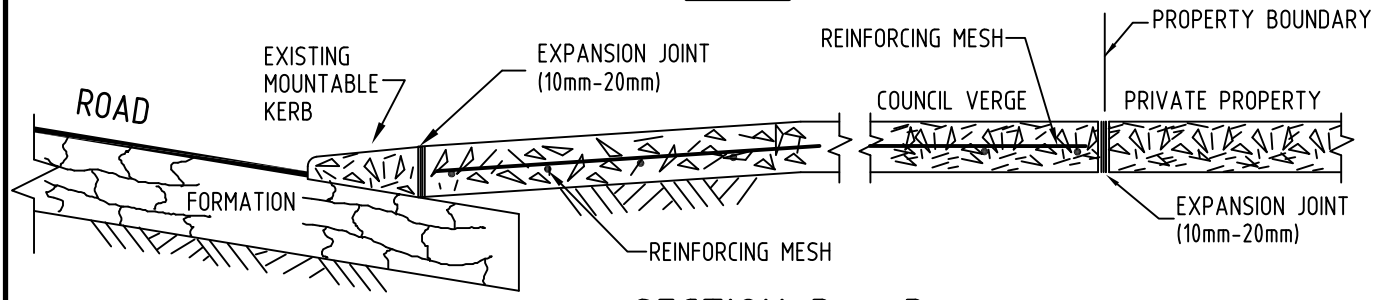
AMENDMENT No:



EXISTING CONCRETE FOOTPATH



PLAN



SECTION B - B

NOTE:
SEE SPECIFICATION FOR THE CONSTRUCTION OF VEHICLE CROSSOVERS AND REFER TO THE SCHEDULE OF REQUIREMENTS

EXPANSION JOINTS

1. SUITABLE EXPANSION JOINT MATERIAL: MELJOINT OR LOCK JOINT
2. EXPANSION JOINT TO BE THE FULL THICKNESS OF THE CONCRETE
3. EXPANSION JOINT MUST BE PROVIDED AT THE PROPERTY BOUNDARY AND AT THE REAR OF THE KERB.

AMDT	DATE	DESCRIPTION

SCALE AS SHOWN
ORIGINAL DRAWING SIZE A4
DRAWN A.LA SPADA
DATE DRN. JULY 2012

SHIRE OF PEPPERMINT GROVE

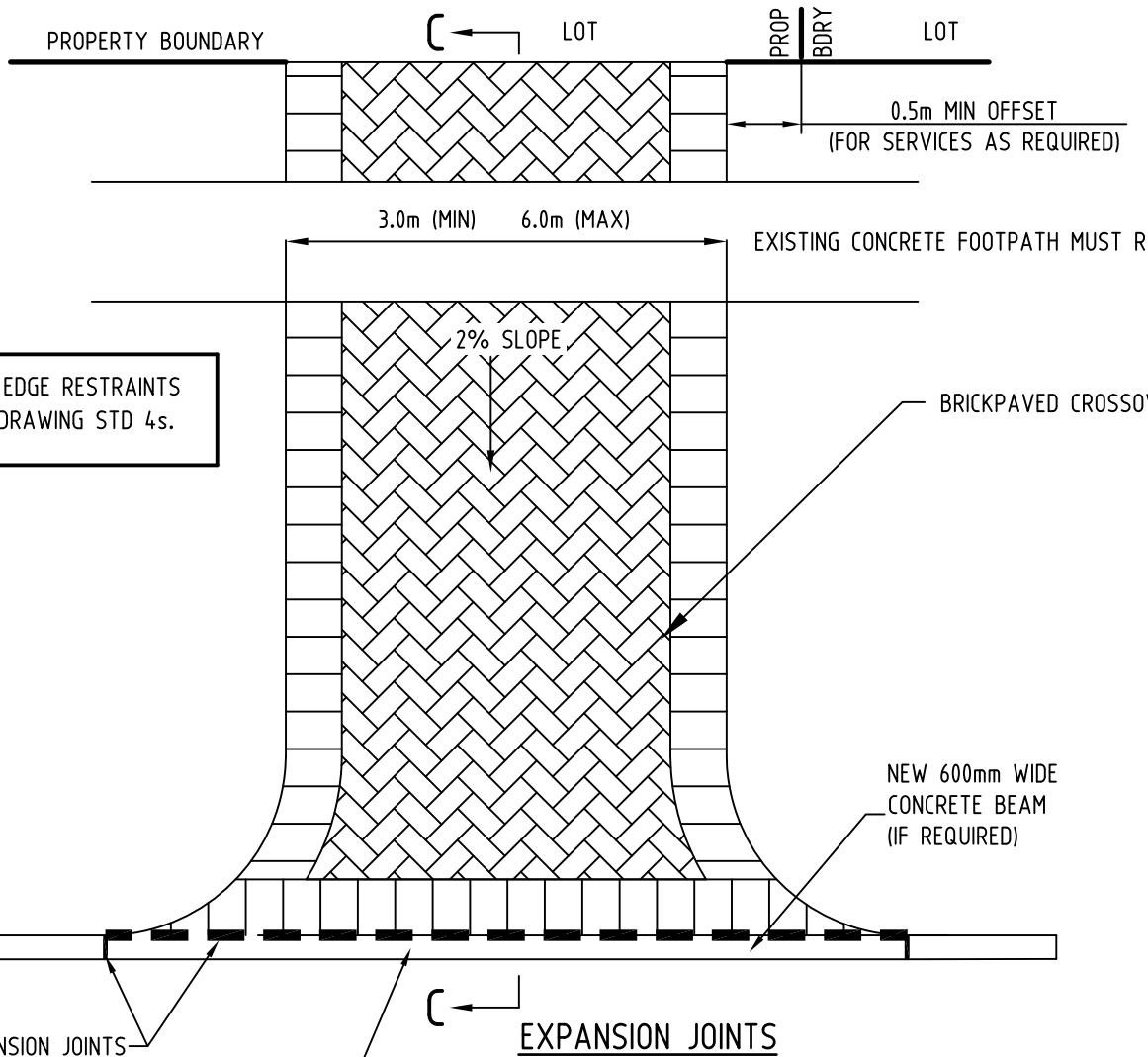
SHIRE OF PEPPERMINT GROVE INFRASTRUCTURE SERVICES

CROSSOVER DETAIL

CONCRETE TYPE 'B', MOUNTABLE KERB

DRAWING No : STD 2s

AMENDMENT No:

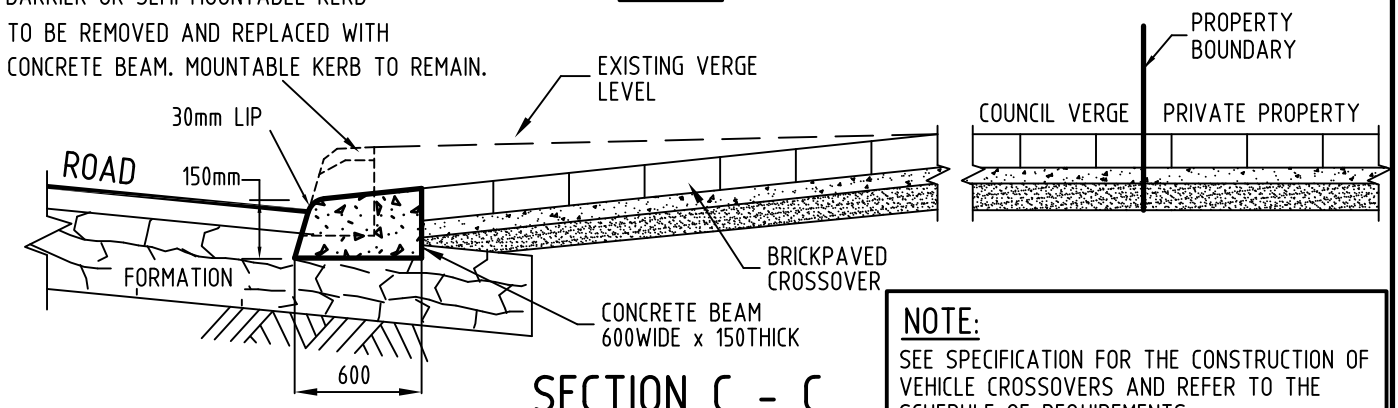


NOTE: FOR EDGE RESTRAINTS
REFER TO DRAWING STD 4s.

EXPANSION JOINTS

1. SUITABLE EXPANSION JOINT MATERIAL: MELJOINT OR LOCK JOINT
2. EXPANSION JOINT TO BE THE FULL THICKNESS OF THE CONCRETE
3. EXPANSION JOINTS MUST BE PROVIDED AT THE REAR OF THE KERB

PLAN



SECTION C - C

NOTE:
SEE SPECIFICATION FOR THE CONSTRUCTION OF VEHICLE CROSSOVERS AND REFER TO THE SCHEDULE OF REQUIREMENTS

AMDT	DATE	DESCRIPTION

SCALE AS SHOWN
ORIGINAL DRAWING SIZE A4
DRAWN A.LA SPADA
DATE DRN. JULY 2012

SHIRE OF PEPPERMINT GROVE

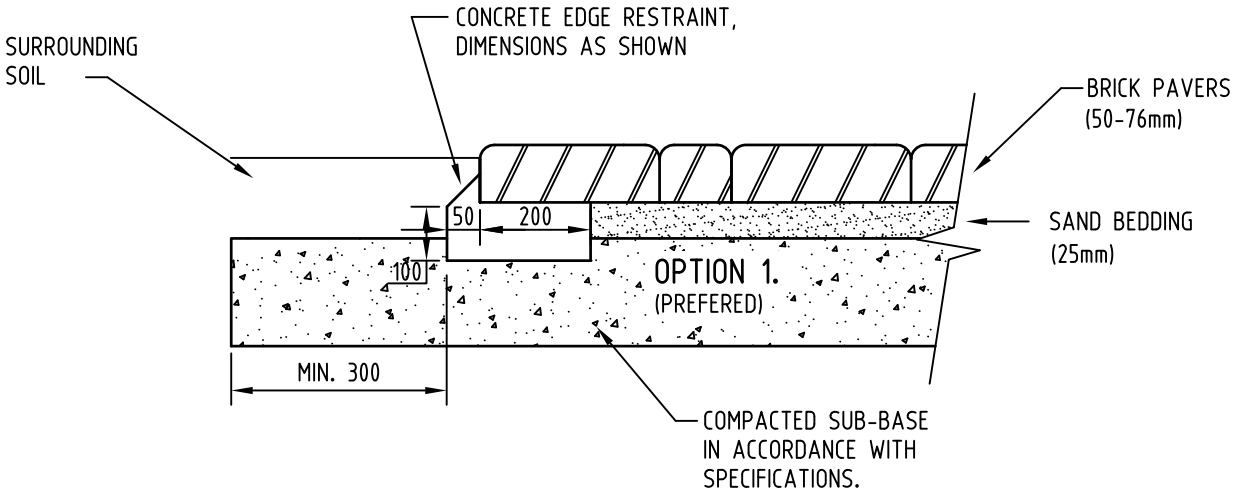
SHIRE OF PEPPERMINT GROVE INFRASTRUCTURE SERVICES

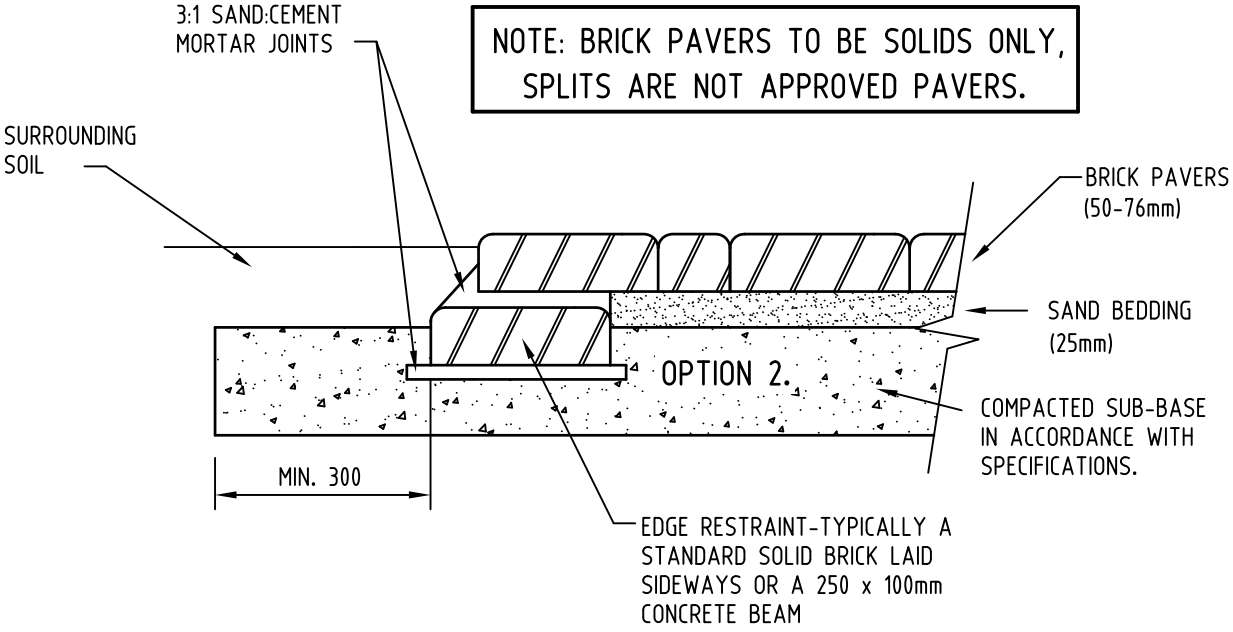
CROSSOVER DETAIL

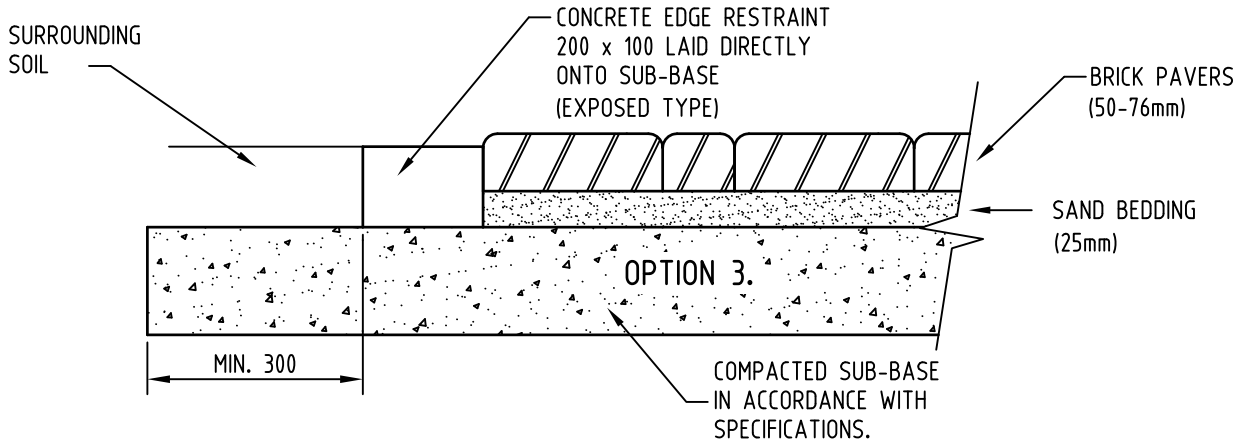
BRICK PAVED
CONCRETE BEAM

DRAWING No : STD 3s

AMENDMENT No:







AMDT	DATE	DESCRIPTION

SCALE AS SHOWN
ORIGINAL DRAWING SIZE A4
DRAWN A.LA SPADA
DATE DRN. JULY 2012

SHIRE OF PEPPERMINT GROVE

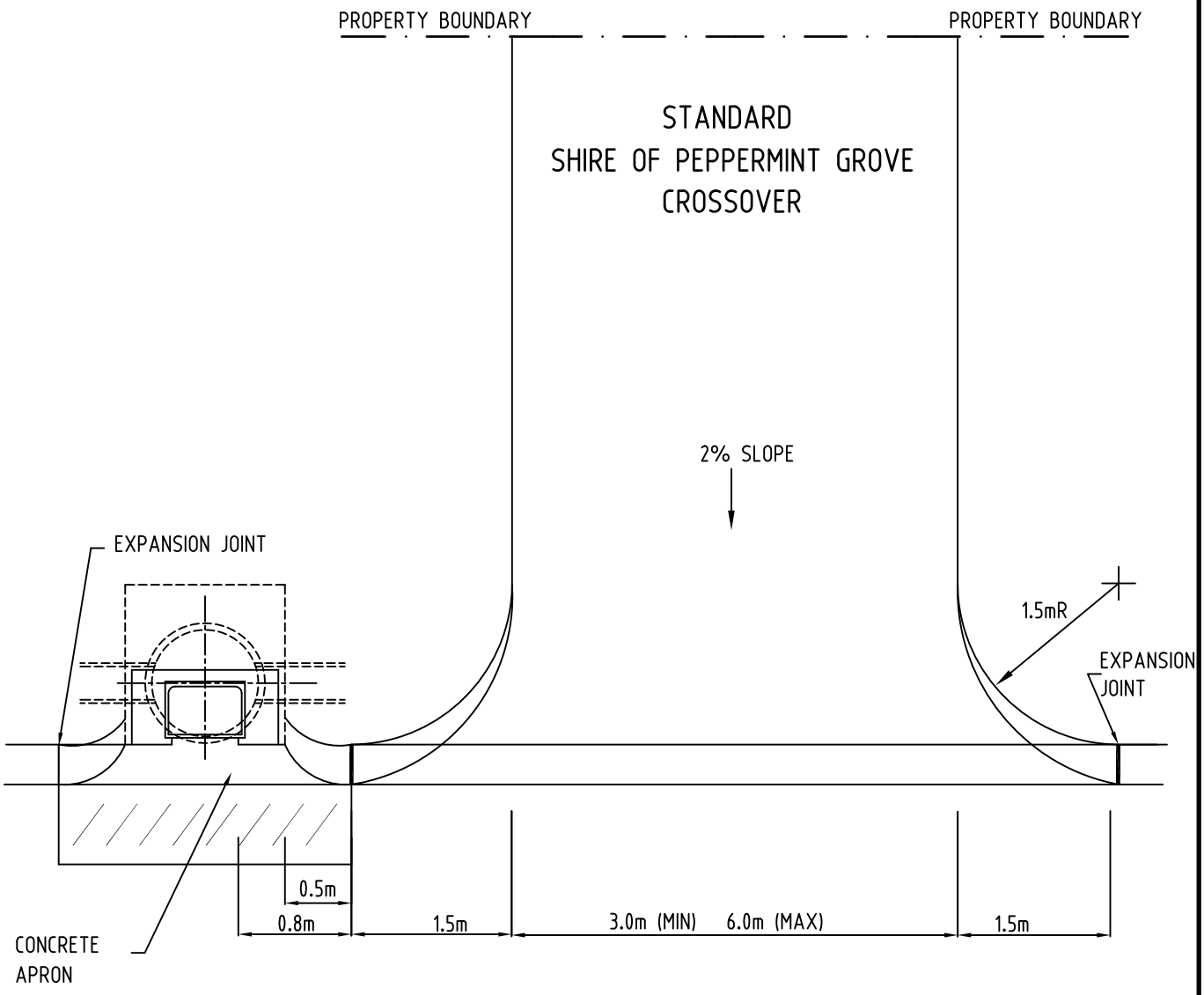
SHIRE OF PEPPERMINT GROVE INFRASTRUCTURE SERVICES

CROSSOVER DETAIL

BRICK PAVED EDGE RESTRAINTS
FOR RESIDENTIAL CROSSOVERS ONLY

DRAWING No : STD 4s

AMENDMENT No:



NOTE: MINIMUM DISTANCE BETWEEN SIDE ENTRY GULLY AND CROSSOVER

AMDT	DATE	DESCRIPTION

SCALE AS SHOWN
ORIGINAL DRAWING SIZE A4
DRAWN A.LA SPADA
DATE DRN. JULY 2012

SHIRE OF PEPPERMINT GROVE

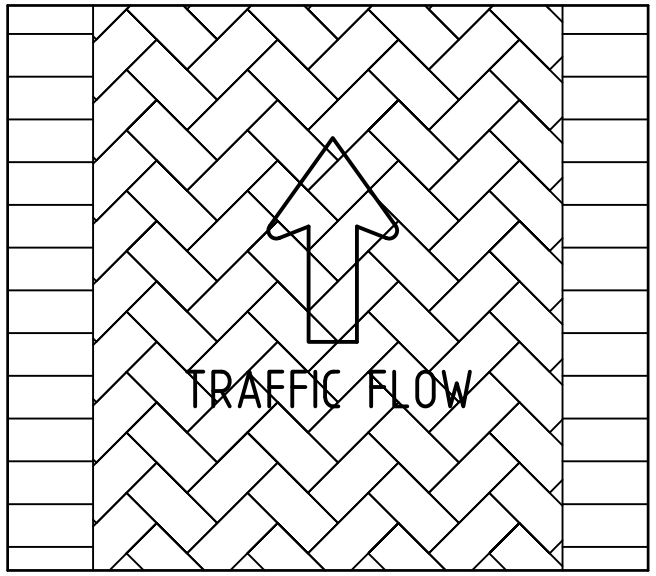
SHIRE OF PEPPERMINT GROVE INFRASTRUCTURE SERVICES

CROSSOVER DETAIL

CROSSOVER LOCATION IN RELATION TO SIDE ENTRY GULLY

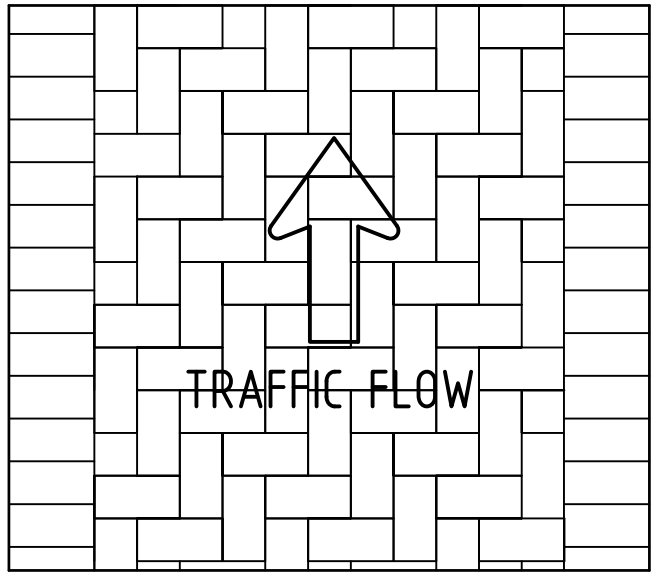
DRAWING No : STD 5s

AMENDMENT No:



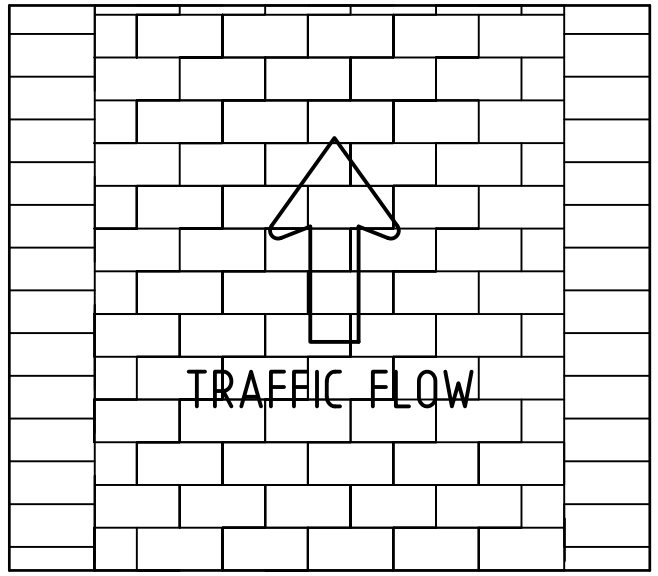
45° HERRINGBONE

(230mm x 115mm STANDARD &
230mm x 152mm PAVERS)



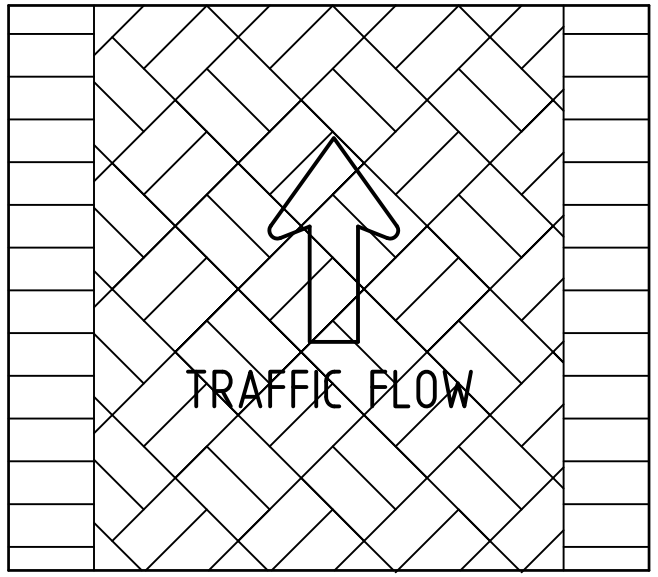
90° HERRINGBONE

(230mm x 115mm STANDARD &
230mm x 152mm PAVERS)



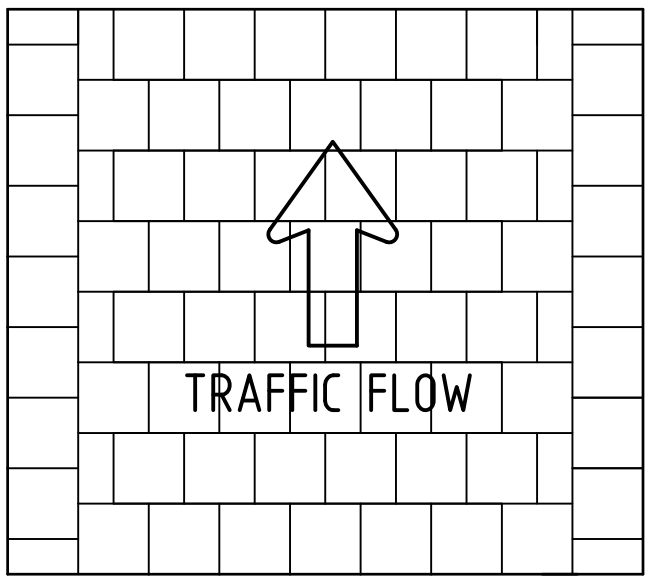
STRETCHER BOND (RECTANGULAR)

(230mm x 115mm STANDARD)



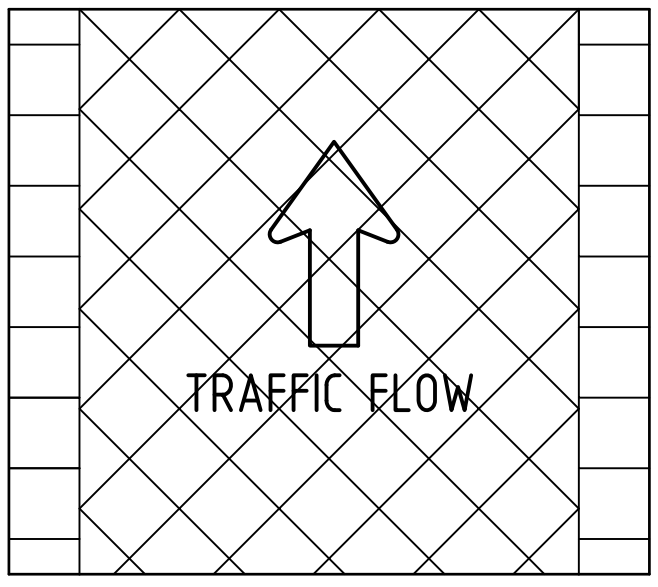
45° BASKET WEAVE BOND

(230mm x 115mm STANDARD)



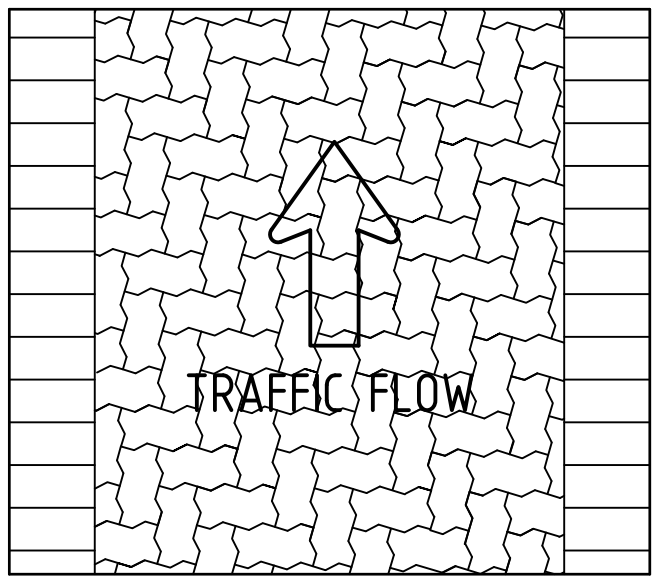
STRETCHER BOND (BLOCKS)

(190mm x 190mm BLOCKS)



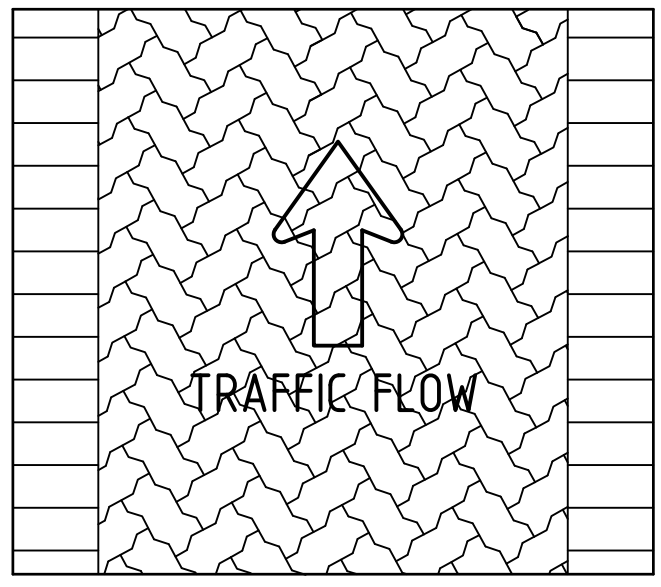
45° DIAMOND

(190mm x 190mm BLOCKS)



90° HERRINGBONE

239mm x 105mm INTERLOCK



45° HERRINGBONE

239mm x 105mm INTERLOCK

ORIGINAL DRAWING SIZE A3
DRAWN A.LA SPADA
DATE DRN. JULY 2012

SCALE: 1:20
DATUM A.H.D.

AMDT	DATE	DESCRIPTION

CROSSOVER DETAIL

APPROVED RESIDENTIAL BRICK PAVED CROSSOVER LAYING PATTERNS

SHIRE OF PEPPERMINT GROVE

SHIRE OF PEPPERMINT GROVE
INFRASTRUCTURE
SERVICES

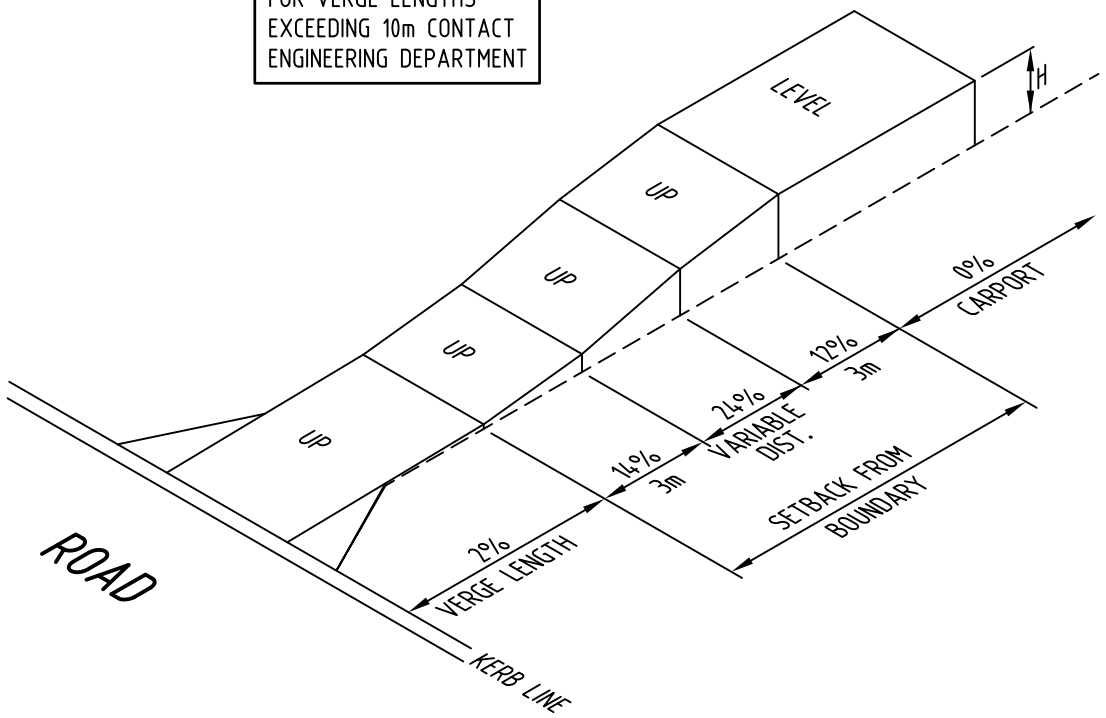
DRAWING No : STD 6s

AMENDMENT No:

LENGTH OF VERGE

SETBACK FROM BOUNDARY	3m	4m	5m	6m	7m	8m	9m	10m
3.0	0.42	0.44	0.46	0.48	0.50	0.52	0.54	0.56
3.5	0.49	0.51	0.53	0.55	0.57	0.59	0.61	0.63
4.0	0.56	0.58	0.60	0.62	0.64	0.66	0.68	0.70
4.5	0.63	0.65	0.67	0.69	0.71	0.73	0.75	0.77
5.0	0.70	0.72	0.74	0.76	0.78	0.80	0.82	0.84
5.5	0.77	0.79	0.81	0.83	0.85	0.87	0.89	0.91
6.0	0.84	0.86	0.88	0.90	0.92	0.94	0.96	0.98
6.5	0.96	0.98	1.00	1.02	1.04	1.06	1.08	1.10
7.0	1.08	1.10	1.12	1.14	1.16	1.18	1.20	1.22
7.5	1.20	1.22	1.24	1.26	1.28	1.30	1.32	1.34
8.0	1.32	1.34	1.36	1.38	1.40	1.42	1.44	1.46
8.5	1.44	1.46	1.48	1.50	1.52	1.54	1.56	1.58
9.0	1.56	1.58	1.60	1.62	1.64	1.66	1.68	1.70
9.5	1.68	1.70	1.72	1.74	1.76	1.78	1.80	1.82
10.0	1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94
10.5	1.92	1.94	1.96	1.98	2.00	2.02	2.04	2.06
11.0	2.04	2.06	2.08	2.10	2.12	2.14	2.16	2.18
11.5	2.16	2.18	2.20	2.22	2.24	2.26	2.28	2.30
12.0	2.28	2.30	2.32	2.34	2.36	2.38	2.40	2.42

NOTE:
FOR VERGE LENGTHS EXCEEDING 10m CONTACT ENGINEERING DEPARTMENT



AMDT	DATE	DESCRIPTION

SCALE AS SHOWN
ORIGINAL DRAWING SIZE A4
DRAWN A.LA SPADA
DATE DRN. JULY 2012

SHIRE OF PEPPERMINT GROVE
INFRASTRUCTURE SERVICES

CROSSOVER - DRIVEWAY GRADIENT

MAXIMUM CARPORT LEVEL AND DRIVEWAY GRADIENT FOR VERGES AT 2% GRADIENT ONLY

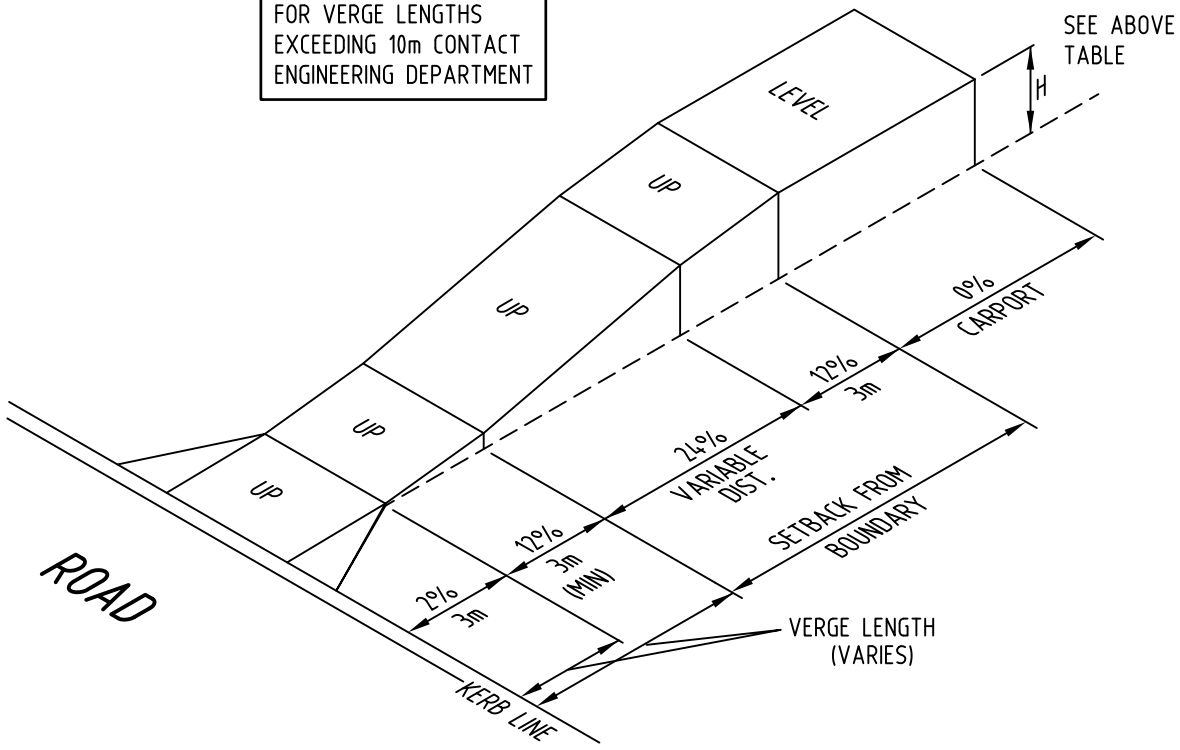
DRAWING No : STD 7-1s

AMENDMENT No:

LENGTH OF VERGE

SETBACK FROM BOUNDARY	3m	4m	5m	6m	7m	8m	9m	10m
3.0	0.42	0.54	0.66	0.78	0.90	1.02	1.14	1.26
3.5	0.48	0.60	0.72	0.90	1.02	1.14	1.26	1.38
4.0	0.54	0.66	0.78	1.02	1.14	1.26	1.38	1.50
4.5	0.60	0.72	0.90	1.14	1.26	1.38	1.50	1.62
5.0	0.66	0.78	1.02	1.26	1.38	1.50	1.62	1.74
5.5	0.72	0.90	1.14	1.38	1.50	1.62	1.74	1.86
6.0	0.78	1.02	1.26	1.50	1.62	1.74	1.86	1.98
6.5	0.90	1.14	1.38	1.62	1.74	1.86	1.98	2.10
7.0	1.02	1.26	1.50	1.74	1.86	1.98	2.10	2.22
7.5	1.14	1.38	1.62	1.86	1.98	2.10	2.22	2.34
8.0	1.26	1.50	1.74	1.98	2.10	2.22	2.34	2.46
8.5	1.38	1.62	1.86	2.10	2.22	2.34	2.46	2.58
9.0	1.50	1.74	1.98	2.22	2.34	2.46	2.58	2.70
9.5	1.62	1.86	2.10	2.34	2.46	2.58	2.70	2.82
10.0	1.74	1.98	2.22	2.46	2.58	2.70	2.82	2.94
10.5	1.86	2.10	2.34	2.58	2.70	2.82	2.94	3.06
11.0	1.98	2.22	2.46	2.70	2.82	2.94	3.06	3.18
11.5	2.10	2.34	2.58	2.82	2.94	3.06	3.18	3.30
12.0	2.22	2.46	2.70	2.94	3.06	3.18	3.30	3.42

NOTE:
FOR VERGE LENGTHS EXCEEDING 10m CONTACT ENGINEERING DEPARTMENT



AMDT	DATE	DESCRIPTION

SCALE AS SHOWN
ORIGINAL DRAWING SIZE A4
DRAWN A.LA SPADA
DATE DRN. JULY 2012

SHIRE OF PEPPERMINT GROVE
INFRASTRUCTURE SERVICES

CROSSOVER - DRIVEWAY GRADIENT

MAXIMUM CARPORT LEVEL AND DRIVEWAY GRADIENT FOR VERGES EXCEEDING 2% GRADIENT ONLY

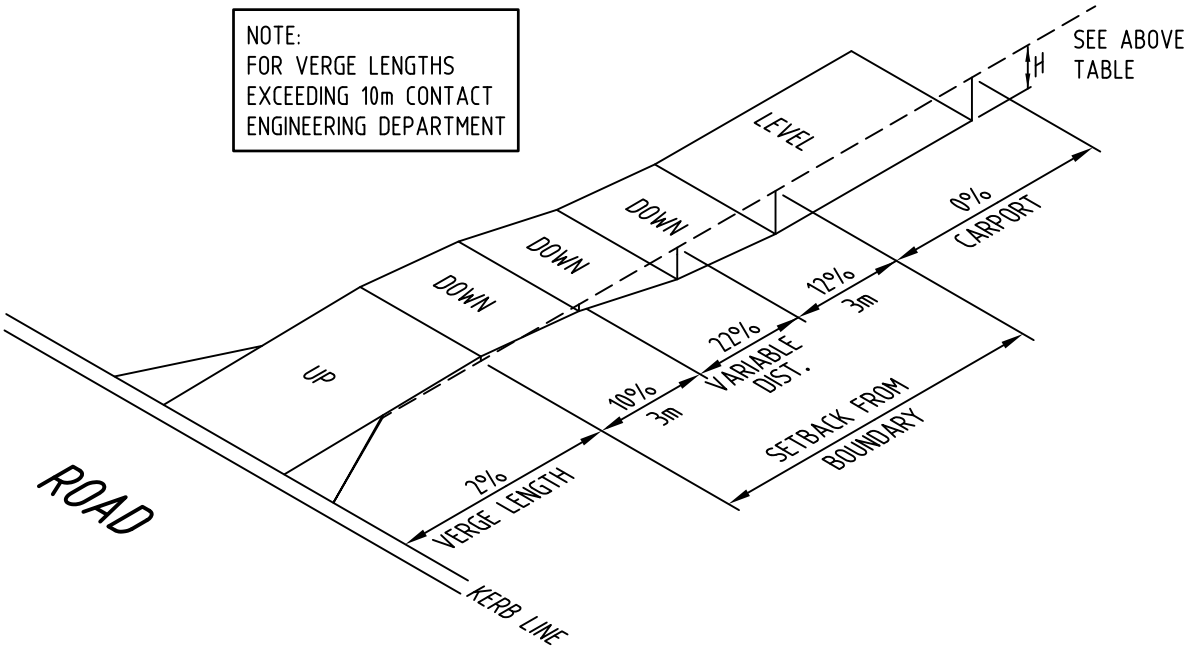
DRAWING No : STD 7-2s

AMENDMENT No:

LENGTH OF VERGE

SETBACK FROM BOUNDARY	3m	4m	5m	6m	7m	8m	9m	10m
3.0	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10
3.5	0.29	0.27	0.25	0.23	0.21	0.19	0.17	0.15
4.0	0.34	0.32	0.30	0.28	0.26	0.24	0.22	0.20
4.5	0.39	0.37	0.35	0.33	0.31	0.29	0.27	0.25
5.0	0.44	0.42	0.40	0.38	0.36	0.34	0.32	0.30
5.5	0.49	0.47	0.45	0.43	0.41	0.39	0.37	0.35
6.0	0.54	0.52	0.50	0.48	0.46	0.44	0.42	0.40
6.5	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54
7.0	0.79	0.77	0.75	0.73	0.71	0.69	0.67	0.65
7.5	0.90	0.88	0.86	0.84	0.82	0.80	0.78	0.76
8.0	1.01	0.99	0.97	0.95	0.93	0.91	0.89	0.87
8.5	1.12	1.10	1.08	1.06	1.04	1.02	1.00	0.98
9.0	1.23	1.21	1.19	1.17	1.15	1.13	1.11	1.09
9.5	1.34	1.32	1.30	1.28	1.26	1.24	1.22	1.20
10.0	1.45	1.43	1.41	1.39	1.37	1.35	1.33	1.31
10.5	1.56	1.54	1.52	1.50	1.48	1.46	1.44	1.42
11.0	1.67	1.65	1.63	1.61	1.59	1.57	1.55	1.53
11.5	1.78	1.76	1.74	1.72	1.70	1.68	1.66	1.64
12.0	1.89	1.87	1.85	1.83	1.81	1.79	1.77	1.75

NOTE:
FOR VERGE LENGTHS EXCEEDING 10m CONTACT ENGINEERING DEPARTMENT



AMDT	DATE	DESCRIPTION

SCALE AS SHOWN
ORIGINAL DRAWING SIZE A4
DRAWN A.LA SPADA
DATE DRN. JULY 2012

SHIRE OF PEPPERMINT GROVE

SHIRE OF PEPPERMINT GROVE INFRASTRUCTURE SERVICES

CROSSOVER - DRIVEWAY GRADIENT

MINIMUM CARPORT LEVEL AND DRIVEWAY GRADIENT FOR VERGES AT 2% GRADIENT ONLY

DRAWING No : STD 7-3s

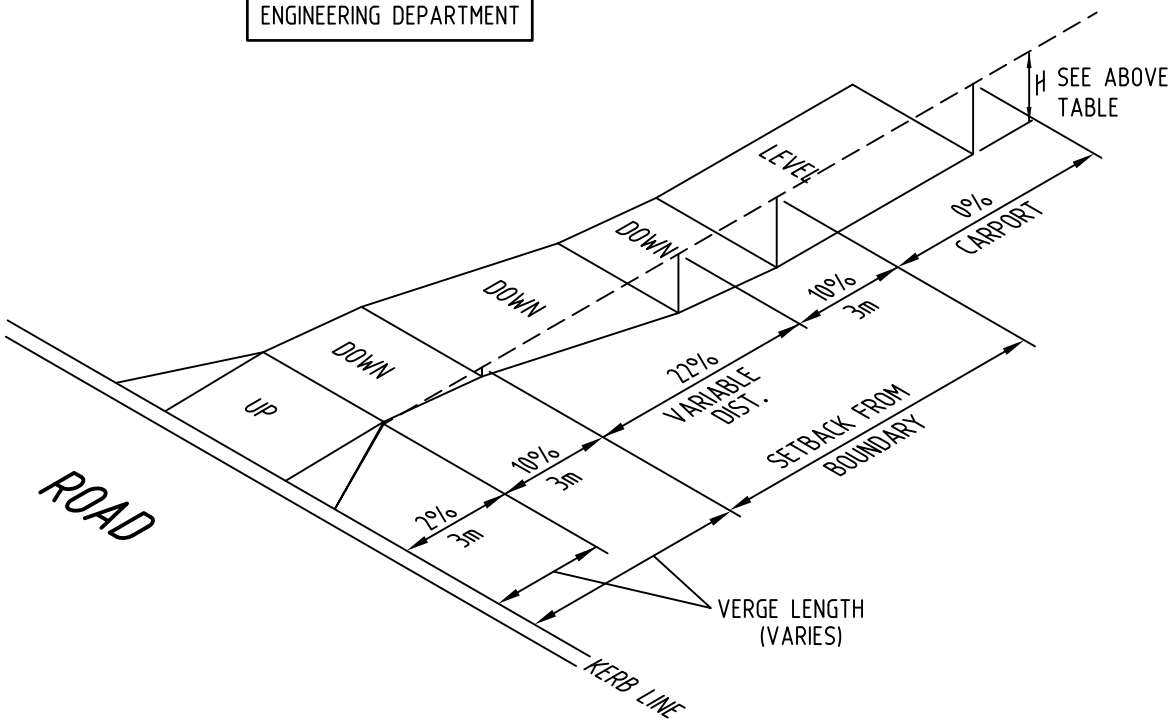
AMENDMENT No:

LENGTH OF VERGE

SETBACK FROM BOUNDARY	3m	4m	5m	6m	7m	8m	9m	10m
3.0	0.24	0.34	0.44	0.54	0.64	0.74	0.84	0.94
3.5	0.29	0.39	0.49	0.65	0.75	0.85	0.95	1.05
4.0	0.34	0.44	0.54	0.76	0.86	0.96	1.06	1.16
4.5	0.39	0.49	0.65	0.87	0.97	1.07	1.17	1.27
5.0	0.44	0.54	0.76	0.98	1.08	1.18	1.28	1.38
5.5	0.49	0.65	0.87	1.09	1.19	1.29	1.39	1.49
6.0	0.54	0.76	0.98	1.20	1.30	1.40	1.50	1.60
6.5	0.65	0.87	1.09	1.31	1.41	1.51	1.61	1.71
7.0	0.76	0.98	1.20	1.42	1.52	1.62	1.72	1.82
7.5	0.87	1.09	1.31	1.53	1.63	1.73	1.83	1.93
8.0	0.98	1.20	1.42	1.64	1.74	1.84	1.94	2.04
8.5	1.09	1.31	1.53	1.75	1.85	1.95	2.05	2.15
9.0	1.20	1.42	1.64	1.86	1.96	2.06	2.16	2.26
9.5	1.31	1.53	1.75	1.97	2.07	2.17	2.27	2.37
10.0	1.42	1.64	1.86	2.08	2.18	2.28	2.38	2.48
10.5	1.53	1.75	1.97	2.19	2.29	2.39	2.49	2.59
11.0	1.64	1.86	2.08	2.30	2.40	2.50	2.60	2.70
11.5	1.75	1.97	2.19	2.41	2.51	2.61	2.71	2.81
12.0	1.86	2.08	2.30	2.52	2.62	2.72	2.82	2.92

NOTE:
FOR VERGE LENGTHS
EXCEEDING 10m CONTACT
ENGINEERING DEPARTMENT

NOTE:
FOR VERGE LENGTHS
EXCEEDING 10m CONTACT
ENGINEERING DEPARTMENT



AMDT	DATE	DESCRIPTION

SCALE AS SHOWN
ORIGINAL DRAWING SIZE A4
DRAWN A.LA SPADA
DATE DRN. JULY 2012

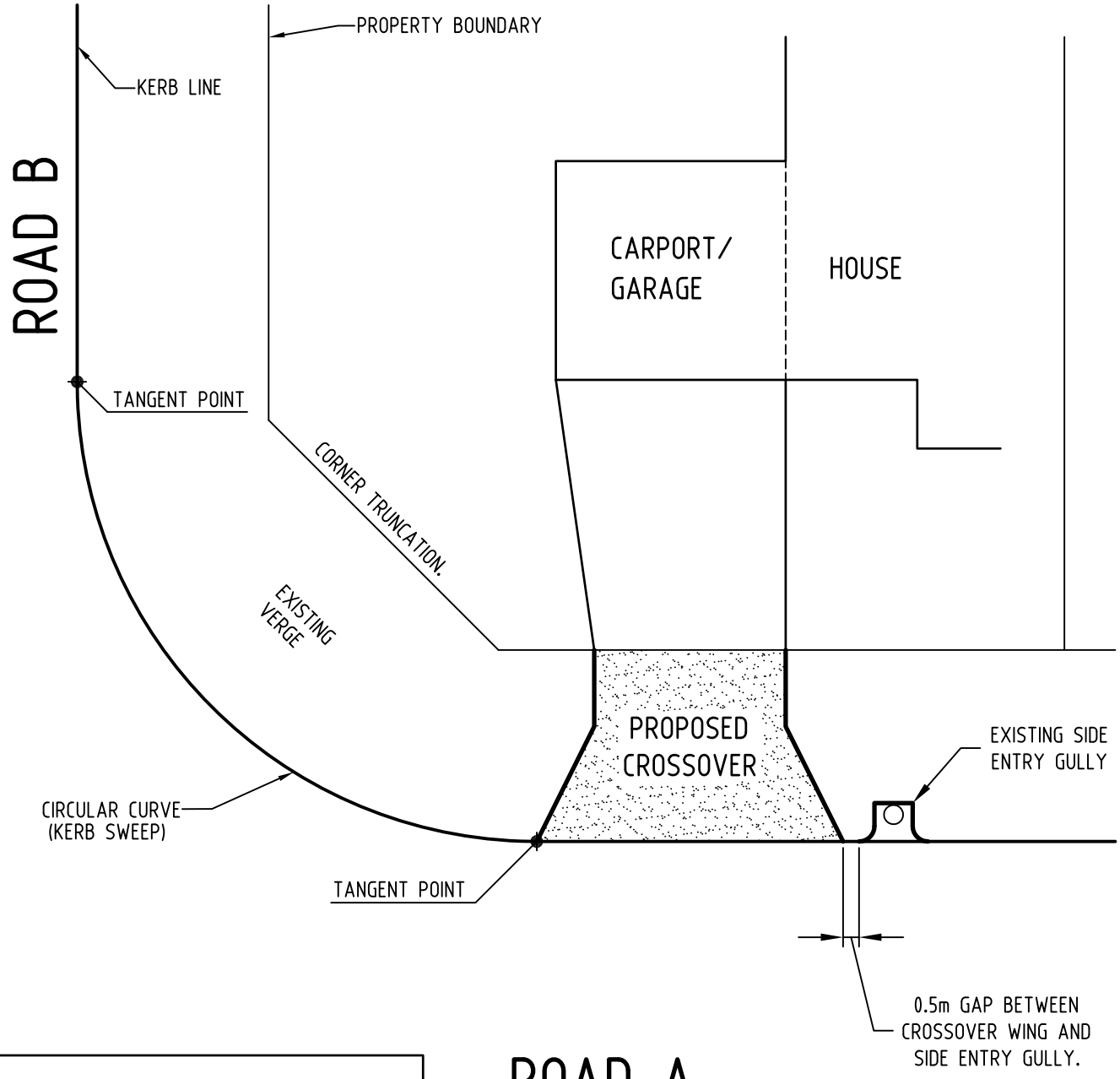
SHIRE OF PEPPERMINT GROVE
INFRASTRUCTURE SERVICES

CROSSOVER - DRIVEWAY GRADIENT

MINIMUM CARPORT LEVEL AND DRIVEWAY GRADIENT FOR VERGES AT LESS THAN 2% ONLY

DRAWING No : STD 7-4s

AMENDMENT No:



NOTES

1. EDGE OF PROPOSED CROSSOVER NOT TO BE LOCATED WITHIN THE CIRCULAR PORTION OF KERBING. OR THROUGH TRUNCATION.
2. CROSSOVER TO BE 0.5m AWAY FROM SIDE ENTRY GULLY (IF APPLICABLE).

AMDT	DATE	DESCRIPTION

SCALE AS SHOWN
ORIGINAL DRAWING SIZE A4
DRAWN A.LA SPADA
DATE DRN. JULY 2012

SHIRE OF PEPPERMINT GROVE

SHIRE OF PEPPERMINT GROVE INFRASTRUCTURE SERVICES

CROSSOVER DETAIL - LOCATIONS

NEW CROSSOVER IN RELATION TO CORNER LOTS.

DRAWING No : STD 8s

AMENDMENT No: