# The Central Sydney Paving Design Policy

CITY OF SYDNEY

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Enquiries regarding this document should be made in the first instance to:

The One Stop Shop
Town Hall House
456 Kent Street
Sydney

GPO Box 1591
Sydney NSW 2000
Tel: 02 9265 9255
Fax: 02 9265 9415
E-mail: publicaffairs@cityofsydney.nsw.gov.au
Internet: www.cityofsydney.nsw.gov.au

# Introduction

1

## Purpose

1.1

Footpaths are a significant part of the public realm and their quality has a direct effect on the pedestrian experience of the city. This is acknowledged in the principles and provisions of the City Plan, which requires footpath paving to be provided in accordance with an overall scheme that incorporates four paving types to be used in Central Sydney.

The purpose of this document is to provide simple urban design guidelines to assist the Council and developers in realising the intention of the City Plan and constructing a pedestrian environment of an appropriate quality and character in Central Sydney.

## Area to which the policy applies

1.2

This Paving Design Policy applies to all development in the area covered by the Central Sydney Development Control Plan 1996, including the Council's footpath construction and maintenance work.

City West is covered by the Ultimo Pyrmont Public Domain Technical Manual.

## Principles

2.1

Footpaths should be a unifying element in the streetscape where buildings, signs, objects, people, and movement provide constant variation and change. They are to give a clear expression of pedestrian priority, and this message must be obvious to pedestrians and drivers. Continuity of footpath dimensions, levels, materials, and edges is therefore important. Permanent and semi-permanent objects such as kerb ramps, footpath crossings, and street furniture are to appear as occasional interruptions in the overall pattern rather than dominant elements of the streetscape.

All footpaths must provide ease of movement for everyone, including people with different degrees of disability. Visual simplicity and observation of pedestrian desire lines is important as is the use of contrasting pavement textures and markings to alert street users to potential hazards such as intersections and footpath crossings.

## Materials

2.2

Asphalt and stone have traditionally been used for paving and kerbing in Central Sydney. They are historically appropriate materials that complement each other and provide a neutral setting for the architecture of the city. They will therefore continue to be used as principal footpath materials in Central Sydney.

## Paving types

2.3

Four footpath paving types are nominated to be used in Central Sydney, all to be laid on a reinforced concrete base. They constitute a consistent system that provides a visually uncomplicated background to street life and facilitates access and orientation within the city.

### Type 1

Paving type 1 indicates special designs by Council. It is reserved for public places of special significance that stand out as points of identification within the city fabric. Paving type 1 is to be designed individually to celebrate its specific civic image and role, but it must comply with the general principles and guidelines of this document.

### Types 2, 3 and 4

Paving type 2 is flagstone paving, to be used on Central Sydney's main streets and major pedestrian routes. Paving type 3 is asphalt paving with flagstone margins, to be used on the secondary streets that surround the main streets and major routes. Paving type 4 is asphalt paving, to be used on the residential and peripheral streets around the city centre.

Paving types 2, 3, and 4 provide a gradual transition from flagstone to asphalt. Types 2 and 3 both have stone margins, type 2 with stone infill and type 3 with asphalt infill. The margins provide unambiguous edge definition and allow type 3 to be eventually upgraded to type 2 where desired.

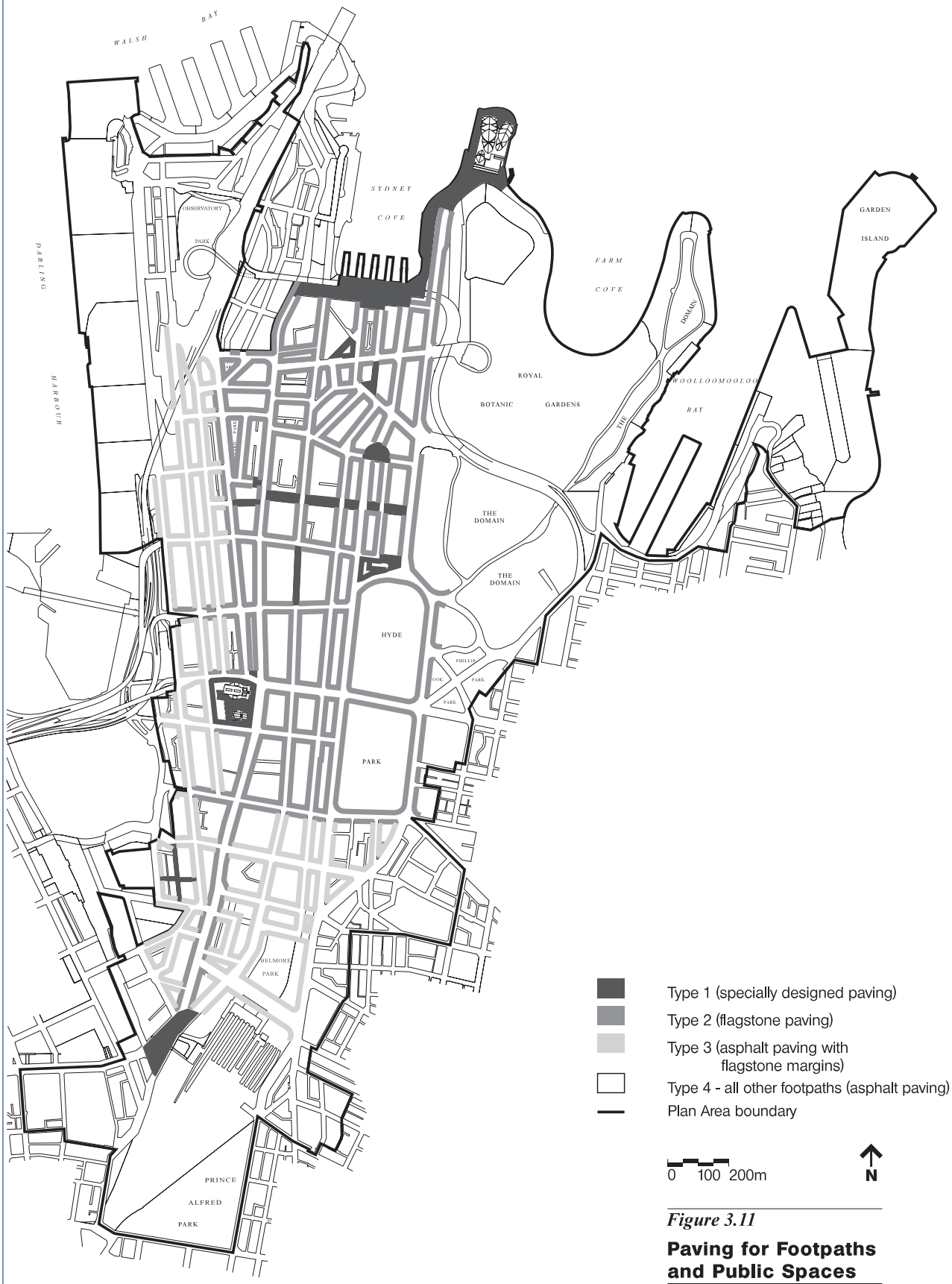


*Figure 3.11*

**Paving for Footpaths and Public Spaces**

## 2.4 Standard design details

The civic notes included in this document show the standard design details for paving types 2, 3, and 4.

### Kerb ramps

For visual consistency, kerb ramps should appear as subtle depressions in the pavement. They are to be paved with the same material as the surrounding footpath, in accordance with the standard detail for each paving type. Their sides are to be marked with stone inserts (type 2) or aluminium inserts (types 3 and 4) and their top edge with aluminium tactile tiles to alert people to the change in grade. For proper continuity and edge definition, kerbs and stone margins are to continue uninterrupted along the length of the street and be set down at the kerb ramps to match their profile.

At footpath corners and street intersections, kerb ramps should be located within the corner area of the footpath, aligned with the street wall, and set at a straight angle to the street alignment. This arrangement corresponds to pedestrian desire lines, provides a stable crossing for people using wheelchairs, and directs people in a straight line to a safe crossing to the opposite footpath. Kerb ramps must not be provided diagonally at the footpath corners as this provides no protection for pedestrians from the wheels of turning vehicles and misdirects people with sight impairments into the intersection, in the path of vehicles.

At any irregular intersections, and when a large corner radius is required, the location and alignment of the pedestrian crossings and kerb ramps is to be designed simultaneously for the whole intersection to avoid inconvenient and dangerous mismatch of facing kerb ramps.

### Vehicle cross overs

Vehicle cross overs are required to provide vehicular access to carparks and service bays across the footpath. Where installed, they are to be constructed at footpath level and paved with the same material as the surrounding footpath, to match the standard detail for each paving type. Their sides are to be marked with stone inserts (type 2) or aluminium inserts (types 3 and 4) to alert people to the change in grade. For proper continuity and edge definition, kerbs and stone margins are to continue uninterrupted along the length of the street and be set down at the vehicular crossings to match their profile.

Vehicle cross overs may only be separated by kerbs in exceptional circumstances outside the city centre, for industrial purposes. Recessed double vehicular crossings have an adverse impact on pedestrian amenity and should not be constructed along the major pedestrian thoroughfares nominated for paving type 2.

### Streetscape objects

Footpath paving is to be an uninterrupted whole that visually integrates all permanent and semi-permanent elements of the streetscape. To maintain the continuity of the footpath, individual objects such as street furniture items should generally be inserted into the paving pattern as seamlessly as possible rather than being individually acknowledged by variations in the pavement.

Street trees, however, have a sufficient civic presence to be recognised in the paving pattern and, in paving types 2 and 3, this is achieved by bending the kerbside stone margin around the tree grate.

## Footpath corners and junctions

2.5

Junctions of different paving types indicate transition points and boundaries between areas of different character within the city centre. Paving types 2 and 4 provide a visually simple corner definition consisting of a single material, and are to be used to pave the junctions. Paving type 3 remains between these two types and integrates their materials and layout patterns.

## Kerbs and gutters

2.6

Stone is the traditional kerb material in Central Sydney. Existing kerbs are predominantly trachyte and there are also small sections of the following types:

> sandstone kerbs in older residential areas
> concrete kerbs in peripheral areas
> steel flange and concrete kerbs in Millers Point
> bluestone kerbs for repairs

Concrete is the most common gutter material in Central Sydney but there are some old sandstone gutters remaining.

### Current requirements

### Existing footpath kerbing

Stone kerbing is to be used for all footpath construction and maintenance works except for the steel flange and concrete kerbs in Millers Point that are to be retained for their heritage value. Other concrete kerbs are to be replaced by stone. Trachyte is to be used unless the existing kerbing is predominantly sandstone. Existing stone kerbs are to be retained and repaired and if required reset to be 150 mm above gutter level. For footpath extensions existing stone kerbs are to be reset at the new alignment.

### Substitute kerbs

For extensive new kerb construction, or if sandstone and trachyte become unavailable, Austral Verde granite with a grit blasted finish to the top and a sawn finish to the face is to be used. Refer to the diagram *Austral Verde Kerb Typical Section.*

### Kerbing to traffic islands

Bluestone is to be used for kerbs around traffic islands and traffic control elements that are physically separate from the main kerbline, subject to the Council's approval.

## Footpath extensions

2.7

Footpath extensions increase pedestrian presence on the streets and have a significant effect on its user pattern and civic image. They are to be constructed according to an overall plan that takes into account the relevant urban design, heritage, and traffic issues. All footpath extensions must have a precise, geometric form and a sufficient length to contribute to the linear quality of the streetscape and the visual continuity of the pedestrian realm.

As the first priority, existing footpaths are to be retained and extensions constructed on the surface of the carriageway, at its grade. The original kerb is to be relocated at the new alignment. The original kerbline will become the new low point and the original kerb substituted by a grate. New pits are to be installed where necessary. This implementation principle allows incremental improvement of footpaths, ie. first stage paving followed by second stage extension, without loss of completed work. It retains the memory of the original kerb alignment, which contributes to the temporal layering of the streetscape and adds richness to people's experience of the urban environment.

Narrow footpath extensions may be constructed by continuing the footpath at its existing grade into the carriageway, provided that a minimum kerb height of 100 mm can be achieved at the new alignment.

## Lanes

2.8

Appropriate paving, kerbing, and detailed design of lanes and small streets with narrow footpaths depends on the heritage status and functional role of each such lane and street. These will be defined and appropriate individual plans of management with specific recommendations prepared for all lanes in Central Sydney, beginning in 1996. The Council's Interim Laneway Guidelines, October 1995 are to be applied until such time that the plans of management are complete.

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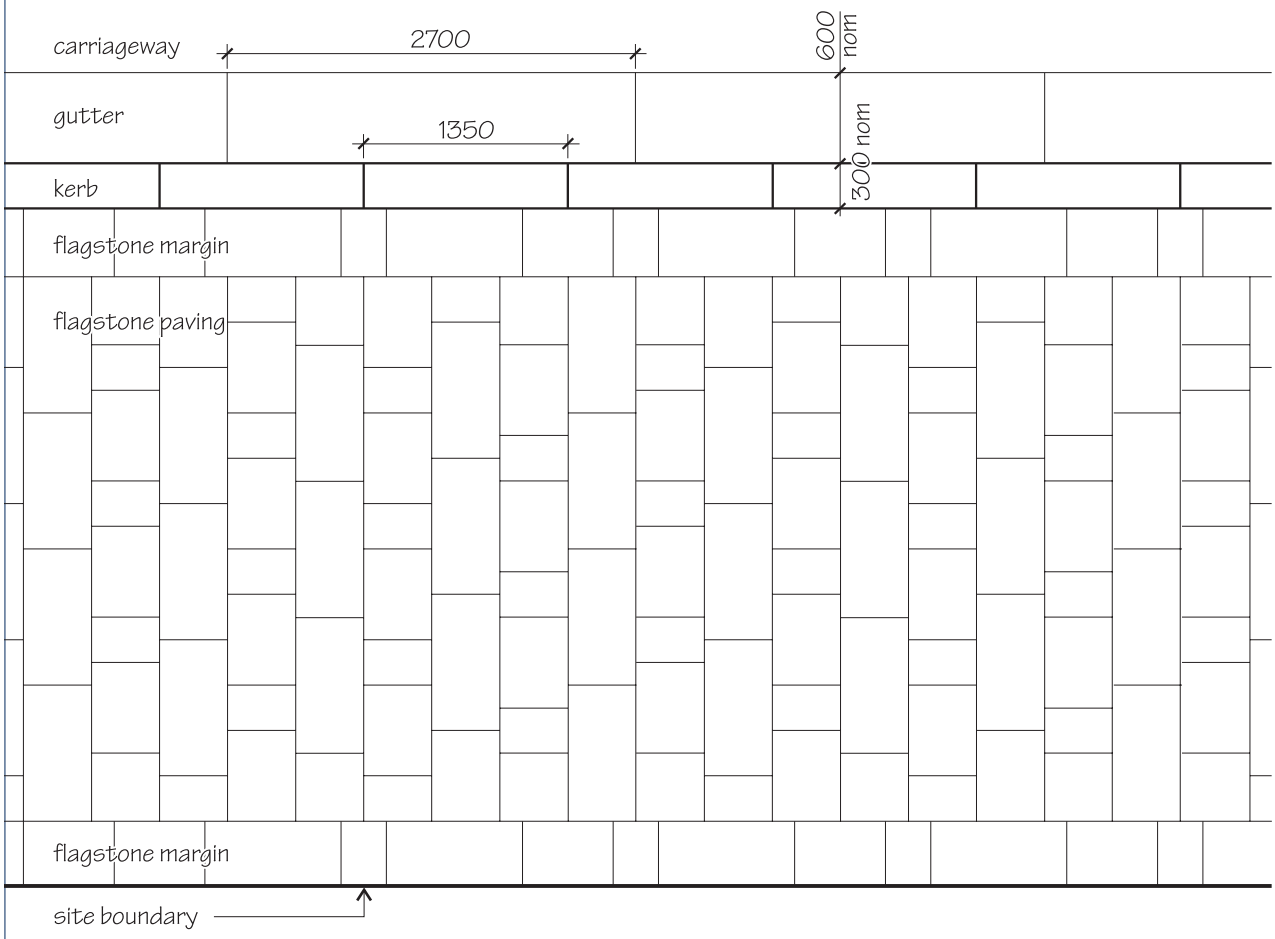
# Paving Type 2 - Flagstone Paving

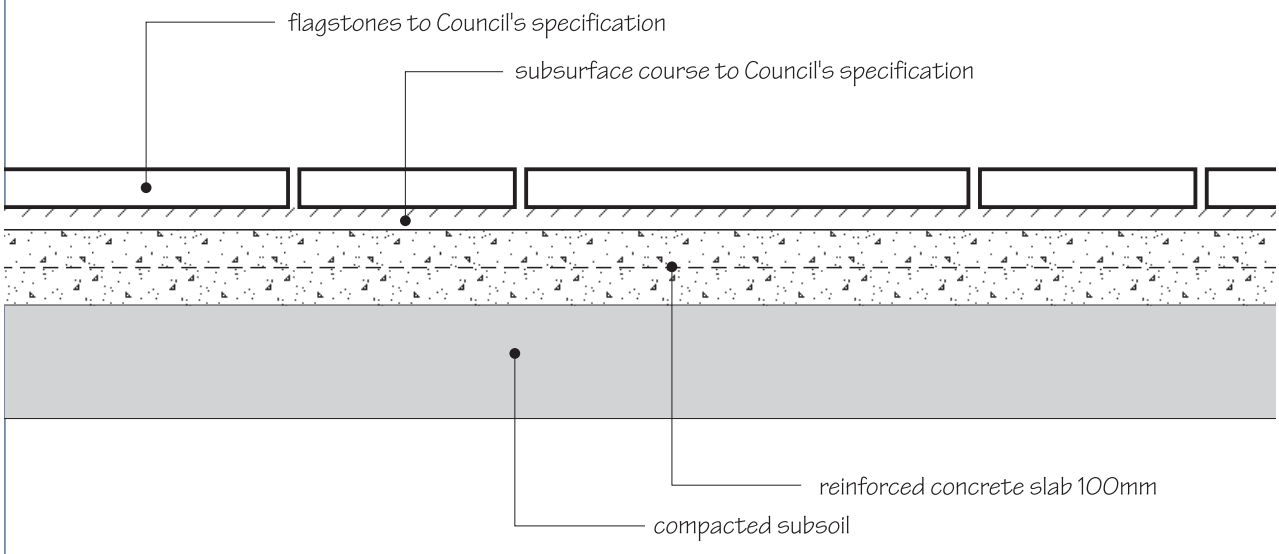
pn1

## Standard detail

pn1.1




**Plan**
**1 : 50**




**Cross Section**
**1 : 10**

# Paving Type 2 - Flagstone Paving

pn1

## Standard detail

pn1.1

### Material

Use bluestone pavers or Austral Black or Black Grandee granite pavers or similar to the Council's satisfaction.

### Finish

Sawn finish to bluestone.
Exfoliated finish to granite.

### Size

Use three sizes of stone flags in the following ratio:

> type A 900 mm x 450 mm 50% of total area
> type B 600 mm x 450 mm 25% of total area
> type C 300 mm x 450 mm 25% of total area

Type C is the minimum size of stone to be used. Any filler stones of non standard sizes must be cut from type B or type C stones.

### Pattern

*Flagstone margins:* a row of flagstones in a random order of sizes against the kerb and against the site boundary.

*Flagstone infill:* stretcher bond pattern with random jointing between the margins and at a right angle to them.

### Installation

Install the flagstones to the Council's specifications on a reinforced concrete slab and mortar bedding with 5 mm joints between the stones and 10 - 12 mm separation joints against the kerb and the site boundary. Rake joints to a 4 mm depth.

*Flagstone margins:* where stone margins already exist, commence the flagstone layout work from the ends of the existing ones. Elsewhere commence from either end of the area to be paved. The flagstone margins must be absolutely straight. Any variation of kerb width or unevenness of building wall must be accommodated by the separation joints.

*Flagstone infill:* commence the flagstone infill work from the kerbside margin. The edges of the completed stone paving against the margins must be cut neatly and absolutely straight.

### Maintenance

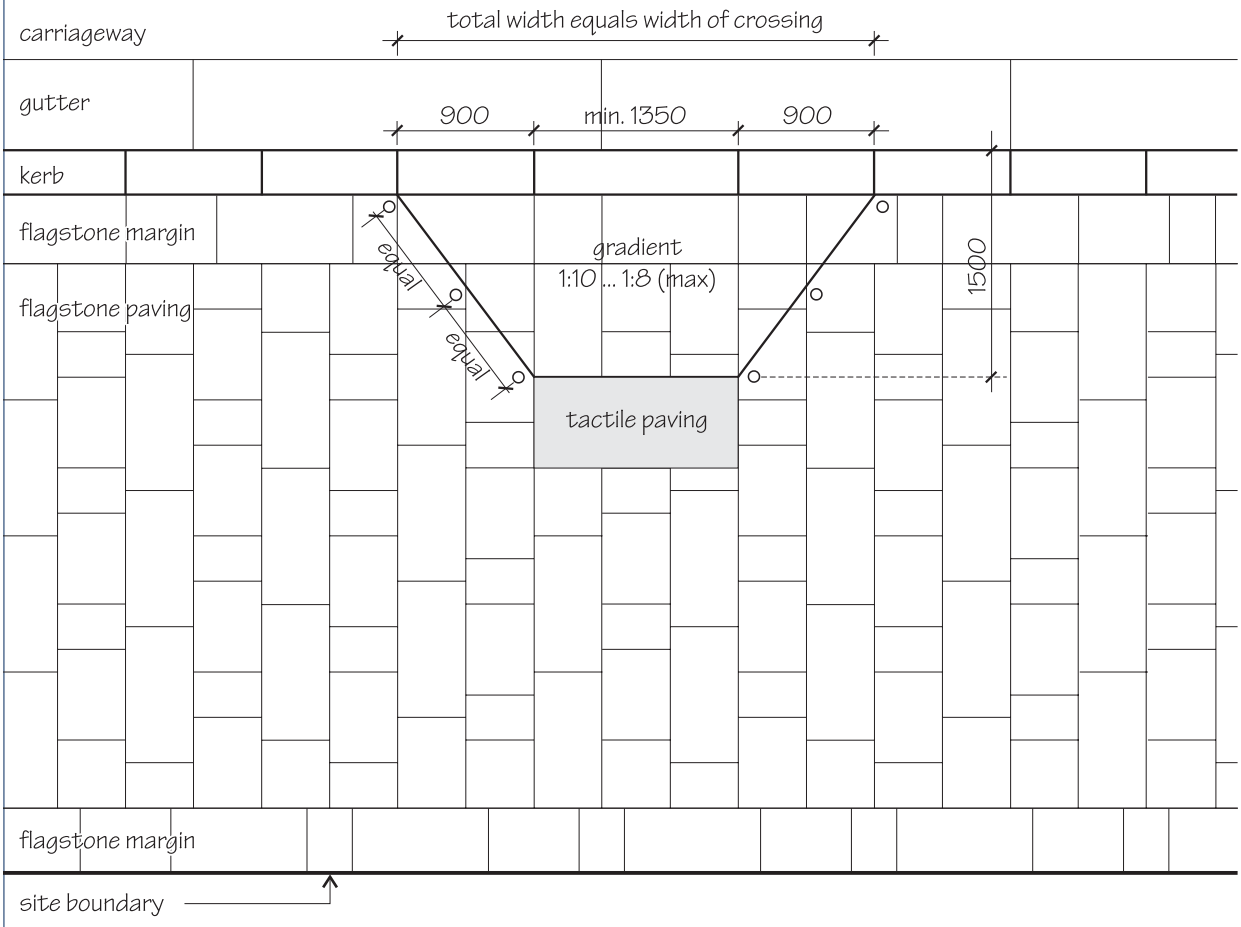
Clean as necessary. Re-exfoliate on site when required to maintain slip resistance. Replace broken flagstones. Reinstate paving after works that require footpath surface to be opened. Use matching stone for replacements.

# Paving Type 2 - Flagstone Paving

pn1

## Standard kerb ramp

pn1.2




**Plan**
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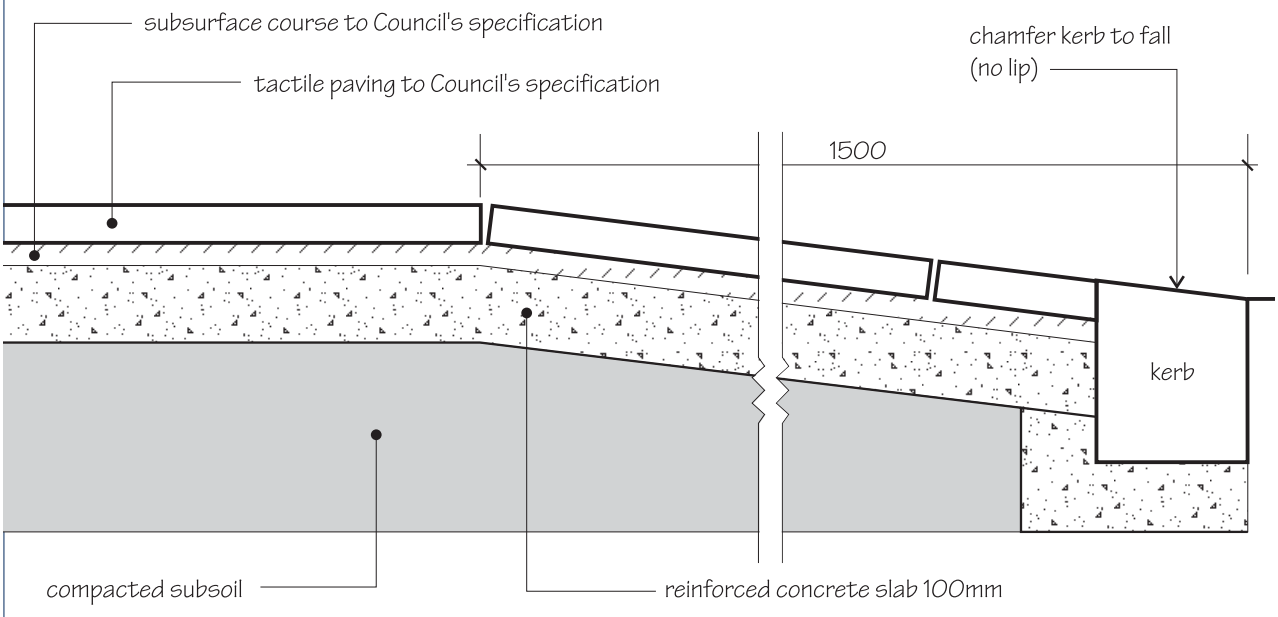



**Cross Section**
**1 : 10**

## Standard kerb ramp

pn1.2

### Paving

Material, colour, flagstone sizes, finish, pattern, and general installation as per Type 2 standard detail to match the footpath.

### Base

Reinforced concrete slab in the shape of the kerb ramp.

### Width

The width is a multiple of 450 mm to match the size of the flagstones. The kerb ramp should be as wide as practicable. Generally the width is to be 3150 mm (900 + 1350 + 900) or 4050 mm (900 + 2250 + 900) or 6300 mm (900 + 4500 + 900) as appropriate to site circumstances. At lane intersections, a minimum width of 1000 mm may be acceptable.

### Alignment

Align flagstone infill joints with the sides of the kerb ramp.

### Edges

Continue the kerbside flagstone margin straight across the kerb ramp. Cut stones as required to create the folds. The minimum size of stone to be used is 300 mm x 450 mm, or its equivalent in area.

### Markers

Mark the sides of the kerb ramp with round 90 mm diameter granite setts in a light grey colour and with a minimum of 30% colour contrast to the surrounding pavement. Set the markers flush with the pavement, aligned with the top edges of the sloping triangular sides.

### Tactile paving

Mark the top of the kerb ramp with tactile aluminium tiles to the Council's satisfaction.

### Kerb

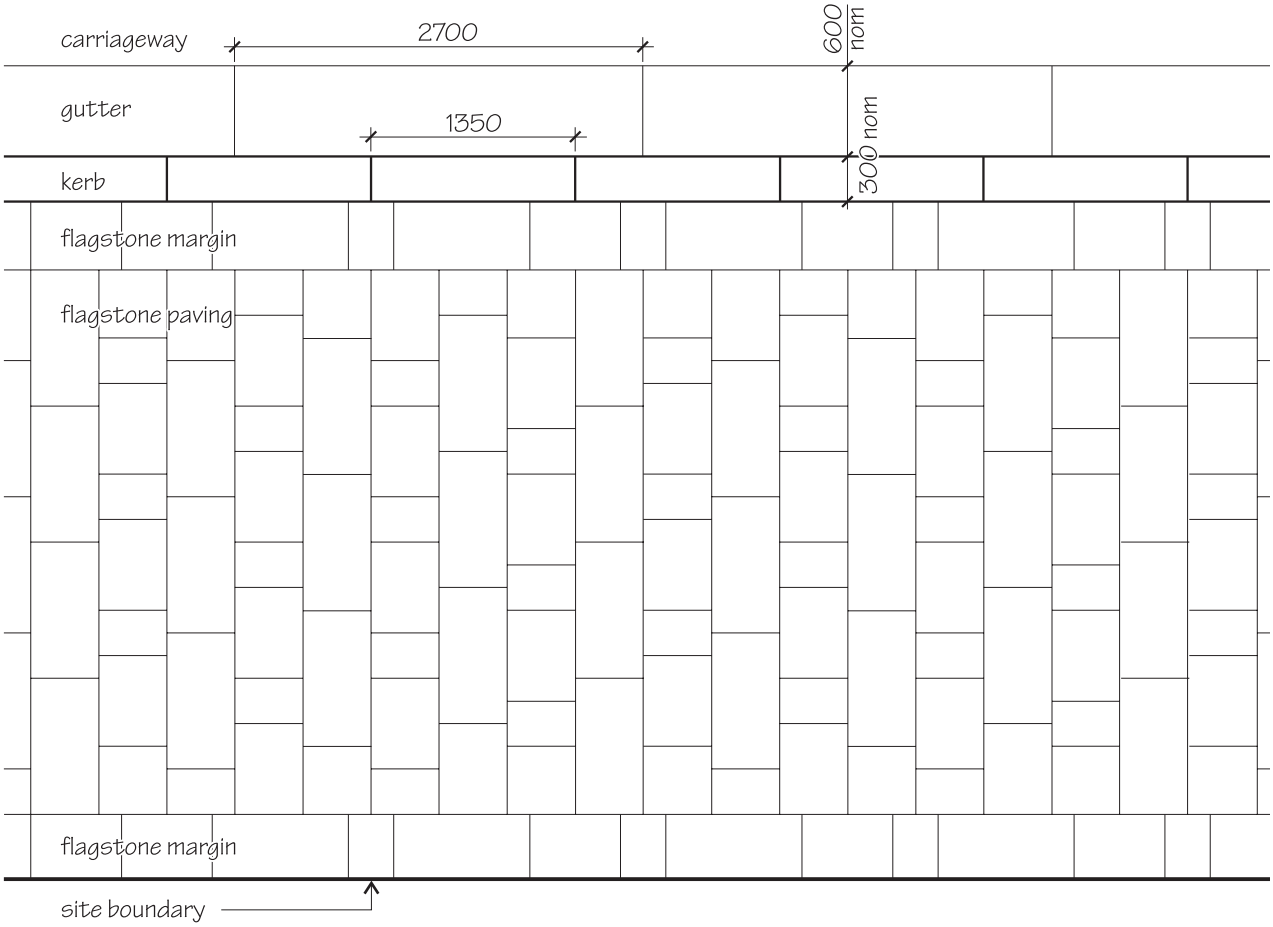
Where kerbs already exist, reset existing kerb to lower level. Elsewhere set new kerb to lower level.

# Paving Type 2 - Flagstone Paving

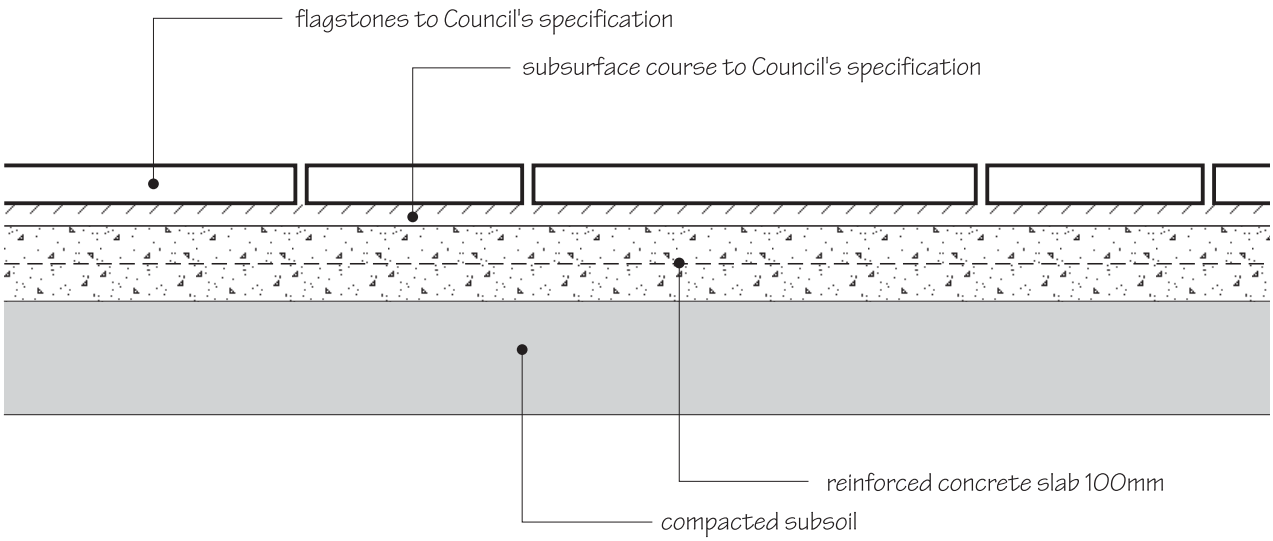
pn1

## Vehicular cross over

pn1.3




**Plan**
**1 : 50**




**Cross Section**
**1 : 10**

# Paving Type 2 - Flagstone Paving

pn1

## Vehicular cross over

pn1.3

### Paving

Material, colour, finish, and general installation as per Type 2 standard detail to match the footpath. Use only two sizes of stone flags across the entire width of the footpath in the following ratio:

> type B 600 mm x 450 mm min. 60% of total area
> type C 300 mm x 450 mm max 40% of total area

The minimum size of stone to be used is 300 mm x 450 mm, or its equivalent in area.

### Width

The overall width is to be divisible by 450 mm.

### Base

Reinforced concrete slab in the shape of the footpath crossing.

### Alignment

Align flagstone infill joints with the sides of the footpath crossing.

### Edges

Continue flagstone margin straight across the footpath crossing. Cut stones as required to create the folds.

### Markers

Mark the sides of the footpath crossing with round 90 mm diameter granite setts in a light grey colour and with a minimum of 30% colour contrast to the surrounding pavement. Set the markers flush with the pavement, aligned with the top edges of the sloping triangular sides.

### Kerb

Where kerbs already exist, reset existing kerb to lower level. Elsewhere set new kerb to lower level.

### Threshold

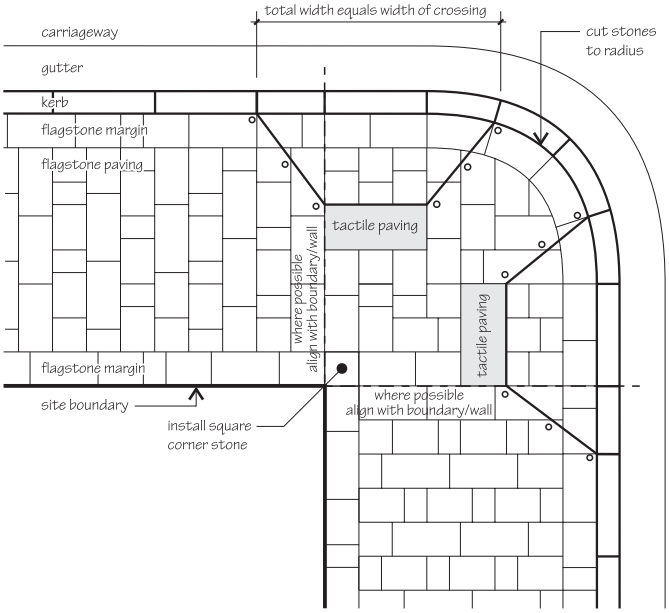
The straight centre section of the footpath crossing must be narrower than the vehicular entry to the building. A raised threshold, preferably in flagstone paving to match the footpath, is recommended at the vehicular entry to the building.

# Paving Type 2 - Flagstone Paving

## Corner junction

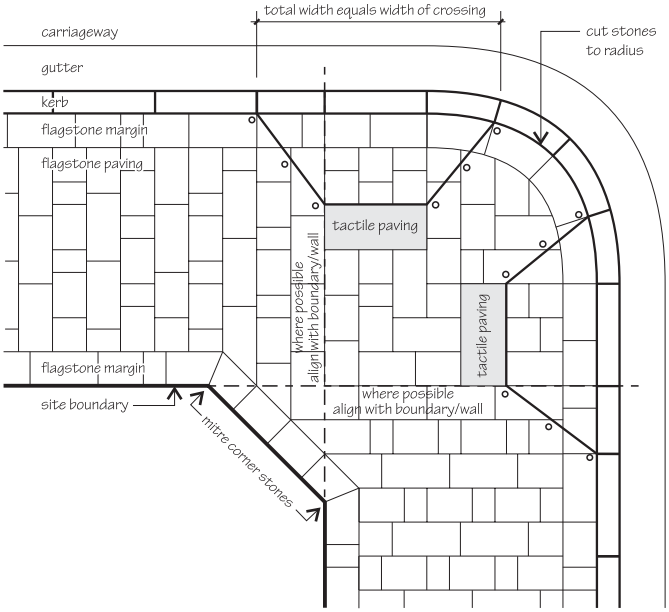
pn1.4

### Right angle corner




**Plan**
**1 : 100**

### Angled corner




**Plan**
**1 : 100**

## Corner junction

pn1.4

### Setout

As a first preference, locate the kerb ramps within the intersection, align with the site boundary, minimise the corner radius, and provide a straight kerb section for the centre part of the ramp.

If a large radius is required, move the kerb ramps away from the intersection and preferably align with the site boundaries. Do not orientate the kerb ramp towards the centre of the intersection.

### Paving layout

*Flagstone margins:* bring the flagstone margins around the corner at the site boundary and the kerb. Cut stones to radius at the kerb. At the site boundary, install a square corner stone for right angle corners, mitre the corner stones for oblique corners, and cut stones to radius for curved corners.

*Flagstone infill:* provide an interlocking 1:1 herringbone joint to create a minimum boundary effect between the different layout directions.

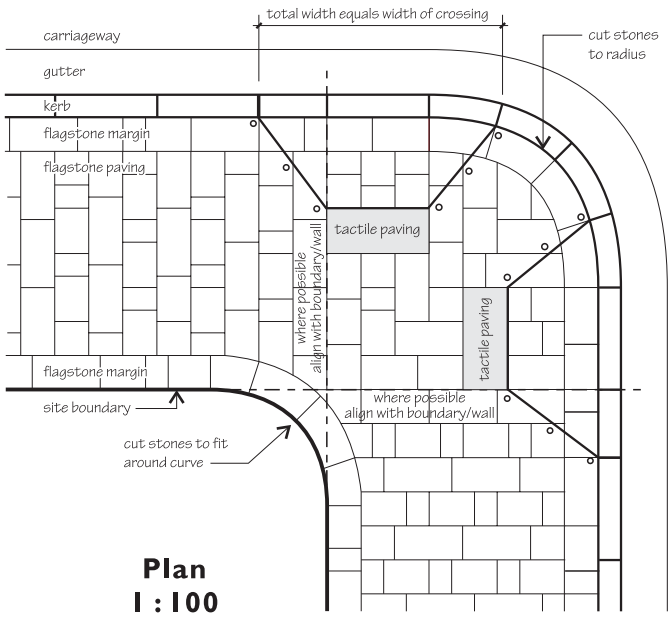
### Paving inserts

It may be appropriate to acknowledge and identify specific street intersections with commemorative plaques, artworks, and similar paving inserts in contrasting designs, materials, and colours. All paving inserts must be installed flush with the surrounding paving.

### Kerbs

Cut to radius.
The exact detailing of the corner junctions will depend on the shape and gradient of the corner.

## Curved corner



## Street trees

pn1.5

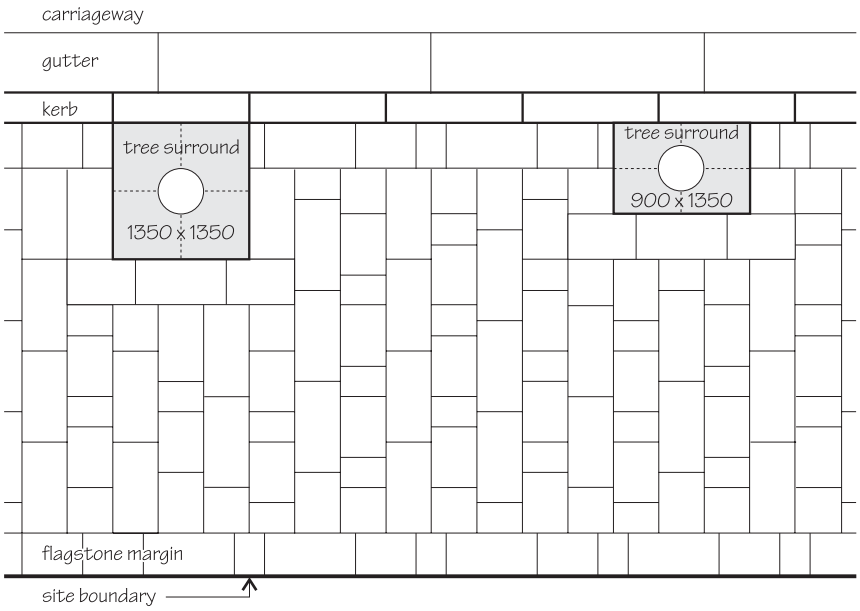
### Tree grate

Council's standard type in cast iron, available in two sizes. Use the large grate 1350 mm x 1350 mm on footpaths with a width of 3200 mm or more, and in public squares and plazas. Use the small grate 900 mm x 1350 mm on footpaths less than 3200 mm wide.

### Installation

Install the grate frame when the pit is dug, before planting the tree. Install the grate after planting. Install both immediately adjacent to the kerb, at a right angle to it, and align with flagstone infill joints. Set the grate flush with the surrounding pavement and bring the stone margin around the grate. Cut stones as required. The minimum size of stone to be used is 300 mm x 450 mm.

Backfill to the top of the grate with gravel mulch for additional support.




**Plan**
**1 : 75**

## Street furniture

pn1.6

### Items

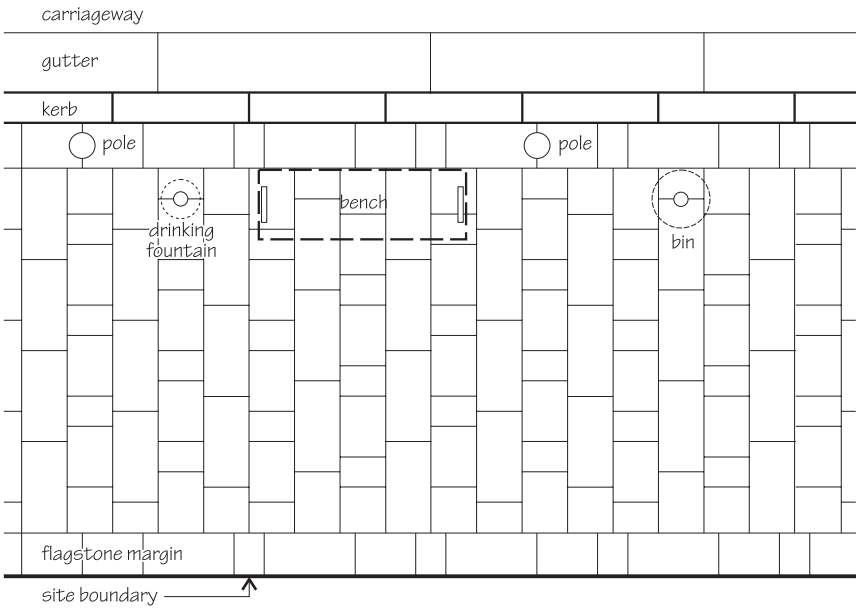
Utility poles, posts, benches, rubbish bins, drinking fountains, etc.

### Installation

Install all poles and utility items such as letterboxes, signal boxes, etc. directly behind the kerb. Bulky items must not project more than 1000 mm into the footpath.

Install other street furniture items with their centre lines aligned and parallel to the kerb, with the kerbside edge of the bench at a distance of 450 mm from the inner edge of the kerb, ie. at the edge of the flagstone margin. Street furniture should preferably be installed according to a detailed layout plan.

Construct all foundations at a depth of 80 mm from the surface of the completed paving to allow for its installation. Install the paving as per Type 2 standard detail. Align flagstone margin joints with the poles and posts, and cut holes for them with as close a fit as possible. The minimum size of stone to be used is 300 mm x 450 mm, or its equivalent in area.




**Plan**
**1 : 75**

pn1

pn1.7

## Telephone cabinets

### Type

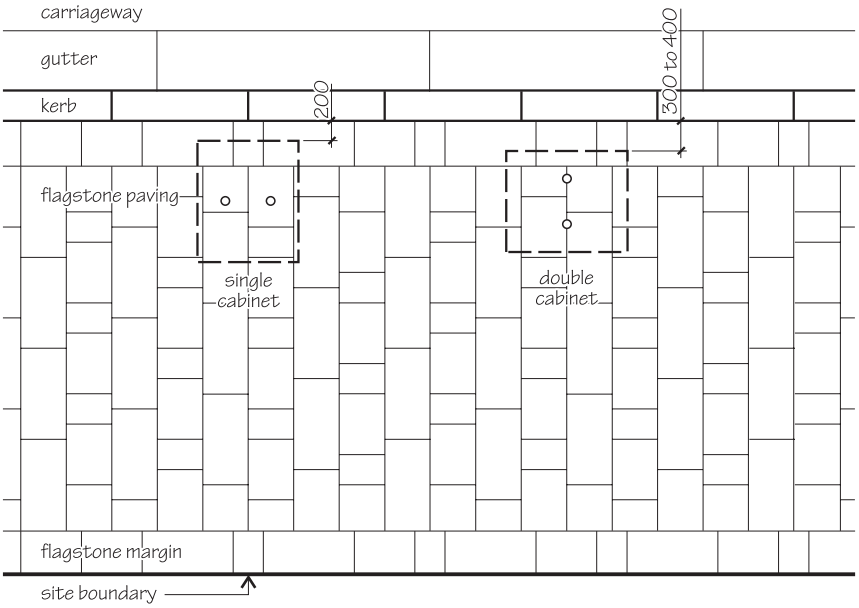
Telecom/Telstra 'Heritage' cabinet.

### Installation

Install single cabinet with its back to the kerb and a double cabinet with its side to the kerb.

For a single cabinet, install concrete base block 200 mm from the kerb (standard technical requirement), aligned with the kerb, at a depth of 80 mm from the surface of the completed paving. For a double cabinet, install concrete base block 300 - 400 mm from the kerb to keep the flagstone margin intact.

Install, or reinstate, the flagstones as per Type 2 standard detail. Align flagstone joints with the cabinet legs. Cut circular holes for the legs with as close a fit as possible. The minimum size of stone to be used is 300 mm x 450 mm, or its equivalent in area.




**Plan**
**1 : 75**

## Pit covers

pn1.8

### Type

All types.

### Installation

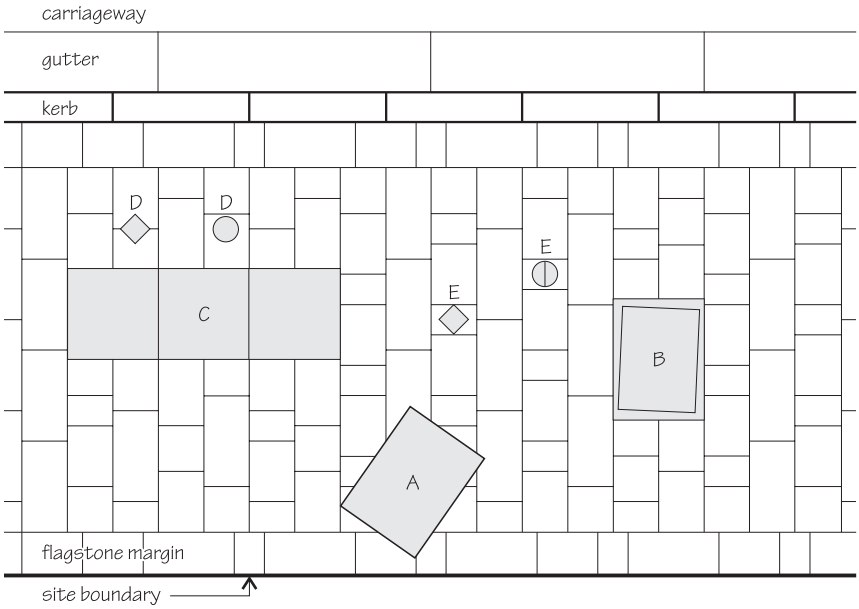
*Paving around existing pit covers:* install the paving as per Type 2 standard detail. Cut stones around the pit cover as required following the shape of the cover, with as close a fit as possible. The minimum size of stone to be used is 300 mm x 450 mm, or its equivalent in area. Refer to examples A, B, and D in the plan below. If a pit cover has only a slight difference in alignment to the flagstone joints, a narrow concrete edge less than 100 mm wide in a colour to match the paving may be installed around the cover. Refer to example B in the plan below.

*Installation of new pit covers:* install all rectilinear new pit covers parallel to the kerb. Align as many sides of the cover with the flagstone joints as possible. Align small covers with flagstone joints or drill a hole through the flagstone. Cut circular holes for round covers. Fit as closely as possible. Refer to examples C, D, and E in the plan below.

The location of existing pits and pit covers is to be taken into account in locating kerb ramps, vehicular crossings, street furniture, etc., to minimise any conflicts and costs.

### Cover plates

Flagstone paving to match the surrounding pavement is recommended, especially for new pit covers. Install flush with the footpath. Continue the flagstone joints across the cover regardless of its orientation. Refer to example A in the plan below.



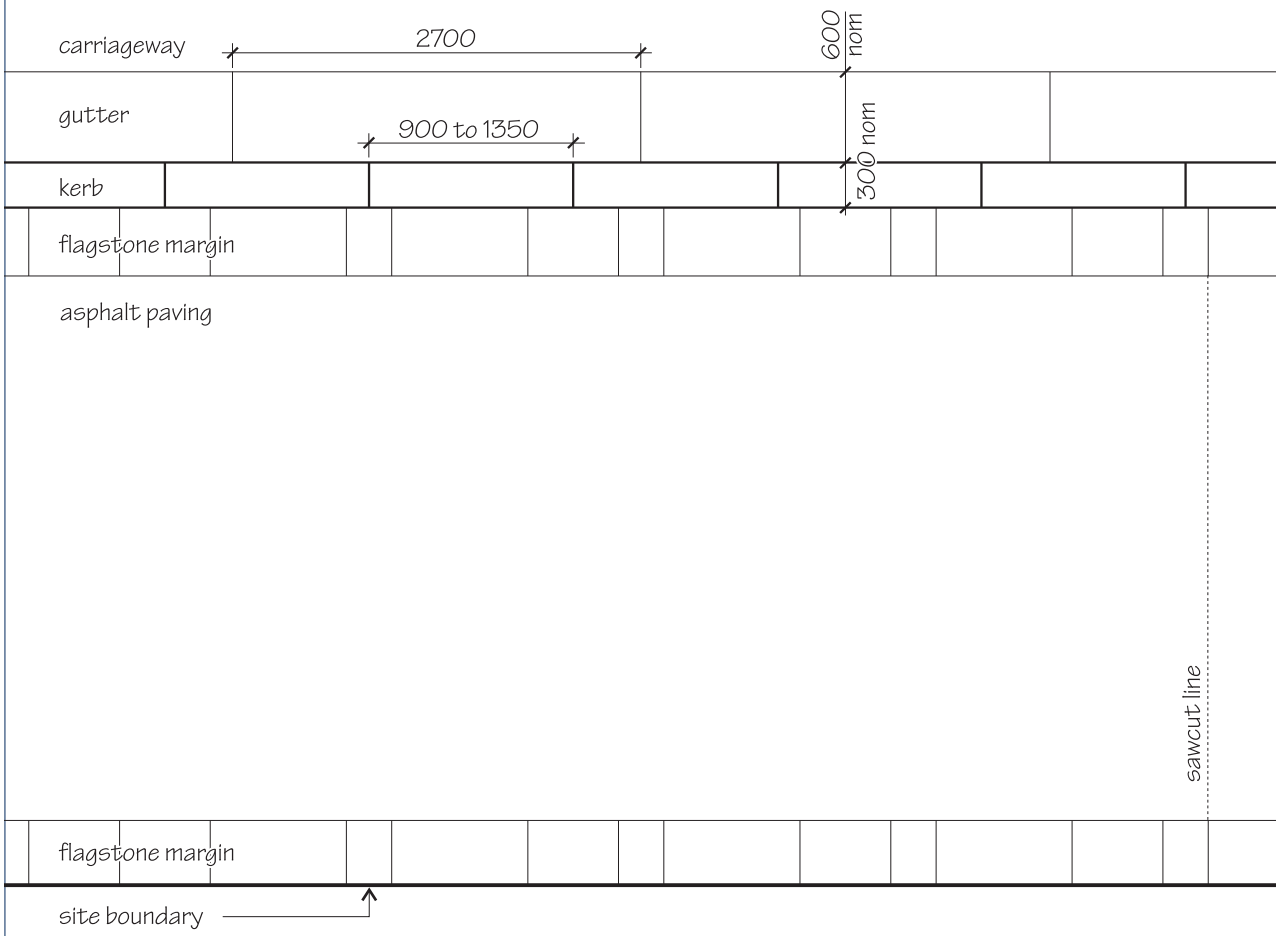

**Plan**
**1 : 75**

# Paving Type 3 - Asphalt Paving with Flagstone Margins

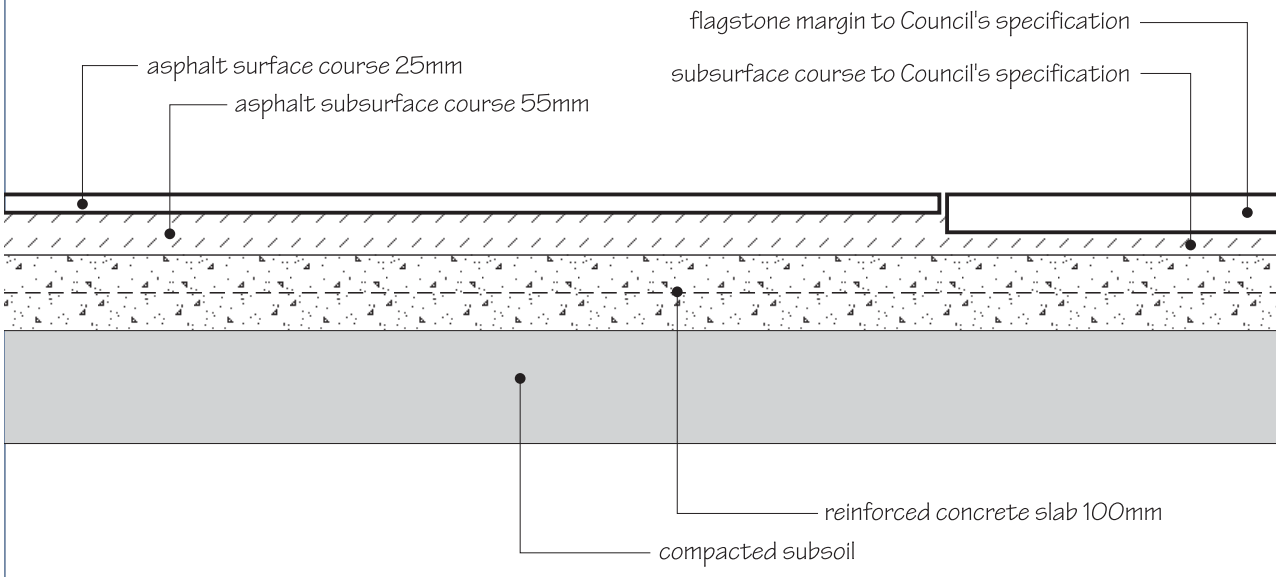
pn2

## Standard detail

pn2.1




**Plan**
**1 : 50**




**Cross Section**
**1 : 10**

# Paving Type 3 - Asphalt Paving with Flagstone Margins

pn2

## Standard detail

pn2.1

### Asphalt

Surface course AC3, d=25 mm. Subsurface course AC10, d=55 mm.

### Flagstones

Use bluestone pavers or Austral Black or Black Grandee granite pavers or similar to the Council's satisfaction.

### Finish

Sawn finish to bluestone.
Exfoliated finish to granite.

### Size

Use three sizes of stone flags in the following ratio:

| | | | |
|---|---|---|---|
| > | type A | 900 mm x 450 mm | 50% of total area |
| > | type B | 600 mm x 450 mm | 25% of total area |
| > | type C | 300 mm x 450 mm | 25% of total area |

Type C is the minimum size of stone to be used. Any filler stones of non standard sizes must be cut from type B or type C stones.

### Pattern

A row of flagstones in a random order of sizes against the kerb and against the site boundary.

### Installation

Install the paving on a reinforced concrete slab to the Council's standards.

*Flagstone margins:* install the flagstones on a mortar bedding with 5 mm joints between the stones and 10 - 12 mm separation joints against the kerb and the site boundary. Rake joints to a 4 mm depth. Where stone margins already exist, commence the flagstone layout work from the ends of the existing ones. Elsewhere commence from either end of the area to be paved. The flagstone margins must be absolutely straight. Any variation of kerb width or unevenness of building wall must be accommodated by the separation joints.

*Asphalt infill:* lay the asphalt surface course as one sheet on the asphalt subsurface course in accordance with Council's relevant specifications and AS 2734-1984 Asphalt (Hot Mixed) Paving - Guide to Good Practice. Provide a sawcut edge between the existing and new asphalt paving at a right angles to the kerb. The sawcut lines and the edges of the asphalt infill against the flagstone margins must be neat and absolutely straight.

### Maintenance

Clean as necessary. Re-exfoliate flagstones on site when required to maintain slip resistance. Replace broken stones. Reinstate paving after works that require footpath surface to be opened. Use matching stone and asphalt for replacements. When reinstalling asphalt, replace a full square across the entire width of the footpath with sawcut edges to existing asphalt paving to avoid patchiness.

# Paving Type 3 - Asphalt Paving with Flagstone Margins

pn2.2

## Entrance identification

### Paving

Flagstone infill between flagstone margins to mark the entrance. Material, colour, flagstone sizes, finish, pattern, and general installation as per Type 2 standard detail.

### Width

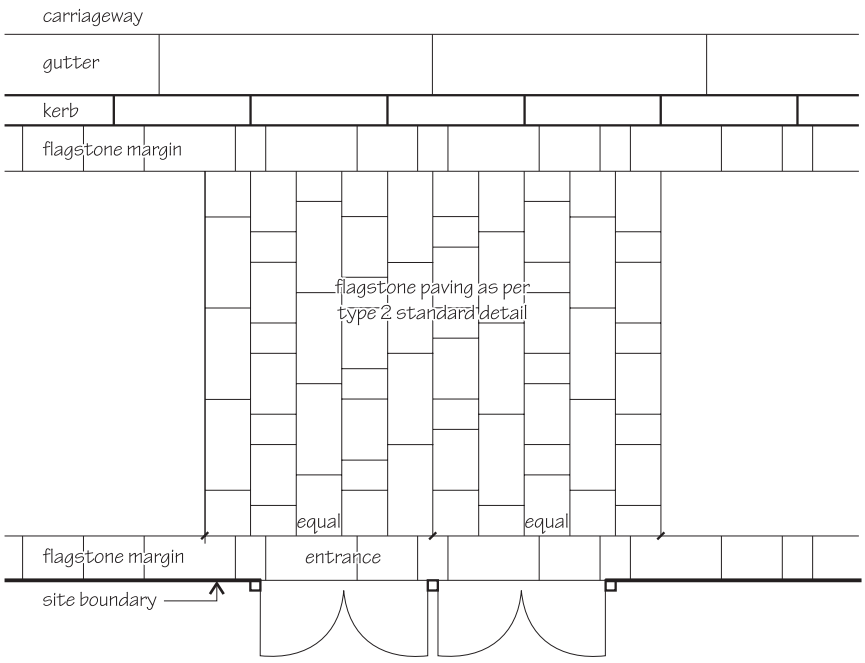
The width of the entrance paving must be at least equal to the width of the footpath to achieve good proportions.

### Alignment

Install at a right angle to the kerbside margin. Align the centre line of the paving with the centre line of the entrance, or relate to significant architectural features of the building.

### Edges

Cut asphalt neatly against the flagstone paving.




**Plan**
**1 : 75**

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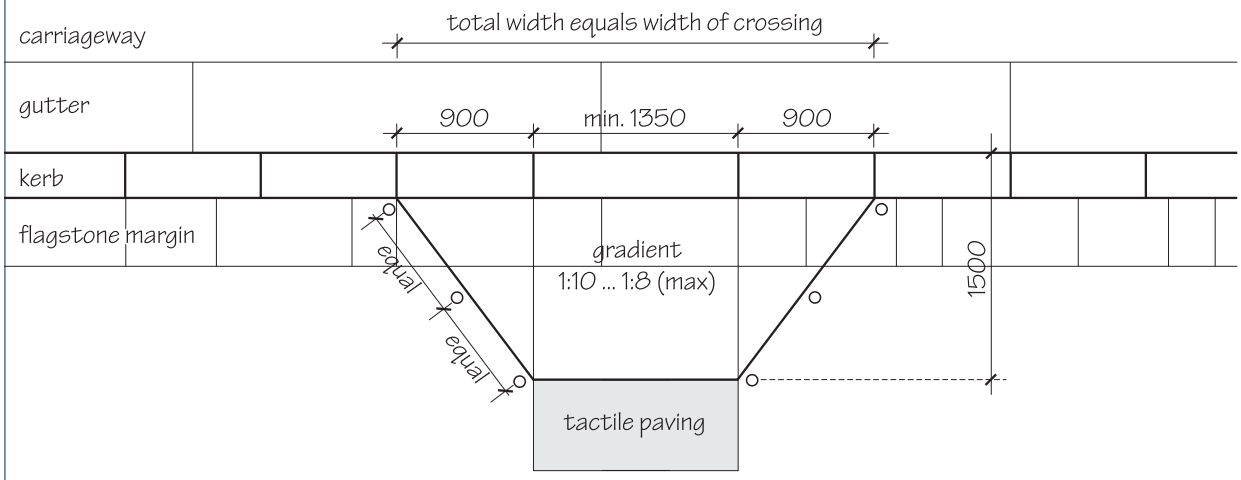
# Paving Type 3 - Asphalt Paving with Flagstone Margins

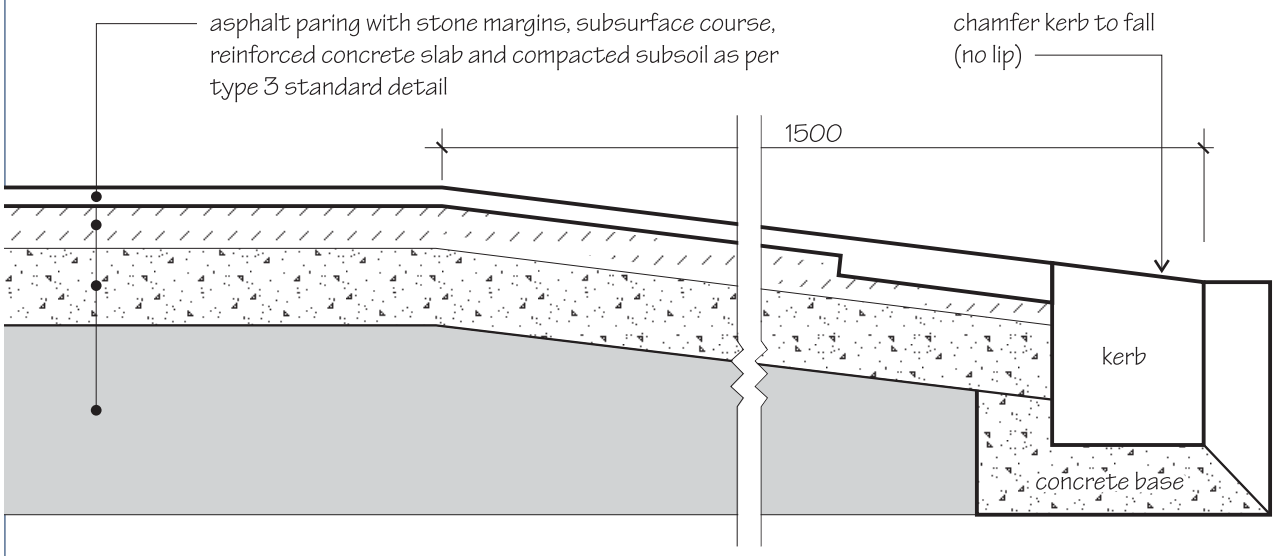
pn2.3

## Standard kerb ramp





**Plan**
**1 : 50**




**Cross Section**
**1 : 10**

# Paving Type 3 - Asphalt Paving with Flagstone Margins

pn2.3

## Standard kerb ramp

### Paving

Material, colour, flagstone sizes, finish, pattern, and general installation as per Type 3 standard detail to match the footpath.

### Base

Reinforced concrete slab in the shape of the kerb ramp.

### Width

The width is a multiple of 450 mm to match the size of the flagstones and allow Type 3 to be upgraded to Type 2 where desired. Generally the width is to be 3150 mm (900 + 1350 + 900) or 4050 mm (900 + 2250 + 900) or 6300 mm (900 + 4500 + 900) as appropriate to site circumstances. At lane intersections, a minimum width of 1000 mm may be acceptable.

### Alignment

Install at a right angle to the kerb.

### Edges

Continue the kerbside flagstone margin straight across the kerb ramp. Cut stones as required to create the folds. The minimum size of stone to be used is 300 mm x 450 mm, or its equivalent in area.

### Markers

Mark the sides of the kerb ramp on the stone margins with round 90 mm diameter granite setts in a light grey colour and with a minimum of 30% colour contrast to the surrounding pavement, and on the asphalt surface with round 90 mm diameter aluminium setts or pavement studs to the Council's specification. Set the markers flush with the pavement, aligned with the top edges of the sloping triangular sides. Painted markers must not be used.

### Tactile paving

Mark the top of the kerb ramp with tactile aluminium tiles to the Council's satisfaction.

### Kerb

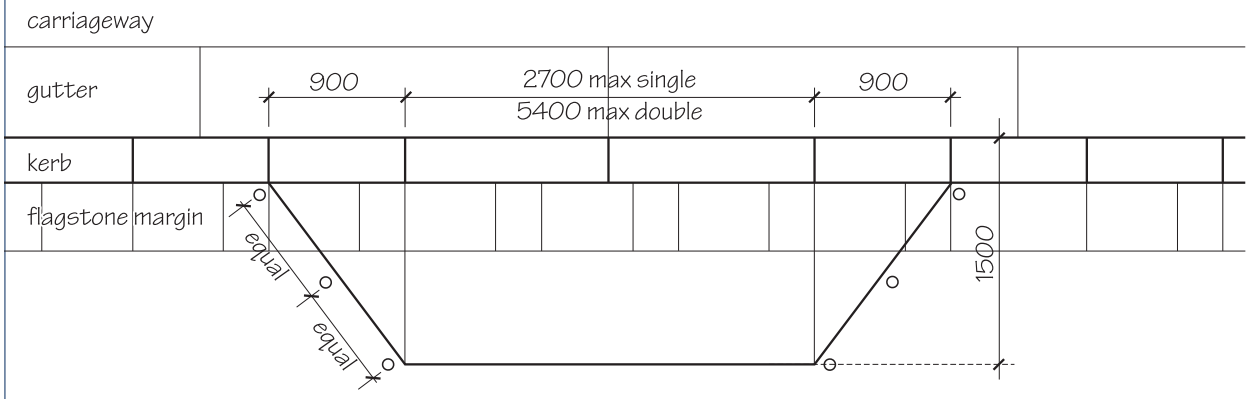
Where kerbs already exist, reset existing kerb to lower level. Elsewhere set new kerb to lower level.

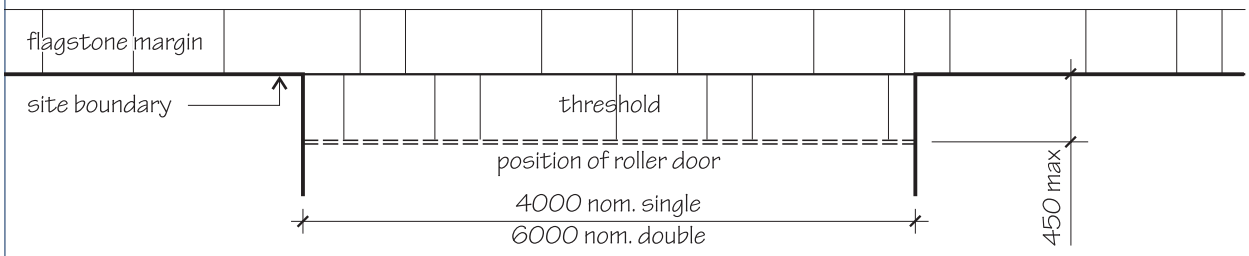
# Paving Type 3 - Asphalt Paving with Flagstone Margins

pn2

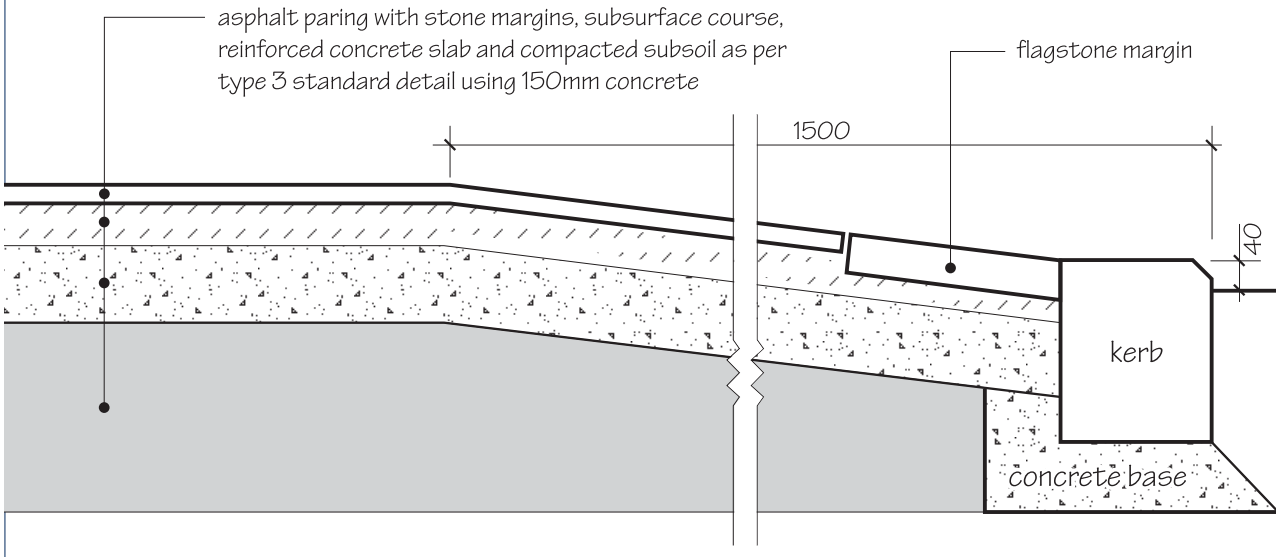
## Vehicular cross over

pn2.4




**Plan**
**1 : 50**




**Cross Section**
**1 : 10**

# Paving Type 3 - Asphalt Paving with Flagstone Margins

pn2.4

## Vehicular cross over

### Paving

Material, colour, finish, and general installation as per Type 3 standard detail to match the footpath. For the margin, use two sizes of stone flags in the following ratio:

> type B 600 mm x 450 mm min 60% of total area
> type C 300 mm x 450 mm max 40% of total area

The minimum size of stone to be used is 300 mm x 450 mm, or its equivalent in area.

### Width

The overall width is to be divisible by 450 mm.

### Base

Reinforced concrete slab in the shape of the footpath crossing.

### Alignment

Install at a right angle to the kerb.

### Edges

Continue flagstone margins straight across the footpath crossing. Cut stones as required for the sloping triangular sides.

### Markers

Mark the sides of the kerb ramp on the stone margins with round 90 mm diameter granite setts in a light grey colour and with a minimum of 30% colour contrast to the surrounding pavement, and on the asphalt surface with round 90mm diameter aluminium setts or pavement studs to the Council's specification. Set the markers flush with the pavement, aligned with the top edges of the sloping triangular sides. Painted markers must not be used.

### Kerb

Where kerbs already exist, reset existing kerb to lower level. Elsewhere set new kerb to lower level.

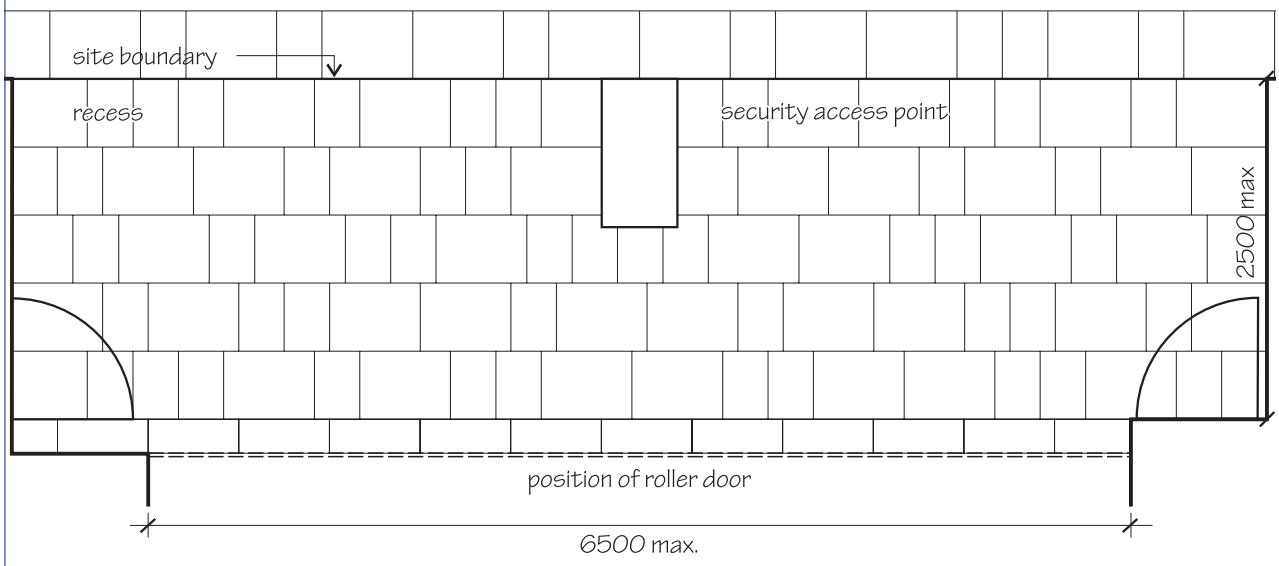
### Threshold

The straight centre section of the footpath crossing must be narrower than the vehicular entry to the building. A raised threshold, preferably in flagstone paving to match the margins, is recommended at the vehicular entry to the building.

# Paving Type 3 - Asphalt Paving with Flagstone Margins

pn2.5

## Vehicular cross over - recessed vehicle entry


**Plan**
**1 : 50**

# Paving Type 3 - Asphalt Paving with Flagstone Margins

pn2.5

## Vehicular cross over - recessed vehicle entry

### Paving

Material, colour, finish, and general installation as per Type 3 standard detail to match the footpath. For the margin, use two sizes of stone flags in the following ratio:

| | | | |
|---|---|---|---|
| > | type B | 600 mm x 450 mm | min 60% of total area |
| > | type C | 300 mm x 450 mm | max 40% of total area |

The minimum size of stone to be used is 300 mm x 450 mm, or its equivalent in area.

### Width

The overall width is to be divisible by 450 mm.

### Base

Reinforced concrete slab in the shape of the footpath crossing.

### Alignment

Install at a right angle to the kerb.

### Edges

Continue flagstone margins straight across the footpath crossing. Cut stones as required for the sloping triangular sides.

### Markers

Mark the sides of the kerb ramp on the stone margins with round 90 mm diameter granite setts in a light grey colour with a minimum of 30% colour contrast to the surrounding pavement, and on the asphalt surface with round 90mm diameter aluminium setts or pavement studs to the Council's specification. Set the markers flush with the pavement, aligned with the top edges of the sloping triangular sides. Painted markers must not be used.

### Kerb

Where kerbs already exist, reset existing kerb to lower level. Elsewhere set new kerb to lower level.

### Threshold

The straight centre section of the footpath crossing must be narrower than the vehicular entry to the building. A raised threshold, preferably in flagstone paving to match the margins, is recommended at the vehicular entry to the building.

### Recess

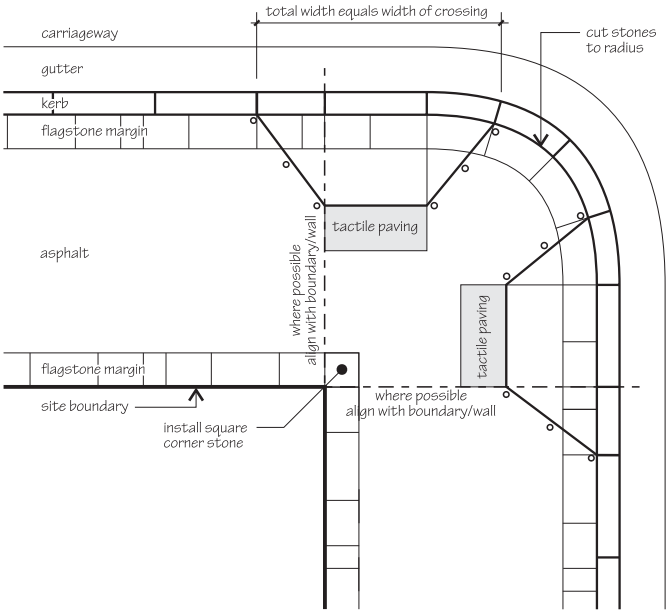
Flagstone paving to match the flagstone margin is recommended.

# Paving Type 3 - Asphalt Paving with Flagstone Margins

## Corner junction - preferred paving option

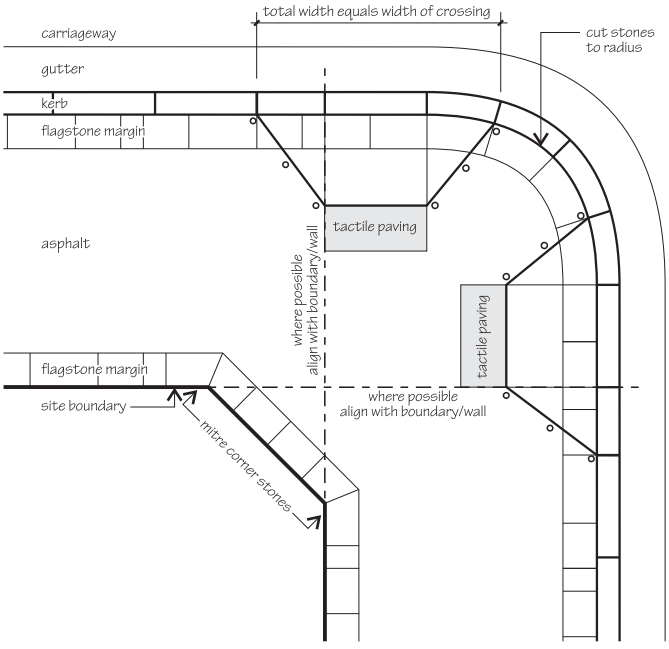
pn2.6

### Right angle corner




**Plan**
**1 : 100**

### Angled corner




**Plan**
**1 : 100**

# Paving Type 3 - Asphalt Paving with Flagstone Margins

pn2.6

## Corner junction - preferred paving option

### Setout

As a first preference, locate the kerb ramps within the intersection, align with the site boundary, minimise the corner radius, and provide a straight kerb section for the centre part of the ramp.

If a large radius is required, move the kerb ramps away from the intersection and preferably align with the site boundaries. Do not orientate the kerb ramp towards the centre of the intersection.

### Paving layout

*Flagstone margins:* bring the flagstone margins around the corner at the site boundary and the kerb. Cut stones to radius at the kerb. At the site boundary, install a square corner stone for right angle corners, mitre the corner stones for oblique corners, and cut stones to radius for curved corners.

*Asphalt infill:* install asphalt infill as per Type 3 standard detail.

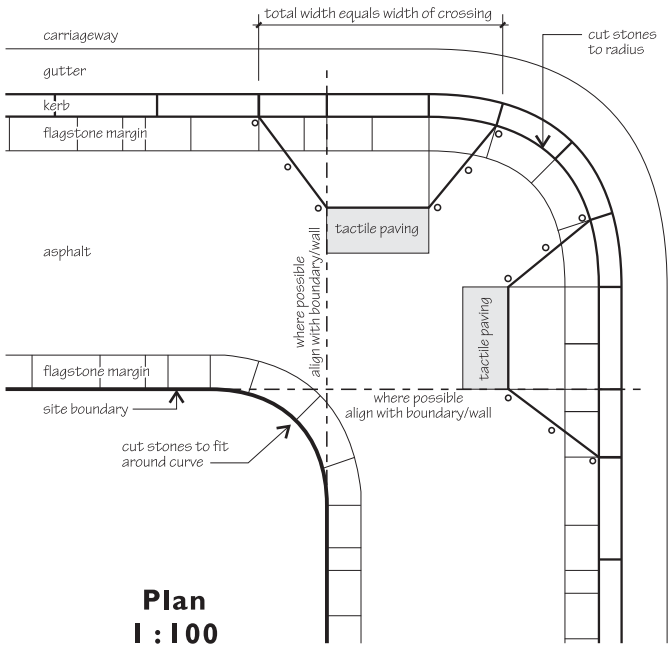
### Paving inserts

It may be appropriate to acknowledge and identify specific street intersections with commemorative plaques, artworks, and similar paving inserts in contrasting designs, materials, and colours. All paving inserts must be installed flush with the surrounding paving.

### Kerbs

Cut to radius.
The exact detailing of the corner junctions will depend on the shape and gradient of the corner.

## Curved corner



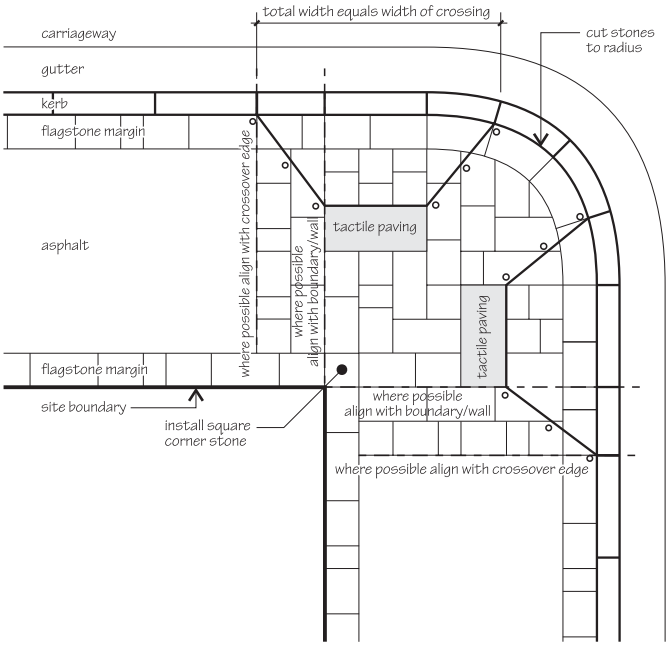

**Plan**
**1 : 100**

# Paving Type 3 - Asphalt Paving with Flagstone Margins

## Corner junction - second paving option

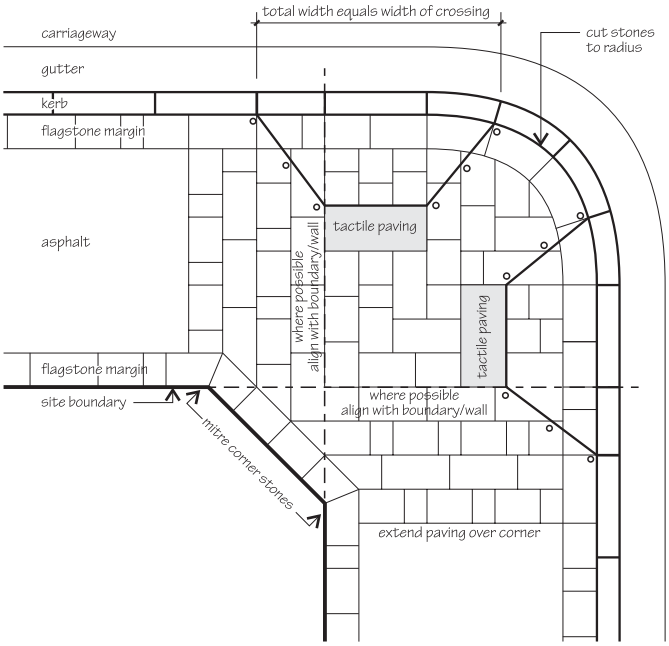
pn2.7

### Right angle corner




**Plan**
**1 : 100**

### Angled corner




**Plan**
**1 : 100**

# Paving Type 3 - Asphalt Paving with Flagstone Margins

pn2.7

## Corner junction - second paving option

### Setout

As a first preference, locate the kerb ramps within the intersection, align with the site boundary, minimise the corner radius, and provide a straight kerb section for the centre part of the ramp.

If a large radius is required, move the kerb ramps away from the intersection and preferably align with the site boundaries. Do not orientate the kerb ramp towards the centre of the intersection.

### Paving layout

*Flagstone margins:* bring the flagstone margins around the corner at the site boundary and the kerb. Cut stones to radius at the kerb. At the site boundary, install a square corner stone for right angle corners, mitre the corner stones for oblique corners, and cut stones to radius for curved corners.

*Flagstone infill:* install flagstone infill as per Type 2 standard detail, with an interlocking 1:1 herringbone joint to create a minimum boundary effect between the different layout directions. At right angle building corners, extend around the corner to align with the edges of the kerb ramps. At oblique building corners, extend one row of flagstones over the mitre joint. At curved corners, extend one row of flagstones over the end of curve. Provide a sawcut edge to adjoining asphalt paving.

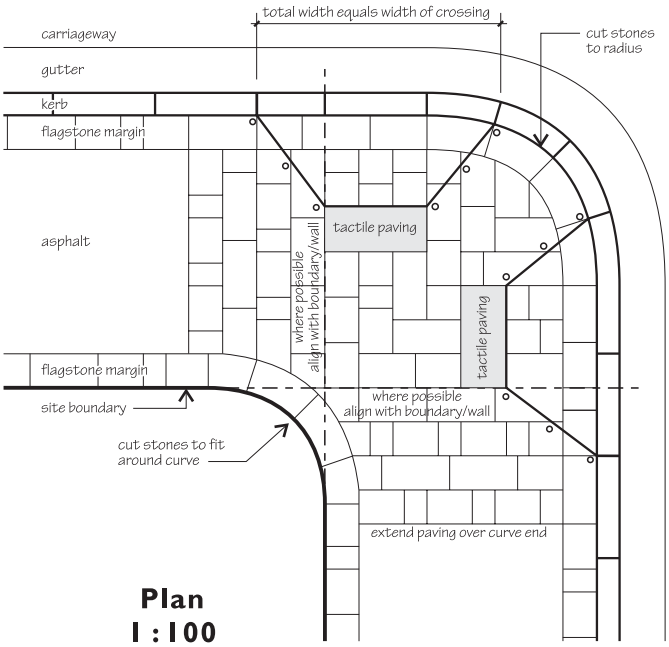
### Paving inserts

It may be appropriate to acknowledge and identify specific street intersections with commemorative plaques, artworks, and similar paving inserts in contrasting designs, materials, and colours. All paving inserts must be installed flush with the surrounding paving.

### Kerbs

Cut to radius.
The exact detailing of the corner junctions will depend on the shape and gradient of the corner.

## Curved corner



# Paving Type 3 - Asphalt Paving with Flagstone Margins

pn2.8

## Street trees

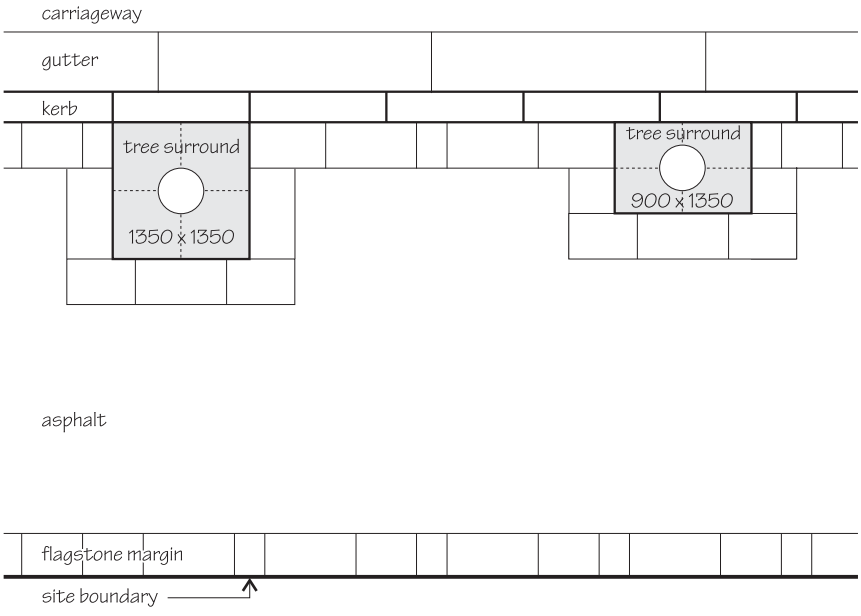
### Tree grate

Council's standard type in cast iron, available in two sizes. Use the large grate 1350 mm x 1350 mm on footpaths with a width of 3200 mm or more, and in public squares and plazas. Use the small grate 900 mm x 1350 mm on footpaths less than 3200 mm wide.

### Installation

Install the grate frame when the pit is dug, before planting the tree. Install the grate after planting. Install both immediately adjacent to the kerb, at a right angle to it. Set the grate flush with the surrounding pavement and bring the stone margin around the grate. Cut stones as required. The minimum size of stone to be used is 300 mm x 450 mm.

Backfill to the top of the grate with gravel mulch for additional support.




**Plan**
**1 : 75**

# Paving Type 3 - Asphalt Paving with Flagstone Margins

pn2.9

## Street furniture

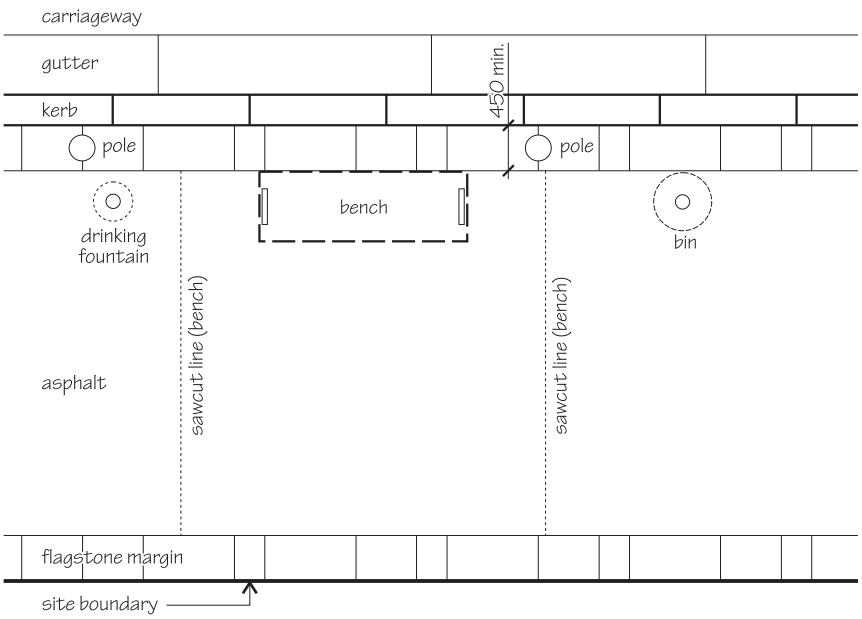
### Items

Utility poles, posts, benches, rubbish bins, drinking fountains, etc.

### Installation

Install all poles and utility items such as letterboxes, signal boxes, etc. directly behind the kerb. Bulky items must not project more than 1000 mm into the footpath. Install other street furniture items with their centre lines aligned and parallel to the kerb, with the kerbside edge of the bench at a distance of 450 mm from the inner edge of the kerb, ie. at the edge of the flagstone margin. Street furniture should preferably be installed according to a detailed layout plan.

Construct all foundations at a depth of 80 mm from the surface of the completed paving to allow for its installation. Install the paving as per Type 3 standard detail. Align flagstone margin joints with the poles and posts, and cut holes for them with as close a fit as possible. The minimum size of stone to be used is 300 mm x 450 mm, or its equivalent in area. Cut or tamp asphalt neatly at the poles and furniture legs. When reinstalling asphalt, replace a full square across the entire width of the footpath with sawcut edges to existing asphalt paving to avoid patchiness.




**Plan**
**1 : 75**

# Paving Type 3 - Asphalt Paving with Flagstone Margins

pn2.10

## Telephone cabinets

### Type

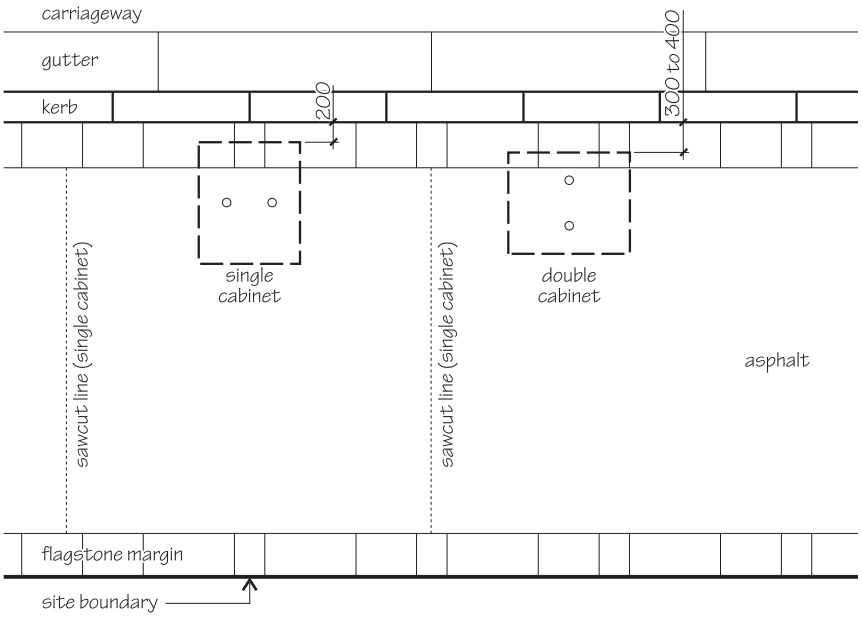
Telecom/Telstra 'Heritage' cabinet.

### Installation

Install single cabinet with its back to the kerb and a double cabinet with its side to the kerb.

For a single cabinet, install concrete base block 200 mm from the kerb (standard technical requirement), aligned with the kerb, at a depth of 80 mm from the surface of the completed paving. For a double cabinet, install concrete base block 300 - 400 mm from the kerb to keep the flagstone margin intact.

Install, or reinstate, the paving as per Type 3 standard detail. Cut or tamp asphalt neatly at the cabinet legs. When reinstalling asphalt, replace a full square across the entire width of the footpath with sawcut edges to existing asphalt paving to avoid patchiness.




**Plan**
**1 : 75**

# Paving Type 3 - Asphalt Paving with Flagstone Margins

## Pit covers

pn2.11

### Type

All types.

### Installation

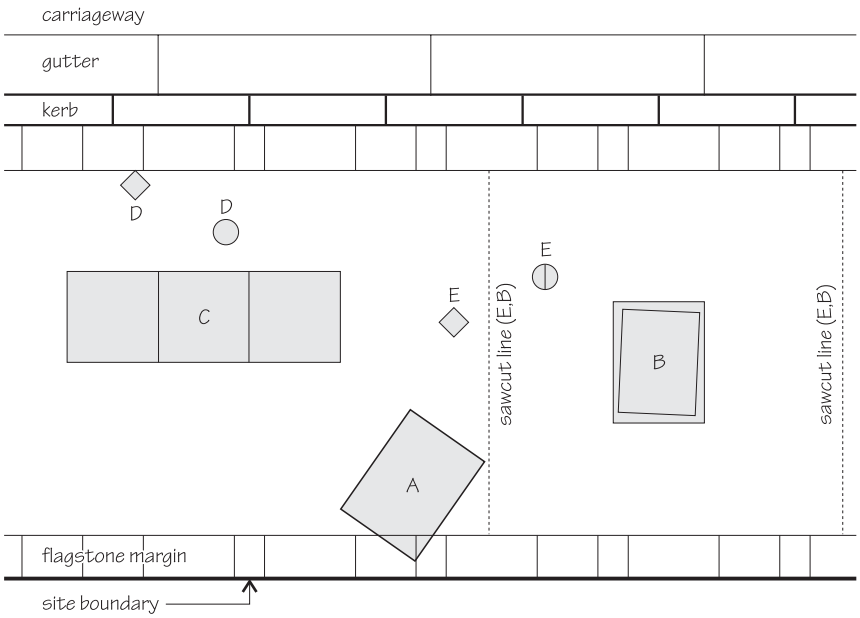
*Paving around existing pit covers:* install the paving as per Type 3 standard detail. Cut or tamp asphalt neatly to the pit cover edges with as close a fit as possible. Refer to examples B, C, D, and E in the plan below. Within the flagstone margins, cut stones around the pit cover as required following the shape of the cover, with as close a fit as possible. The minimum size of stone to be used is 300 mm x 450 mm, or its equivalent in area. Refer to example A below.

*Installation of new pit covers:* install all rectilinear new pit covers parallel to the kerb and into the asphalt infill area to keep the flagstone margins intact. On existing asphalt areas, cut the asphalt neatly to exactly fit the new pit cover, or reinstall a full square of asphalt across the entire width of the asphalt paving to avoid patchiness. Refer to examples E and B below.

The location of existing pits and pit covers is to be taken into account in locating kerb ramps, vehicular crossings, street furniture, etc., to minimise any conflicts and costs.

### Cover plates

Paving to match the surrounding pavement is recommended, especially for new pit covers. Install flush with the footpath. Continue the flagstone margin across the cover regardless of its orientation. Refer to example A in the plan below.



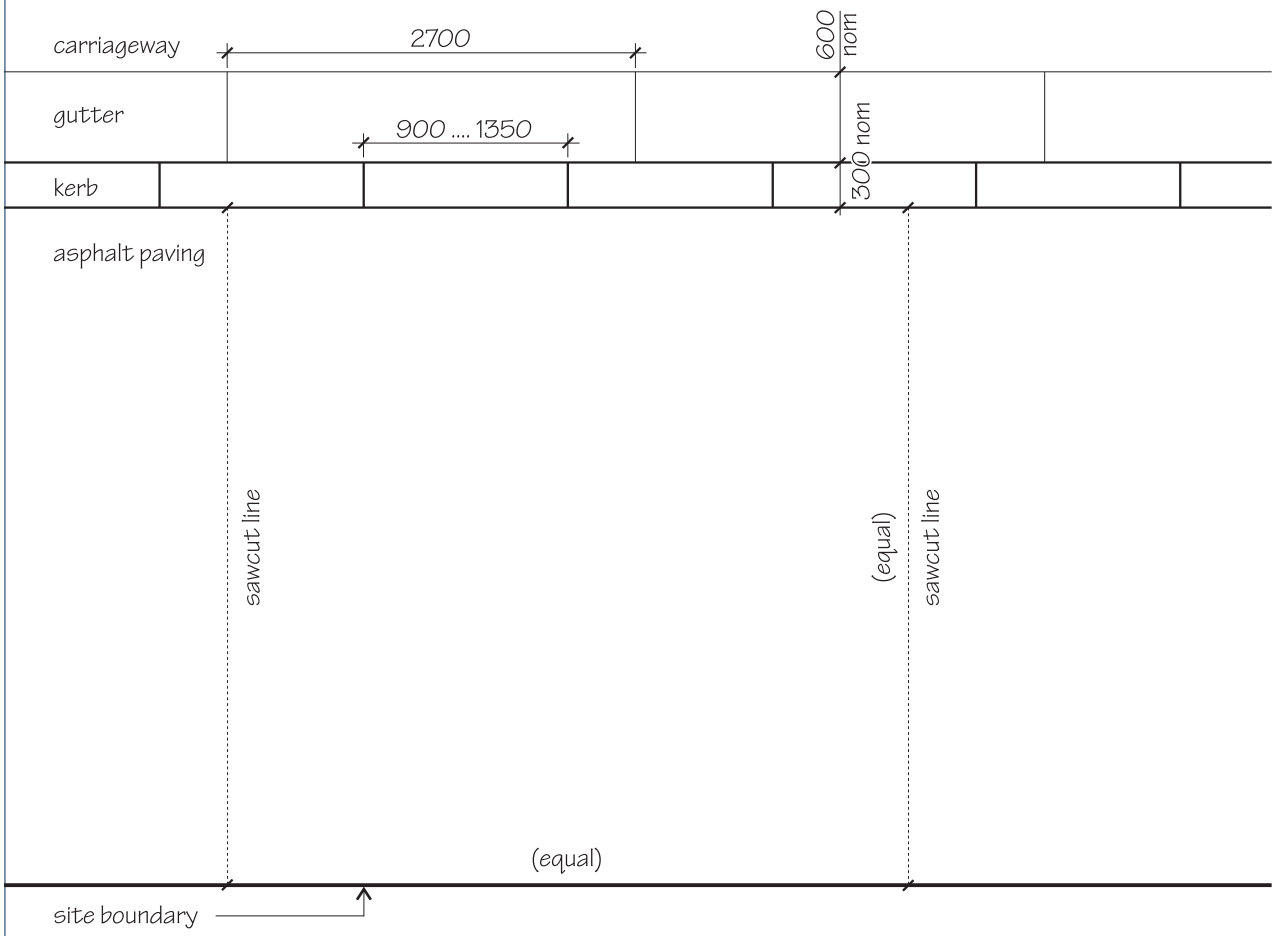

**Plan**
**1 : 75**

# Paving Type 4 - Asphalt Paving

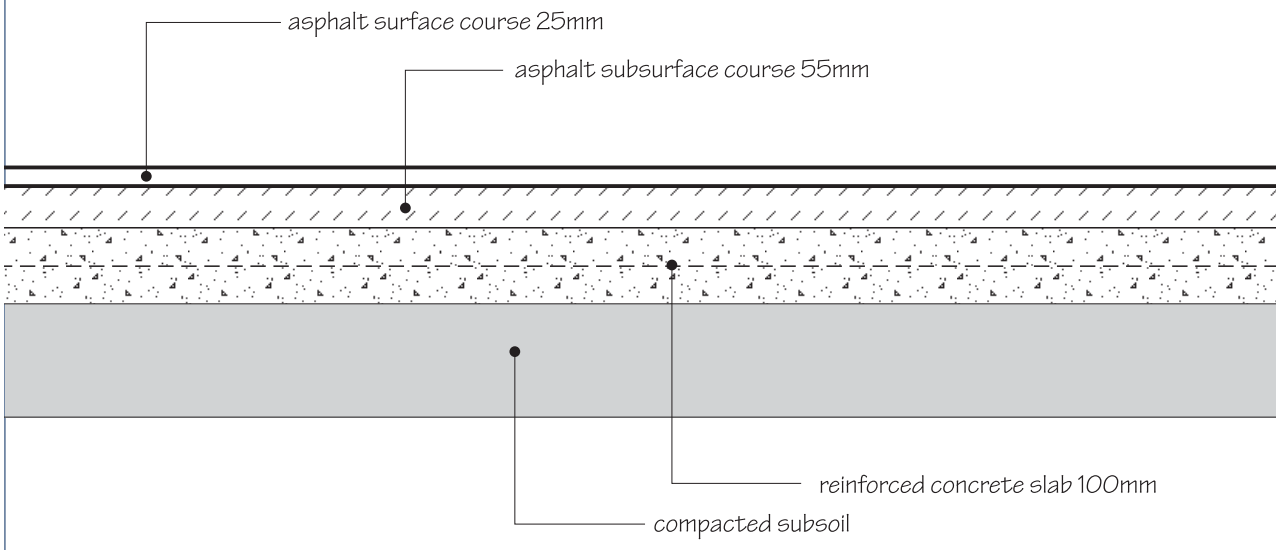
pn3

## Standard detail

pn3.1




**Plan**
**1 : 50**




**Cross Section**
**1 : 10**

# Paving Type 4 - Asphalt Paving

pn3

## Standard detail

pn3.1

### Material

Asphalt surface course AC3, d=25 mm.

### Installation

Install the paving on a 100 mm concrete slab to the Council's standards. Lay the asphalt surface course as one sheet on the asphalt subsurface course in accordance with Council's relevant specifications and AS 2734-1984 Asphalt (Hot Mixed) Paving - Guide to Good Practice.

Provide a sawcut edge between the existing and new asphalt paving at a right angle to the kerb. The sawcut lines must be neat and absolutely straight.

### Maintenance

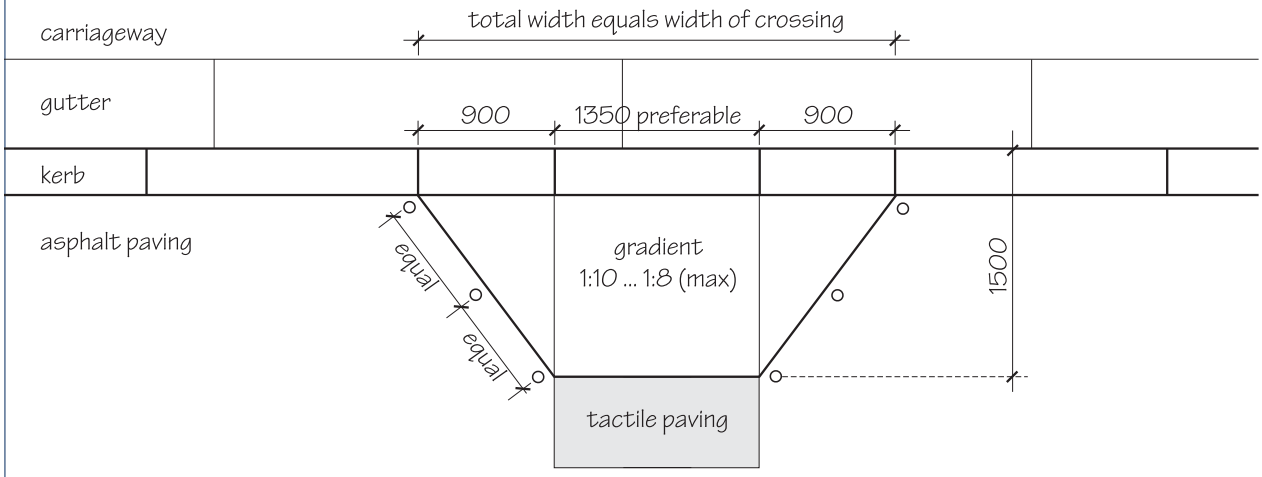
Clean as necessary. Reinstate paving after works that require footpath surface to be opened. Use matching asphalt for replacements. When reinstalling asphalt, replace a full square across the entire width of the footpath with sawcut edges to existing asphalt paving to avoid patchiness.

# Paving Type 4 - Asphalt Paving

pn3

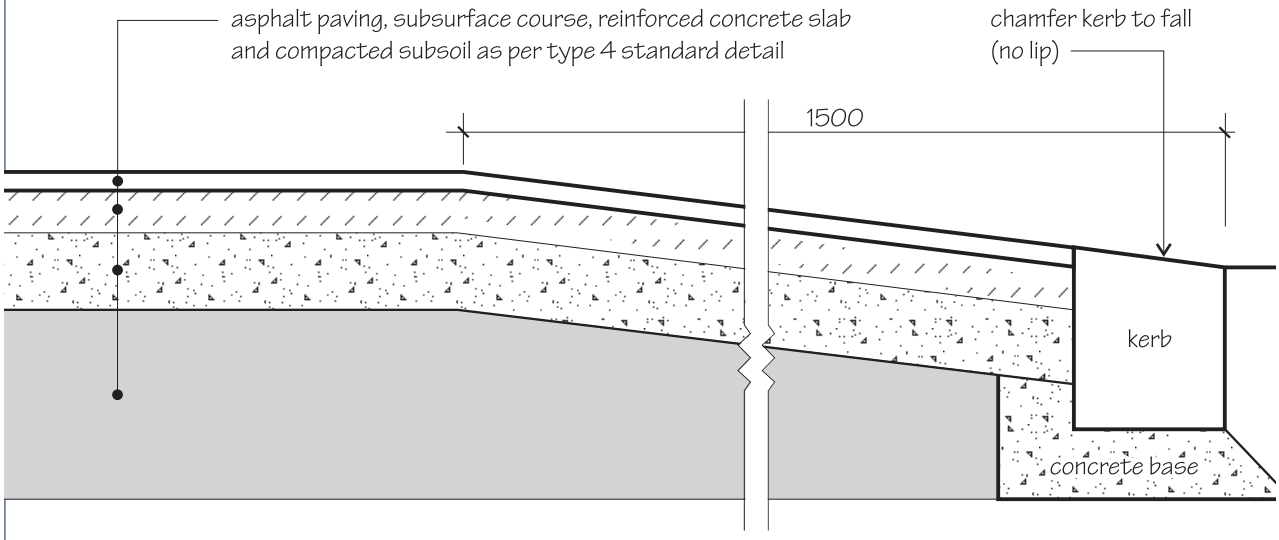
## Standard kerb ramp

pn3.2





**Plan**
**1 : 50**




**Cross Section**
**1 : 10**

pn3.2

## Standard kerb ramp

### Paving

Material, colour, finish, and general installation as per Type 4 standard detail to match the footpath.

### Base

Reinforced concrete slab in the shape of the crossover. Refer to cross section.

### Width

The width is a multiple of 450 mm to match the size of the flagstones and allow Type 4 to be upgraded to Type 3 where desired. Generally the width is to be 3150 mm (900 + 1350 + 900) or 4050 mm (900 + 2250 + 900) or 6300 mm (900 + 4500 + 900) as appropriate to site circumstances. At lane intersections, a minimum width of 1000 mm may be acceptable.

### Alignment

Install at a right angle to the kerb and maintain a regular geometric form.

### Markers

Mark the sides of the crossover with round 90 mm diameter aluminium setts or pavement studs to the Council's specification. Set the markers flush with the pavement, aligned with the top edges of the sloping triangular sides. Painted markers must not be used.

### Tactile paving

Mark the top of the kerb ramp with tactile aluminium tiles to the Council's satisfaction.

### Kerb

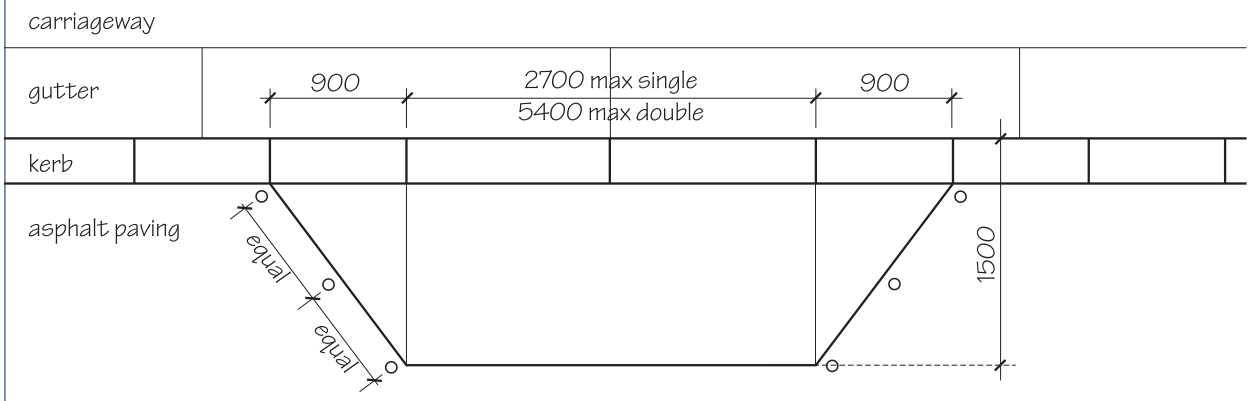
Where kerbs already exist, reset existing kerb to lower level. Elsewhere set new kerb to lower level.

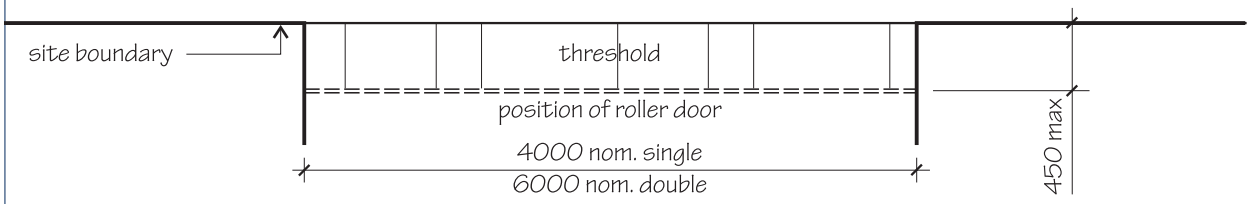
# Paving Type 4 - Asphalt Paving

pn3

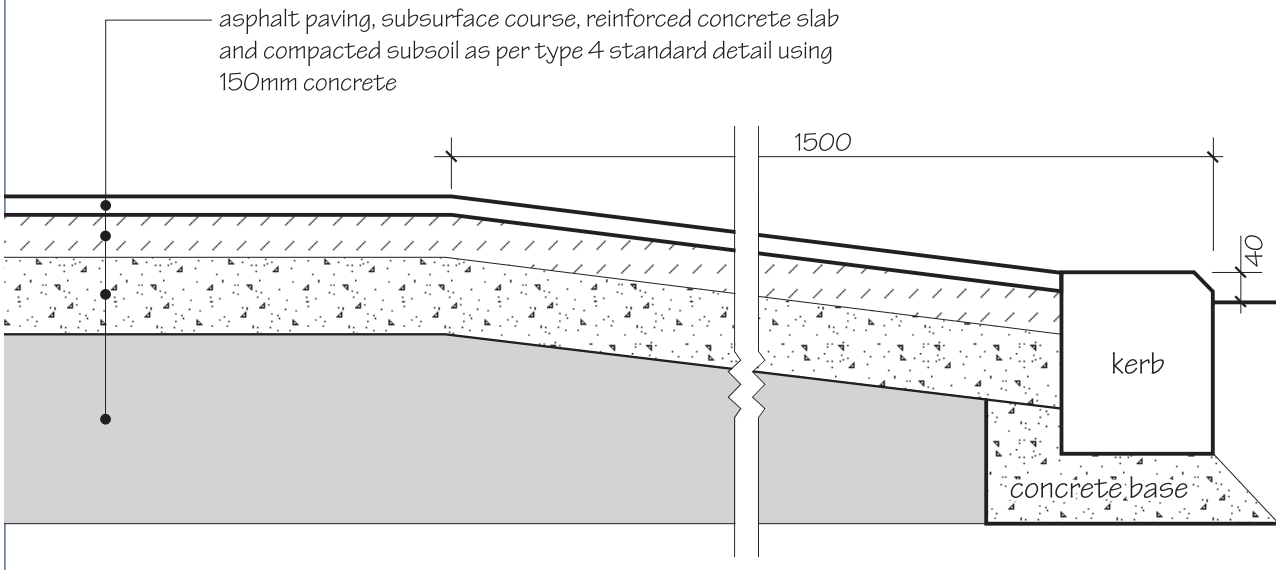
## Vehicular cross over

pn3.3




**Plan**
**1 : 50**




**Cross Section**
**1 : 10**

## Vehicular cross over

pn3.3

### Paving

Material, colour, finish, and general installation as per Type 4 standard detail to match the footpath.

### Base

Reinforced concrete slab in the shape of the footpath crossing.

### Alignment

Install at a right angle to the kerb and maintain a regular form.

### Markers

Mark the sides of the footpath crossing with round 90 mm diameter aluminium setts or pavement studs to the Council's specification. Set the markers flush with the pavement, aligned with the top edges of the sloping triangular sides. Painted markers must not be used.

### Kerb

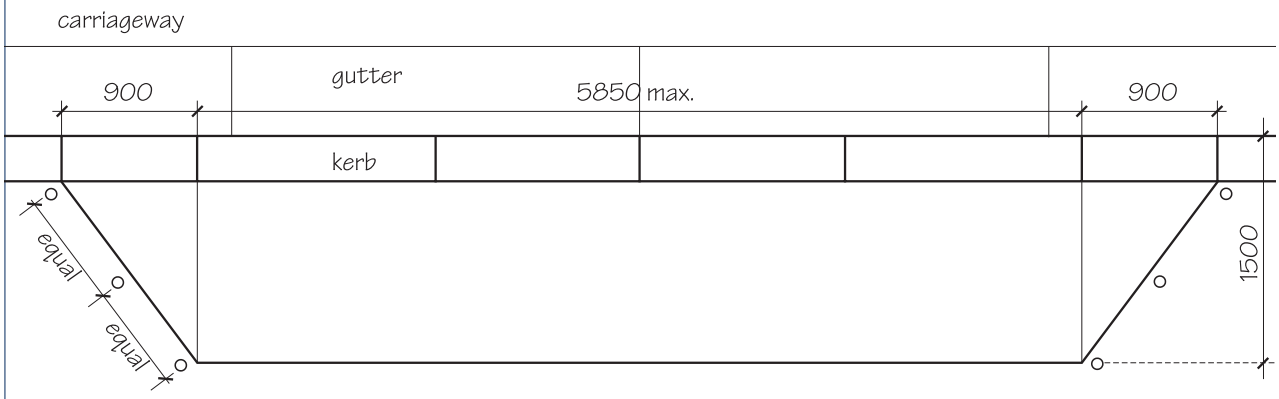
Where kerbs already exist, reset existing kerb to lower level. Elsewhere set new kerb to lower level.

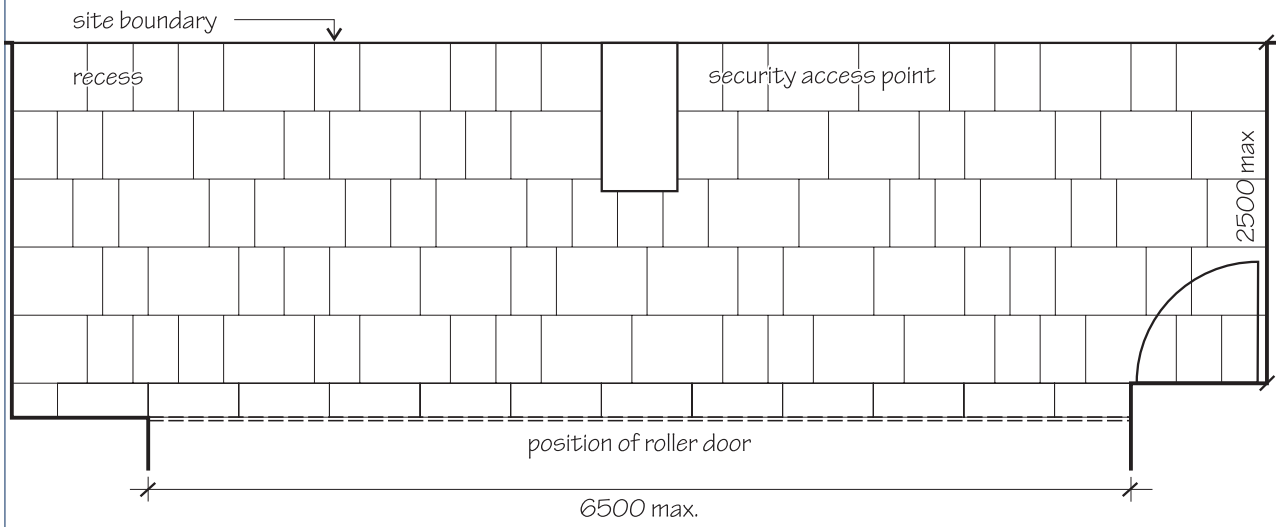
### Threshold

The straight centre section of the footpath crossing must be narrower than the vehicular entry to the building. A raised threshold, preferably with contrasting paving, is recommended at the vehicular entry to the building.

## Vehicular cross over - recessed vehicle entry

pn3.4




**Plan**
**1 : 50**

pn3.4

## Vehicular cross over - recessed vehicle entry

### Paving

Material, colour, finish, and general installation as per Type 4 standard detail to match the footpath.

### Base

Reinforced concrete slab in the shape of the footpath crossing.

### Alignment

Install at a right angle to the kerb and maintain a regular form.

### Markers

Mark the sides of the footpath crossing with round 90 mm diameter aluminium setts or pavement studs to the Council's specification. Set the markers flush with the pavement, aligned with the top edges of the sloping triangular sides. Painted markers must not be used.

### Kerb

Where kerbs already exist, reset existing kerb to lower level. Elsewhere set new kerb to lower level.

### Threshold

The straight centre section of the footpath crossing must be narrower than the vehicular entry to the building. A raised threshold is recommended at the vehicular entry to the building.

### Recess

Contrasting paving is recommended.

## Corner junction

pn3.5

### Setout

As a first preference, locate the kerb ramps within the intersection, align with the site boundary, minimise the corner radius, and provide a straight kerb section for the centre part of the ramp.

If a large radius is required, move the kerb ramps away from the intersection and preferably align with the site boundaries. Do not orientate the kerb ramp towards the centre of the intersection.

### Paving layout

Asphalt installed as per Type 4 standard detail.

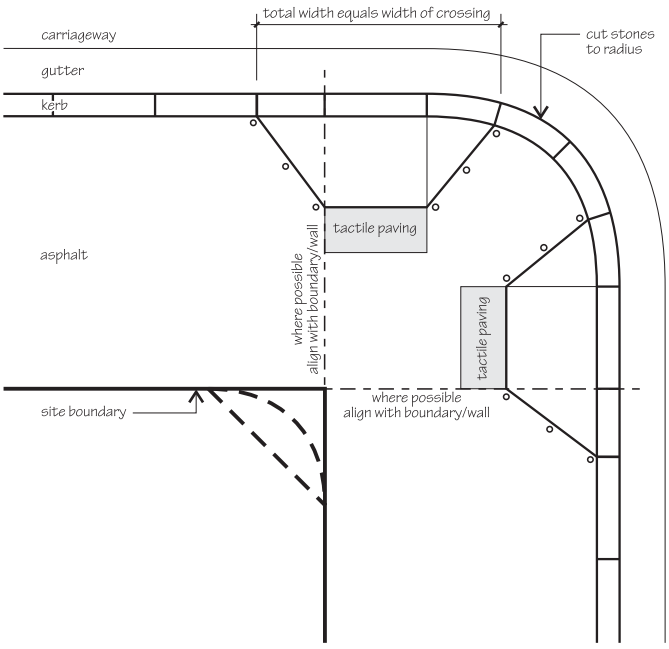
### Paving inserts

It may be appropriate to acknowledge and identify specific street intersections with commemorative plaques, artworks, and similar paving inserts in contrasting designs, materials, and colours. All paving inserts must be installed flush with the surrounding paving.

### Kerbs

Cut to radius.

The exact detailing of the corner junctions will depend on the shape and gradient of the corner.




**Plan**
**1 : 100**

## Street trees

pn3.6

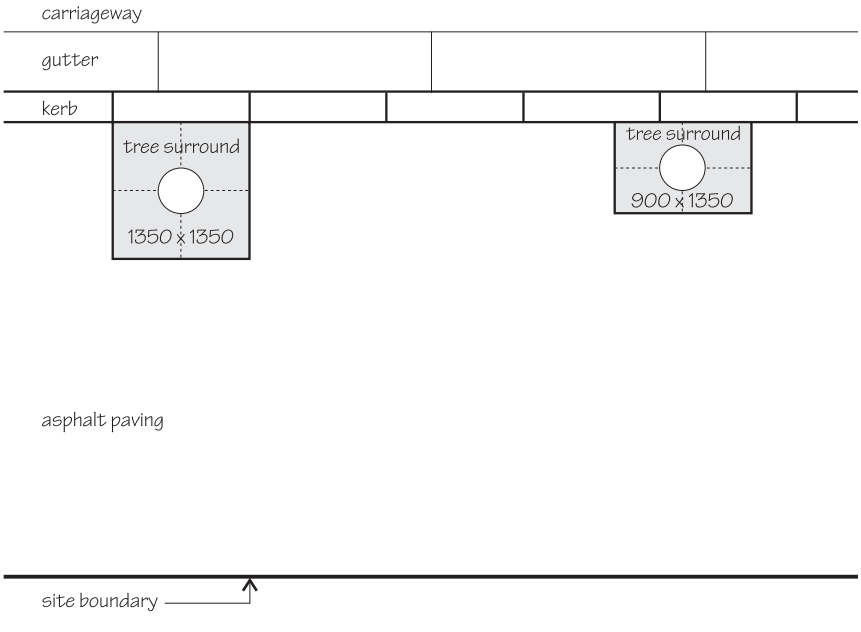
### Tree grate

Council's standard type in cast iron, available in two sizes. Use the large grate 1350 mm x 1350 mm on footpaths with a width of 3200 mm or more, and in public squares and plazas. Use the small grate 900 mm x 1350 mm on footpaths less than 3200 mm wide.

### Installation

Install the grate frame when the pit is dug, before planting the tree. Install the grate after planting. Install both immediately adjacent to the kerb, at a right angle to it. Set the grate flush with the surrounding pavement.

Backfill to the top of the grate with gravel mulch for additional support.




**Plan**
**1 : 75**

## Street furniture

pn3.7

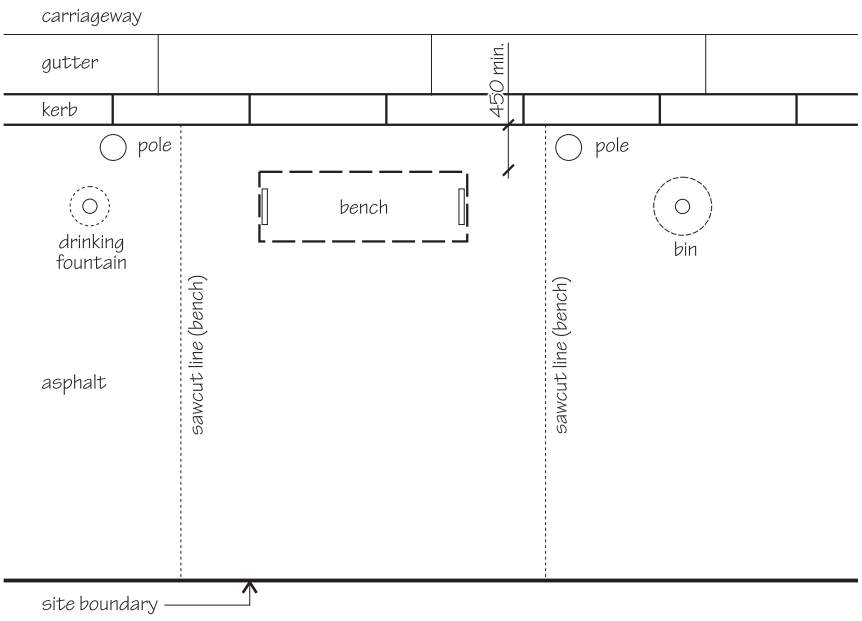
### Items

Utility poles, posts, benches, rubbish bins, drinking fountains, etc.

### Installation

Install all poles and utility items such as letterboxes, signal boxes, etc. directly behind the kerb. Bulky items must not project more than 1000 mm into the footpath. Install other street furniture items with their centre lines aligned and parallel to the kerb, with the kerbside edge of the bench at a distance of 450 mm from the inner edge of the kerb, to allow for future upgrading to Type 3 paving where desired. Street furniture should preferably be installed according to a detailed layout plan.

Construct all foundations at a depth of 80 mm from the surface of the completed paving to allow for its installation. Install the paving as per Type 4 standard detail. Cut or tamp asphalt neatly at the poles and furniture legs. When reinstalling asphalt, replace a full square across the entire width of the footpath with sawcut edges to existing asphalt paving to avoid patchiness.




**Plan**
**1 : 75**

## Telephone cabinets

pn3.8

### Type

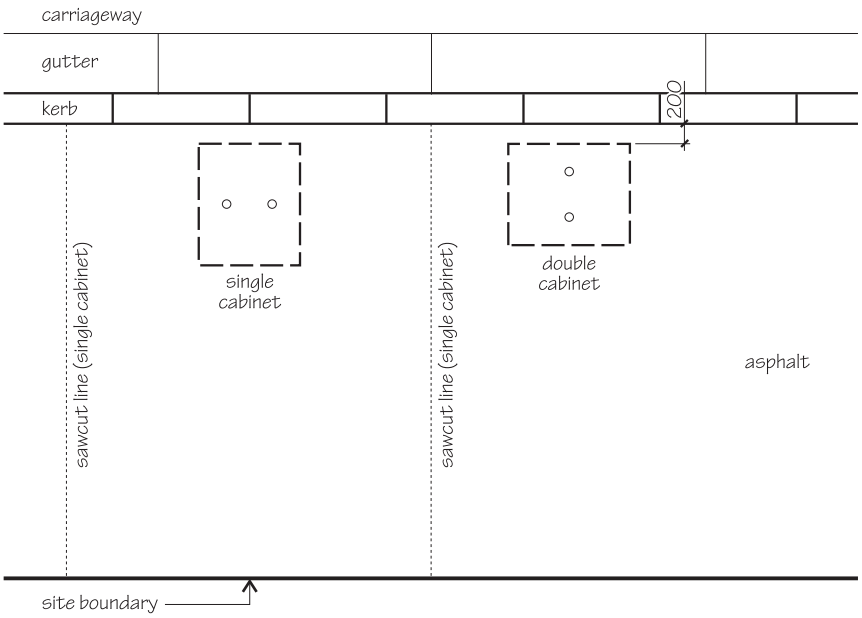
Telecom/Telstra 'Heritage' cabinet.

### Installation

Install single cabinet with its back to the kerb and a double cabinet with its side to the kerb.

For a single cabinet, install concrete base block 200 mm from the kerb (standard technical requirement), aligned with the kerb, at a depth of 80 mm from the surface of the completed paving. For a double cabinet, install concrete base block 300 - 400 mm from the kerb to allow for future upgrading to Type 3 paving where desired.

Install, or reinstate, the paving as per Type 4 standard detail. Cut or tamp asphalt neatly at the cabinet legs. When reinstalling asphalt, replace a full square across the entire width of the footpath with sawcut edges to existing asphalt paving to avoid patchiness.




**Plan**
**1 : 75**

pn3.9

## Pit covers

### Type

All types.

### Installation

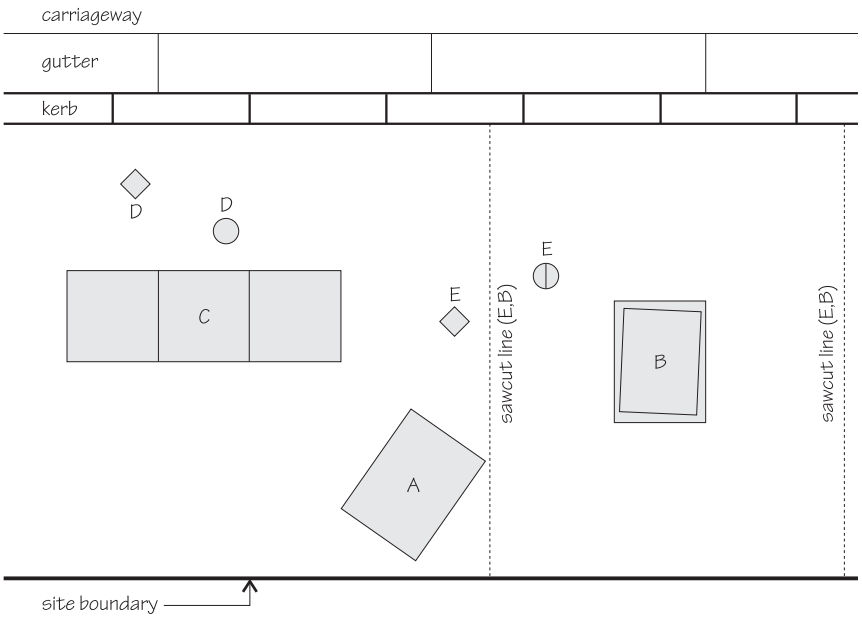
Paving around existing pit covers: Install the paving as per Type 4 standard detail. Cut or tamp asphalt neatly to the pit cover edges with as close a fit as possible.

*Installation of new pit covers:* install all rectilinear new pit covers parallel to the kerb and at a minimum distance of 450 mm from the kerb and the site boundary to allow for future upgrading to Type 3 paving where desired. On existing asphalt areas, cut the asphalt neatly to exactly fit the new pit cover, or reinstall a full square of asphalt across the entire width of the asphalt paving to avoid patchiness. Refer to examples E and B in the plan below.

The location of existing pits and pit covers is to be taken into account in locating kerb ramps, vehicular crossings, street furniture, etc., to minimise any conflicts and costs.

### Cover plates

Paving to match the surrounding pavement is recommended, especially for new pit covers. Install flush with the footpath.




**Plan**
**1 : 75**

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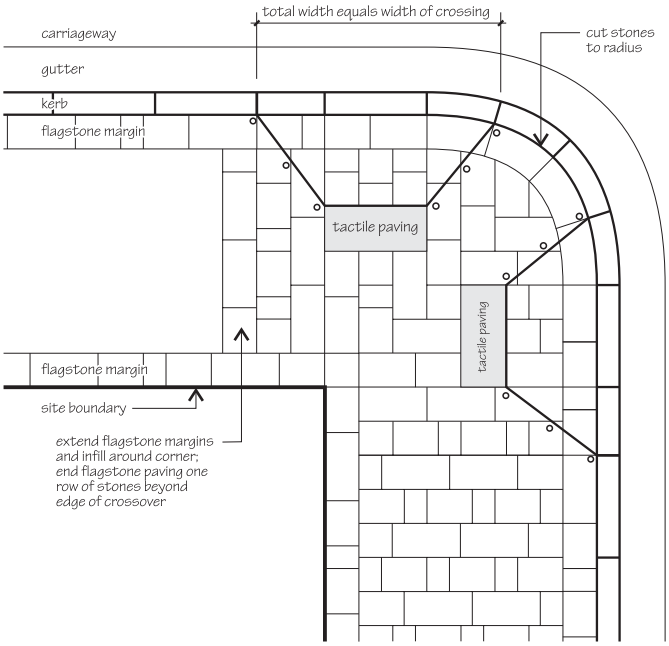
## Type 2 / type 3 - corner junction

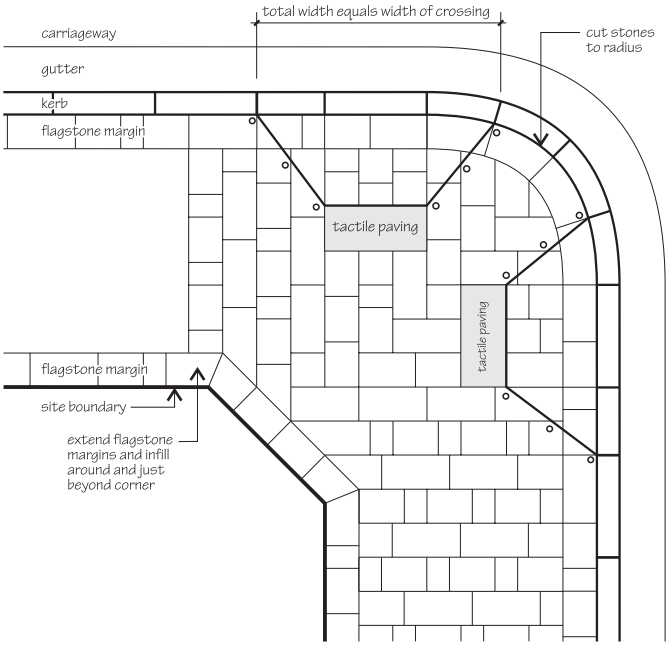
pn4.1

### Right angle corner




**Plan**
**1 : 100**

### Angled corner




**Plan**
**1 : 100**

pn4.1

## Type 2 / type 3 - corner junction

### Paving layout

*Flagstone margins:* bring the flagstone margins around the corner at the site boundary and the kerb. Cut stones to radius at the kerb. At the site boundary, install a square corner stone for right angle corners, mitre the corner stones for oblique corners, and cut stones to radius for curved corners.

*Flagstone infill:* bring flagstone infill around the corner for proper corner definition. At sharp building corners, extend one row of flagstones over the edge of the kerb ramp. At oblique building corners, extend one row of flagstones over the mitre joint. At curved corners, extend one row of flagstones over the end of curve. Provide a sawcut edge to adjoining asphalt paving.

Provide an interlocking 1:1 herringbone joint at the corner to create a minimum boundary effect between the different layout directions.

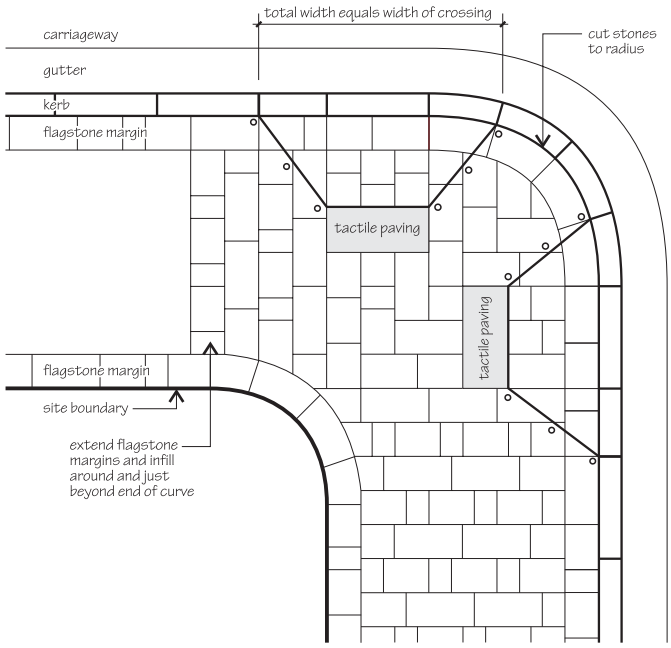
### Paving inserts

It may be appropriate to acknowledge and identify specific street intersections with commemorative plaques, artworks, and similar paving inserts in contrasting designs, materials, and colours. All paving inserts must be installed flush with the surrounding paving.

### Kerbs

Cut to radius.
The exact detailing of the paving type junctions will depend on the shape and gradient of the corner.

**Curved corner**

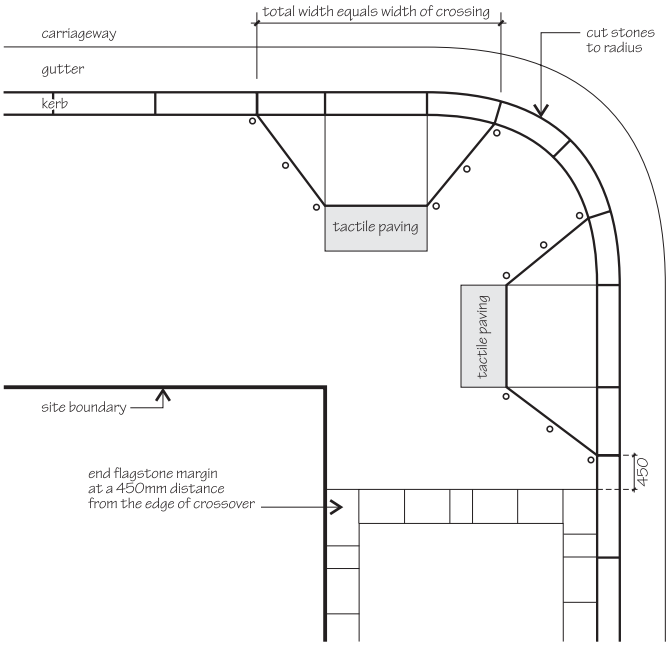



**Plan**
**1 : 100**

## Type 3 / type 4 - corner junction

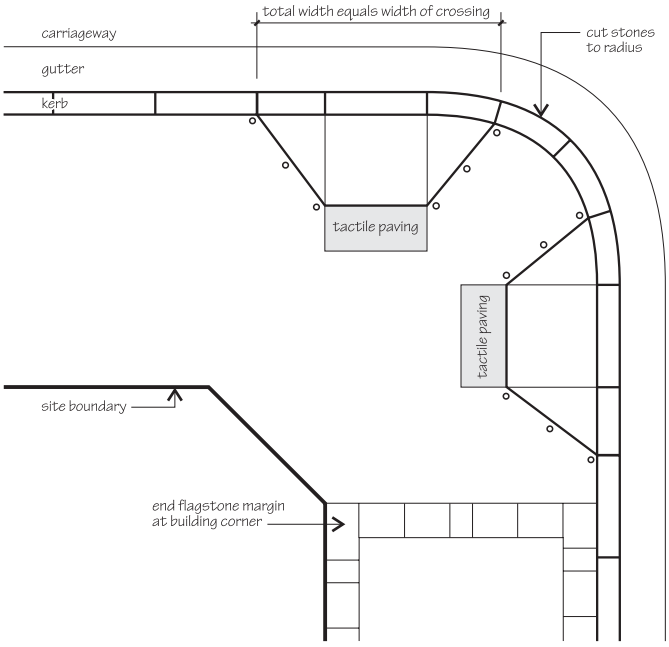
pn4.2

### Right angle corner




**Plan**
**1 : 100**

### Angled corner




**Plan**
**1 : 100**

pn4.2

## Type 3 / type 4 - corner junction

### Paving layout

Bring the asphalt paving around the corner for proper corner definition.

At sharp building corners, end the flagstone margin at a distance of 450 mm from the edge of the kerb ramp. At oblique building corners, end the flagstone margin at the building corner. At curved corners, end the flagstone margin at the end of the curve. Provide a sawcut edge to adjoining asphalt paving.

### Paving inserts

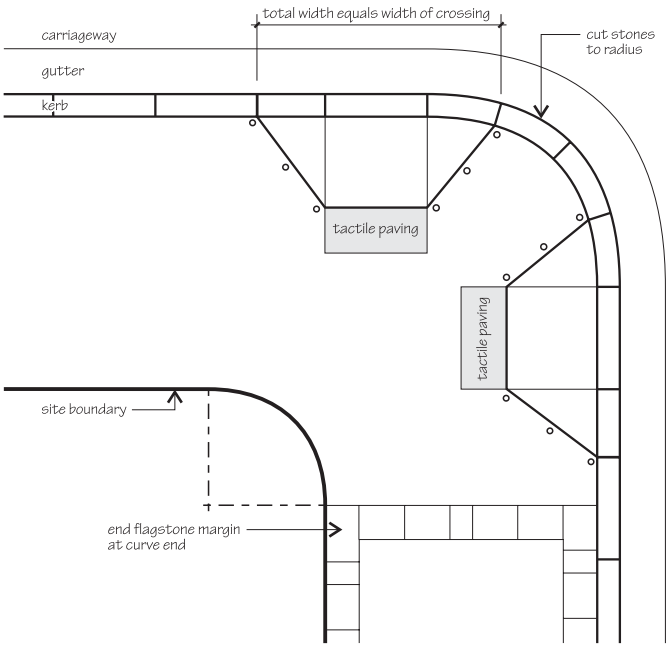
It may be appropriate to acknowledge and identify specific street intersections with commemorative plaques, artworks, and similar paving inserts in contrasting designs, materials, and colours. All paving inserts must be installed flush with the surrounding paving.

### Kerbs

Cut to radius.

The exact detailing of the paving type junctions will depend on the shape and gradient of the corner.

## Curved corner

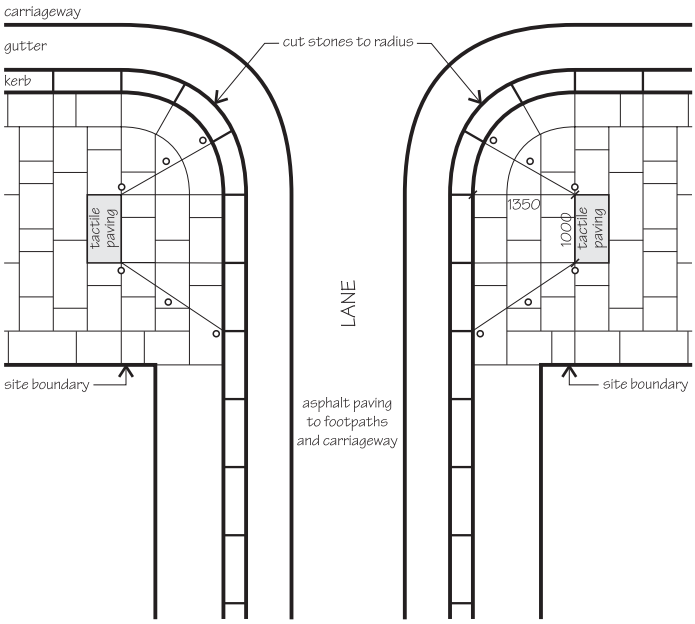



**Plan**
**1 : 100**

## Street footpath / lane footpath

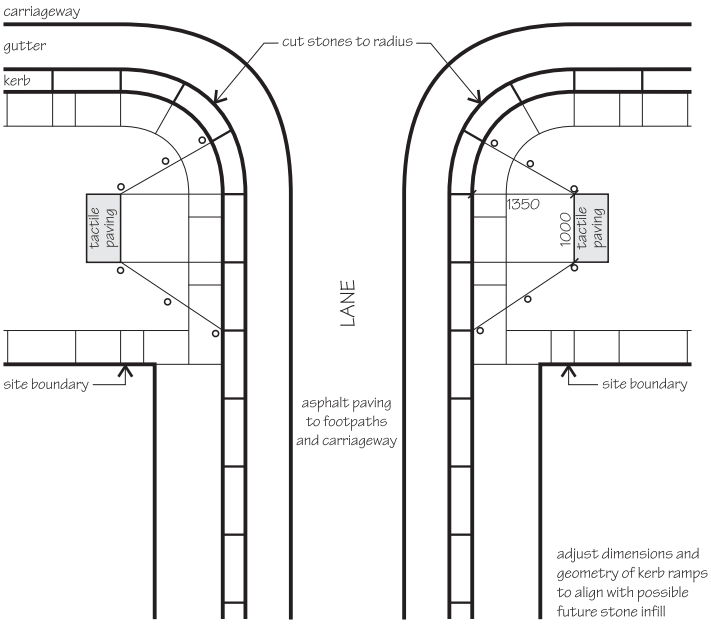
pn4.3

### Street footpath type 2 / lane footpath




**Plan**
**1 : 100**

### Street footpath type 3 / lane footpath




**Plan**
**1 : 100**

pn4.3

## Street footpath / lane footpath

### Paving layout

The laneway footpaths will be paved in asphalt. Bring the street footpath paving across the corner and end the laneway paving at the site boundary to the street.

*Paving type 2 street footpaths:* bring the flagstone margins around the corner at the site boundary and the kerb. Cut stones to radius at the kerb. Install the flagstone infill as per Type 2 standard detail. Cut stones as required against the margin. The minimum size of stone to be used is 300 mm x 450 mm, or its equivalent in area. Provide a sawcut edge to the laneway asphalt.

*Paving type 3 street footpaths:* bring the flagstone margins around the corner at the site boundary and the kerb. Cut stones to radius at the kerb. Install the asphalt infill as per Type 3 standard detail. Provide a sawcut edge to the laneway asphalt.

*Type 4 street footpaths:* install asphalt paving as per Type 4 standard detail. Provide a sawcut edge to the laneway asphalt.

### Kerbs

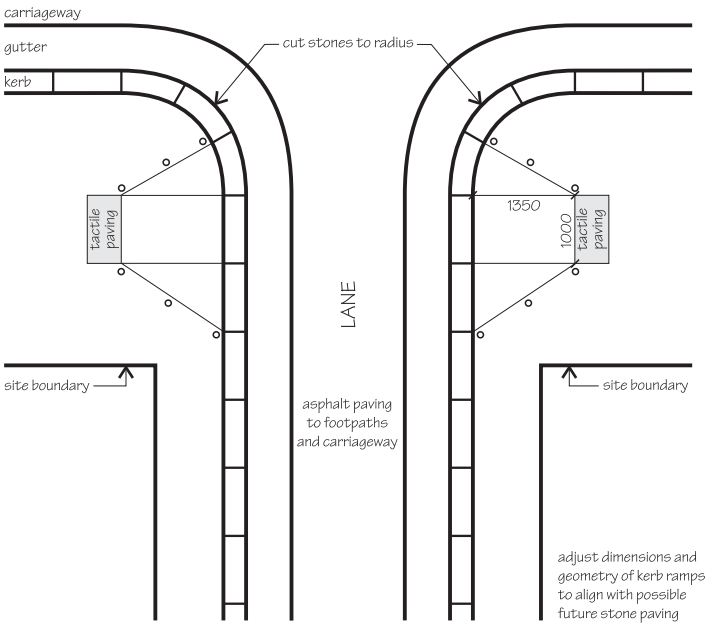
Cut to radius.

### Kerb ramps

Install the kerb ramps as the standard kerb ramp, but with reduced dimensions to fit into the available space. For Type 3 and Type 4, set out to allow for future flagstone paving where desired.

The exact detailing of the junctions will depend on the local conditions.

**Street footpath type 4 / lane footpath**




**Plan**
**1 : 100**

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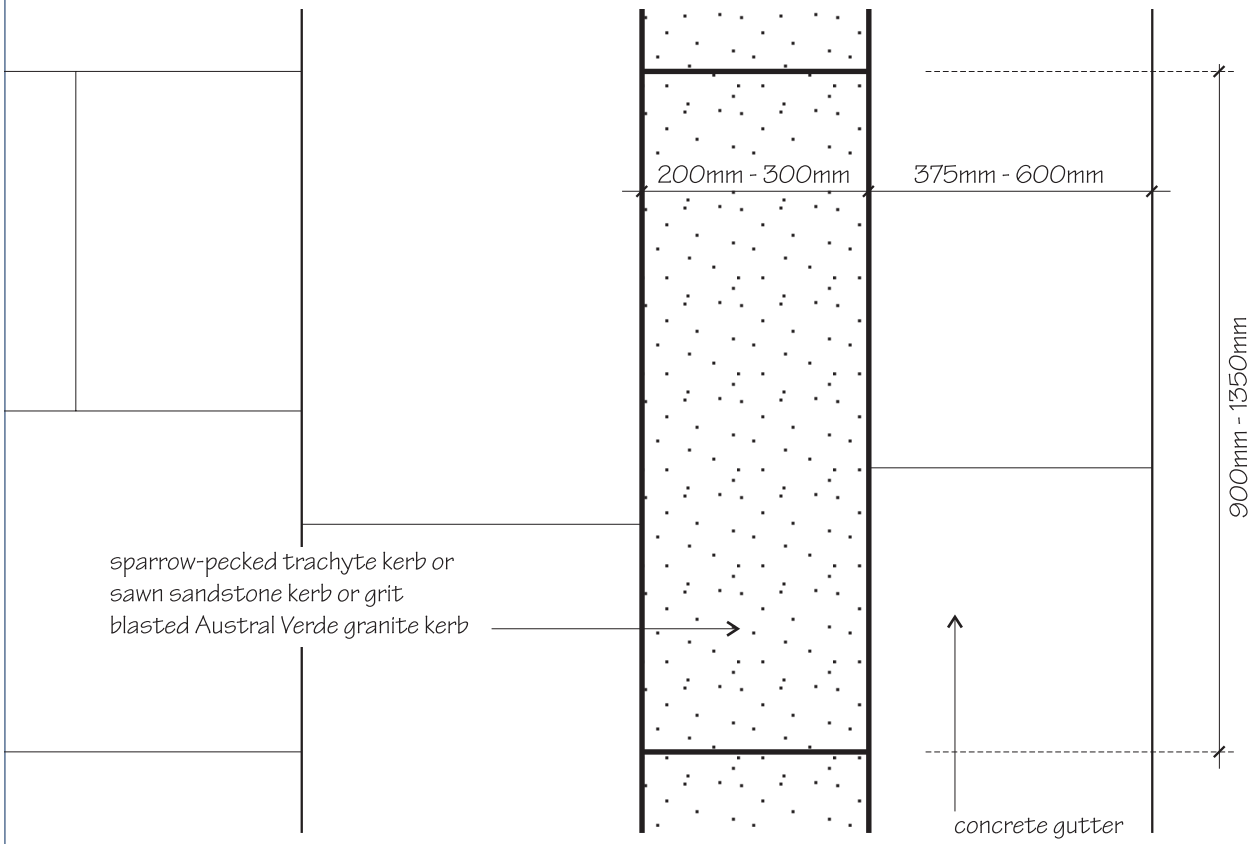
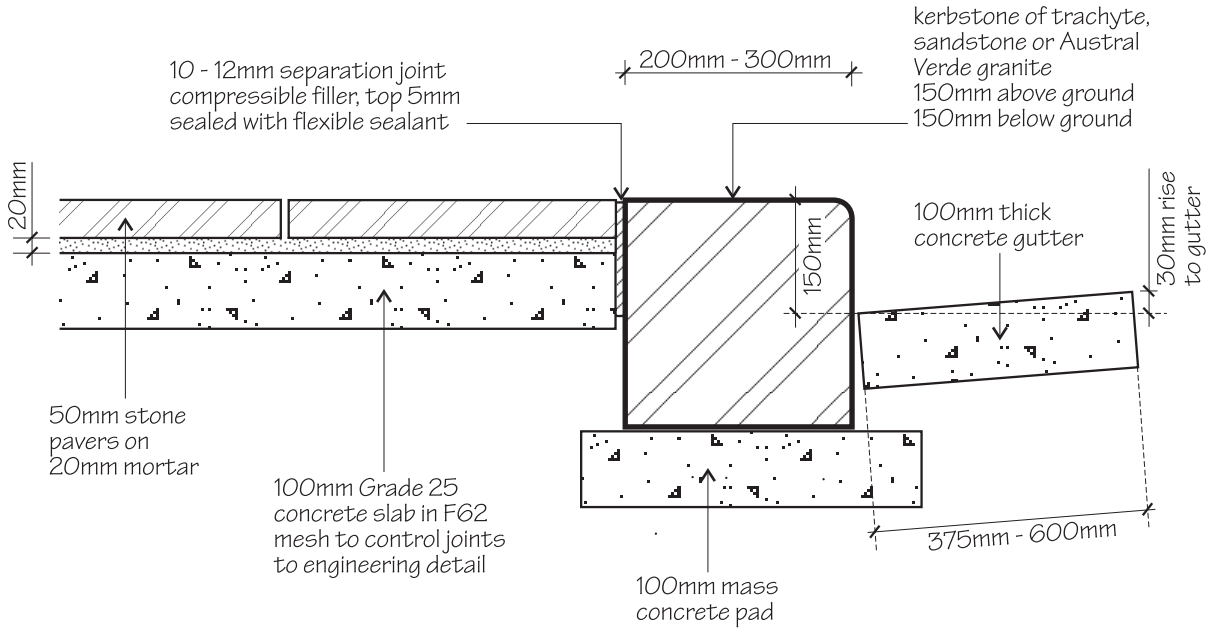
## Typical plan and section

pn5.1



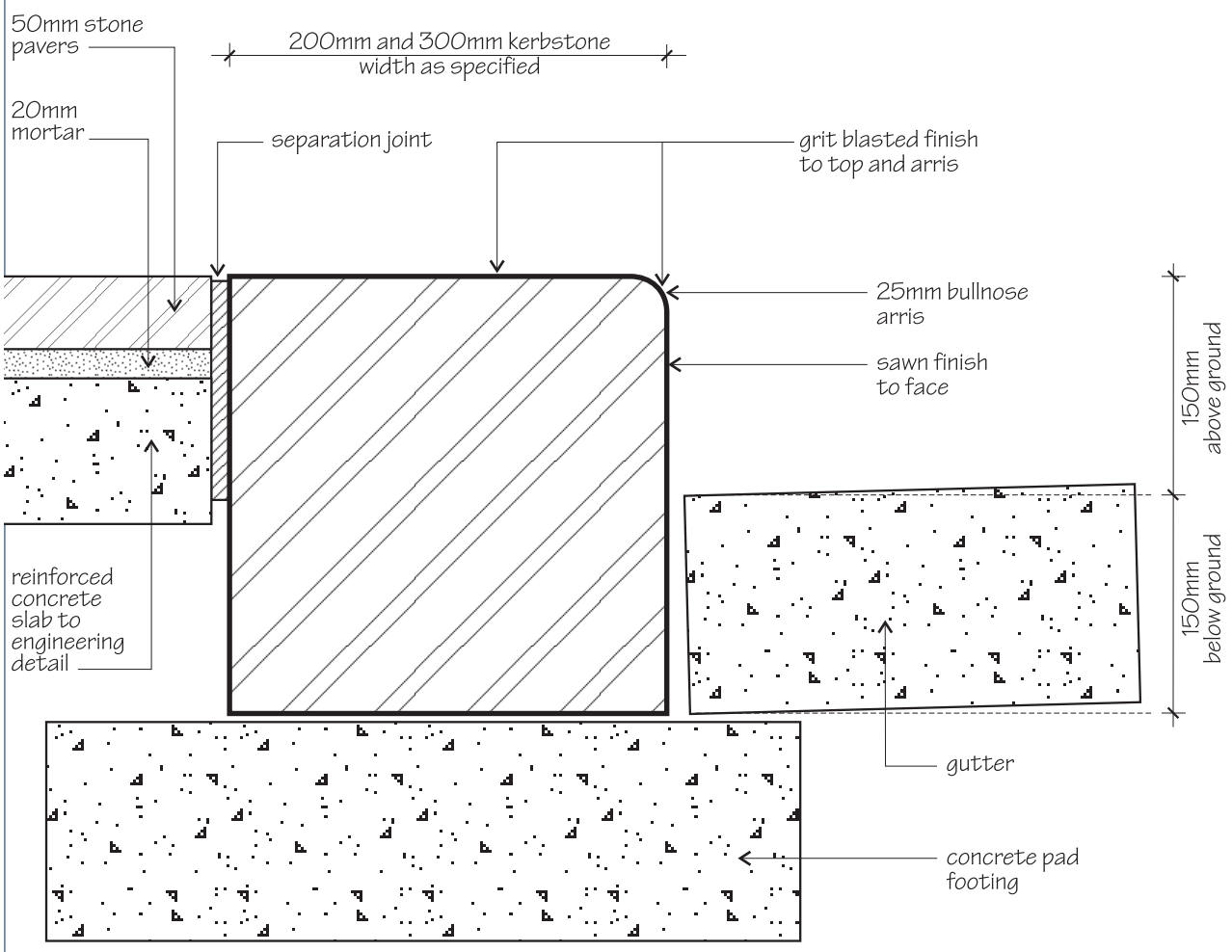

**Typical Plan**
**1 : 10**




**Typical Section**
**1 : 10**

## Austral Verde kerb

pn5.1




**Typical Section**
**1 : 5**

# Kerbs and Gutters

pn5

## Kerbs

pn5.1

### Material

> trachyte kerbing generally
> sandstone kerbing is the first option in heritage and residential areas nominated for paving type 4 where there is an existing precedent of sandstone kerbing
> bluestone kerbing is to be used for traffic islands
> Austral Verde granite kerbing is to be used for extensive new sections of kerbing e.g. footpath extensions, as a substitute for trachyte

Footpath extensions and traffic islands are to be implemented according to a specific plan to ensure sufficient consistency with surrounding areas and are subject to Council's approval.

Any stone kerbs, especially trachyte and sandstone, made available in footway reconstruction work are to be retrieved for use in the appropriate areas.

### Finish

> trachyte - sparrow pecked finish
> sandstone and bluestone - sawn finish
> Austral Verde granite - grit blasted finish to the top and the arris and sawn finish to the face

### Width

300 mm or 200 mm to match the predominant kerb width in the block.

## Gutters

### Material

Concrete or stone to match existing.

### Finish

To match adjoining gutters.

### Width

To match adjoining gutters.

### Installation

The kerbs and gutters must be installed absolutely straight and cut to radius at footpath corners. Reuse old stone kerbs and gutters and avoid mixing with new ones. Match new work with the stone, size, shape, finish, and jointing of adjoining kerbs and gutters.

## Narrow extension

pn6.1

### Width

Minimum 900 mm (nominal).

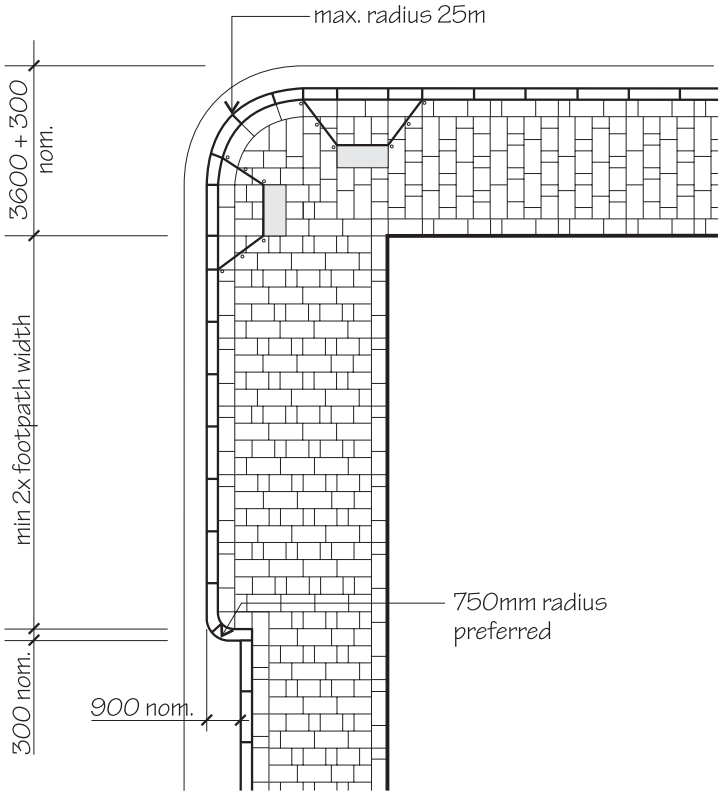
### Length

A multiple of 450 mm between the kerbs is preferred; minimum nominal length 10800 mm.

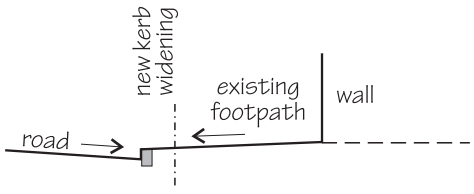
### Installation

Apply equal width to the entire length of the extension. Install existing kerb to new location. Complete new kerb with matching kerbstone sections. Reconstruct gutter to match adjoining gutters.

Install paving as per the relevant standard detail to match the existing or upgraded footpath.




**Plan**
**1 : 200**




**Cross Section**
**1 : 200**

# Footpath Extensions

pn6

pn6.2

## Mid block extensions

### Width

2700 mm (nominal).

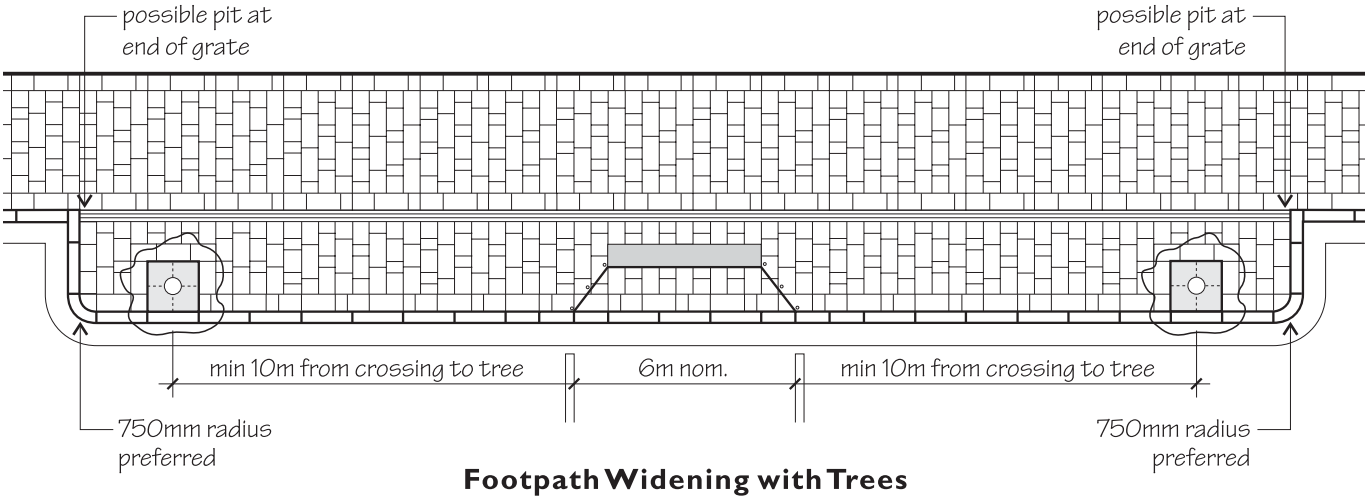
### Length

A multiple of 450 mm between the kerbs is preferred; minimum nominal length 12600 mm. A nominal length of 15150 mm will accommodate one street tree. A nominal length of 30300 mm will accommodate two street trees.

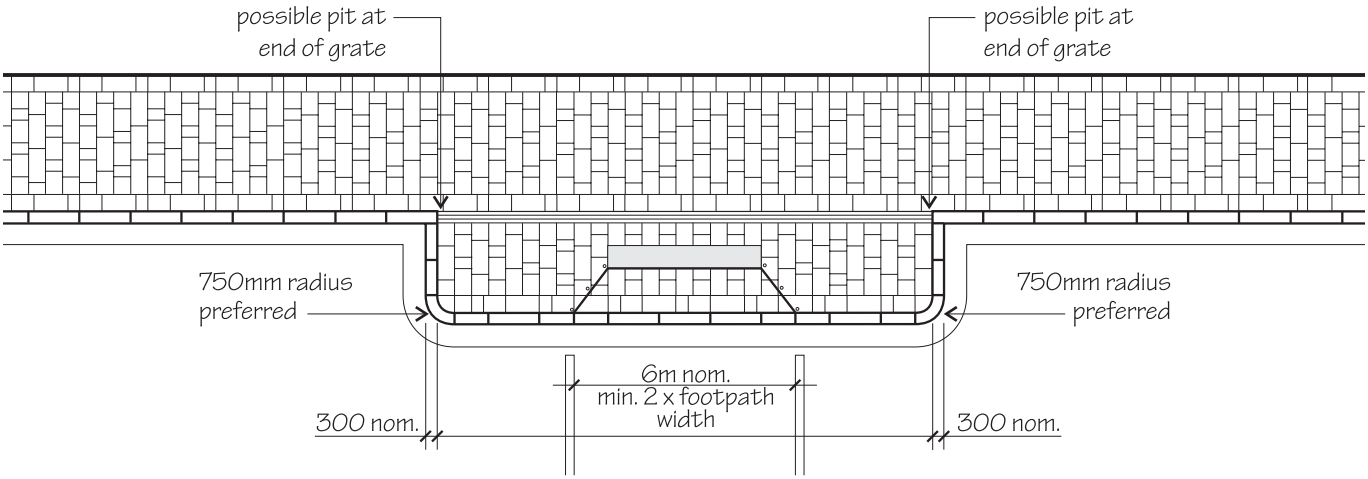
### Installation

Install existing kerb to new location. Complete new kerb with matching kerbstone sections. Reconstruct gutter to match adjoining gutters. Construct new internal gutter at the old kerbline. Cover with selected metal grate to the Council's satisfaction.

Install pit at the end of grate where required. Install paving as per the relevant standard detail to match the existing or upgraded footpath.




**Footpath Widening with Trees**




**Minimum Footpath Widening**

**Plan**
**1 : 200**

# Footpath Extensions

pn6

pn6.3

## Wide extension

### Width

2700 mm (nominal).

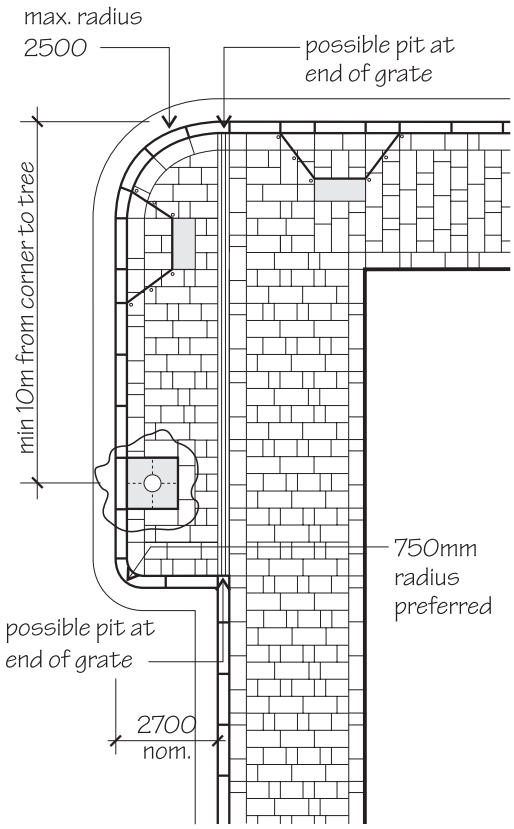
### Length

A multiple of 450 mm between the kerbs is preferred; minimum nominal length 12150 mm. This will accommodate one street tree where desired.

### Installation

Install existing kerb to new location. Complete new kerb with matching kerbstone sections. Reconstruct gutter to match adjoining gutters. Construct new internal gutter at the old kerbline. Cover with selected metal grate to the Council's satisfaction.

Install pit at the end of grate where required. Install paving as per the relevant standard detail to match the existing or upgraded footpath.




**Plan**
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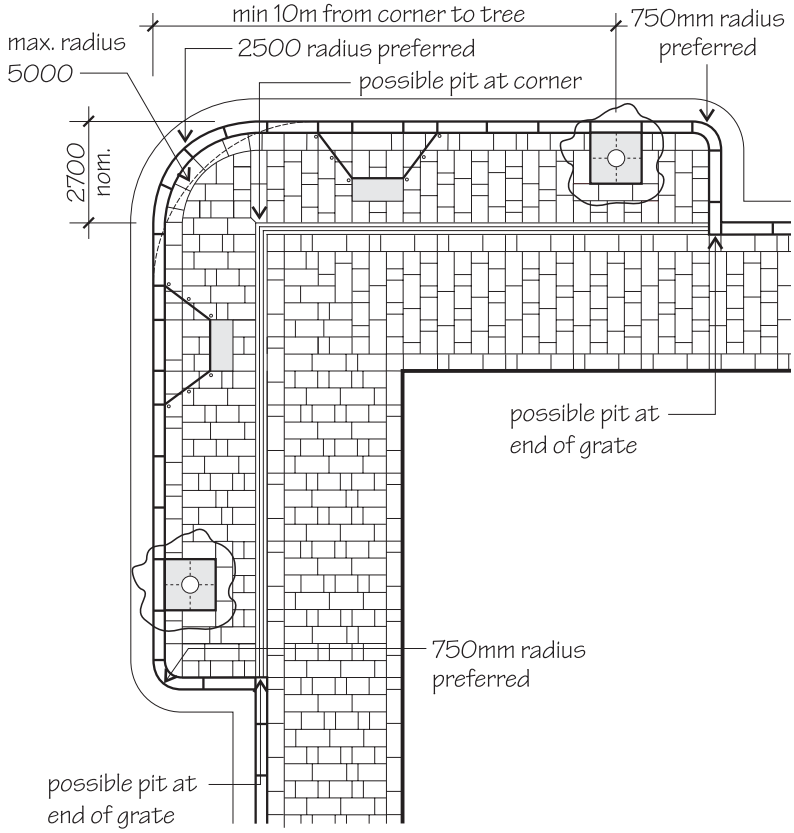


**Plan**
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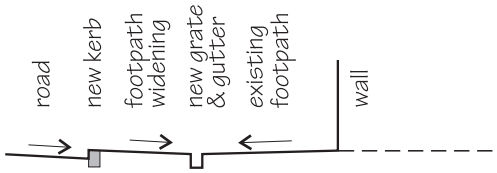
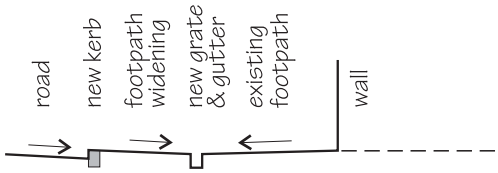



**Cross Section**
**1 : 200**




**Cross Section**
**1 : 200**