

**BOOK 300** 

# FOOTPATH AND PAVEMENT DESIGN



REV	DATE	AMENDMENT	
3.0	07/05/2024	REVIEWED, UPDATED AND RE-ISSUED FOR USE	

#### DISCLAIMER:

THIS DOCUMENT HAS BEEN PREPARED BY THE CITY OF PERTH AND IS SUBJECT TO CHANGE. IT IS THE RESPONSIBILITY OF THE USER TO ENSURE THAT DESIGN AND CONSTRUCTION NOTE HAS NO FURTHER REVISIONS BY CHECKING https://perth.wa.gov.au/en/building-and-ons/revision/ing-and-construction-notes

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FOOTPATH AND PAVEMENT DESIGN



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### FOREWORD AND PAVEMENT SCHEDULE

FOOTPATH AND PAVEMENT DESIGN



#### **FOREWORD**

Book 300 sets out the standard details for the treatment of footpaths and service pits; and advises the type of kerbs and furniture palette which are to complement the street enhancements level of amenity.

For further information regarding the geometry and layout design for streetscape enhancements, refer:

\*\*Book 100 - Street Layout and Pavement Design Guidelines\*\*

For further information regarding kerb types and installation details refer:

\*Book 400 - Standard Kerb Types and Installation Details\*\*

For further information regarding furniture types and installation details refer:

Book 500 - Standard Street Furniture and Installation Details

For further information regarding Street Tree installation details refer:

Book 700 - Street Trees and Reticulation Details

For further information regarding the maintenance and reinstatement of Feature Treatment areas, such as Northbridge Piazza, refer:

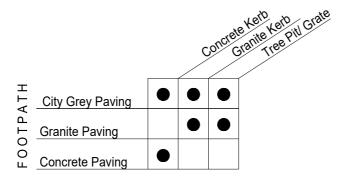
Book 1000 - Feature Treatment Reinstatement Policies & Restrictions

For further information can be obtained from th transport and urban design at: tud.inbox@cityofperth.wa.gov.au

	Pavement Schedule					
D	City Grey Paving	City Grey Paving	Granite Paving	Granite Paving	Brushed Concrete	Brushed Concrete
Paving Type	Footpath	Trafficable	Footpath	Trafficable	Footpath	Trafficable
	Size: 400 x 400mm	Size: 300 x 200mm	<u>Size:</u> 795 x 395mm	<u>Size:</u> 395 x 195mm	Material: Concrete	Material: Concrete
	Material: Concrete	Material: Concrete	Material: Granite	Material: Granite	Colour: Grey	Colour: Grey
	Colour: City Grey	Colour: City Grey	Colour: Austral Verde	Colour: Austral Verde	Thickness: 100mm	Thickness: 150mm
	Thickness: 60mm	Thickness: 70mm	Surface: Exfoliated	Surface: Exfoliated	Finish: Broom finish	Finish: Brush finish
	Laying pattern: Stretcher	Laying pattern:	Laying pattern:	Laying pattern:	Compressive strength	Compressive strength
	bond	Herringbone bond	Stretcher bond	Herringbone bond	(Min. 28days): Min. 32MPa	(Min. 28days): Min. 32MPa
	Supplier: Bonita Stone	Supplier: Bonita Stone	Source from: Austral Masonary	Source from: Austral Masonary		
Pedestrian Ramps City Grey paving		Granite Paving		Concrete paving	Asphalt	
Type: Urbanstone Wetcast TGSI Colour: black Size: 400 x 400mm Thickness: 60mm Supplier: Bonita Stone		Thickness: 40mm Supplier: Bonita Stone		Type: Urbanstone Wetcast TGSI Colour: black Size: 400 x 400mm Thickness: 60mm Supplier: Bonita Stone	Type: Urbanstone Wetcast TGSI Colour: Nory Size: 400 x 400mm Thickness: 60mm Supplier: Bonita Stone	

• The City of Perth has adopted different levels of amenity as indicated in the Central Perth Amenity Map.

### **COMPLEMENTARY AMENITY - MATRIX**





### CENTRAL PERTH AMENITY MAP

FOOTPATH AND PAVEMENT DESIGN

#### **CENTRAL PERTH AMENITY MAP**

The level of amenity proposed for street enhancement projects varies depending on the project location. This map shows the applicable level of amenity for different locations and streets within the central Perth area.

The levels of amenity have been broken down into the following general classifications and are shown on the map below.



City Grey Paving with Granite Kerbs City Grey Paving with Concrete Kerbs Feature Treatment Reinstatement Policies & Restrictions



Feature Treatment areas, such as Northbridge Piazza, Forrest Place and Elizabeth Quay, are not outlined in this book. For the maintenance of locations which are not covered in this booklet please refer:

Book 1000 - Feature Treatment Reinstatement Policies & Restrictions



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### STANDARD CITY GREY PAVING - MATERIAL SPECIFICATION

FOOTPATH AND PAVEMENT DESIGN



#### STANDARD CITY GREY PAVING

### 1) Performance Specification:

Compressive Strength	Minimum 35-40 Mpa	Tested by Std ASTM C99
Breaking Load	Minimum 3kN	Tested in accordance AS4456.5
Salt Resistance	21/26 cycles	Tested in accordance AS4456.10
Abrasion Resistance	Minimum of Ha 3	Tested by Std ASTM C1353
Moisture Absorption		
by Weight	Max 9% by weight	Tested by Std ASTM C97

### 2) Testing of Paving:

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

#### **ASTM Standards:**

C97/C97M Test methods for absorption and bulk specific gravity of dimension stone.

C99/C99M Test method for modulus of rupture of dimension stone.

C119 Terminology relating to dimension stone.

C170/C170M Test method for compressive strength of dimension stone.

C241/C241M Test method for abrasion resistance of stone subjected to foot traffic.

C880/C880M Test method for flexural strength of dimension stone.

D7102 Test method –intact rock core specimens.

#### Australian Standards:

AS4456.5-2003 Masonry units and segmental pavers and flags - Methods of test - Determining the

breaking load of segmental pavers and flags

AS4456.10-2003 Masonry units and segmental pavers and flags - Methods of test - Determining

resistance to salt attack

### 3) Approval of Test Results

The appropriate specimens should be prepared from the supplied samples and the above test work completed prior to supply of paving.



### **DESIGN & CONSTRUCTION NOTE** GRANITE PAVING - MATERIAL SPECIFICATION

FOOTPATH AND PAVEMENT DESIGN

The City of Perth is currently reviewing granite pavement specifications within the City.

Please contact the City's Infrastructure and Assets team on isa.inbox@cityofperth.wa.gov.au for any project specific advice in relation to design, construction or reinstatement works.



### **DESIGN & CONSTRUCTION NOTE** SANDSTONE PAVING - MATERIAL SPECIFICATION

FOOTPATH AND PAVEMENT DESIGN



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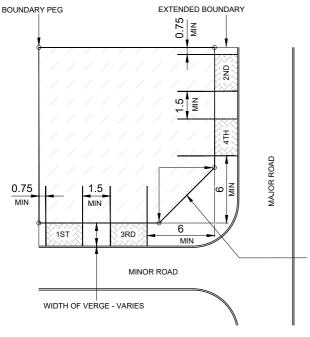


### LOCATING VEHICLE CROSS-OVERS

FOOTPATH AND PAVEMENT DESIGN

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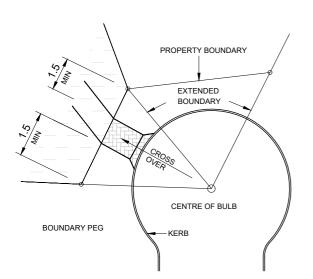
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ORDER OF PREFERENCE FOR THE LOCATION OF CROSSOVERS FOR GUIDANCE. CROSSOVERS ARE PREFERED TO BE AT MINOR ROADS RATHER THAN AT MAJOR ROADS & BE FURTHEREST FROM THE INTERSECTION. ORDER OF PREFERENCE

TRUNCATION TO BE 4.25m OR 8.5m OR AS DETERMINED BY THE ENGINEER REFER WAPC POLICY DC 1.7

A 0.75M MIN OFFSET MUST BE MAINTAINED FROM SIDE PROPERTY BOUNDARIES TO EDGE



### CROSSOVERS IN CUL-DE-SACS

CROSSOVERS ARE TO BE LOCATED WITHIN THE AREA CREATED BY JOINING THE BOUNDARY PEGS TO THE CENTRE OF THE CUL-DE-SAC BULB.

A 1.5M MIN OFFSET MUST BE MAINTAINED FROM SIDE PROPERTY BOUNDARIES TO EDGE OF CROSSOVER.

#### **GENERAL NOTES**

- STANDARD WIDTH OF CROSSOVER FOR A SINGLE CROSSOVER = 3M. STANDARD DOUBLE CROSSOVER = 7.5M.
- CORNER LOTS: PREFERRED LOCATION FOR VEHICLE CROSSOVER IS ON MINOR STREET FARTHEST FROM INTERSECTION.
- WITHIN THE CITY OF PERTH, CROSS-OVERS ARE GENERALLY CONSIDERED A PART OF THE FOOTPATH.
- CROSSOVER WIDTH IS DEFINED BY 1. A MIN OF 3.0M FOR ALL DEVELOPMENT. 2. WHERE PAIRED CROSSOVERS ARE REQUIRED BETWEEN NEIGHBOURING DEVELOPMENTS, THE MINIMUM BOUNDARY OFFSETS STILL APPLY. CITY OF PERTH IS TO BE CONTACTED IF A REQUIREMENT IS OUTSIDE OF THESE PARAMETERS

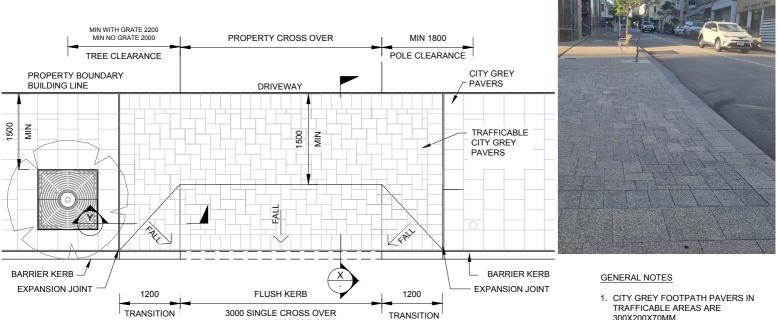


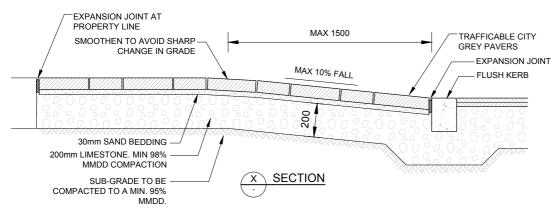
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### VEHICLE CROSS-OVER - CITY GREY PAVING

FOOTPATH AND PAVEMENT DESIGN

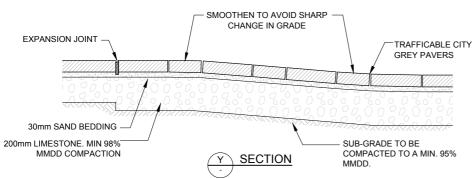
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6000 DOUBLE CROSS OVER

**PLAN** 



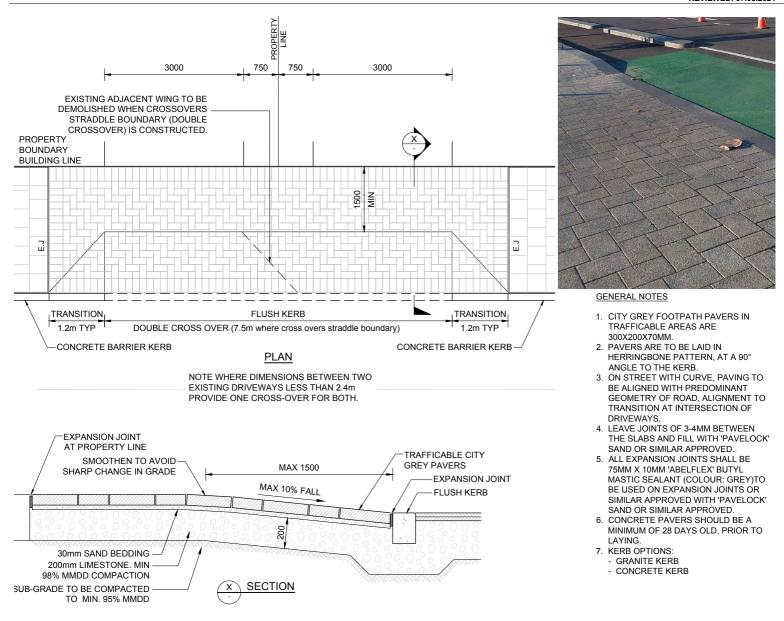
- 300X200X70MM.
- 2. PAVERS ARE TO BE LAID IN HERRINGBONE PATTERN, AT A 90° ANGLE TO THE KERB.
- ON STREET WITH CURVE, PAVING TO BE ALIGNED WITH PREDOMINANT GEOMETRY OF ROAD, ALIGNMENT TO TRANSITION AT INTERSECTION OF **DRIVEWAYS**
- 4. LEAVE JOINTS OF 3-4MM BETWEEN THE SLABS AND FILL WITH 'PAVELOCK' SAND OR SIMILAR APPROVED.
- 5. ALL EXPANSION JOINTS SHALL BE 75MM X 10MM 'ABELFLEX' BUTYL MASTIC SEALANT (COLOUR: GREY)TO BE USED ON EXPANSION JOINTS OR SIMILAR APPROVED WITH 'PAVELOCK' SAND OR SIMILAR APPROVED
- CONCRETE PAVERS SHOULD BE A MINIMUM OF 28 DAYS OLD, PRIOR TO LAYING.
- 7. KERB OPTIONS:
  - GRANITE KERB
  - CONCRETE KERB

### VEHICLE CROSS-OVER MERGE AT PROPERTY LINE

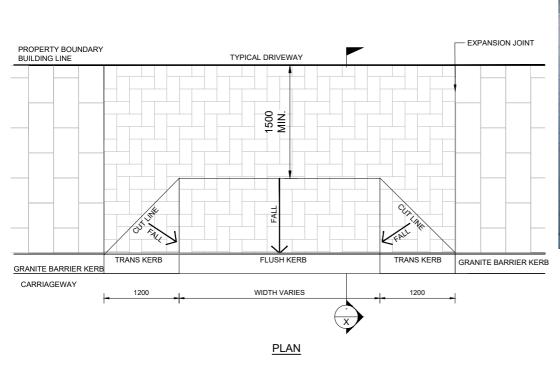
FOOTPATH AND PAVEMENT DESIGN

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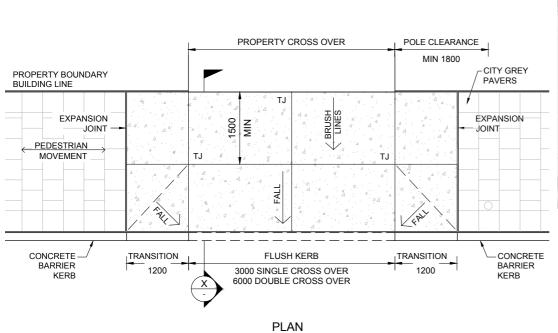
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### **CONCRETE VEHICLE CROSS-OVER**

FOOTPATH AND PAVEMENT DESIGN

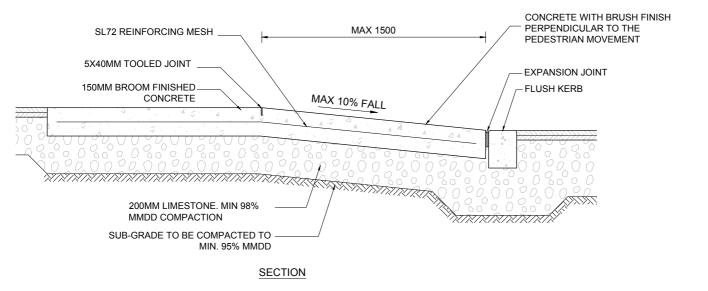
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REVIEWED: 07.05.2024





#### **GENERAL NOTES:**

- I. CONCRETE CROSSOVER IS ONLY FOR USE IN RESIDENTIAL AREAS IN CRAWLEY & UWA. USE IN THE CITY FOR SITE CONSTRUCTION PURPOSES IS TEMPORARY ONLY.
- 2. ALL EXPANSION JOINTS SHALL BE 75MM X 10MM 'ABELFLEX' BUTYL MASTIC SEALANT TO BE USED ON EXPANSION JOINTS. CITY SHOULD SPECIFY A COLOUR MATCH, OR SIMILAR APPROVED WITH 'PAVELOCK' SAND OR SIMILAR APPROVED.
- 3. 150MM CONCRETE TO ACHIEVE A
  MINIMUM CHARACTERISTIC
  COMPRESSIVE STRENGTH OF 32MPa AT
  28 DAYS. A MINIMUM NOMINAL
  AGGREGATE OF 14MM AND SLUMP OF
  80MM MAX. SLIP RESISTANCE TO
  COMPLY WITH AS4586 & AS3661.

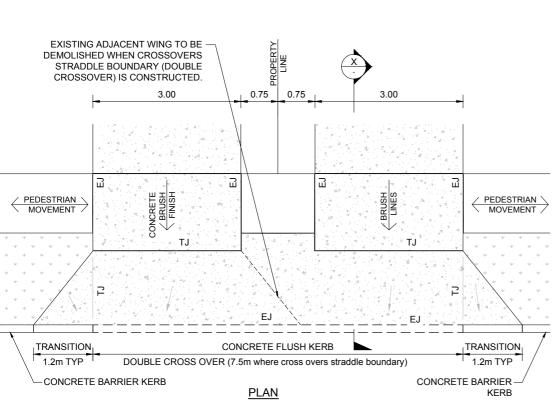


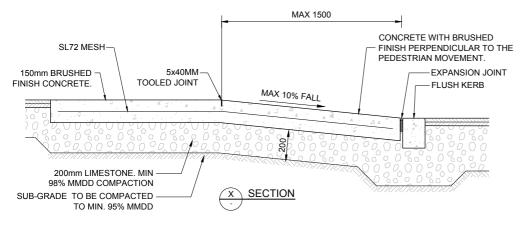


### BRUSHED CONCRETE RESIDENTIAL CROSS-OVER

FOOTPATH AND PAVEMENT DESIGN

302.05
REVIEWED: 07.05.2024







### GENERAL NOTES:

- 1. 150MM THICK CONCRETE TO ACHIEVE A MINIMUM CHARACTERISTIC COMPRESSIVE STRENGTH OF 32 MPa AT 28 DAYS. A MINIMUM NOMINAL AGGREGATE OF 14MM AND SLUMP OF 80MM MAX. SLIP RESISTANCE TO COMPLY WITH AS4586 & AS3661. BRUSH FINISH PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN FLOW.
- ALL TRANSVERSE EXPANSION JOINTS SHALL BE "ALL-IN ONE LOCK" & EXPANSION JOINT OR EQUIVALENT AT MAX SPACING OF 6M.
- 3. ALL LONGITUDINAL
  EXPANSION JOINTS SHALL BE
  75MM X 10MM 'ABELFLEX',
  BUTYL MASTIC SEALANT
  (COLOUR: GREY) TO BE USED
  ON EXPANSION JOINTS OR
  SIMILAR APPROVED WITH
  'PAVELOCK' SAND OR SIMILAR
  APPROVED.

### FOOTPATH GRADIENT DESIGN

FOOTPATH AND PAVEMENT DESIGN

303.00 REVIEWED: 07.05.2024

#### GUIDELINES FOR THE GRADIENT DESIGN OF FOOTPATHS IN URBAN AREAS

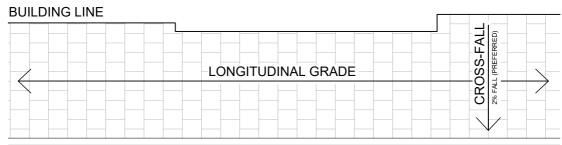
In Urban Areas, A Footpath is Defined as a Paved Pedestrian & Cyclist Area Between the Edge of Road and the Property Boundary.

#### LONGITUDINAL GRADIENT

THE longitudinal grade is the percentage of slope running parallel with the direction of the road. The longitudinal grade of a foothpath is restrained along one edge to match the longitudinal grade of the road and kerb. To avoid large swings in the cross-fall of the footpath, the level of building entrances must be considered. Best practice ensures that the level of pavement and entrances along the building and property line match the longitudinal grade of the road. When building a long distance pedestrian facility it should be considered as a walkway in accordance with AS 1428.1.

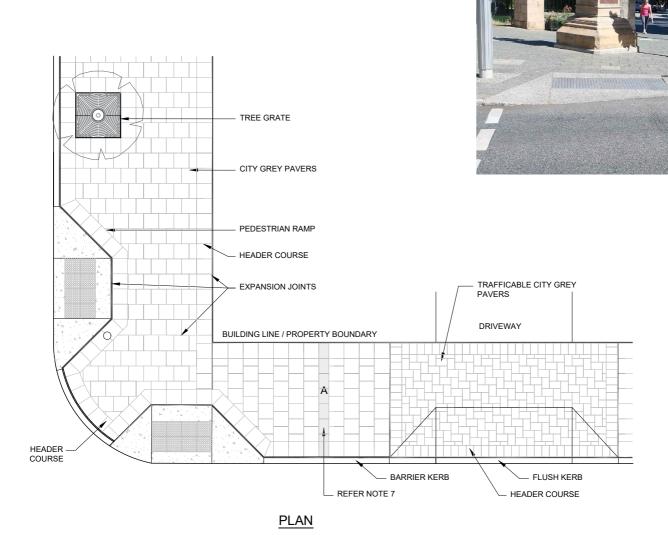
#### CROSS-FALL GRADIENT

The cross-fall grade is the percentage of slope in the direction perpendicular to the road. It is best practice to have the cross-fall so that water flows away from building and property lines and towards the road. If this is unachievable the footpath requires to be designed so that drainage flows away from the building line. to allow sufficient drainage footpaths should have minimum grade of 1:100 (1% fall). To allow accessibility the footpaths should have a maximum grade of 1:40 (2.5% fall). The cross-fall grade of a footpath may vary along the length of the road. This variance should be minimised.



**KERB LINE** 

303.01 REVIEWED: 07.05.2024



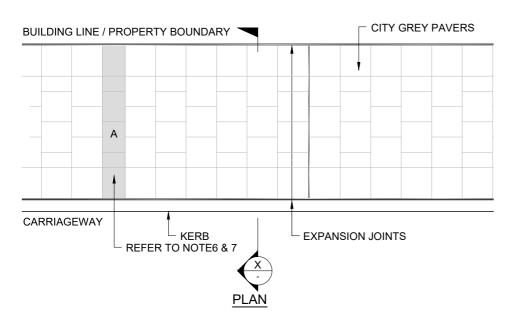
### GENERAL NOTES:

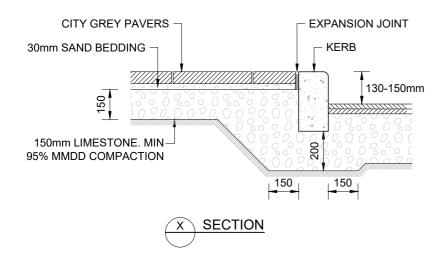
- 1. CITY GREY PAVERS:
  - 400X400X60MM, USED FOR FOOTPATHS AND PEDESTRIAN AREAS.
  - 300X200X70MM, USED FOR CROSS-OVERS AND TRAFFICABLE AREAS.
    LEAVE JOINTS OF 3-4MM BETWEEN THE PAVERS AND FILL WITH 'PAVELOCK' SAND OR SIMILAR APPROVED.
- 3. PROVIDE EXPANSION JOINTS AT THE BACK OF KERBS AND AT EVERY 6 METRES.
- 4. ALL EXPANSION JOINTS SHALL BE 75MM X 10MM 'ABELFLEX' OR SIMILAR APPROVED, BUTYL MASTIC SEALANT (COLOUR: GREY) TO BE USED ON EXPANSION JOINT.
- 5. CONCRETE PAVERS SHOULD BE A MINIMUM OF 28 DAYS OLD, PRIOR TO LAYING.
- 6. 150MM MINIMUM OF COMPACTED LIMESTONE, WATERBOUND AND PLACED ON A COMPACTED SUB-GRADE, SHOULD BE PROVIDED AS BASE TO ALL FOOTPATHS.
- 7. THE FIRST TWO ROWS OF PAVING ALONG SETOUT POINTS OR OTHER OBSTACLES (EXPANSION JOINTS, FURNITURE, ETC.) MUST MAINTAIN THEIR FULL WIDTH, 400MM. TO AVOID THIN CUTS ALONG SETOUT POINTS OR OBSTACLES THE CENTRAL ROW OF PAVING 'A' MAY BE CUT THINNER. MINIMUM WIDTH OF CUT PAVERS TO BE 300MM.
- ON STREET WITH CURVE, PAVING TO BE ALIGNED WITH PREDOMINANT GEOMETRY OF ROAD, ALIGNMENT TO TRANSITION AT INTERSECTION OF DRIVEWAYS.
- 9. ALL TACTILE GROUND SURFACE INDICATORS (PAVERS) SHALL COMPLY WITH AS1428.4.1 2009 CLAUSE 2.2 & 2.3.



## TYPICAL FOOTPATH PAVING - CITY GREY PAVERS

FOOTPATH AND PAVEMENT DESIGN







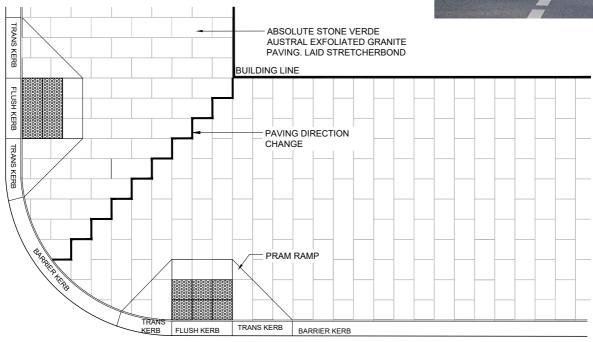
#### **GENERAL NOTES:**

- CITY GREY PAVERS ARE: 400X400X60MM, USED FOR FOOTPATHS AND PEDESTRIAN AREAS. 300X200X70MM, USED FOR CROSS-OVERS
- AND TRAFFICABLE AREAS.
  LEAVE JOINTS OF 3-4MM BETWEEN THE PAVERS AND FILL WITH 'PAVELOCK' SAND OR SIMILAR APPROVED.
- PROVIDE EXPANSION JOINTS AT THE BACK OF KERBS AND AT EVERY 6M.
- ALL EXPANSION JOINTS SHALL BE 75MM x10MM 'ABELFLEX' OR SIMILAR APPROVED, BUTYL MASTIC SEALANT (COLOUR: GREY)TO BE USED ON EXPANSION JOINTS.
- CONCRETE PAVERS SHOULD BE A MINIMUM OF 28 DAYS OLD, PRIOR TO LAYING. 150MM MINIMUM OF COMPACTED
- LIMESTONE, WATERBOUND AND PLACED ON A COMPACTED SUB-GRADE, SHOULD BE PROVIDED AS BASE TO ALL FOOTPATHS
- THE FIRST TWO ROWS OF PAVING ALONG SETOUT POINTS OR OTHER OBSTACLES (EXPANSION JOINTS, FURNITURE, ETC.) MUST MAINTAIN THEIR FULL WIDTH, 400MM. TO AVOID THIN CUTS ALONG SETOUT POINTS OR OBSTACLES THE CENTRAL ROW OF PAVING 'A' MAY BE CUT THINNER MINIMUM WIDTH OF CUT PAVERS TO BE
- ON STREET WITH CURVE, PAVING TO BE ALIGNED WITH PREDOMINANT GEOMETRY OF ROAD, ALIGNMENT TO TRANSITION AT INTERSECTION OF DRIVEWAYS.

## TYPICAL FOOTPATH PAVING - GRANITE PAVERS

FOOTPATH AND PAVEMENT DESIGN





<u>PLAN</u>

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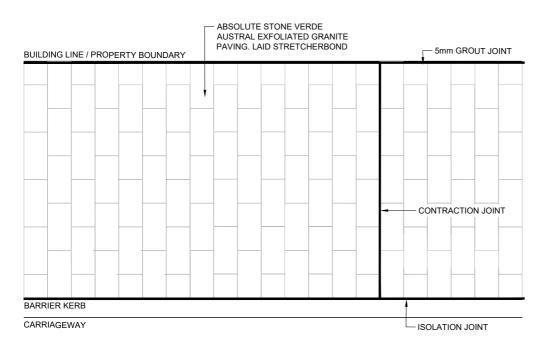


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## TYPICAL FOOTPATH PAVING - GRANITE PAVERS

FOOTPATH AND PAVEMENT DESIGN

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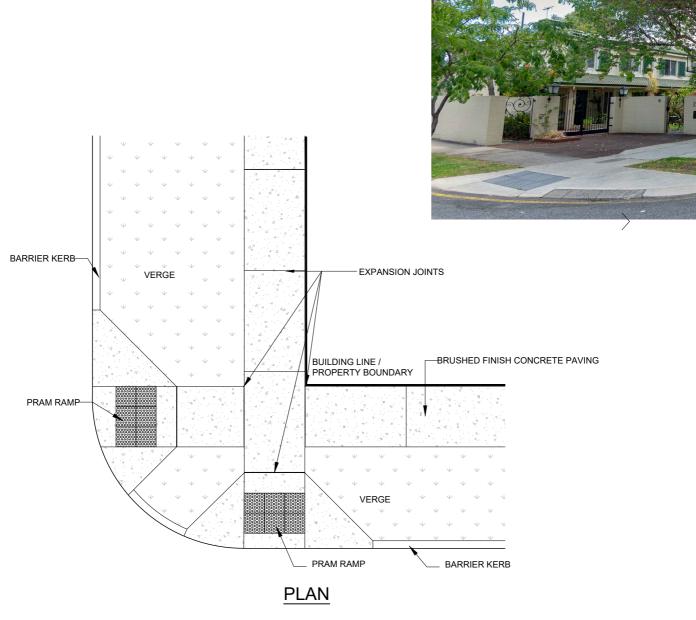
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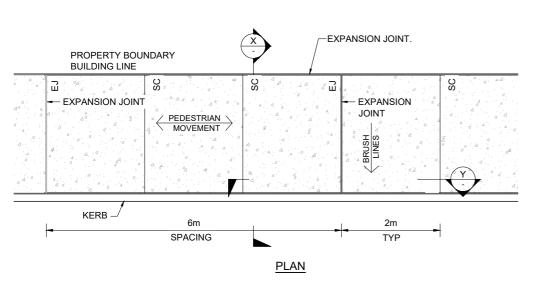


- CONCRETE PAVING 100MM THICK FOR PEDESTRIAN FOOTPATH WITH BRUSHED FINISH
- AT SIGNALISED INTERSECTIONS PRAM RAMP POSITION TO CONFORM WITH AUSTRALIAN STANDARDS 1428.1 (2009).
- TACTILES TO BE LAID THE WIDTH OF THE RAMP AND 800MM DEEP FOR PEDESTRIAN RAMPS.
- TACTILES TO BE LAID MINIMUM 300MM FROM EDGE OF ROAD.
  ALL TACTILE GROUND SURFACE INDICATORS (PAVERS) SHALL COMPLY WITH AS1428.4.1 2009 CLAUSE 2.2 & 2.3.
- RAMPS ARE TO MATCH THE SURROUNDING IN COLOUR AND TEXTURE. CONCRETE MIX 32MPA. MIX NEEDS TO BE WASHED TO PRODUCE A WASHED AGGREGATE FINISH.
- ALL TRANSVERSE EXPANSION JOINTS SHALL BE "ALL-IN ONE LOCK" & EXPANSION JOINT OR EQUIVALENT AT MAX SPACING OF 6M.
  ALL LONGITUDINAL EXPANSION JOINTS SHALL BE 75MM X 10MM 'ABELFLEX', BUTYL MASTIC SEALANT (COLOUR: GREY)TO BE USED ON
- EXPANSION JOINTS WITH 'PAVELOCK' SAND OR SIMILAR APPROVED.

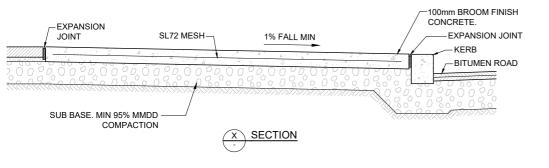
### TYPICAL FOOTPATH PAVING - BRUSHED CONCRETE PAVING

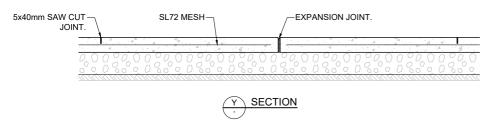
FOOTPATH AND PAVEMENT DESIGN

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#### PLAN







#### GENERAL NOTES:

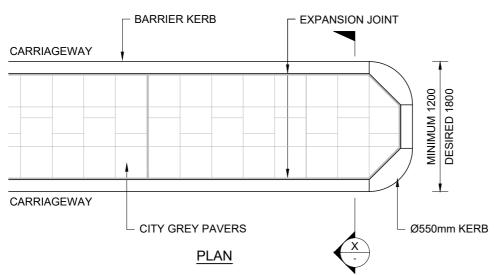
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   2. SAW CUT JOINTS 5X40MM SAW CUTS FILL
- SAW CUT JOINTS 5X40MM SAW CUTS FILL WITH APPROVED SEALANT TO MATCH SURROUND COLOUR.
- ALL TRANSVERSE EXPANSION JOINTS SHALL BE "ALL-IN ONE LOCK" & EXPANSION JOINT OR EQUIVALENT AT MAX SPACING OF 6M.
- 4. ALL LONGITUDINAL EXPANSION JOINTS SHALL BE 75MM X 10MM 'ABELFLEX', BUTYL MASTIC SEALANT TO BE USED ON EXPANSION JOINTS. CITY SHOULD SPECIFY A COLOUR MATCH, WITH 'PAVELOCK' SAND OR SIMILAR APPROVED.

A4



FOOTPATH AND PAVEMENT DESIGN

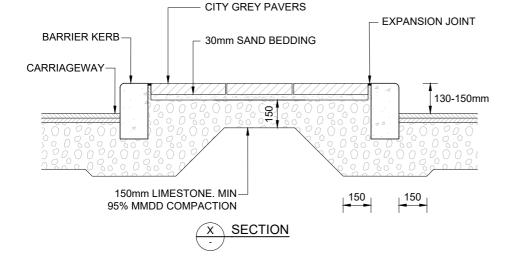
REVIEWED: 07.05.2024





#### GENERAL NOTES:

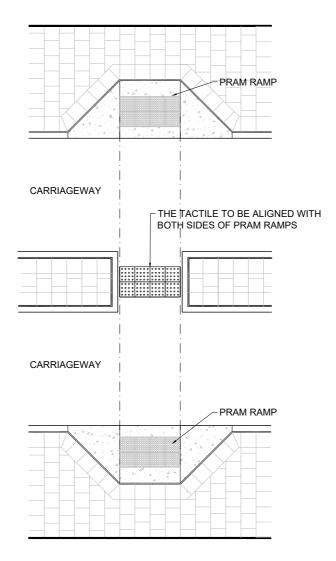
- THE CITY GREY PAVING USED IN MEDIANS AND CROSS-OVERS ETC IS SUPPLIED BY URBANSTONE ARE: 400X400X60MM
- LEAVE JOINTS OF 3-4MM BETWEEN THE SLABS AND FILL WITH 'PAVELOCK' SAND OR SIMILAR APPROVED.
- PROVIDE EXPANSION JOINTS AT THE BACK OF KERBS AND AT EVERY 6 METRES.
- ALL EXPANSION JOINTS SHALL BE 75MM X 10MM 'ABELFLEX', BUTYL MASTIC SEALANT TO BE USED ON EXPANSION JOINTS, CITY SHOULD SPECIFY A COLOUR MATCH OR SIMILAR APPROVED.
- CONCRETE PAVERS SHOULD BE A MINIMUM OF 28 DAYS OLD, PRIOR TO LAYING.
- 6. 150MM MINIMUM OF COMPACTED LIMESTONE, WATERBOUND AND PLACED ON A COMPACTED SUB-GRADE, SHOULD BE PROVIDED AS BASE TO ALL FOOTPATHS.
- REFER BOOK 400 FOR BARRIER KERB DETAILS.





### STANDARD MEDIAN TACTILE LAYOUT

FOOTPATH AND PAVEMENT DESIGN



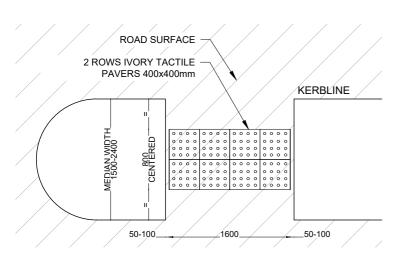


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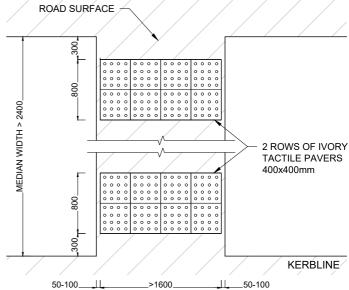
- AT SIGNALISED INTERSECTIONS, TACTILE INDICATORS SHOULD NOT BE PLACED AT PEDESTRIAN REFUGES OR MEDIAN ISLANDS UNLESS A PEDESTRIAN PUSH BUTTON HAS BEEN PROVIDED OR THERE IS A SIGNIFICANT CHANGE IN THE DIRECTION OF PEDESTRIAN TRAVEL
- TACTILES TO BE LAID THE WIDTH OF THE RAMP AND 800MM DEEP FOR PEDESTRIAN RAMPS
- TACTILES TO BE LAID MINIMUM 300MM FROM EDGE OF ROAD.
  ALL TACTILE GROUND SURFACE
- INDICATORS (PAVERS) SHALL COMPLY WITH AS1428.4.1 2009 CLAUSE 2.2 & 2.3.



400X400X60 TACTILE PAVER - IVORY TACTILE PAVER WITH PENETRABLE BREATHABLE SEALANT (DRYCRETE)



NARROW MEDIAN GAP DETAIL. WIDTH 1500-2400



WIDE MEDIAN GAP DETAIL. WIDTH > 2400

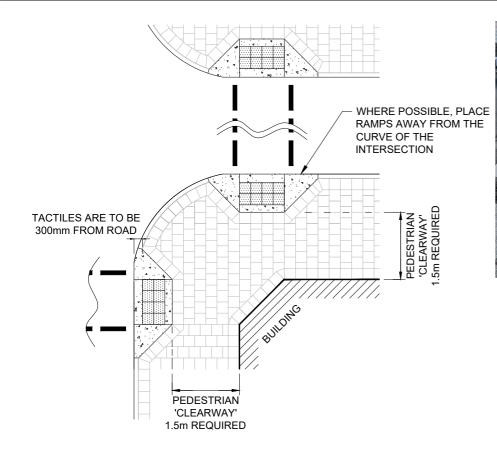


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### PEDESTRIAN RAMP ALIGNMENT

FOOTPATH AND PAVEMENT DESIGN

DRAWING NO

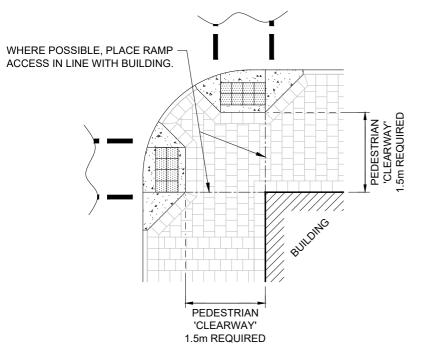




#### **GENERAL NOTES**

- AVOID PLACEMENT OF STREET FURNITURE, SIGNS ETC. IN CLEARWAY NEXT TO THE BUILDING LINE TO PROVIDE A SAFE PATH OF TRAVEL.
- PLACE RAMPS SO THAT THEY FACE EACH OTHER IN THE DIRECTION OF TRAVEL. WHERE RAMPS CANNOT BE ALIGNED
- WITH BUILDING EDGE, RELOCATE AWAY FROM THE CURVE OF THE INTERSECTION

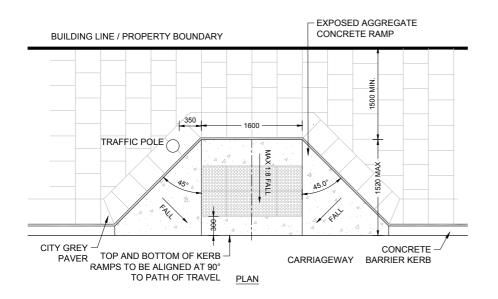
A4

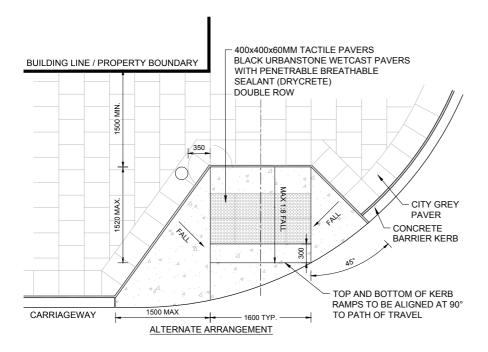


### TYPICAL PEDESTRIAN RAMP - CITY GREY PAVING

FOOTPATH AND PAVEMENT DESIGN

304.01

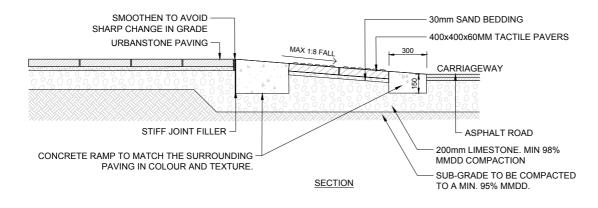






#### **GENERAL NOTES:**

- ALL RAMPS ARE TO CONFORM WITH AS 1428.1. PREFERRED CITY OF PERTH KERB RAMP WIDTH IS 1600MM( MINIMUM WIDTH IS 1000MM).
- 2. THE TRÂNSITION BETWEEN THE FOOTPATH AND THE RAMP SHOULD BE SHARP AND AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL ACROSS THE ROADWAY TO THE OPPOSITE POINT OF ENTRY. ON ANGLED ROADS AND BELLMOUTHS, COMPROMISE IS USUALLY REQUIRED ON THE SET-OUT OF THE KERB RAMP, AS EACH SIDE OF THE RAMP WILL BE OF A DIFFERENT LENGTH CAUSING DIFFERENT GRADES ON EACH SIDE OF THE RAMP.
- AT SIGNALISED INTERSECTIONS PRAM RAMP POSITION TO CONFORM WITH AUSTRALIAN STANDARDS 1428.1 (2009).
- WARNING INDICATORS TO BE LAID AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL ACROSS THE ROADWAY, 800MM DEEP AND 300±10MM FROM THE FACE OF KERB.
- ALL TACTILE GROUND SURFACE INDICATORS (PAVERS) SHALL COMPLY WITH AS1428.4.1 2009 CLAUSE 2.2 & 2.3.
- 6. RAMPS ARE TO MATCH THE SURROUNDING PAVING IN COLOUR AND TEXTURE.
- EXPANSION JOINTS SHALL BE 75MM X 10MM 'ABELFLEX' WITH 'PAVELOCK' SAND OR SIMILAR APPROVED. BUTYL MASTIC SEALANT TO BE USED ON EXPANSION JOINT, CITY SHOULD SPECIFY A COLOUR MATCH.
- 8. KERB RAMP INSERT SHALL HAVE:
  - A MAXIMUM RISE OF 190MM
  - A MAXIMUM LENGTH OF 1520MM
  - A GRADIENT LESS THAN 1:8.

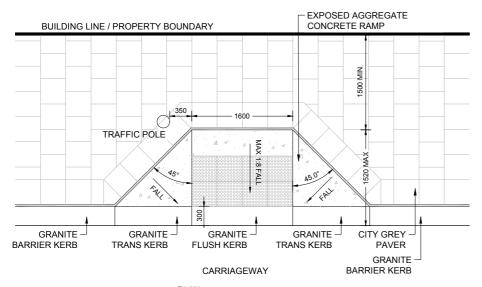


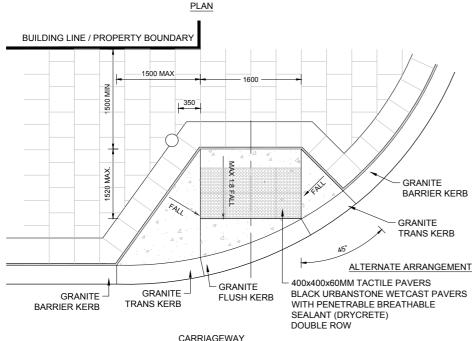


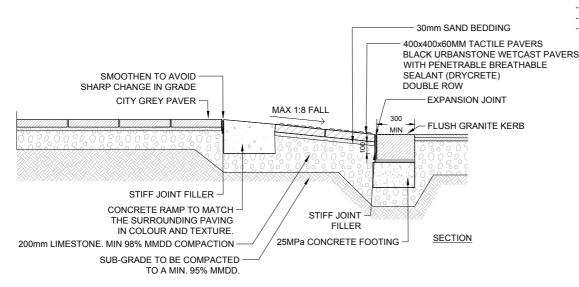
400X400X60 TACTILE PAVER -BLACKURBANSTONE WETCAST PAVER WITH PENETRABLE BREATHABLE SEALANT (DRYCRETE)



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#### **GENERAL NOTES:**

- ALL RAMPS ARE TO CONFORM WITH AS 1428.1. PREFERRED CITY OF PERTH KERB RAMP WIDTH IS 1600MM( MINIMUM WIDTH IS 1000MM).
- THE TRANSITION BETWEEN THE FOOTPATH AND THE RAMP SHOULD BE SHARP AND AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL ACROSS THE ROADWAY TO THE OPPOSITE POINT OF ENTRY. ON ANGLED ROADS AND BELLMOUTHS, COMPROMISE IS USUALLY REQUIRED ON THE SET-OUT OF THE KERB RAMP, AS EACH SIDE OF THE RAMP WILL BE OF A DIFFERENT LENGTH CAUSING DIFFERENT GRADES ON EACH SIDE OF THE RAMP
- AT SIGNALISED INTERSECTIONS PRAM RAMP POSITION TO CONFORM WITH AUSTRALIAN STANDARDS 1428.1 (2009).
- WARNING INDICATORS TO BE LAID AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL ACROSS THE ROADWAY, 800MM DEEP AND 300±10MM FROM THE FACE OF KERB.
- ALL TACTILE GROUND SURFACE INDICATORS (PAVERS) SHALL COMPLY WITH AS1428.4.1 2009 CLAUSE 2.2 & 2.3.
- RAMPS ARE TO MATCH THE SURROUNDING PAVING IN COLOUR AND TEXTURE
- EXPANSION JOINTS SHALL BE 75MM X 10MM 'ABELFLEX' WITH 'PAVELOCK' SAND OR SIMILAR APPROVED. BUTYL MASTIC SEALANT TO BE USED ON EXPANSION JOINT, CITY SHOULD SPECIFY A COLOUR MATCH.
- KERB RAMP INSERT SHALL HAVE:
  - A MAXIMUM RISE OF 190MM
  - A MAXIMUM LENGTH OF 1520MM
  - A GRADIENT LESS THAN 1:8.



400X400X60 TACTILE PAVER -**BLACKURBANSTONE WETCAST** PAVER WITH PENETRABLE **BREATHABLE SEALANT** (DRYCRETE)

A4



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### TYPICAL PEDESTRIAN RAMP - GRANITE

FOOTPATH AND PAVEMENT DESIGN

Σ

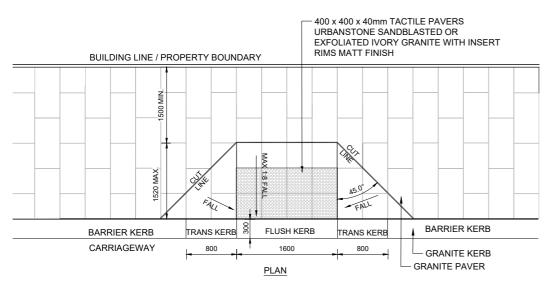
200

**GRANITE** 

BARRIER KERB

GRANITE

TRANS KERB



1:8 FALL

CARRIAGEWAY

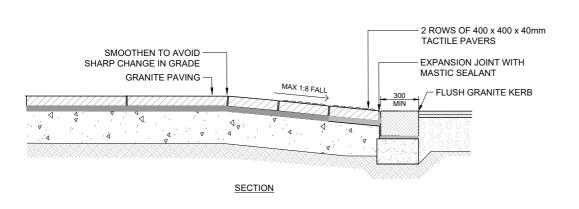
GRANITE

FLUSH KERB



#### **GENERAL NOTES:**

- ALL RAMPS ARE TO CONFORM WITH AS 1428.1. PREFERRED CITY OF PERTH KERB RAMP WIDTH IS 1600MM( MINIMUM WIDTH IS 1000MM)
- THE TRANSITION BETWEEN THE FOOTPATH AND THE RAMP SHOULD BE SHARP AND AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL ACROSS THE ROADWAY TO THE OPPOSITE POINT OF ENTRY. ON ANGLED ROADS AND BELLMOUTHS, COMPROMISE IS USUALLY REQUIRED ON THE SET-OUT OF THE KERB RAMP, AS EACH SIDE OF THE RAMP WILL BE OF A DIFFERENT LENGTH CAUSING DIFFERENT GRADES ON EACH SIDE
- AT SIGNALISED INTERSECTIONS PRAM RAMP POSITION TO CONFORM WITH AUSTRALIAN STANDARDS 1428.1 (2009).
- WARNING INDICATORS TO BE LAID AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL ACROSS THE ROADWAY, 800MM DEEP AND 300±10MM FROM THE FACE OF KERB
- ALL TACTILE GROUND SURFACE INDICATORS (PAVERS) SHALL COMPLY WITH AS1428.4.1 2009 CLAUSE 2.2 & 2.3.
- EXPANSION JOINTS SHALL BE 10MM WIDE NITOSEAL PU400 OR SIMILAR APPROVED. TOP OF THE JOINT FILLER COLOUR SHALL MATCH THE ADJACENT GROUTED JOINTS. KERB RAMP INSERT SHALL HAVE:
- A MAXIMUM RISE OF 190MM
- - A MAXIMUM I ENGTH OF 1520MM
  - A GRADIENT LESS THAN 1:8.





SANDBLASTED OR EXFOLIATED DARK GREY GRANITE WITH INSERT RIMS MATT FINISH IVORY GRANITE 5mm ABOVE BASE TILES REFER TO 304.04 GRANITE TACTILE PAVER FOR TACTILE DETAIL



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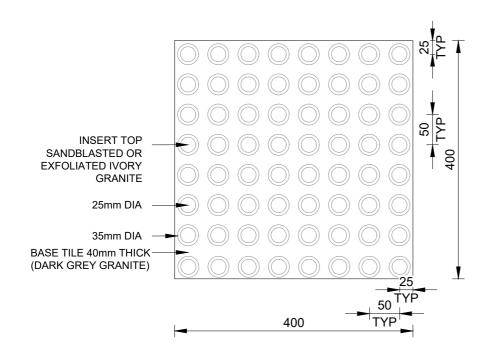
**GRANITE** 

TRANS KERB

GRANITE

**ALTERNATE ARRANGEMENT** 

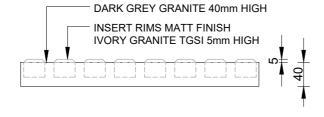
BARRIER KERB





#### **GENERAL NOTES:**

- TACTILE INDICATORS TO BE ARRANGED ON PRE-LAID GRANITE PAVERS TO FIT STANDARD PAVER SIZE AND PAVING PATTERN.
- AMOUNT OF INDIVIDUAL HAZARD TACTILES ON A PAVING UNIT IS NOT RESTRICTED, ALTHOUGH MUST COMPLY TO THE SETOUT FROM EDGE OF PAVER.
- SETOUT TACTILE INDICATORS FROM CORNER OF PAVER SHOWN.
- TACTILE HAZARD INDICATORS TO CONFORM TO R13 SLIP RESISTANCE RATING AND AUSTRALIAN STANDARDS 1428.4 AND 4586. DESIGN FOR ACCESS AND MOBILITY - TACTILE INDICATORS

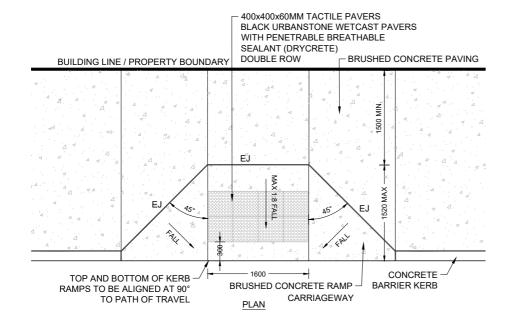


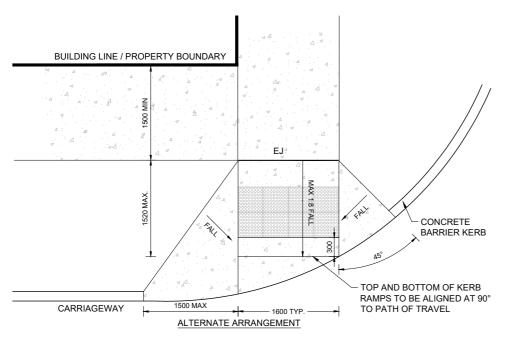


### TYPICAL PEDESTRIAN RAMP - BRUSHED CONCRETE PAVING

FOOTPATH AND PAVEMENT DESIGN

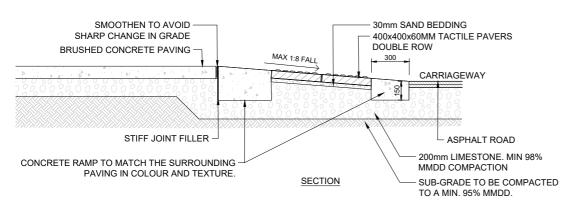
DRAWING NO







- ALL RAMPS ARE TO CONFORM WITH AS 1428.1. PREFERRED CITY OF PERTH KERB RAMP WIDTH IS 1600MM( MINIMUM WIDTH IS 1000MM).
- THE TRANSITION BETWEEN THE FOOTPATH AND THE RAMP SHOULD BE SHARP AND AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL ACROSS THE ROADWAY TO THE OPPOSITE POINT OF ENTRY. ON ANGLED ROADS AND BELLMOUTHS, COMPROMISE IS USUALLY REQUIRED ON THE SET-OUT OF THE KERB RAMP, AS EACH SIDE OF THE RAMP WILL BE OF A DIFFERENT LENGTH CAUSING DIFFERENT GRADES ON EACH SIDE OF THE RAMP.
- AT SIGNALISED INTERSECTIONS PRAM RAMP POSITION TO CONFORM WITH AUSTRALIAN STANDARDS 1428.1 (2009).
- WARNING INDICATORS TO BE LAID AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL ACROSS THE ROADWAY, 800MM DEEP AND 300±10MM FROM THE FACE OF KERB.
- ALL TACTILE GROUND SURFACE INDICATORS (PAVERS) SHALL COMPLY WITH AS1428.4.1
- 2009 CLAUSE 2.2 & 2.3. RAMPS ARE TO MATCH THE SURROUNDING PAVING IN COLOUR AND TEXTURE
- EXPANSION JOINTS SHALL BE 75MM X 10MM 'ABELFLEX' WITH 'PAVELOCK' SAND OR SIMILAR APPROVED. BUTYL MASTIC SEALANT TO BE USED ON EXPANSION JOINT, CITY SHOULD SPECIFY A COLOUR MATCH.
- KERB RAMP INSERT SHALL HAVE:
  - A MAXIMUM RISE OF 190MM
  - A MAXIMUM LENGTH OF 1520MM
  - A GRADIENT LESS THAN 1:8.





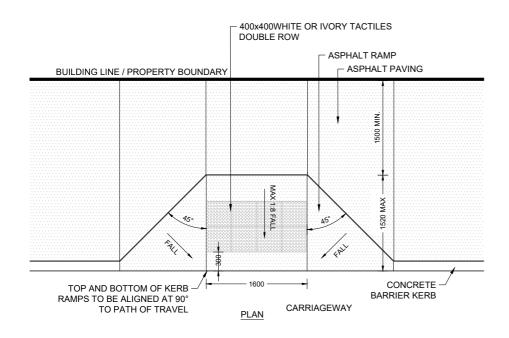
400X400X60 TACTILE PAVER -**BLACKURBANSTONE WETCAST** PAVER WITH PENETRABLE BREATHABLE SEALANT (DRYCRETE)

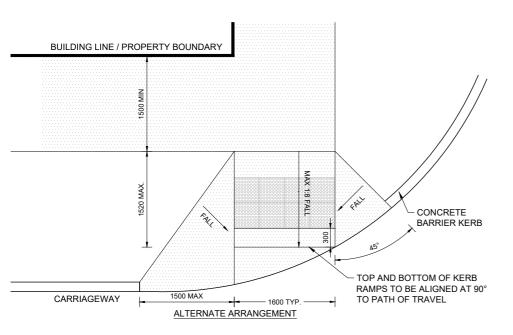


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### TYPICAL PEDESTRIAN RAMP - ASPHALT

FOOTPATH AND PAVEMENT DESIGN

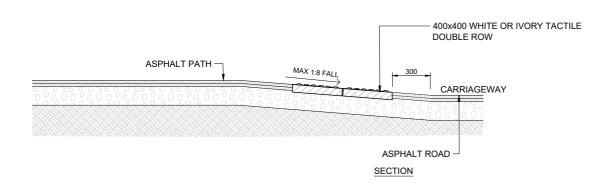






#### **GENERAL NOTES:**

- ALL RAMPS ARE TO CONFORM WITH AS 1428.1. PREFERRED CITY OF PERTH KERB RAMP WIDTH IS 1600MM( MINIMUM WIDTH IS
- THE TRANSITION BETWEEN THE FOOTPATH AND THE RAMP SHOULD BE SHARP AND AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL ACROSS THE ROADWAY TO THE OPPOSITE POINT OF ENTRY. ON ANGLED ROADS AND BELLMOUTHS, COMPROMISE IS USUALLY REQUIRED ON THE SET-OUT OF THE KERB RAMP, AS EACH SIDE OF THE RAMP WILL BE OF A DIFFERENT LENGTH CAUSING DIFFERENT GRADES ON EACH SIDE OF THE RAMP.
- AT SIGNALISED INTERSECTIONS PRAM RAMP POSITION TO CONFORM WITH AUSTRALIAN STANDARDS 1428.1 (2009).
- WARNING INDICATORS TO BE LAID AT RIGHT ANGLES TO THE DIRECTION OF TRAVEL ACROSS THE ROADWAY, 800MM DEEP AND 300±10MM FROM THE FACE OF KERB.
- ALL TACTILE GROUND SURFACE INDICATORS (PAVERS) SHALL COMPLY WITH AS1428.4.1 2009 CLAUSE 2.2 & 2.3
- RAMPS ARE TO MATCH THE SURROUNDING PAVING IN COLOUR AND TEXTURE.
- KERB RAMP INSERT SHALL HAVE:
  - A MAXIMUM RISE OF 190MM
  - A MAXIMUM LENGTH OF 1520MM
  - A GRADIENT LESS THAN 1:8.





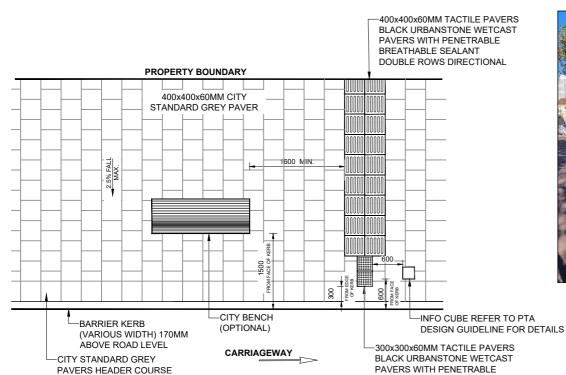
400X400X60 TACTILE PAVER - IVORY TACTILE PAVER WETCAST WITH PENETRABLE BREATHABLE SEALANT (DRYCRETE)



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### **BUS STOP WITH TACTILE INDICATORS**

FOOTPATH AND PAVEMENT DESIGN



PI AN

BOARDING AREA (NO SHELTER)

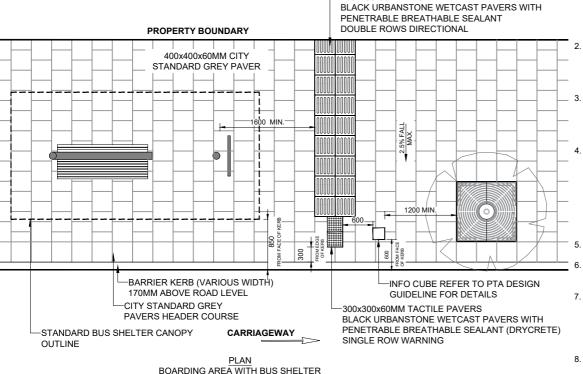


- ALL BUS STOP WORKS ARE TO COMPLY WITH AUSTRALIAN STANDARDS AND RELEVANT DESIGN GUIDELINES:
  - AUSTRALIAN STANDARD AS 1428.2 AND AS 1428.4
  - AUSTRALIAN HUMAN RIGHTS COMMISSION ACCESSIBLE BUS STOPS GUIDELINES (2019)
  - DISABILITY STANDARDS FOR ACCESSIBLE PUBLIC TRANSPORT (2002)
  - PUBLIC TRANSPORT AUTHORITY: BUS STOP DESIGN GUIDELINE (2020)
  - AUSTRALIAN STANDARD AS 4970: PROTECTION OF TREES ON DEVELOPMENT SITES

BUS SHELTERS TO BE MANUFACTURED BY JASON SIGNMAKERS (JSM), BASED UPON THE RELEVANT DRAWING(S). REFER TO SHOP DRAWING(S) FOR SPECIFIC FABRICATION DETAIL

- BUS SHELTERS SHOULD BE LOCATED WHERE THERE IS A NEED FOR SHELTER FROM SUN, RAIN AND/OR WIND, FOR PASSENGERS WAITING FOR OR ALIGHTING FROM BUSES
- BUS SHELTERS SHALL BE POSITIONED: 850MM CLEARANCE IS HAD FROM THE
  - FACE OF KERB TO CANOPY OUTLINE;
  - TO AVOID DAMAGE TO EXISTING SERVICES AND TREE ROOTS;
  - TO AVOID AFFECTING 'LINE OF SIGHT' FOR VEHICLES ENTERING TRAFFIC FROM ADJACENT STREETS AND CROSS-OVERS;
- CITY BENCH SHALL BE PLACED 1500MM FROM THE FACE OF KERB ALL TACTILE GROUND SURFACE
- INDICATORS (PAVERS) SHALL COMPLY WITH AS1428.4.1 2009 CLAUSE 2.2 & 2.3. TACTILE INDICATORS IN CITY GREY PAVED
- FOOTPATHS ARE: 300X300X60MM WARNING TACTILE
  - PAVERS, BLACK URBANSTONE
  - 400X400X60MM DIRECTIONAL TACTILE PAVERS, BLACK URBANSTONE THE KERB HEIGHT AT BUS STOPS SHALL BE
- 170MM. IF THE KERB HEIGHT NEEDS TO INCREASE OR DECREASE TO SUIT THIS CONDITION, THE CHANGE IN HEIGHT MUST TRANSITION OVER A LARGE ENOUGH LENGTH SO THAT THE CHANGE IS NOT OBVIOUS TO PEDESTRIANS 1:40 MAX.
- REFER TO OTHER BOOKS FOR DETAILS: BOOK 100 - STREET LAYOUT AND
  - DESIGN
  - **BOOK 400 STANDARD KERB TYPES** AND INSTALLATION DETAILS
  - BOOK 500 STREET FURNITURE DESIGN AND INSTALLATION DETAILS

A4 |





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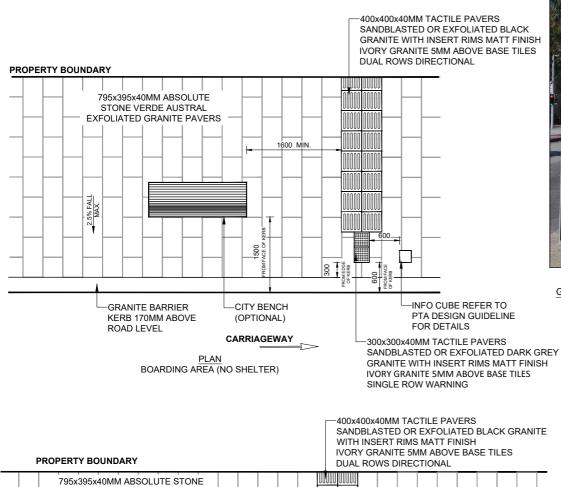
BREATHABLE SEALANT (DRYCRETE)

SINGLE ROW WARNING

400x400x60MM TACTILE PAVERS

### BUS STOP WITH TACTILE INDICATORS

FOOTPATH AND PAVEMENT DESIGN

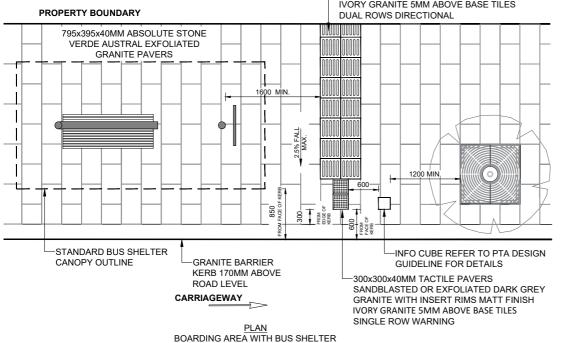




#### **GENERAL NOTES:**

- ALL BUS STOP WORKS ARE TO COMPLY WITH AUSTRALIAN STANDARDS AND RELEVANT DESIGN GUIDELINES:
  - AUSTRALIAN STANDARD AS 1428.2 AND AS 1428.4
  - AUSTRALIAN HUMAN RIGHTS COMMISSION ACCESSIBLE BUS STOPS GUIDELINES (2019)
  - DISABILITY STANDARDS FOR ACCESSIBLE
  - PUBLIC TRANSPORT (2002) PUBLIC TRANSPORT AUTHORITY: BUS STOP
  - DESIGN GUIDELINE (2020) AUSTRALIAN STANDARD AS 4970: PROTECTION OF TREES ON DEVELOPMENT
- BUS SHELTERS TO BE MANUFACTURED BY JASON SIGNMAKERS (JSM), BASED UPON THE RELEVANT DRAWING(S). REFER TO SHOP DRAWING(S) FOR SPECIFIC FABRICATION
- BUS SHELTERS SHOULD BE LOCATED WHERE THERE IS A NEED FOR SHELTER FROM SUN, RAIN AND/OR WIND, FOR PASSENGERS WAITING FOR OR ALIGHTING FROM BUSES
- BUS SHELTERS SHALL BE POSITIONED:
  - 850MM CLEARANCE IS HAD FROM THE FACE OF KERB TO ROOF LINE;
  - TO AVOID DAMAGE TO EXISTING SERVICES AND TREE ROOTS;
  - TO AVOID AFFECTING 'LINE OF SIGHT' FOR VEHICLES ENTERING TRAFFIC FROM ADJACENT STREETS AND CROSS-OVERS;
- CITY BENCH SHALL BE PLACED 1500MM FROM THE FACE OF KERB
- ALL TACTILE GROUND SURFACE INDICATORS (PAVERS) SHALL COMPLY WITH AS1428.4.1 2009 CLAUSE 2.2 & 2.3.
- TACTILE INDICATORS IN GRANITE FOOTPATHS
  - 300X300X40MM WARNING TACTILE PAVERS DARK GREY GRANITE BASE TILE WITH **IVORY GRANITE INSERTS**
  - 400X400X40MM DIRECTIONAL TACTILE PAVERS, DARK GREY GRANITE BASE TILE WITH IVORY GRANITE INSERTS
- THE KERB HEIGHT AT BUS STOPS SHALL BE 170MM. IF THE KERB HEIGHT NEEDS TO INCREASE OR DECREASE TO SUIT THIS CONDITION, THE CHANGE IN HEIGHT MUST TRANSITION OVER A LARGE ENOUGH LENGTH SO THAT THE CHANGE IS NOT OBVIOUS TO PEDESTRIANS 1:40 MAX.
- REFER TO OTHER BOOKS FOR DETAILS
  - BOOK 100 STREET LAYOUT AND DESIGN BOOK 400 STANDARD KERB TYPES AND
  - **INSTALLATION DETAILS**
  - BOOK 500 STREET FURNITURE DESIGN AND INSTALLATION DETAILS

A4 |



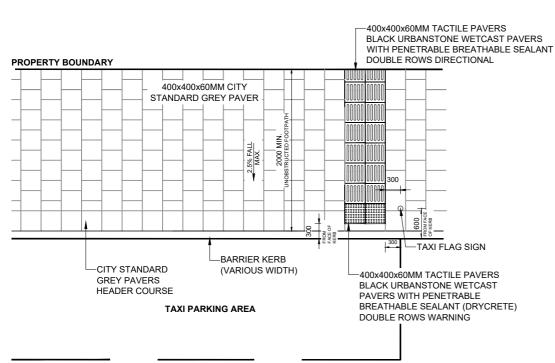


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### TAXI RANK WITH TACTILE INDICATORS

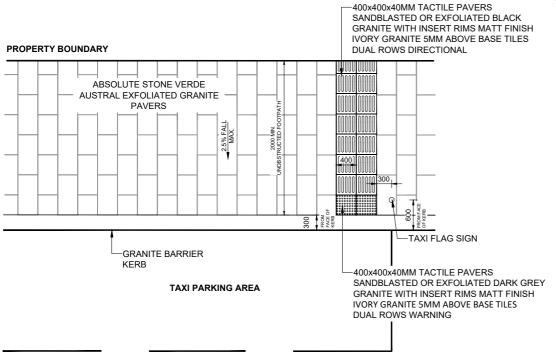
FOOTPATH AND PAVEMENT DESIGN

305.02



TAXI RANK INFRASTRUCTURE - CITY STANDARD GREY PAVER

TAXI RANK INFRASTRUCTURE - GRANITE PAVING



#### **GENERAL NOTES:**

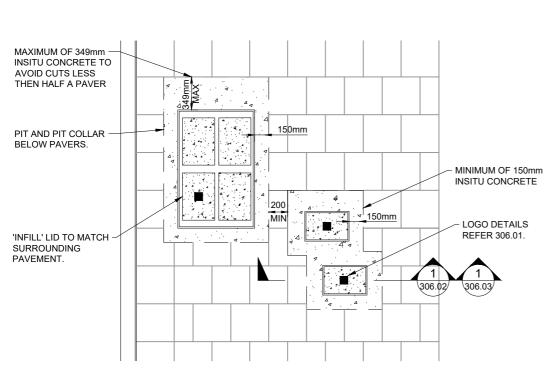
- ALL TACTILE GROUND SURFACE INDICATORS (PAVERS) SHALL COMPLY WITH AS1428.4.1 2009 CLAUSE 2.2 & 2.3.
- TACTILE INDICATORS TO BE INSTALLED TO EXISTING TAXI RANK AREA, 300MM FROM WARNING TACTILE PAVERS TO THE FACE OF KERB.
- REFER TO CITY OF PERTH TAXI RANK DESIGN GUIDE FOR SIGNAGE DETAILS.
- LINEMARKING DETAILS REFER TO CITY OF PERTH TAXI RANK DESIGN GUIDE.
   REFER TO CITY OF PERTH DESIGN AND
- REFER TO CITY OF PERTH DESIGN AND CONSTRUCTION NOTES BOOK 400 FOR KERB DETAIL.
- REFER TO CITY OF PERTH DESIGN AND CONSTRUCTION NOTES BOOK 500 FOR STREET FURNITURE DETAIL.

CITY OF PERTH

### SERVICE PIT COVERS IN CITY GREY PAVING

FOOTPATH AND PAVEMENT DESIGN

306.00 REVIEWED: 07.05.2024





### GENERAL NOTES

UPON REQUEST, THE CITY OF PERTH WILL CONSIDER PERMITTING SERVICE COVERS INSTALLED AT PAVEMENT LEVEL. SHOULD PERMISSION BE GRANTED, THE FOLLOWING 'BEST PRACTICE' DESIGN AND CONSTRUCTION STANDARDS SHALL APPLY:

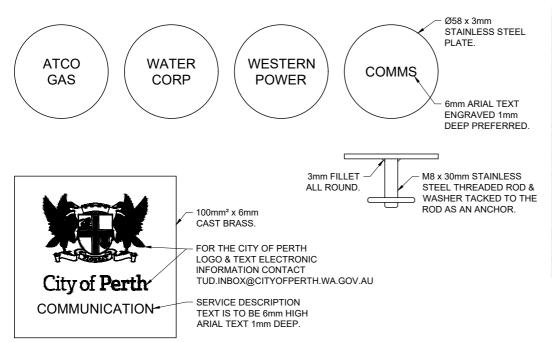
- LIDS SHALL BE A 'TRAY' DESIGN IN CAST METAL OR FABRICATED STEEL WITH IN-SITU CONCRETE MATCHING IN COLOUR AND TEXTURE AND WITH A MINIMUM STRENGTH
  OF 25MPA. TO MATCH THE CITY GREY PAVING THE CONCRETE MIX IS: ORANGE GROVE FROM BORAL. MIX NEEDS TO BE WASHED TO PRODUCE A WASHED AGGREGATE
  FINISH.
- 2. SNAP LOCATION OF PIT LID & FRAME TO THE GRID CREATED BY 400X400X60MM PAVERS WHERE POSSIBLE.
- 3. PAVING AROUND THE COVER SHOULD BE NO LESS THAN  $\frac{1}{2}$  A STANDARD PAVING UNIT CUT ADJACENT PAVER TO ACCOMMODATE IF REQUIRED.
- 4. ALL PITS & LIDS SHALL CONFORM TO AS 3996-2019. CLASŚ C LIDS WOULD BE THE PREFERRED MINIMUM FOR TYPICAL SERVICE COVERS IN THE FOOTPATH. CLASS D WOULD BE REQUIRED FOR HEAVIER VEHICLE LOADING REQUIREMENTS.
- 5. INSITU CONCRETE COLLAR AND INFILL MATERIAL IN LID ARE TO MATCH SURROUNDING PAVING IN COLOUR AND TEXTURE
- INSITU CONCRETE COLLAR TO ACHIEVE A MINIMUM CHARACTERISTIC COMPRESSIVE STRENGTH OF 25MPa AT 28 DAYS. A MINIMUM NOMINAL AGGREGATE OF 14MM AND SLUMP OF 80MM MAX. SLIP RESISTANCE TO COMPLY WITH AS4586 & AS3661.
- 7. TRAFFIC LOAD TO INCLUDE STREET SWEEPERS & GARBAGE TRUCKS
- 8. EXCEPTIONS HAVE BEEN MADE FOR EXISTING SERVICE PITS & LIDS MAINTENANCE ON D&C NOTE 306.03 ANY FURTHER INQUIRIES REFER TO THE CITY OF PERTH REPRESENTATIVE AT STREET PRESENTATION & MAINTENANCE TUD.INBOX@CITYOFPERTH.WA.GOV.AU



### SERVICE PIT COVERS IN CITY GREY PAVING

FOOTPATH AND PAVEMENT DESIGN

306.01 REVIEWED: 07.05.2024



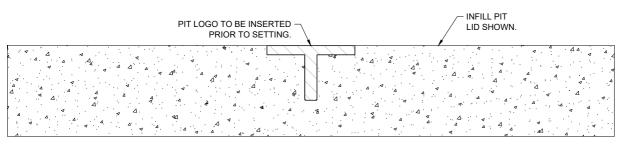
GENERAL NOTES:

 ANY FURTHER INFORMATION CAN BE OBTAINED FROM THE TRANSPORT AND URBAN DESIGN AT: TUD.INBOX@CITYOFPERTH.WA.GOV.AU

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#### CITY OF PERTH 6mm CAST BRASS LOGO.

NOTE: LOGO INSERTS SUPPLIED BY CITY OF PERTH OR ALTERNATIVE SUPPLIER.
ADHESIVE FOR INSERTS: SIKA FLEX 252, OR EQUIVALENT.
SURFACE TO BE PREPARED WITH SIKA CLEANER 205 & SIKA PRIMER 210T OR EQUIVALENT.



PIT LOGO IS TO BE INSTALLED INTO THE WET IN-SITU CONCRETE IN THE INFILL PIT LID.

**DETAIL** 

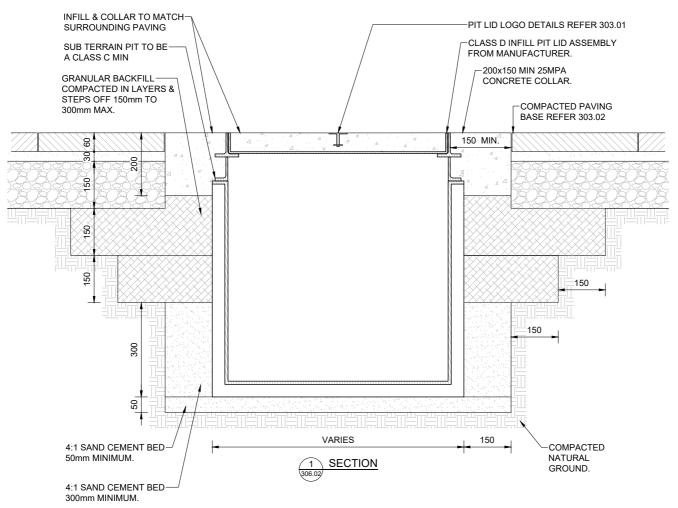


### SERVICE PIT COVERS IN CITY GREY PAVING

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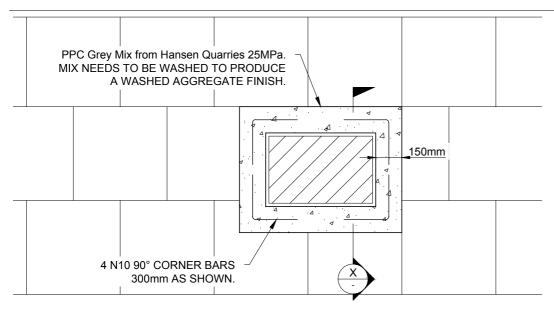






# REINSTATEMENT/MAINTENANCE SERVICE PIT COVERS IN CITY GREY PAVING FOOTPATH AND PAVEMENT DESIGN

306.03





### **PLAN**

#### GENERAL NOTES:

- WHERE EXISTING ALIGNMENT DOES NOT ALLOW FOR THE INSTALLATION OF PAVING UP TO PIT AS PER 306.00 INSITU CONCRETE CAN ONLY BE USED AS SHOWN ABOVE WITH APPROVAL FROM A CITY OF PERTH REPRESENTATIVE
   ANY FURTHER INFORMATION CAN BE
- 2. ANY FURTHER INFORMATION CAN BE OBTAINED FROM THE TRANSPORT AND URBAN DESIGN AT: TUD.INBOX@CITYOFPERTH.WA.GOV.AU

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