# Roads

## Master Specification

## RD-PV-C5 Construction of Minor Pavements

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DEPARTMENT OF PLANNING, TRANSPORT AND INFRASTRUCTURE

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# Document Amendment Record

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| 1 | Initial issue (formerly R84) | 28/6/19 | |
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# Document Management

# Contents

# RD-PV-C5 Construction of Minor Pavements General

## 1 General

1.1 This Part specifies the requirements for the construction of footpaths, verges, property driveways, egress and parking bays, median and traffic island infill and block paving ("Minor Pavements").

1.2 Refer to RD-PV-C4 "Construction of Shared Paths" for the requirements for paths used for both cycling and pedestrians ("Shared Paths").

1.3 Documents referenced in this Part are listed below:

a) Austroads AGPT04B-14 "Guide to Pavement Technology Part 4B: Asphalt".

b) AS 2150 Hot mix asphalt - A guide to good practice.

## 2 Finished Surface

2.1 If a design Cross-section Report and Geometric Details are included in the Contract, the levels specified therein take precedence over any sketches.

2.2 The finished surface of the Secondary Pavement shall:

a) not vary more than 10 mm over a 3 m straight edge;

b) where a design finished level is specified, be constructed within:

i) ± 10 mm for concrete and block paving; or

ii) ± 20 mm for other surfaces.

c) drain to the top of any adjoining kerb;

d) be free draining so that water does not pond on the surface;

e) be free of irregularities that could present tripping hazards to users; and

f) smoothly abut any existing driveways and footpaths adjoining the new surface.

## 3 Compaction

3.1 Rubble, Sand and Bitumen Treated Sand pavement layers (including Base and Subbase) shall be compacted at Optimum Moisture Content (OMC) and comply with Table RD-PV-C5 3-1.

**Table RD-PV-C5 3-1 Compaction Requirements**

| Plant | Minimum Number of Passes Thickness 50 – 120 mm | Thickness > 120 mm |
|---|---|---|
| Small Vibration Plate (approx. mass 90 kg - Wacker VPA 90 or equiv.) | 6 | 8 |
| Large Vibration Plate (approx. mass 300 kg - Wacker BPU 3345 or equiv.) | 3 | 4 |
| Small Twin Drum Footpath Roller Minimum 1 t (e.g. Ingersoll Rand DD12) | 2 | 3 |
| 3 tonne vibrating roller class VR10 (e.g. Ingersoll RandDD22) | 2 | 3 |

Note: The Small Vibration Plate may only be used in areas inaccessible to larger plant.

## 4 Rubble Surface

4.1 Rubble Secondary Pavements shall comply with Table RD-PV-C5 4-1.

**Table RD-PV-C5 4-1 Rubble Surfaces**

| | Footpaths | Driveways |
|---|---|---|
| Material | PM2/20 or PM3/20 | PM2/20 |
| Minimum Thickness (mm) | 125 | 150 |

# 5 Bitumen Threated Surfaces

5.1 Bitumen Treated Secondary Pavements shall comply with Table RD-PV-C5 5-1.

**Table RD-PV-C5 5-1 Bitumen Treated Surfaces**

| | Footpaths | Median and Traffic Island Infill |
|---|---|---|
| **Surface Layer:** | | |
| Material | Sa-C Type C Sand, with the addition of 3% bitumen (i.e. Sa-C B3) | Sa-C Type C Sand with the addition of 3% bitumen (i.e. Sa-C B3) |
| Thickness (mm) min | 100 | 50 |
| **Subbase:** | | |
| Material | Not required | Cold Planed Asphalt or PM3/20, Class 3 Pavement Material |
| Minimum thickness (mm) | - | 90 mm |

5.2 If cold planed asphalt is used, it shall be shaped and compacted to produce a tight dense surface.

# 6 Asphalt

6.1 Asphalt Secondary Pavements shall:

a) have been designed in accordance with the requirements of Austroads AGPT04B-14;

b) comply with AS2150; and

c) comply with Table RD-PV-C5 6-1.

**Table RD-PV-C5 6-1 Asphalt Minor Pavements**

| | Footpaths | Residential / Light Duty Driveways | Heavy Duty Driveways |
|---|---|---|---|
| **SURFACE COURSE** | | | |
| Material | AC7 (C170) | AC7 (C170) | AC10M (C320) |
| Thickness (mm) min | 25 | 30 | 35 |
| **BASE** | | | |
| Material | PM2/20 or PM3/20 | PM2/20 to 96% | PM2/20 to 96% |
| Thickness (mm) min | 100 | 150 | 125 |
| **SUBBASE** | | | |
| Material | Not required | Not required | PM2/20 to 95% |
| Thickness (mm) min | - | - | 150 |
| Total Minimum Thickness (mm) | 125 | 180 | 305 |

6.2 Subgrade shall be trimmed and compacted with at least 1 pass of the compaction plant.

6.3 Base and Subbase shall also comply with Clause 3.

6.4 Asphalt compaction shall be carried out using a minimum 2 passes of a steel double drum, vibrating footpath roller.

6.5 The surface of the finished asphalt shall be free of segregated or "bony" areas, soft and "fatty" areas, ravelling and loose material, surface cracking, shoving and ruts.

# 7 Concrete

7.1 Concrete Secondary Pavements comply with Table RD-PV-C5 7-1.

**Table RD-PV-C5 7-1 Concrete Minor Pavements**

| | Footpaths | Footpaths with significant cycle usages | Light Duty Driveways | Heavy Duty Driveways |
|---|---|---|---|---|
| Minimum concrete thickness (mm) | 75 | 100 | 125 | 180 |
| Minimum concrete Class | 25 | 25 | 25 | 32 |
| Reinforcing | - | SL62 | SL72 | SL82 |
| Subbase Minimum Thickness (mm) | 50 | 75 | 100 | 100 |
| Spacing of shrinkage grooves (contraction joints) (m) | 1.2 | 4 | 3-4 | 3-4 |

7.2 Concrete Secondary Pavements shall be constructed on a Subbase of PM2/20 or PM3/20.

7.3 The Concrete shall comply with:

a) ST-SC-S1 "Normal Class Concrete"; or

b) ST-SC-S2 "Geopolymer Concrete".

7.4 Reinforcing shall be placed centrally and on spacers.

7.5 All shrinkage grooves and edges shall be tool finished.

7.6 The surface shall be finished to a non-slip texture and be protected from damage for the first 2 days.

7.7 For un-reinforced footpaths the length to width ratio of the distance between the shrinkage grooves shall not exceed 1.3: 1. Expansion joints 12 mm wide and full depth of the concrete shall be provided at not more than 6 m intervals and filled with bitumen or other flexible material.

7.8 For reinforced footpaths with cycle usage, 3 mm contraction joints shall be sawn to 25 mm depth during initial set.

# 8 Block Paving

8.1 Block Paved Secondary Pavements shall comply with Table RD-PV-C5 8-1.

**Table RD-PV-C5 8-1 Block Paving Minor Pavements**

| | Footpaths | Residential / Light Duty Driveways | Heavy Duty Driveways |
|---|---|---|---|
| **PAVERS** | | | |
| Type and Minimum | Concrete | Segmented Type A interlocking concrete | Segmented Type A interlocking concrete |
| Thickness (mm) | 60 | 60 | 80 |
| **BEDDING** | | | |
| Material | Sa-C Type C Sand | Sa-C Type C Sand | Sa-C Type C Sand |
| Thickness (mm) | 25 | 25 | 25 |
| **BASE** | | | |
| Material | PM2/20 or PM3/20 | PM2/20 to 95% | PM2/20 to 95% |
| Thickness (mm) | 50 | 100 | 150 |

8.2 Base and Subbase shall also comply with Clause 3 “Compaction”.

## Materials

8.3 Jointing sand shall pass a 1.18 mm sieve; a maximum of 10% by mass passing a 75 micron sieve. Bedding and jointing sand shall be free of soluble salts or contaminants likely to cause efflorescence or staining.

8.4 If the Contractor proposes to use a paver other than that specified, a sample of paver shall be supplied and approval obtained 4 weeks prior to placement of the pavers.

8.5 Submission of the sample shall constitute a **Hold Point**.

## Laying Paving Units

8.6 Paving units shall be placed on the uncompacted screeded sand bed to the laying pattern shown on the Drawings.

8.7 Paving units shall be placed to achieve gaps nominally 2 mm to 4 mm wide between adjacent units such that all joints are correctly aligned.

8.8 Except where it is necessary to correct any minor variations occurring in the laying bond, the paving units shall not be hammered into position. Where adjustment of position is necessary care shall be taken to avoid premature compaction of the sand bedding.

8.9 All unsupported edges shall have a concealed reinforced concrete edging. Cement mortar for concealed edging shall comprising three parts Sa-C Type C Sand and one part cement.

8.10 Footpaths shall have one row of header bricks along each edge. Where shown on the drawings, medians and traffic islands shall have one row of header bricks around the perimeter. Tree openings, where shown on the drawings, shall have one row of header bricks around the perimeter of the opening.

## Block Paving Around Service Inspection Pits, etc.

8.11 Where an existing service inspection pit is greater than 10 mm above or below the proposed footpath level, the Contractor shall adjust the service inspection pit so that it is flush with the new footpath levels and comply with any requirement of the Service Authority for adjusting the pit.

8.12 The level of block paving placed around small square steel service inspection pits and steel stormwater channels shall match the pits or channel. The edge of the paving shall not be greater than 4 mm from the pit or channel, either vertically or horizontally. The Contractor shall make allowance to cut, if necessary, the paving units around these pits or channels.

8.13 Unless otherwise shown on the drawings, concrete infill shall be placed around service inspection pits (other than those referred to in Clause 8.10), survey marks, poles and street furniture within the paved area as shown in Appendix 1: Concrete Service Inspection Pit Surrounds.

8.14 Concrete infill shall be Grade 25 (or a 1:2:3 mix of cement, sand and 10 mm aggregate) and shall be placed to a minimum depth of 75 mm. The concrete shall be coloured to match the surrounding block paving.

## Block Paving Abutting Boundary Structures and Kerb

8.15 Block paving shall be placed such that joints between paving units and boundary structures and / or kerb is no greater than 4 mm. Where it is impracticable to cut blocks to the shape required, gaps up to 50 mm shall be infilled using mortar (1 cement : 3 sand) coloured to match the paving units.

## Compaction and Joint Filling of Block Paving

8.16 Paving units shall be compacted to achieve consolidation of the sand bedding by 3 passes of a suitable vibrating plate compactor. The compactor shall be a high-frequency, low-amplitude mechanical flat plate vibrator.

8.17 Compaction shall proceed as closely as practicable following laying. Compaction shall not be attempted within 1 m of the laying face and shall continue until lipping has been eliminated between adjoining units.

8.18 Any units which are structurally damaged during compaction shall be immediately replaced.

8.19 As soon as practical after compaction, sand for joint-filling shall be spread over the paving. The jointing sand shall be broomed in a dry condition into the joints and one pass of the plate vibrator shall be made to compact the jointing sand.

8.20 Joints between block paving and concrete edging greater than 4 mm shall be filled with a 1:3 mix of cement and sand and watered in.

# 9 Hold Points

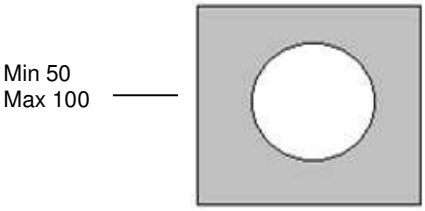
The following is a summary of Hold Points referenced in this Part:

| Document Ref | Hold Point | Response Time |
|---|---|---|
| 8.4 | Proposal to use alternative paver | 7 working days |

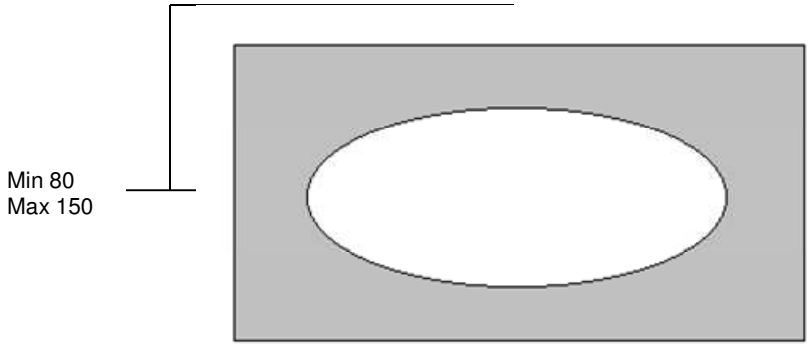
# 10 Measurement

10.1 If measurement of a paved surface is required for the purpose of payment, no deduction for inspection pits and similar structures will be made in the measured area, except where any individual pit or structure equals or exceeds 2 square metres in area.

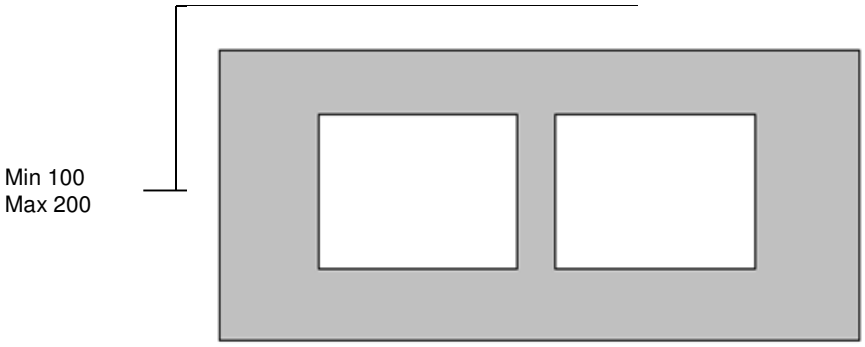
# 11 Appendix 1: Concrete Service Inspection Pit Surrounds




Small Pits
(Up to 300 x 300)




Medium Pits
(Up to 1 000 x 600)




Large Pits
(Up to 1 800 x 1 000)

Notes:
1. Sketch not to scale – shapes shown are representative only.
2. All measurements are in millimetres.