

PART R28**CONSTRUCTION OF ASPHALT PAVEMENTS****CONTENTS**

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1. GENERAL

- .1 This Part specifies the requirements for the construction of asphalt pavements.
- .2 In the event of any inconsistency, ambiguity or discrepancy between any of the Contract Documents, the order of precedence must be as follows:
 1. this Part R28;
 2. AS 2150 "Hot Mix Asphalt-A Guide to Good Practice"; and
 3. Austroads Guide to Pavement Technology Part 4B "Asphalt"
- .3 The following definitions apply to this Contract:

"Additive" means an organic, chemical, or emulsion product used to assist in the compaction of asphalt.

"Coarse Asphalt Mix" (AC) means asphalt of a coarse nature suitable for Medium, Heavy and Very Heavy Duty applications unless used in Fine Asphalt Mix applications or expressly noted otherwise.

"Fine Asphalt Mix" (FineAC) means asphalt of a fine nature suitable for Light to Medium Duty applications and suitable for DPTI patch maintenance, bikeways, footpaths, car parks and Local Government residential streets.

"Hot Mix Asphalt" (HMA) means an Asphalt Mix manufactured and compacted at standard temperatures. It may also mean Hot Mix Asphalt manufactured at standard temperatures but with the addition of an "Additive" to assist in meeting compaction requirements and required to be registered as a different mix.

"Special Process" means the Contractor's documented and demonstrated techniques to achieve the requirements of this Part.

"Warm Mix Asphalt" (WMA) means Hot Mix Asphalt manufactured and compacted at lower temperatures with the addition of an "Additive" or by using the foaming technique.
- .4 The asphalt must be placed in the configuration specified in **Contract Specific Requirements** "Pavement Work" or on the Drawings.

2. QUALITY REQUIREMENTS

- .1 The Contractor must prepare and implement a Quality Plan that includes detailed procedures for:
 - (a) Provision for traffic (if not covered in the Traffic Management Plan)
 - (b) Preparation of the surface
 - (c) Setting out
 - (d) Tack Coating

- (e) Placing the mix
 - (f) Placement of any mix less than 30 mm thick (vide Clause 4.1)
 - (g) Placement of any mix between 10 – 15oC or below 10oC (vide Clause 4.2)
 - (h) Protection of Wearing Course not open to traffic (vide Clause 4.3)
 - (i) Placement of crack sealing (including details of nominated product)
 - (j) Placement of Open Graded & Stone Mastic Asphalt mixes (vide Clause 4.1)
 - (k) Level control and Compaction
 - (l) Finished Asphalt pavement properties
 - (m) Sampling and Testing.
- .2 If not provided previously the procedures must be submitted at least 28 days prior to the commencement of site work.
- .3 Provision of the procedures listed in this Clause shall constitute a **HOLD POINT**.

3. **MATERIALS**

- .1 Asphalt must comply with Part R27 "Supply of Asphalt".
- .2 Sprayed bituminous surfacing must comply with Part R26 "Application of Sprayed Bituminous Surfacing".

4. **CONSTRAINTS TO THE PLACEMENT OF ASPHALT**

General

- .1 Where a layer of asphalt is laid less than 30 mm in thickness for any reason except Fine Dense Mixes as defined in Clause R27.4.4 "Fine Dense Mix Asphalt" is deemed to be a "special process".
- .2 Open Graded Asphalt (OG) and Stone Mastic Asphalt (SMA) must meet the requirements of Part R35 "Surface Characteristics".
- .3 Unless specified otherwise in the **Contract Specific Requirements** or on the Drawings, waterproofing membranes must be applied prior to placement of OG and SMA.
- .4 Modified binder mixes must not be used when the time between batching and delivery into the paver hopper exceeds 3 hours, unless the Contractor can demonstrate that such a mix can be adequately compacted.

Temperature Restrictions

- .5 Asphalt mix must only be placed at temperatures which conform with AS 2150-Clause 12.4 "Asphalt Temperatures". The minimum mix temperature referred to in AS 2150-Table 12 must be the temperature of the mix at the time that it is first placed on the surface.
- .6 Minimum spreading temperatures for dense graded and stone mastic asphalt mixes containing C320 and C600 binder must be 100 C higher than in AS 2150-Table 12, whereas for mixes incorporating modified binders the temperatures must be 200 C higher. The range of mix temperatures must be highlighted accordingly.
- .7 Spreading temperatures for OG, including those with modified binders must be as indicated in AS 2150 Clause 12.4 "Asphalt Temperature".
- .8 Asphalt conforming to the requirements of Clause R27.5.4 "Manufacture of Asphalt with Additive or Foaming Technique" may be compacted at lower temperatures to those required in this clause. The minimum compaction temperature at time of placement must not be below 120oC.
- .9 Applicability of mix types for a range of pavement layer thickness and temperatures (measured in the shade) must be as indicated in Table 4.8.

TABLE 4.8 - MIX TYPES FOR DENSE GRADED ASPHALT		
Pavement Surface Temperature (°C)	Nominal Layer Thickness (mm)	
	≤ 40mm	41 to 100mm
0°C to <10°C	Special Process	HMA with Additive
10°C to 20°C	HMA with Additive (if <15°C) HMA or HMA with Additive (if ≥ 15°C)	HMA or HMA with Additive
> 20°C	HMA with Additive or HMA or WMA	HMA or HMA with Additive or WMA

Wearing Course Restrictions

- .10 The wearing course must not be placed on a bituminous seals including a SAMI seal earlier than one day and no later than seven days of the seal being commenced.
- .11 The wearing course must not be laid earlier than 2 weeks prior to the opening to traffic, unless the Contractor prepares and implements a procedure to protect the wearing course from any deleterious environmental effects.
- .12 Traffic must not be permitted on any wearing course until it has cooled to a temperature below 65oC except for Stone Mastic Asphalt (SMA), Heavy Duty Dense Graded Asphalt (HD) and Very Heavy Duty Dense Graded Asphalt (VHD), which must be not be trafficked until it has cooled to a temperature below 30°C. Water sprays must not be used to cool the road surface until the surface temperature is below 70oC.
- .13 Placement of asphalt wearing course must meet the requirements of Part R35 "Surface Characteristics".
- .14 Refer to **Contract Specific Requirements** or Part CH20 "Provision for Traffic" for any additional constraints relating to traffic management.

5. CRACK SEALING

General

- .1 Prior to the placement of asphalt for all pavement types, spray seals or wearing course any remaining cracks greater than 3 mm in width must be sealed with an approved crack sealant.
- .2 Crack sealing treatment must be undertaken in accordance with the requirements of Part R37 "Supply of Pavement Crack Sealant" & Part R38 "Application of Pavement Crack Sealant" and additional clauses below.
- .3 At least 14 days prior to the use of the product, the Contractor must submit the manufacturer's instructions and product performance data.
- .4 Submission of the information shall constitute a **HOLD POINT**.

Material

- .5 The crack sealing compound must be Class 170 bitumen to AS 2008 "Residual Bitumen for Pavements", modified with an appropriate polymer, designed to penetrate the crack, adhere to the crack surface and resist further crack activity.
- .6 The material must remain stable on the pavement surface during periods of extreme temperature.
- .7 Gritting off of sealant or plugging excessively deep cracks prior to sealing must be undertaken with SA 5-2, 5-2 mm Sealing Aggregate.

Crack Sealing Treatment

- .8 Prior to placement of sealant, all cracks must be thoroughly cleaned of foreign material, without damage to the adjoining sound pavement, to provide a clean, dry surrounding. If the pavement is damp, warm/hot compressed air may be used in the drying of the surface of the crack.
- .9 Crack sealing must not be undertaken unless the surfaces of the cracks are dry. Cracks must be cleaned to a depth of between 10 - 15 mm. In excessively deep cracks, the crack may be plugged with

SA 5-2, 5-2 mm Sealing Aggregate to within 10 - 15 mm of the pavement surface. All cracks must be filled with sealant material to a level of not less than 10 mm below the pavement surface.

- .10 The level of sealant after gritting must be flush with the adjoining road pavement. The width of the visible bond on the pavement surface must be as narrow as is practical. Run out of the sealant over the asphalt surface beyond the crack length will not be permitted.

Gritting

- .11 The Contractor must place 5-2 mm Grit on the surface of all sealed material while it is hot and prior to vehicular traffic. Grit must be placed at the minimum application necessary to prevent pick-up of the sealant by traffic.
- .12 Following completion of the crack sealing treatment A **HOLD POINT** must apply.

6. PAVEMENT SURFACE PREPARATION

General

- .1 Pavement surface preparation must be carried out in accordance AS2150 Clause 10 "Preparation of Surface to be paved" and additional clauses below.
- .2 A **HOLD POINT** shall apply prior to the placement of asphalt.

Overlay Placed to Specified Design Levels

- .3 This Sub-clause only applies where an asphalt overlay is to be placed to specified design levels on an existing pavement.
- .4 The existing pavement must be surveyed. For each layer, the required thickness of asphalt must be written on the existing surface at each point where there is a specified level.
- .5 Crack sealing must be applied to an existing pavement in accordance R28 Clause 5.0 "Crack Sealing".
- .6 Where multiple layers are to be placed, the Contractor must prepare a plan and cross sections showing the layer configurations and areas to be planed.
- .7 Submission of the survey data and overlay plan shall constitute a **HOLD POINT**.

Planing

- .8 Where the minimum layer thickness cannot be achieved within the specified tolerances, the existing surface must be planed to achieve the required layer thickness.
- .9 Where an overlay has multiple layers, edge planing must be undertaken for each layer so as to ensure that the minimum layer thickness is achieved and is keyed into the existing pavement.
- .10 All planing must be carried out in accordance with Part R30 "Cold Planing".
- .11 Following completion of the preparation of the surface and prior to the application of the tack coat a **HOLD POINT** shall apply.

Tack Coating

- .12 A tack coat must consist of CRS grade emulsion to AS 1160 "Bitumen Emulsions for Construction and Maintenance of Pavements", uniformly sprayed at ambient temperature (for 60% residual bitumen emulsions or in accordance with the manufacturer's specification for higher percentages of bitumen).
- .13 Tack coat must be applied at the following locations:
 - (a) at vertical edges between old and new asphalt pavements;
 - (b) on top of existing asphalt layers; and
 - (c) on top of new asphalt not placed on the same day.
- .14 The tack coat for (a) above must be applied at a rate sufficient to ensure bond at the joint between the old and new asphalt pavements.
- .15 The tack coat for (b) and (c) must be applied at a rate between 0.2 l/m² and 0.4 l/m² of residual binder to ensure adequate bond between pavement layers and must be uniformly applied to the surface prior to placement of asphalt.
- .16 Tack coat must be applied with a tolerance of ± 0.05 litre/square metre of the specified application rate. The Contractor must supply the actual spread rates, including litres used and area covered for each lot.

- .17 Asphalt must not be placed until the tack coat is broken. Any construction traffic is to be minimised. The Contractor must coordinate work so that no tack coated surface is opened to traffic.

7. PLACEMENT OF ASPHALT

General

- .1 The Contractor must spread asphalt so as to:
- (a) minimise segregation and loss of materials;
 - (b) produce a homogeneous product;
 - (c) achieve the specified in-situ air voids relative compaction for Dense Graded Asphalt, Stone Mastic Asphalt or Open Graded Asphalt before the asphalt has cooled; and
 - (d) provide the specified thickness of asphalt.
- .2 Spreading methods must follow the guide to good practice set out in AS 2150-Section 12 "Spreading". The paver must be a self-propelled paving machine with automatic level control.
- .3 Hand placement of asphalt must be used only for minor correction of the existing surface and in areas where placement with a paver is impracticable. Laying of mix must be in the direction of traffic.
- .4 Other than in an emergency situation, if the Contractor proposes to source asphalt from another plant during a day's production, the Contractor must provide 48 hours prior notice. A procedure to ensure traceability of the product during placement must be provided prior to production of mix from an alternative plant.
- .5 If it becomes necessary to use more than one plant because of a plant breakdown, the Contractor must provide immediate notification and details of the alternative mix.
- .6 Each course must be compacted uniformly to the full depth and over the full width. Compaction methods must be in accordance with AS 2150-Section 13 "Compaction". The Contractor must ensure that compaction does not commence before any deficiencies in the spreading of the mix are corrected.
- .7 At the time of placing asphalt, the existing surface must be dry.
- .8 A **HOLD POINT** applies between individual layers of asphalt.

Protection of Road Fixtures

- .9 The Contractor must prevent tack coat, binder, aggregate, asphalt or other material used on the work from entering, adhering or obstructing gratings, hydrants, valve boxes, inspection pit covers, kerbs and other road fixtures.

Joints

- .10 Joints must be constructed in accordance with AS 2150-Clause 12.6 "Joints" and the following additional requirements:
- (a) The mix must be spread in a manner which ensures continuity of placing and the number and extent of joints is kept to a minimum.
 - (b) Must ensure that the density and surface finish at joints satisfies the requirements of this Specification, and the joints are well sealed.
 - (c) Joints between old and new pavements, and between sections of work which have not been placed on the same day must have tack coat applied in accordance with Clause 6.4 "Tack Coating".
 - (d) Longitudinal joints in successive layers must be staggered at least 150 mm. Transverse joints in successive layers must be staggered at least 1.0m. Permanent transverse joints at the starts and ends of runs must be ramped at the maximum rate of 1 in 20 down to a final edge which must not exceed 10 mm in height.
 - (e) All temporary joints which are to be opened to traffic must be ramped at the maximum rate of 1 in 10 down to a final edge which must not exceed 10 mm in height.
 - (f) Prior to subsequent laying of mix adjacent to a temporary joint, the temporary ramp must be cut back and removed to expose a near vertical face of fresh dense asphalt prior to the subsequent laying of the adjacent run.
 - (g) In making the joint along any adjoining edge such as kerb, gutter or an adjoining pavement, and after the mix is placed by the finishing machine, sufficient hot material must be carried back to fill any space left open. This joint must be properly "set-up" with the back of a rake or lute at proper height and level to receive the maximum compression under rolling.

- (h) The wearing course for all pavement types and pavement overlay must be laid in such a manner that the longitudinal joints correspond as far as practicable with the lane lines and, in particular, avoid the wheel paths.
- (i) Longitudinal surface joints must not be in the wheel path.

8. **SAMPLING AND TESTING**

- .1 Sampling locations for density compliance assessment must be undertaken on a stratified random basis in accordance with AS 1289.1.4.2 "Selection of Sampling or Test Sites - Stratified Random Number Method".
- .2 The sampling frequency must be in accordance with:

TABLE 8(a) - SAMPLING AND TESTING FREQUENCY FOR COARSE DG, OG & SMA	
LOT PRODUCTION QUANTITY (tonnes)	MINIMUM NUMBER OF CORE COMPACTION SAMPLES AND TESTS
30 - 150	4
151 - 300	6
> 300	6 plus 1 for each additional 100 tonne of delivered mix or part thereof.

TABLE 8(b) - SAMPLING AND TESTING FREQUENCY FOR FINE DENSE MIXES	
LOT PRODUCTION QUANTITY (road length (m))	MINIMUM NUMBER OF CORE COMPACTION SAMPLES AND TESTS
0 - 50	0
51 - 400	4
> 400	4 plus 1 for each additional 150 m of road length or part thereof.

- .3 All cores taken for a pavement must be reported for voids and thickness. No core must be taken within 150 mm of a free edge, and no more than one core per lot must be taken within 150 mm of a joint.
- .4 The Contractor must provide results of all cores taken from the pavement, notwithstanding whether these cores are for the Contractor's own internal processes or otherwise. Tests for density, air voids and layer thickness must be carried out on each core.
- .5 Coring is not required when asphalt is placed on concrete bridge decks.

9. **PROPERTIES OF FINISHED ASPHALT PAVEMENT**

General

- .1 Finished asphalt must comply with the requirements specified in Clause 13 "Verification Requirements and Records".

Compaction Acceptance Criteria – Quality Standards

- .2 Statistical analysis using an unknown variability scheme must be used to determine acceptance of the compaction of asphalt layers.
- .3 Compliance will be based on the analysis of a random set of tests taken from each lot of the works. Compliance must be determined indirectly in terms of percentage defective compared to the desired quality of the lot (10% defective) at either the low or high limit value.
- .4 A 90% probability assurance is required that accepted lots comply with the desired quality at either the low or high limit value. The acceptability characteristic k, quantified in Table 9.2 "k Value" is used to provide this statistical assurance. A lot must not exceed a day's work. Compliance will apply to the whole of the lot of the works from which the set of tests is taken.

Relative Compaction

- .5 The relative compaction of a core must be the bulk density expressed as a percentage of mean maximum density and reported in in-situ air voids terms using AS 2891.8. The mean maximum density value must be the arithmetic mean of the test results for that mix within a Lot, provided that they meet all of the following criteria:
- The binder content of the samples tested are within $\pm 0.3\%$ of the job mix binder content; and
 - There has been no change in mix components or proportions.
- .6 A low and high characteristic value of air voids content (Lvc and Hvc) of a lot must be calculated from the formula, $x - ks$ in the case of the low value and $x + ks$ in the case of the high value. x and s are the mean and standard deviations respectively of the individual air voids test values of the lot and k is a constant depending on the number of test values in the lot as shown in Table 9.6.

Number of Tests	k	Number of Tests	k
4	0.62	13	0.877
5	0.68	14	0.890
6	0.72	15	0.901
7	0.76	16	0.910
8	0.78	17	0.919
9	0.81	18	0.928
10	0.83	19	0.937
11	0.85	20	0.946
12	0.86	21	0.952

- .7 Compaction air voids data must be calculated and reported to two decimal places and rounded to one for the first decimal point as described in AS 2706-Clause 3.2 "Rounding to One Unit in The Last Place Retained".

Compaction Criteria

- .8 Compaction must comply with Table 9.8.

Asphalt Mixes	Pavement Layer	Characteristic Air Voids (%) - Min	Characteristic Air Voids (%) - Max
AC10	Wearing & Levelling Layers	4.0 %	8.0 %
AC14	Levelling, Intermediate & Base Layers	2.5 %	7.0 %
AC20	Intermediate & Base Layers	2.5 %	7.0 %
AC14 High Binder	High Binder Base Layer	1.0 %	5.0 %
Stone Mastic Asphalt	Wearing Course	2.5 %	7.0 %
Open Graded Asphalt	Wearing Course	18.0 %	25.0 %
FineAC7	Wearing Course	2.0 %	6.0 %
FineAC10	Wearing Course	2.5 %	7.0 %

Tolerances on Asphalt Layers

- .9 If the asphalt is to be placed to specified design levels, the finished level of asphalt layers must be as specified in Contract Specific Requirements "Pavement Work" or on the Drawings.
- .10 Where asphalt is to be placed adjacent to kerb and gutter, the wearing course must be constructed within a tolerance of +5 mm, -0 mm. At joints between the surface of new and existing pavements, the levels must be flush. If tolerances of base courses and intermediate courses are not specified in Contract Specific Requirements "Pavement Work" or on the Drawings, the tolerance must be ± 10 mm.
- .11 Tolerances on the specified lateral position of asphalt treatments must be ± 50 mm.

- .12 The thickness of Dense Graded Mix, Stone Mastic and Open Graded Asphalt Wearing Course laid on asphalt base must be determined from the specified spread rate using an assumed density of 2 400 kg/cubic metre, 2 400 kg/cubic metre and 1 900 kg/cubic metre respectively.

Surface Irregularity and Finish

- .13 The surface irregularities of asphalt courses, as measured by deviation from a 3 m straight edge, must not exceed:

Wearing Course	5 mm
Correction (Levelling) and Intermediate Courses	10 mm
Base Courses	15 mm
Base Courses (where no Correction and Intermediate Courses)	10 mm

- .14 The surface irregularities of asphalt courses at longitudinal and transverse joints, as measured by deviation from a 1.2 m straight edge placed centrally and at right angles over the joint, must not exceed:

Wearing Course	3 mm
Correction and Intermediate Courses	5 mm

- .15 The surface of finished asphalt courses must be free of segregated or "bony" areas, soft and "fatty" areas, ravelling and loose material, surface cracking, shoving and ruts.

Major Project Requirements

- .16 Where a project is estimated to contain more 50,000 ton of asphalt ("Major Project"), the Contractor must:
- use a material transfer device to place asphalt for all layers of asphalt pavement except localised areas within the acceptance of the Principal to increase the quality and consistence of asphalt placement and properties;
 - shall supply and place wearing course mixes to meet surfacing characteristics in accordance with Part R35 "Surfacing Characteristics"; and
 - Use asphalt complying with Table 9.16 on any bridge decks.

TABLE 9.16 The Pavement Structure of Asphalt Mixes and Waterproof Membranes for Concrete Bridge Deck	
Wearing Course ⁽¹⁾	AC10M15EL, OG14M15EL or SMA10M15EL
Waterproofing Membrane	SAMI - 10mm S25E (1.8l/m ²) or Sprayed Seal - 7mm S20E (1.4l/m ²)
Correction Course ⁽²⁾	AC10M15E or AC14M15E
Waterproofing Membrane	SAMI - 10mm S25E (1.8l/m ²)
Primer Binder	AMCO (0.5l/m ²)
Concrete Deck	Concrete Deck

⁽¹⁾ Waterproof membrane only required beneath the "OG" Wearing Course mix.

⁽²⁾ More than one layer may be required and also plane out in some areas to achieve the required surface profile to improve the rideability.

- .17 The Contractor must use a hand-held gas flaming torch or equivalent technique to improve the asphalt joints if a parallel asphalt mat is not placed on the same day.
- .18 Asphalt compaction ranges shall use Table 9.5(b) "Asphalt Compaction Criteria" and replaces Table 9.18. Target values are a guide and are not binding.

Pavement Layers	Asphalt Mixes	In-situ Voids Target (%)	Characteristic Air Voids (%) - Min	Characteristic Air Voids (%) - Max
Wearing Course	Dense Graded Mix	6.5 %	4.0 %	8.0 %
Levelling Course	Dense Graded Mix	6.0 %	4.0 %	8.0 %
Intermediate Courses	Dense Graded Mix	5.0%	2.5 %	7.0%
Base Course	Dense Graded Mix	4.0%	2.5 %	7.0 %
High Binder Base Course	Dense Graded Mix	2.5 %	1.0 %	5.0 %
Wearing Course	Stone Mastic Asphalt	5.0 %	2.5 %	7.0 %
Wearing Course	Open Graded Asphalt	22 %	18.0 %	25.0 %
Wearing Course	FineAC7	4.0 %	2.0 %	5.0 %
Wearing Course	FineAC10	4.5 %	2.5 %	6.0 %

A **HOLD POINT** shall apply between individual layers of asphalt and also waterproof membrane.

10. DISCARDED ASPHALT

- .1 All excess or discarded asphalt remains the property of the Contractor and must be disposed of by the Contractor.

11. TEST PROCEDURES

- .1 The Contractor must use the following test procedures (refer http://www.dpti.sa.gov.au/contractor_documents) to verify conformance with the Specification:

TEST	TEST PROCEDURE
Site Selection by Stratified Random Technique	AS 1289.1.4.2
Sampling of Asphalt	TP 425
Determination of the Maximum Density of Asphalt - Water Displacement Method	AS 2891.7.1
Bulk Density of Compacted Asphalt Specimens <ul style="list-style-type: none"> • Presaturation Method for Dense Graded • Mensuration Method for Open Graded 	AS 2891.9.2 AS 2891.9.3
Measurement of Thickness or Height of Compacted Asphalt	ASTM D3549
Voids - Calculation	AS 2891.8

12. HOLD POINTS

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

CLAUSE REF.	HOLD POINT	RESPONSE TIME
2.	Submission of Procedures (if not in Post Tender Submission)	7 days
5.3	Submission of crack sealing product	7 days
6.2	Prior to the placement of asphalt.	2 hours
6.7	On submission of survey data and overlay plan prior to overlay work	2 days
6.11	Following completion of the preparation of the surface and prior to the application of the tack coat	1 hour
7.8	Between individual layers of asphalt	6 hours

1. VERIFICATION REQUIREMENTS AND RECORDS

The Contractor must supply written verification that the following requirements have been complied with and supply the verification with the lot package.

CLAUSE REF.	SUBJECT	PROPERTY	TEST PROCEDURE	TEST FREQUENCY	ACCEPTANCE LIMITS
4.5	Temperature Restriction	The Placement of Asphalt	-	-	Refer Clause 9. and Report
4.13	Wearing Course	Surface Characteristics	Refer Part R35	Refer Part R35	Refer Part R35 or Contract Specific Requirements
5.2	Crack Sealing	Pavement Crack Treatment	Refer Part R37	Calculated for total volume of sealant	Refer Clause 5. and Report
6.15	Tack Coat	Application Rate	Calculated by dividing volume by area covered (calculations to be submitted)	Calculated for each application of tack coat	± 0.05 l/m ² of the specified application rate
8.	Coring	Sampling & Testing	AS 1289.1.4.2	Refer Clause 8.0	Refer Clause 9. and Report
9.	Compaction	In-situ Air Voids	AS 2891.8	Refer Clause 8.0	Refer Clause 9.
9. ⁽¹⁾	Asphalt Laid to Design Levels or	Level of course	As specified in Part CH30	As specified in Part CH30	Unless detailed otherwise in Part R20 or the Contract Specific Requirements the following must apply: <u>Wearing Course</u> : ± 5 mm of nominal thickness <u>Other layers</u> : $\pm 10\%$ nominal thickness
	Asphalt Laid to Nominal Thickness or	Average Layer Thickness	ASTM D3549	Refer Clause 8	<u>Wearing Course</u> : ± 5 mm of nominal thickness <u>Other layers</u> : $\pm 10\%$ nominal thickness
		Minimum Layer Thickness	ASTM D3549	Refer Clause 8	Nominal thickness minus 5 mm

⁽¹⁾ Asphalt placement method to be clarified with the Principal prior to placement, and verification to be provided by contractor in accordance with the method specified for determining layer thickness.