TWEED SHIRE COUNCIL

DEVELOPMENT CONSTRUCTION SPECIFICATION

C245

ASPHALTIC CONCRETE

VERSION 1.5

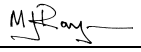
SPECIFICATION C245 - ASPHALTIC CONCRETE

CITATION

This document is named “Tweed Shire Council, Development Construction Specification C245 - Asphaltic Concrete”.

ORIGIN OF DOCUMENT, COPYRIGHT

This document was originally based on AUS-SPEC - Development Construction Specification C245 - Asphaltic Concrete, January 2002 (Copyright SWR-TM). In the production of this Tweed Shire Council Development Specification, substantial parts of the original AUS-SPEC document have been deleted and replaced with references to relevant Queensland Department of Main Roads Standard Specifications. The parts of the AUS-SPEC document that remain are still subject to the original copyright. VERSIONS, C245 ASPHALTIC CONCRETE

VERSION	AMENDMENT DETAILS	CLAUSES AMENDED	DATE ISSUED (The new version takes effect from this date)	Authorised by the Director of Engineering Services
1.1	Original Version		1 July 2003	
1.2	New tables in Summary of Limits and Tolerances	C245.14	12 January 2007	
1.3	Replace all references to SWAC with "Certifying Engineer"	Various	5 February 2016	
1.4	Added guidelines for sealing under AC surface	C245.14	11 January 2019	
1.5	Guidelines updated to Queensland Department of Transport and Main Roads Standard Specification MRTS30	Various	11 July 2023	

DEVELOPMENT CONSTRUCTION SPECIFICATION C245

ASPHALTIC CONCRETE

GENERAL

C245.01 SCOPE

1. This Specification is for the design, production and placing of asphalt including the supply of materials, sampling, testing and any other operations necessary to provide asphalt in accordance with the provisions of the approved design plans. The extent of the Subdivider's work shall include: ***Extent of Work***

   (a) Sampling and testing of materials and the design of asphalt mixes required for the subdivision.

   (b) Manufacture of the production mix.

   (c) Provision of a testing laboratory.

   (d) Preparation of the surface on which asphalt is to be placed.

   (e) Transport of asphalt.

   (f) Laying and compaction of asphalt.

   (g) Sampling and testing.

2. Asphalt manufactures may apply to Council for approval of their standard mix designs and must satisfy the requirements of this specification, prior to use in subdivision works.

3. Requirements for quality control and testing are cited in Specification CQC – Quality Control Requirements. ***Quality***

4. All references to specifications relate to the most current revision.

C245.02 ASPHALTIC PAVEMENT MATERIALS AND MIX DESIGN - REFERENCE DOCUMENTS

Pavement Requirements

1. Unless noted otherwise within this Specification, all Dense Graded Asphalt Pavements shall conform to the requirements of the Queensland Department of Transport and Main Roads Standard Specification MRTS30.

   Where the provisions of this Specification are in conflict with the relative Queensland Department of Transport and Main Roads Standard Specifications, the provisions of this Specification will take precedence. ***Order of Precedence***

   Where the provisions of this Specification do not address a specific condition, the provisions of the relative Queensland Department of Transport and Main Roads Standard Specification will take precedence.

(a) Council Specifications

C201 - Control of Traffic

C245.03 GLOBAL AMENDMENTS REQUIRED TO THE RELEVANT QUEENSLAND DEPARTMENT OF TRANSPORT AND MAIN ROADS STANDARD SPECIFICATIONS

(a) The term “Contract” is to be replaced throughout the relevant Queensland Department of Transport and Main Roads Standard Specifications by the term “Subdivision Works”

(b) The term “Contractor” is to be replaced throughout the relevant Queensland Department of Transport and Main Roads Standard Specifications by the term “Subdivider”

(c) The term “Superintendent” is to be replaced throughout the relevant Queensland Department of Transport and Main Roads Standard Specifications by the term “Certifying Engineer”

(d) Where the relevant Queensland Department of Transport and Main Roads Standard Specifications requires a person other than the Subdivider to submit or organise documentation or certification, it will be the responsibility of the Subdivider to ensure that this occurs.

C245.04 PLANT

1. The Subdivider shall provide all the plant, equipment and labour necessary for carrying out the work in accordance with this Specification. ***Subdivider's Responsibility***

2. All plant and equipment used on the work shall be in accordance with the Subdivider’s submitted quality documentation and kept in good operating condition. The Subdivider shall not use in the work any plant or equipment demonstrated to be faulty in operation so as to affect the product quality or unsafe in operation as assessed by the Certifying Engineer. ***Plant to be Suitable***

3. All plant shall be registered and insured as appropriate to its use on a public road and shall comply with statutory environmental regulations.

C245.05 PROTECTION OF SERVICES AND ROAD FIXTURES

1. The Subdivider shall take all necessary precautions to prevent asphalt or other material used on the work from entering or adhering to gratings, hydrants or valve boxes, access chamber covers, bridge or culvert decks and other road fixtures. Immediately after the asphalt has been spread the Subdivider shall clean off or remove any such material as directed by the Certifying Engineer and leave the services and road fixtures in a condition satisfactory to the Certifying Engineer. ***Subdivider's Responsibility***

C245.06 CONTROL OF TRAFFIC

1. The Subdivider shall provide for traffic in accordance with the requirements of the Specification for CONTROL OF TRAFFIC while undertaking the work. ***Provision for Traffic***

2. Any costs incurred as a result of the supply of labour and materials complying with the Specification for CONTROL OF TRAFFIC shall be borne by the Subdivider. ***Subdivider's Cost***

3. The Subdivider shall take all necessary steps to avoid or minimise delays and inconvenience to road users during the course of the work but without compromise to the safety of the road users or employees. ***Delays***

C245.07 WORK RECORDS

1. Particulars of the work performed shall be recorded by the Subdivider on an Asphalt Work Record (typical Record Sheet provided in Annexure C245A) or as per the Subdivider's own procedures where equivalent. The Subdivider shall complete the Asphalt Work Record, which shall be countersigned by the Certifying Engineer each day as a true record of the work performed. A copy shall be supplied to the Certifying Engineer. ***Asphalt Work Record***

C245.08 ASPHALT AND BINDER TYPES

1. The types of asphalt and binder to be adopted in the works shall be specified by the Subdivider in Annexure C245B.

C245.09 RECLAIMED ASPHALT PAVEMENT (RAP)

1. Dense graded asphalt that does not include modified bitumen may include a proportion of RAP up to but not exceeding 20 per cent by mass. The resultant asphalt shall meet all requirements for the Approved Mix. ***RAP Percentage***

2. The RAP to be utilised shall be nominated by source and/or stockpile. Testing of the Approved Mix shall include RAP sampled from the stockpile and of similar physical properties as that to be utilised for the works. Any change in RAP supply shall be brought to the attention of the Certifying Engineer 5 days prior to proposed usage in asphalt. ***RAP Source***

C245.10 LEVEL CONTROL

1. Where Annexure C245B - Schedule of Details calls for level control, the following minimum requirements shall be observed. The procedure shall be reported to the Certifying Engineer at least 1 working day in advance of operations at any site. Additional controls may be necessary to obtain the required finished pavement properties. ***Minimum***

2. Level Control shall be carried out in accordance with the Queensland Department of Transport and Main Roads Standard Specification MRTS30; ***Level Control***

3. The Subdivider is at all times responsible for selection of the procedure for paving subject to the minimal requirements set out in this Clause. The Subdivider's procedure shall ensure the accuracy of the resultant pavement levels and their compliance with the design plans or documented requirements. ***Level Accuracy***

C245.11 REMOVAL AND REPLACEMENT OF REJECTED MATERIAL

1. The sections of work that have been rejected under the preceding clauses of this Specification or as otherwise determined by the Certifying Engineer shall be ***Time Limit***

removed within 15 days from the work and replaced with fresh asphalt mix material corresponding in grade and quality to that material specified in the Approved Mix unless otherwise approved by the Certifying Engineer.

2. If removal of the single nonconforming pavement strata is impossible, the affected area as determined by the Certifying Engineer shall be removed to subbase or subgrade depth as appropriate to provide a smooth level surface on which to found the reinstated base and/or subbase course. ***Removal Depth***

3. The perimeter of the nonconforming area shall be prepared in accordance with the practice pertaining to longitudinal and transverse cold joints (AS 2734). ***Perimeter***

4. In rejected sections, the material is to be removed over the full length of the affected area except that a minimum length of 5m and a minimum width equal to the paver width shall be removed. ***Length to be Removed***

5. Any damage to abutting layers, structures or utilities shall be rectified by the Subdivider. All rectification costs shall be borne by the Subdivider. ***Subdivider's Cost***

6. The Certifying Engineer shall have the right to alter the constitution, quality, grading, or other parameters of the 'Reinstatement Pavement' if it is felt that reconstruction of the affected area with the Approved Mix would produce nonconforming pavement as a result of non-continuous pavement structure. ***Altered Design***

7. After removal of the rejected base or subbase course the area shall be made available to the Certifying Engineer for inspection and approval to proceed with the works. This action constitutes a **HOLD POINT**. Certifying Engineer inspection and approval is required prior to release of hold point. ***HP***

8. All materials used in the reinstatement of the nonconforming area shall comply with the requirements of this Specification unless otherwise directed by the Certifying Engineer. ***Replacement Material***

9. All costs associated with removals, testing and corrections of base and subbase course and extra costs incurred by the Subdivider in respect of delays caused by such removals, replacements and corrections shall be borne by the Subdivider. All costs associated with the removal testing and correction of non-conforming pavement shall be borne by the Subdivider. ***Subdivider's Costs***

SPECIAL REQUIREMENTS

C245.12 DAMAGE RECTIFICATION

Any damage to abutting layers, structures or utilities shall be rectified by the Subdivider. All rectification costs shall be borne by the Subdivider.

C245.13 RESERVED

C245.14 INITIAL SEAL UNDER ASPHALT WEARING SURFACE

1. The class and grade of the initial seal under asphalt wearing surface (hot bitumen or bituminous emulsions) must be as specified on the design documentation drawings.

2. Prior to laying the asphalt wearing surface, a waterproofing initial seal shall be applied to the newly constructed road pavement.

3. The initial seal shall be designed and applied with minimal cutter oils (if hot bitumen C170 applied) to ensure no flushing through the asphalt.

4. The initial seal shall be left for a minimum of 48 hours prior to laying the asphalt layer.

5. For other sprayed bituminous surfacing guidelines, refer to Tweed Shire Council Development Construction Specification C244.

LIMITS AND TOLERANCES

C245.15 SUMMARY OF LIMITS AND TOLERANCES –

For all conformance requirements refer to the relevant sections of Queensland Department of Transport and Main Roads Specification MRTS30 and MRS30.

1. Particle Size distribution of combined aggregate and filler

   Refer to the Queensland Department of Transport and Main Roads Specification MRTS30, Clause 7.2.1.1

2. Binder

   Refer to Queensland Department of Transport and Main Roads Specification MRTS30, Clause 7.2.1.2

3. Marshall stability, flow and stiffness

   Refer to Queensland Department of Transport and Main Roads Specification MRTS30, Clause 7.2.11

4. Nominated layer thickness

   Refer to Queensland Department of Transport and Main Roads Specification MRTS30, Clause 8.6.1

5. Compaction Standard

   Refer to Queensland Department of Transport and Main Roads Specification MRTS30, Clause 9.2

6. Surface Shape

   Refer to Queensland Department of Transport and Main Roads Specification MRTS30, Clause 9.5

7. The limits and tolerances in the following tables have been derived from Queensland Department of Transport and Main Roads Standard Specification – MRTS30 and are applicable to the various clauses of this Specification:

Asphalt Design Requirements

Property	Unit	Limit	Value		
			Dense Graded Asphalt Nominal Size (mm)		
			AC7	AC10	AC14
Voids filled with binder (VFB)	%	Minimum Maximum	58.0 78.0	58.0 78.0	58.0 78.0
Voids in the mineral aggregate (VMA)	%	Minimum Maximum	15.0 19.0	14.0 18.0	13.0 17.0
Stability	KN	Minimum	6.0	7.5	7.5
Flow	Mm	Minimum	2.0	2.0	2.0
Stiffness	kN/mm	Minimum	2.0	2.0	2.0

Layer thickness Limit

Asphalt Mix Nominal Size (mm)	Compacted Layer Thickness (mm)	
	Minimum	Maximum
AC7	25	35
AC10	35	50
AC14	50	70

Compaction Standard

Asphalt Mix Nominal Size (mm)	Characteristics Value Minimum (%)
AC7	90
AC10	90
AC14	92 (91 - For specified compacted layer thickness < 50mm)

Minimum Testing Frequency

Conformance Requirement	Minimum Test Frequency
Horizontal Geometry	1 test per 50m

Allowable tolerances for layer thickness

Asphalt Mix Nominal Size (mm)	Layer Thickness Tolerance (mm)	
	Average Value	Individual Value
AC7	± 3	± 5
AC10	± 3	± 5
AC14	± 4	± 7

Maximum deviation from a straightedge (at completion date)

Course	Maximum deviation from a three meter straightedge (mm)	
	Through Carriageways (< 70 km/h) Roundabouts & Signalised Intersections	Through Carriageways (> 70 km/h)
Wearing Course	5	3*
Course immediately below the wearing course	10	5
All other courses	10	10

* A maximum deviation from a three meter straightedge of 5 mm shall apply to joints

ANNEXURE C245A

ASPHALT WORK RECORD

Date: _____ Contract No: _____ Work Location: _____km to: _____km

Road Name: _____ Supplier: _____ From: _____ *(Crossroad or landmark)* towards _____

Road No: _____ Job No: _____ PMS/MMS Segment Numbers: _____

Plan No: _____ Mix Type: _____ New Surfacing ☐ Resurfacing ☐ Existing Surface Type: _____

Delivery								Paving									Remarks
Load No.	Time			Truck Reg'd No.	Docket No.	Nett Mass (t)	Mix Temperature Ex paver	Chainage		Paved Width (m)	Direction with or against chainage	Dist. from left edge to centre of run (m)	Thickness (mm)	Layer			Sample No. & Lot Size (tonnes) if sampled	Weather Work Stoppages, Start & Finish etc.
	Depot Plant	Arrive Job	Depart Job					From	To					1st	2nd	3rd		

Remarks:

Penciller: _____ Sampling by: _____ Certifying Engineer's Representative: _____ Subdivider's Representative: _____

Affiliation: _____ Affiliation: _____ *(Signature)* *(Signature)*

ANNEXURE C245B

SCHEDULE OF DETAILS

Pavement Type _____ Sheet No. ___

Location _____ Road No._____ PMS/MMS Segment Nos._____ of _____ Sheets

Course	Type and Nom Size of Asphalt	Type and Grade of Binder	Compacted thickness of course (mm)	Minimum Delivery Rate (per hr)	Delivery Trucks to be Insulated* (Yes/No)	Specific Control Method (when required)
Wearing						
Intermediate 1						
Intermediate 2						
Intermediate 3						
Intermediate 4						
Correction 1						
Correction 2						
Drainage Layer						

(TO BE ISSUED BY CERTIFYING ENGINEER FOR EACH SEPARABLE PART)