



WESTERN AUSTRALIA SPECIFICATION

251

COLD MILLING OF ASPHALT AND BASE COURSE

Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
<i>EXAMPLE 1</i>	<i>Provision for acceptance of nonconformance with deduction in Payment</i>	<i>XYZ.00</i>	<i>AP</i>	<i>KP</i>	<i>2/6/97</i>

SPECIFICATION 251 - COLD MILLING OF ASPHALT AND BASE COURSE

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SPECIFICATION 251 COLD MILLING OF ASPHALT AND BASE COURSE

GENERAL

251.01 SCOPE

1. The work to be executed under this Specification consists of the removal of asphalt and basecourse by cold milling to a specified depth, the hauling of the cold milled material to designated stockpiles and disposal areas and the sweeping of the pavement.

251.02 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

**Documents
Standards
Test Methods**

(a) Council Specification

101	-	General
201	-	Control of Traffic
243	-	Bituminous Cold Mix

(b) Australian Standards

AS 1742.3	-	Traffic control devices for work on roads
SAA HB81	-	Field guides for traffic control at works on roads

251.03 CONTROL OF TRAFFIC

1. The Contractor shall take all necessary steps to avoid or minimise delays and inconvenience to road users during the course of the work. When adequate detours or side-tracks are included in the contract, or are otherwise available, traffic shall be temporarily diverted while the work is in progress.

**Minimise
Delays**

2. If facilities for the diversion of traffic are not available, the Contractor shall arrange the work to provide for the flow of traffic in accordance with the requirements of the Specification for CONTROL OF TRAFFIC.

**Work Under
Traffic**

3. In addition, on the approaches to the work and at intervals shown in AS 1742.3 for the appropriate speed zone, temporary reflectorised signs 'Cycle Hazard Grooved Road', Type ST 1-10 shall be clearly displayed.

**Minimum
Signage**

4. Notwithstanding the previous paragraph (3) all temporary signage shall comply with the site specific requirements of AS 1742.3 and SAA HB81.

**Signage
Standards**

5. All traffic control personnel are to possess valid state drivers licences and relevant certification in accordance with the Specification for CONTROL OF TRAFFIC.

**Licensing and
Qualification**

6. Documentation denoting the names of traffic control personnel and their respective traffic control certification are to be forwarded to the Superintendent for inspection prior to the commencement of work.

**Qualification
Submission**

7. Notwithstanding the previous clause, inspection of the credentials of traffic control personnel does not place the Superintendent as the guarantor of such documentation.

***Licence
Validity***

8. Responsibility pertaining to the qualifications of Traffic Control personnel shall be borne by the Contractors.

***Contractor's
Responsibility***

9. All costs occurring as a result of obtaining equipment, personnel or services to provide traffic control to comply with the requirements of this specification shall be borne by the Contractor.

***Contractor's
Costs***

251.04 CONTROL OF WORK

1. The Superintendent may direct the depth, width, length, alignment and section of road to be cold milled at any time.

Variations

2. The Superintendent may order work to cease temporarily on account of dust nuisance, excessive windrows or loose material, excessive roughness of the cold milled surface or any circumstances which the Superintendent considers may adversely affect the work or public safety.

Public Safety

251.05 COLD MILLING OPERATION

1. The operation of the cold milling machine shall be controlled either by levelling beam or stringline and automatic sensors unless otherwise approved by the Superintendent.

***Control of
Levels***

2. The nominated depth(s) of cut of the cold milling machine shall be as directed by the Superintendent. The cut shall be automatically controlled, with the control set such that the maximum difference in levels between adjacent runs shall not exceed 5 mm. The average depth of cut measured across the cut from the adjacent surfaces to the top of the milled surface and at intervals along the work shall not vary by more than 5 mm from the specified thickness. When stringline and automatic sensors are used the top of the milled surface shall not vary by more than 5 mm from the specified depth below the stringline.

***Variations in
Cuts***

3. Prior to milling operations the Contractor shall determine, using appropriate equipment such as metal detectors etc, the location of any hidden utilities or buried objects that may be damaged by milling operations. The onus of locating such structures and determining their susceptibility to damage by operations are the sole responsibility of the Contractor.

***Utility
Location***

4. The Contractor shall liaise with the relevant Authorities for all underground utility services within the site of the works. The utility Authorities' contact persons are shown in the Specification, GENERAL.

5. If in the opinion of the Superintendent, the milled floor contains material that is deemed unsuitable, that material shall be milled to a depth as directed by the Superintendent. Additional payment shall be based upon a square meter rate commensurable with the remainder of the works quoted.

***Unsuitable
Material***

6. When milling near access chambers or other similar structures the cold milling machine shall be operated as close as possible to the structure without causing damage to it. The remaining asphalt and base course shall be removed by hand or other method approved by the Superintendent. A ramp using coldmix or asphalt shall be formed and compacted around the structure. The ramp shall have a minimum taper length of 1.0m for

Obstructions

each 50mm thickness of asphalt and base course removed or part thereof. This work shall not constitute a variation of contract.

7. At the end of the day's work, or whenever the milled pavement is left unattended and reopened to traffic, the work shall be arranged so that no longitudinal or transverse edges of milled asphalt and base course, which can affect traffic, are left unattended. Prior to reopening the milled pavement to unrestricted use by traffic and at the end of the day's work, the final milled lane shall be bevelled such that the maximum lip between the milled run and the unmilled run does not exceed 10mm. When bevelling is not possible, the fall off in levels shall be ramped with coldmix material complying with the Specification for BITUMINOUS COLD MIX.

**Temporary
Ramps**

8. The ramp area covered by coldmix shall be tack coated with bitumen emulsion prior to placing of the coldmix. All coldmix shall be compacted.

**Temporary
Cold Mix**

9. Longitudinal and transverse ramps, used to tie the milled surface into the existing road levels, shall have a minimum taper length of 1.0m for each 50mm variation in levels or part thereof. Where the speed limit exceeds 60km/h, transverse ramps shall have a taper length of 2.5m for each 50mm.

**Length of
Ramps**

10. Any material not removed by the cold milling machine adjacent to concrete medians, kerb and gutter or drainage structures such as pit grates shall be removed by hand or other means approved by the Superintendent. When necessary for traffic safety or when directed by the Superintendent, coldmix or asphalt ramps shall be placed by the Contractor.

Hand Work

11. Any weakened planes of asphalt and basecourse which are not removed by the milling operation but in the opinion of the Superintendent will break up under traffic shall be removed either by an additional pass of the cold milling machine or by other means to the satisfaction of the Superintendent.

**Additional
Cuts**

12. Following the cold milling operation all loose material shall be removed from the road pavement, gully pits and median areas. The pavement shall be swept and the site left in a clean and tidy state to the satisfaction of the Superintendent. All cold milled material shall be removed from the site and transported to stockpile site(s) or otherwise removed from the site to the satisfaction of the Superintendent.

Loose Material

13. If sub-surface utilities or structures are damaged by milling operations, the Contractor shall notify the relevant Authority and arrange for the damage to be rectified to reinstate the utility or structure to pre-construction condition. All costs associated with such rectification works shall be borne by the Contractor.

**Damage,
Contractor's
Costs**

14. Prior to covering the milled surface, the Contractor shall arrange to inspect the surface with the Superintendent prior to the removal of milling equipment from site.

Inspection

251.06 TRANSPORT

1. The Contractor shall supply sufficient trucks to enable a continuous output to be achieved by the cold milling machine with minimal delay.

**Capacity of
Trucks**

2. When loading by elevator, the trucks shall back up and maintain a similar speed to the cold milling machine. The driver shall distribute the load of milled material uniformly over the truck body. The Contractor shall comply with all regulations regarding the covering and securing of loads where applicable. The cover shall overlap the truck body by at least 250 mm and be tied down securely.

**Loading and
Covering of
Trucks**

251.07 DISPOSAL OF MILLINGS

1. Proposed stockpile site(s) shall be nominated by the Superintendent in Annexure 250(a). **Superintendent's Stockpiles**
2. The cold milled material shall be tipped in orderly stockpiles and not isolated heaps. When measurement is by volume, the stockpiles shall be levelled to a height of 2 metres and be uniform in shape. **Levelling of Stockpiles**
3. Where the Superintendent does not wish to keep the millings, the Contractor will be fully responsible for their disposal. **Disposal by Contractor**

SPECIAL REQUIREMENTS**251.08 RESERVED****251.09 RESERVED****LIMITS AND TOLERANCES****251.10 SUMMARY OF LIMITS AND TOLERANCES**

1. The limits and tolerances applicable to the various clauses in this Specification are summarised in Table 251.1 below.

Item	Activity	Limits/Tolerances	Spec Clause
1.	Cuts of Cold Milling Machine		
	(a) Difference in levels between adjacent runs.	< 5mm	251.05
	(b) Average depth of cut from specified depth.	< 5mm	251.05
	(c) Variation of top of milled surface below stringline and automatic sensor for specified depth.	< 5mm	251.05
2.	Ramp at Structure		
	(a) Taper length of asphalt or cold mix around structure.	> 1.0 metres for each 50mm thickness of asphalt and base course removed (or part thereof).	251.05
3.	Longitudinal Edge		
	(a) Maximum lip between milled run and unmilled run.	< 10mm	251.05

4. **Ramp Milled Surface to Existing Road**
- (a) At end of each day, where traffic is to use surface, minimum taper of ramp. 1.0 metres for each 50mm variation in levels or part thereof. 251.05

Table 251.1 - Summary of Limits and Tolerances

MEASUREMENT AND PAYMENT

251.11 PAY ITEM

1. Payment shall be made for the activities associated with completing the work detailed in this Specification in accordance with Pay Item 251(a).
2. A lump sum price shall not be accepted.
3. Control of traffic is measured and paid in accordance with the Specification for CONTROL OF TRAFFIC.

Pay Item 251(a) REMOVAL OF MATERIAL BY COLD MILLING

251(a)(i)	Up to 40mm in depth.
251(a)(ii)	>40mm.

1. The unit of measurement shall be the square metre for up to 40mm in depth and square metres/10mm depth for >40mm..
2. The width, length and thickness shall be taken as specified on the Drawings or as approved by the Superintendent.
3. Payment will be made by cumulatively considering both unit rates depending on the depth of milling.
4. The schedule rate shall cover all costs associated with the milling operation including transporting and stockpiling of material and the sweeping and cleaning of the pavement.

ANNEXURE 251.A

Location of Stockpile Sites for millings

Clause 251.07

- (i)
- (ii)
- (iii)
- (iv)
- (v)