

ROADWORKS SPECIFICATION

R58 SURFACE RE-TEXTURING

Date JUNE 2012

DEPARTMENT of INFRASTRUCTURE, ENERGY and RESOURCES
TASMANIA
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R58.1 SCOPE

This specification sets out the requirements for undertaking surface re-texturing of bituminous surfaces.

R58.2 OBJECTIVE

The objective is to improve the surface macro or micro texture of existing bituminous surfaces by removing:

- slick or flushed areas;
- unwanted materials such as petrol, oil, grease, lichen and other grime.

R58.3 STRUCTURE OF SPECIFICATION

R58.3.1 Standard Requirements

This specification defines the requirements, standards and procedures for the surface re-texturing of bituminous surfaces.

These include:

- references and definitions
- Contract Management Plan
- testing, records and evidence of compliance
- payment.

R58.3.2 Project Specific Requirements

Site details and other specific requirements are defined in the *Project Specific Specification*.

These include:

- location of the works sites i.e. road number, link and chainage
- type of existing surfacing in the following categories
 - sprayed bituminous surface
 - asphalt
 - aggregate size
- Annual Average Daily Traffic (AADT) and commercial vehicle content
- specific traffic management details *G3 Traffic Management Annexure G3.A*
- special events/considerations (*G1.20*), which may affect or disrupt the re-texturing operations.

R58.3.3 Site Classification for Traffic Management

As defined in *Standard Specification G3 Traffic Management*, roads with an AADT > 3500 vehicles shall be deemed to be high profile roads however other sites may be nominated as high profile in *R58 Annexure R58.A*.

R58.4 REFERENCES

Surface re-texturing of bituminous surfaces shall be undertaken in accordance with all DIER Standards and Specifications, in particular:

- G1 – General Provision
- G2 – Contract Management Plan
- G3 – Traffic Management Plan
- G9 – Product Quality

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- G10 – Construction Environmental Management Plan
- R51 – Sprayed Bituminous Surfacing
- R55 – Asphalt Placement
- R64 – Pavement Marking

and Austroads Guides And Test Methods and Australian Standards:

Austroads Guides to Pavement Technology

- AP-C87/08 Glossary of Austroads Terms;
- Part 3 Pavement Surfacing;
- Part 4B Asphalt;
- Part 4F Bituminous Binders;
- Part 4H: Test Methods;
- Part 4K Seals;
- Part 5 – Pavement Evaluation and Treatment Design
- Part 8 Pavement Construction;

There are a number of Austroads reports referenced in these guides that are also to be used particularly:

- AP-G41/08 Bituminous Materials Safety Guide.

Austroads Test Methods

- AG:PT/T250 - Modified Surface Texture Depth - Pestle Method

Australian Standards

- AS4233.1 High Pressure Water (Hydro) Jetting Systems, Guidelines for Safe Operation and Maintenance
- AS4233.2 – High pressure Water (Hydro) Jetting Systems, Construction and Performance

R58.5 DEFINITIONS

The following definitions, acronyms and abbreviations are used in this specification:

BWP: shall be taken to mean the strip of the travel lane *between wheel paths* (ie. between the OWP and the IWP), in the direction of normal traffic flow

HPWB: High Pressure Water Blasting (for surface re-texturing at water pressures below 138 Mpa (20,000 psi)

Hungry surface: a surface condition in which the aggregate is proud of the surface and the binder is approximately half way up the sides of the aggregate particles

Immobilised: means the vehicle transmission is disengaged and the brakes applied

IWP: shall be taken to mean the *inner wheel path* of the travel lane, in the direction of normal traffic flow

Lot: for the purposes of this specification a lot is defined as a uniform treated area not exceeding 400m².

Matt surface: a surface condition in which the binder is approximately two thirds up the sides of the aggregate particles

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OWP: shall be taken to mean the *outer wheel path* of the travel lane, in the direction of normal traffic flow

Re-texturing: removal of excess bituminous binder and residues to improve the texture of the road surface

Surface texture: the mean height of aggregate particles above the level of the binder as determined by the *Austrroads Test Method AG:PT/T250 Modified Surface Texture Depth - Pestle Method (Sand Patch Method)*

UHPWC: Ultra High Pressure Water Cutting (used for improving the seal micro-texture, at water pressures above 138 Mpa (20,000 psi))

VCS: shall mean a *vehicle control station*

R58.6 CONTRACT MANAGEMENT PLAN

The Contractor shall adopt procedures consistent with the best practice procedures recommended by the Austrroads Publications. The procedures shall be defined in the Contractor's Contract Management Plan and cover:

- delivery of specified works and services
- operational safety including accreditation/training of plant operators
- details of plant and equipment including evidence of compliance
- storage of plant and equipment
- temporary storage of waste
- waste management
- environmental management
- inspection and performance monitoring
- damage repair
- emergency management
- evidence of compliance

R58.7 PROPRIETARY PROCESSES AND PRODUCTS

The surface re-texturing of bituminous surfaces is considered to be a Proprietary Process with related Proprietary Products. The Contractor shall provide evidence that all Proprietary Processes and Products used have demonstrated satisfactory field performance for a period of at least three (3) years.

Such evidence shall include full details of the process and product properties.

The evidence shall also show that the Contractor has been trained by the process/product supplier to install/use their proprietary process/products.

R58.8 MATERIALS

When water is to be used in the re-texturing process, it shall be fresh water. Water that has been contaminated with, or comprises brackish or salt water, shall not be used. Water that has been drawn from natural freshwater streams may be permitted upon receipt of contamination test results from the Contractor. The Contractor otherwise accepts responsibility for the suitability of the water in relation to possible blockages of the spray jets or other equipment, due to contamination from suspended grits and/or other particles.

The Contractor shall supply all water for the re-texturing operations and shall ensure that all necessary permits and/or licenses are obtained. Proof of permits shall be made available to the

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Superintendent on request. All costs and charges relating to permits etc. shall be borne by the Contractor.

Materials used in processes that do not use water shall be in accordance with the proprietary process/product supplier's specifications.

R58.9 PLANT AND EQUIPMENT

Where high pressure water methodologies are used the equipment shall consist of a self-contained system capable of applying high-pressure water to remove excess binder and other unwanted materials from the road surface. The equipment may also be capable of using an abrasive agent.

The blasting jets shall be capable of settings to cover a 3.5m (full lane) pass and lesser widths with a minimum width of 0.6 metres. They shall also be adjustable for pressure in order to achieve the required degree of binder removal without damage to the road seal.

The equipment shall incorporate a collection system to uplift all of the dislodged particles of binder or other materials being removed and all sprayed water at the time of the operation from the road surface. It shall also have an on-board storage-tank to house the waste materials until disposed of.

R58.10 TRIALS

A representative section of approximately 100 square metres of each site to be treated, shall be re-textured as a trial prior to committing to the scheduled works. The trials shall be used to determine:

- the optimum vehicle travel speed
- the appropriateness of the Traffic Management Plan
- the likely type and level of damage that can be expected from the treatment process
- that the treatment will be effective and achieve the objective of improving the surface texture
- whether or not pavement marking can be preserved

Where high pressure water methodologies are used the trial shall also identify:

- the optimum jet settings and water pressures for the work to be done
- the quantum of sprayed surface per unit time that can be expected when full treatment is committed

The treated trial section shall satisfy the specified performance requirements. In the event of a trial non-conformance, another trial may be required. This follow-up trial will be made only after any modifications to equipment or methods, indicated in the earlier trial, have been made by the Contractor.

As and when the Contractor makes any changes to process or equipment, the Superintendent may request a new trial.

Prior to undertaking the retexturing trial the Contractor shall provide notice to the Superintendent at least two (2) days prior to the desired date for a joint inspection of the existing surface.

During the inspection, the Superintendent, in the company of the Contractor, shall:

- mark out the location of the existing surface that require treatment
- define the extent of the required surface treatment

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- define the additional site specific information that the Contractor must provide as evidence of compliance at the Hold Point release.

If during any trial, the pavement or seal has been damaged such that repairs are required, the Contractor shall cease the trial immediately and undertake all necessary repairs.

The Contractor shall advise the Superintendent beforehand, if it considers the re-texturing process may damage the road seal or pavement.

R58.11 WASTE MANAGEMENT

R58.11.1 Environmental Requirements

Waste material, whether liquid or solid, generated during the re-texturing operation shall be managed in accordance with *The Environmental Management and Pollution Control Act 1994 (EMPCA)* as "controlled waste". For disposal of waste a letter of approval from the Environmental Protection Authority will need to be gained and provided to the Superintendent.

R58.11.2 Waste Management Plan

Further to *Standard Specifications G2 Contract Management Plan and G10 Construction Environmental Management Plan* the Contractor shall provide;

- Proof of disposal records
- Receipts from identified disposal facility
- Date, quality and nature of disposal records
- Details of owner/operator of the disposal site including name, address and contact details.

R58.12 PERFORMANCE REQUIREMENTS

R58.12.1 Visual Inspection Requirements

The Contractor shall undertake continuous visual inspections during the re-texturing process. The surface shall be between "Hungry" and Matt" with the average texture depths confirmed in accordance with Clauses *R58.12.2 and R58.12.3*.

The visual assessment shall ensure that the process is not damaging the road surface in particular:

- excessive removal of binder
- stripping of the aggregate
- removal of the seal and underlying pavement layers
- scouring damage to underlying pavement layers
- longitudinal lines at overlaps and joins.

R58.12.2 Testing and Measurement

Testing shall be undertaken to confirm achievement. The preferred test is the Sand Patch Test, Austroads AG:PT/T250 - Modified Surface Texture Depth - Pestle Method. However, other recognised test methods (eg. Laser gauging) may be accepted.

Tests shall be made:

- immediately after the commencement of treatment
- after any modifications to the jets or water pressure have been made
- when, in the opinion of the Contractor's attendant, the texture depth is thought to change and
- prior to the texturing plant leaving the site.

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If the Sand Patch Test is adopted, the average texture depth (ATD) shall be calculated by the following formula:

$$\text{ATD (mm)} = 1272 * \text{M} / \text{D} * \text{d}^2$$

Where: M = Mass of sand sample (grams)
D = Loose unit mass of the sand (g/cm²)
d = Mean diameter of the sand patch (mm)

The treated road surface must be uniform in texture, in both the transverse and longitudinal directions.

R58.12.3 Treated Texture Depth

The required average texture depths after treatment are listed in *Table R58.1 – Average Texture Depth after Treatment*.

Table R58.1 – Average Texture Depth after Treatment

Nominal Surface Aggregate Size of Existing Seal (mm)	Average Texture Depth (mm)
5	1.0 to 1.4
7	1.0 to 1.7
10	1.2 to 1.9
14	1.4 to 2.4
20	1.6 to 2.9

R58.12.4 Frequency of Testing

The frequency of testing is shown in the *Table R58.2 – Frequency of Testing*.

Table R58.2 – Frequency of Testing

Work to be Tested	Tests Required	Location of Tests
Trial area	Three tests per 100 sq. m. (before and after)	OWP & IWP & BWP
General Work	Not less than one test per 400 sq. m.	OWP & IWP & BWP

Each test series shall comprise a test in each of the three lane paths, taken across the lane at the selected location.

Note:

At a nominal 3.5m lane width, trial tests would be taken at approximately each 8 – 10m and approximately each 100 - 110m for general work.

R58.13 RECORDS

R58.13.1 General

The Contractor is required to provide records at various stages of the works including:

- prior to re-texturing
- daily re-texturing reports
- completed works report.

The Contractor shall supply all reports for each site on completion of all work on that site.

Locations

Dimensions shall be recorded to the following accuracy:

- longitudinal 1.0m

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- transverse 0.1m

for the purposes of calculation of payment and to 10m for locations within the road link system.

R58.13.2 Prior to Re-texturing

The required information shall include:

- details of the site specific Traffic Guidance Scheme
- the intended widths and lengths of re-texturing, including location plans
- location of other surface defects that may impact on the re-texturing.

R58.13.3 Daily Re-texturing Report

The report must be sufficient to:

- define the width of each re-texturing run
- locate each re-texturing run on the road link system
- identify all lots
- define weather conditions, air and road surface temperatures during each run
- determine volumes of waste removed
- compare proposed and actual re-texturing areas and provide explanations on differences.

The recording form shall be part of the Contractor's Contract Management System. It shall be completed on site and be available to the Superintendent, if required, the following working day.

R58.13.4 Completed Works Report

In addition to completing the Surface Treatment Record GI - A5B the Contractor is required to provide:

- the results of all texture measurements
- the daily re-texturing reports,
- inspection reports before and after re-texturing.

The report shall be in a systematically compiled and indexed report in electronic PDF format except that the wearing surface and pavement marking records form shall be in excel format.

All Completed Works Reports are to be provided to the Superintendent and Documents.RandT@dier.tas.gov.au (Asset Management) after acceptance by the Superintendent. The Superintendent is to ensure copies are also provided to the DIER Project Manager, the relevant DIER Regional Network Manager (Maintenance) and the DIER Project Manager for the Reseal Program.

R58.14 EVIDENCE OF COMPLIANCE

The Contractor shall demonstrate compliance with all the requirements of this specification as a condition of payment. The methods by which the Contractor will monitor and demonstrate compliance shall be detailed in the Contract Management Plan.

The performance of the Contractor shall be measured according to the following criteria:

- the procedures contained in the Contract Management Plan in particular the points listed in this specification
- provision of all reports
- no damage to the pavement
- waste management

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R58.15 HOLD POINTS

Hold Points identified in Specification R58 are listed in Table R58.3 – Hold Points.

Table R58.3 – Hold Points

Ref	Description of Hold Point	Nominated Work not to proceed	Evidence of Compliance
R58.6	Submission of Contract Management Plan	All work	Contract Management Plan
R58.10	Site Assessment	All works	Site Traffic Guidance Scheme
R58.10	Immediately prior to the commencement of a treatment trial	Commencement of the trial	Site specific procedures
R58.10	Completion of Trials	Site treatment	Texture measurements
R58.12	Upon identification of damage caused by the treatment	Further re-texturing	Documentation of defects and proposed repairs
R58.12	Prior to re-commencement after damage repair	Further re-texturing	Acceptance of repairs and revised procedures
R58.12	Performance Requirements	Progress Payment	Demonstrated compliance,
R58.13	Records	Progress Payment	Reports

R58.16 NON-CONFORMANCES

In instances where the treated texture depth lies outside of the specified limits, payment deductions listed in Table R58.4 – Deductions for Texture Non-conformances will apply:

Table R58.4 – Deductions for Texture Non-conformances

Variation Outside Texture Depth Limits	Deduction
0.2 mm	10% of Schedule Rate
0.3 mm	20% of Schedule Rate
>0.3 mm	50% of Schedule Rate

Where the pavement marking that was not intended for removal, has been severely damaged or removed by the process, it shall be replaced with *short term waterborne paint* that conforms to *Standard Specification R64 Pavement Markings*. Unless otherwise agreed, the costs for re-marking shall be borne by the Contractor.

R58.17 PAYMENT

Payment will be made in accordance with the rates quoted in the Schedule of Rates, less any amount deducted for a non-conformance. The unit of payment for re-texturing of the road surface will be square metres. Payment includes all items and activities necessary for the delivery of the works under Contract, and covers:

- provision of all necessary plant and equipment, labour and materials (including water)
- undertaking all trials
- texture measurements
- waste disposal

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- fees and levies payable
- all documentation relating to test recording and process and equipment modifications

Payment will not be made for treated areas outside those nominated at Contract, unless agreed otherwise. Nor will payment be made for damage to property belonging to others, including fences, accesses, buildings, equipment and services.

The cost of traffic control shall be paid as a separate item in the Schedule of Rates in accordance with *Standard Specification G3 Traffic Management*.

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ANNEXURE R58.A

Sheet No Month Date Contract Number

SURFACE TREATMENT

Proposed Treatment									
Road No	Link No	Start Ch	End Ch	Cway Type	Length (m)	Width (m)	Area (m ²)	Extent: Full Lane/Wheel Path/Other	Existing Surface: Aggregate, Binder & Comments

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Sheet No

Month

Date

Contract Number

DAILY RETREATMENT SHEET

Measured Final Treated Quantities											
Road No	Link No	Start Ch	End Ch	Lane: Slow/Middle/Fast/Other	Length (m)	Location: OWP/IWP/BWP	Width (m)	Area (m ²)	Agreed Aggregate Size and Binder Type (if known)	Visually Conforms - Clause 4.2.2 (Yes/No)	Tested Texture Depth Within Limits - Clause 4.2.3 (Yes/No)



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