

9 Pre-surfacing Repairs

9.1 Scope

This Section sets out the requirements for:

- a) surfacings, including first **coat sealing** and **premix** surfacings
- b) repairing surface defects, including but not limited to **crack sealing**, **crack filling**, **scabbing**, **stripping**, lichen and **vegetation** removal, **flushing** and **bleeding**, and **cold milling**
- c) repairing the **pavement** structure where a digout repair is required
- d) requirements for repairing **depressions**. This applies to the correction of settlement deformation, including **depressions** and wheel path rutting and settlement due to surface openings in surfaced roads
- e) repairing **edge break**
- f) adjusting **service covers**.

9.2 Definitions

Terms defined in the SOMAC Glossary appear in **bold**.

9.3 Response Times

The Contractor must complete all work required by this Section by the dates shown on the agreed **programme** in relation to the reseal **programme**.

Following **possession of site** the resealing contractor becomes responsible for any outstanding work which has appeared and any **pre-reseal** repairs which the maintenance contractor has not completed and all repairs up until sealing for that year.

The contractor will programme **pre-reseal** repair to suit their resealing programme in time for the curing of maintenance works prior to resurfacing.

The Contractor must complete all works, including reinstating **pavement** marking by the date shown on the agreed **programme**.

In addition:

- a) Table 9.1 states the response times for completing seal coats
- b) Table 9.2 states the response time for reinstatement of all **pavement** markings, raised **pavement** markers and removal of loose chip.

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Class	Response Time
	First Coat
M and U	1 Days
R1	1 Days
R2	2 Days
R3	2 Days
R4	2 Days

Class	Response Time		
	Pavement Markings*	Raised Pavement Markers	Removal of Loose Chip*
All Highways	Within 48 hours of completing reseal, or as specified for pre-reseal repairs	Within 72 hours of completing the second coat seal , or as specified for pre-reseal repairs	Within 48 hours

* Note: All loose chip must be removed prior to reinstatement of **pavement** markings. All **pavement** markings must be reinstated (unless specified otherwise) and loose chip must be completely removed from site prior to the removal of temporary traffic control.

** Note: That the finished **pre-seal** repair; including asphaltic joints, is **flush** with existing **pavement** surfaces and utility covers so as not to create adverse noise and vibration effects.

Where the repair is a **pre-reseal** repair, a **second coat seal** is not required.

9.4 Specific Requirements

Much of the repair work associated with pre-surfacing repairs involves chip sealing the surface of repairs.

All **pavement** repairs must have a sealed surface:

- at the end of each day's work, unless circumstances, e.g. weather, are not suitable for surfacing (see section 9.4.4)
- which is maintained for the duration of all public holidays and the periods specified in First **Schedule**, Part B, Clause 1.2 Definitions.

All roadmarking and other **Traffic Control Devices** must be reinstated in accordance with Section 3.10 Reinstatement of **Traffic Control Devices**.

9.4.1. Repair Design

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The Contractor must design all repairs with a minimum design life of 10 years unless indicated otherwise in the Maintenance Intervention Strategy (MIS).

The Contractor must have a documented procedure for determining design life including:

- a) inspection
- b) investigation, including laboratory and field testing
- c) where appropriate, determining the type and quantity of stabilisation agent
- d) marking on the **pavement** surface the location and extent of all proposed digout repairs.

If replacing the insitu material is the preferred repair method, the Contractor *must demonstrate* other lower priced methods are inappropriate.

The hardness of the repaired surface must be consistent with the reseal design, at the intended time of reseal.

9.4.2. Surface Shape

Unless otherwise agreed, all surface defects must be repaired according to the Operational Requirements, the Maintenance Intervention Strategy and the following requirements.

The following principles shall be followed:

- a) The Contractor shall schedule the location of all repairs or levelling required, indicating priority work, and shall submit the **schedule** together with the proposed method of repair and work **programme** for agreement by the Engineer.
- b) the Contractor shall carry out repairs or levelling in accordance with this specification and the adjusted **schedule**, and be responsible for subsequent maintenance of the work.
- c) once all surfacing work is complete, the repair must comply with the tolerances stated in Appendix 2.3 so there is a smooth transition from the adjoining **pavement** on to and off the repair and no ponding of water.
- d) the surface shape of repairs shall be such that the existing road crossfall is maintained, and there shall be no sharp ridges
- e) the finished surface, including asphaltic joints, is **flush** with existing **pavement** surfaces and utility covers, so as not to create adverse noise and vibration effects.

9.4.3. Removal of Surplus Material and Clean Up

All material surplus to requirements shall be Removed and disposed off site.

No stock pile areas shall be permitted on the road reserve without written approval of the Engineer.

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All repaired areas shall be left clean and tidy on completion of the work including removal of loose chip on the surface or **shoulders**.

9.4.4. Construction of Surface Sealing

The final surfacing shall be of the same type as the surrounding **pavement**.

If for any reason the seal coat is not achieved on the same day, the Contractor shall take positive steps to ensure that the repair surface does not unravel allowing loose material on the road surface, and ensure the repair remains in a safe, robust, and trafficable condition from the time the repair started until the final seal coat(s) is applied. Should raveling occur the Contractor shall immediately remove all loose material from the road surface and stabilise the surface of the repair.

The Contractor may maintain the integrity of the repair by application of a temporary holding coat providing this is not detrimental to the final seal coat and if a first coat seal cannot be achieved within two days.

9.4.5. First Coat Sealing

The first coat seal must:

- a) overlap the area of the repair by 100mm to 150mm and when complete present a tidy appearance of rectangular shape; ragged edges must not be accepted
- b) comply with Chip Sealed Surfaces 9.4.8.

If agreed, the Contractor may use alternatives such as two coat sealing, slurry seal or thin **asphaltic concrete** overlay.

The texture and hardness of the first coat seal should be consistent with the reseal design, at the intended time of reseal.

9.4.6. Second Coat Sealing

Second coat sealing on pre-reseal is not required.

9.4.7. Premix Surfacing

All **premix** surfacing must be designed and constructed to comply with the requirements of the definitions section and the texture and hardness of the surface should be consistent with the reseal design, at the intended time of reseal.

9.4.8. Chip Sealed Surfaces

The performance of chip sealed surfaces will be measured in terms of the following criteria:

First coat seals must be constructed so there is no **flushing, bleeding, scabbing** or **stripping** of the sealed **carriageway** surface and in particular:

- a) the surfacing aggregate remains proud of the binder

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b) the binder is not picked up by tyres.

9.4.9. Crack Sealing and Filling

All cracked seal must be repaired by crack sealing and filling in accordance with HM1 Surfacing Section 11.5.4.

9.4.10. Scabbing and Stripping

All **scabbing** and **stripping** must be repaired in accordance with HM 11 Surfacing Section 11.5.5 except that repairs involving livening the binder using diluent are not permitted.

9.4.11. Flushing

The Contractor must nominate the method to repair the **flushed** area. All **flushing** must be repaired in accordance with HM11 Surfacing Section 11.5.6 except that **pavement gritting** is not permitted.

9.4.12. Cold Milling

All **cold milling** must be completed in accordance with HM11 Surfacing Section 11.5.7.

9.4.13. Lichen and Vegetation Removal

The Contractor will nominate the method to remove lichen and **vegetation** from the surface to be sealed.

9.4.14. Other Treatments

The Operational Requirements details the technical requirements and applications of the other **treatments**.

9.5 Digouts

All digouts and structural **pavement** repairs must be completed in accordance with HM12 Digouts Section 12.4, except that, the requirements for Surface Shape and Construction are as for Sections 9.4.1 and 9.4.2 and the surfacing constructed as specified in Sections 9.4.4 and 9.4.8.

9.5.1. Drainage

The Contractor must pay specific attention to any necessary **routine drainage maintenance** to ensure the service life is provided.

Surface Water Channels

If required, existing **surface water channels** must be either regraded and **trimmed** or new **surface water channels** constructed for a length up to 5m either side of the digout. The **batter** slopes must be generally as shown in Diagram 3.1.

The **surface water channels** must be well graded and shaped so the tie in with the existing **drainage features** is smooth and continuous and water does not pond.

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Other Treatments

The Operational Requirements and the Maintenance Intervention Strategy details the specific technical requirements for the other **treatments** and/or materials.

9.6 Materials

All materials used in the repair shall meet the requirements of HM12 Digouts Section 12.4.3, or be approved by the Engineer.

9.7 Depressions

9.7.1. Surfacing

The texture of the surface must be consistent with the reseal design, at the intended time of reseal.

9.7.2. Surface Shape and Construction

The requirements for Surface Shape and Construction are as for Repair Design and Surface Shape (see above).

9.7.3. Depth of Repair

Where the depth of deformation is greater than the thickness of the surfacing coat, it will be necessary to construct a levelling course before the waterproof coat is applied.

No areas which pond water shall be allowed before the waterproof coat is applied.

9.7.4. Methods of Repair

Repair of **depressions** must be completed in accordance with HM13 **Depressions** Section 13.4 and the surfacing constructed as specified in the specific requirements (see above).

9.8 Edge Break Repairs

Edge break repairs must be completed in accordance with HM14 **Edge Break Repairs** Section 14.4, except that the requirements for Surface Shape and Construction are as for Sections Repair Design and Surface Shape (refer above) and where required the surfacing constructed as specified in specific requirements (refer above).

If **shoulder** maintenance is required it shall be carried out prior to the **edge break** repair as specified in **Shoulder Maintenance** (refer above).

9.9 Service Covers

Where adjustment of **service covers** is necessary the work must be completed in accordance with HM15 **Service Covers** Section 15.4.

9.9.1. Waterproofness

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An acceptable method of making the joint between the **pavement** surface and the **service cover** waterproof shall be:

- a) for **asphaltic concrete** surfaces: A waterproof seal coat sprayed or painted to vertical surfaces of the **service cover** within the surfacing layer.
- b) for chipseal surfaces: The waterproof seal coat sprayed to overlap the **service cover** frame

9.10 Shoulder Maintenance

The Contractor shall inspect areas requiring **edge break** repair and if **shoulder** maintenance is required it shall be carried out prior to **edge break** repair. The Contractor shall prepare **schedules** of maintenance including location and priority work in order to meet the response times and submit the **schedule** to the engineer.

9.10.1. Extent of Work

Shoulders include the area from the existing edge of seal to a line parallel to the edge of seal which is 500 mm behind the invert of the **surface water channels**.

If there are no **surface water channels**, the **unsealed shoulder** and **side slope** shall be maintained from the existing edge of seal to a line parallel to, and 3.0m offset from, the existing edge of seal.

9.10.2. Shoulder Repair Methods

Where required prior to edgbreak repair, the Contractor shall maintain all **unsealed shoulders**, **side slope** and **surface water channels** (gravel and grassed) within the **scheduled** lengths as follows:

- a) all material used whether aggregate or topsoil, shall conform to the nominated specification in the contract documents or shall be an equivalent material.
- b) the existing widths and crossfalls shall be maintained.
- c) material shall not encroach onto the **sealed carriageway** at any time except during maintenance operations. Prior to completing maintenance activities all loose material must be removed from sealed surfaces.

9.11 Performance Criteria

The performance of the Contractor during the Contract period will be measured by the following criteria:

- a) that all repairs are completed to a standard so that do not compromise the performance of the subsequent reseal
- b) texture that exists after the completion of the **pre-reseal** repairs and prior to the resealing is compliant with the seal design

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- c) that all surfacing and repairs are carried out in accordance with this specification by the date shown on the agreed **programme** and within the response times stated
- d) that the surfacing aggregate on first coat seals remains proud of the binder
- e) that the binder on first coat seals is not picked up by tyres
- f) that chip sealing and repairs do not **flush, bleed** or **strip** before the end of the **defects liability period**, and there are no loose chips on the road surface on completion of the repair
- g) that material used for **crack** filling and sealing shall remain in place, waterproofing the **crack**, until the end of the **defects liability period**
- h) that all repairs maintain a smooth riding surface and continue to meet the requirements of this specification within the specified tolerance until the end of the **defects liability period**
- i) that **edge break** repairs shall be carried out so that upon completion of the work a stable repair which does not weave or creep under the action of compaction equipment or road traffic is produced. The finished surface shall be a continuation of the adjacent sealed surface and shall not hold surface water
- j) that the existing road crossfall is maintained, the deviation when measured with a two metre straightedge shall not be greater than 10 mm, both along the repair and between the existing **pavement** and the repair and there shall be no sharp ridges
- k) that there shall be no **flushing, bleeding** or **scabbing** of the sealed surface of repairs
- l) that there is no **vegetation** growing through the finished repair
- m) that the texture and hardness of the first coat seal is consistent with the reseal design, at the intended time of reseal
- n) that after an **edgebreak** repair there is no seal loss encroaching into the sealed road surface by more than 100mm
- o) that the top of any adjusted **service cover** shall not exceed + 10 mm or be less than - 0 mm with respect to the surrounding **pavement** surface
- p) that any **shoulder** maintenance work is carried out in accordance with this Specification by the date shown on the agreed **programme**
- q) that any **unsealed shoulders, side slopes** and **surface water channels** maintained remain compacted, and shed water from the adjacent **sealed carriageway** without ponding, **channelling** of water, or **edge rutting**
- r) that the **unsealed shoulders, side slopes** and **surface water channels** retain their widths and crossfalls

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- s) that any **shoulder** maintenance repairs shall have a finished surface such that no water ponds on the **sealed carriageway, shoulder** or taper edge
- t) that the finished surface, including asphaltic joints, is **flush** with existing **pavement** surfaces and utility covers, so as not to create adverse noise and vibration effects.

