

Reinstatement of Road Openings

pavement work tips — no. 16

June 1999

INTRODUCTION

Road openings involve excavation or trenching of road pavement and subgrade materials for purposes such as the repair or installation of utilities (e.g. power, water, sewage, etc.).

A schematic representation of a trench cutting in an existing road is shown in Fig. 1.

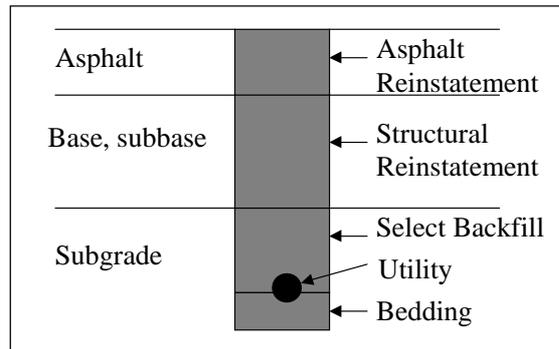


Figure 1. Representation of Reinstatement

In many cases, statutory powers and regulations of public utilities or road agencies cover the reinstatement of road openings.

The following notes are for general guidance only and should be read on the understanding that they may need to be qualified by conditions or agreements existing in each State.

In all cases, the safety of road users must be considered.

GENERAL

The general principle is that reinstatement must provide a structural adequacy and serviceability that is at least equal to that in existence prior to the road being disturbed.

In situ pavements generally have well compacted materials due to original construction standards and trafficking. Disturbing the pavement material can create a plane of weakness and reduced capacity to transfer loads. High standards of compaction of appropriate replacement materials are essential to avoid later settlement.

EXCAVATION

The thickness and an indication of the quality of each layer, of in situ pavement materials should be noted at the time of removal to ensure that minimum depths of material such as asphalt are used during replacement.

Excavations should be straight sided with no reverse slopes to interfere with compaction of reinstatement material. The width of excavation should be generally wide enough for the operation of mechanical compaction equipment.

BACKFILL OF SUBGRADE MATERIALS

Before commencing backfill operations, the bed of the trench should be thoroughly compacted. Bedding materials must comply with the requirements of the relevant utility.

Backfill should be selected material complying with the requirements of the road authority. The excavated materials may be suitable, but expansive clay materials that swell and shrink with changes in moisture content should be avoided. If the excavated material is used, each layer should be placed at approximately the level from which it was originally taken.

Pervious materials such as sands, and some gravels, should also be avoided where there is a risk that they may allow moisture to accumulate in the trench and soften the subgrade.

A typical specification for select backfill requires a granular material having 100% passing a 37.5mm sieve, 10 to 40% passing a 75 micron sieve, and a PI of 5 to 20.

continued on reverse

Key Summary

This issue of 'pavement work tips' provides general guidelines for the effective reinstatement of openings made in road pavements



Backfill materials should be placed in layers of around 150mm thickness, at moisture content close to optimum, and thoroughly compacted using mechanical tampers.

Cement stabilised soil may also be used, particularly where stability in wet conditions is required or adequate compaction is difficult. Rigid materials may not be permitted around some service pipes and conduits and high cement contents (more than 5%) should be avoided in all cases as cracking may result.

GRANULAR PAVEMENTS WITH SPRAYED SEAL SURFACING

Suitable granular materials should be used to match the profile of the existing pavement. The quality must be at least equal to that removed and have similar permeability characteristics. Re-use of contaminated pavement materials should be avoided.

Depending on traffic volumes and road user safety requirements, the granular material may be compacted flush with the adjacent seal and left unsealed for several days to allow for further consolidation under traffic and settlement in the trench prior to replacing the seal.

Alternatively, a temporary surfacing may be used that is replaced or resurfaced as part of final reinstatement.

As far as practicable, the surface type and texture should be matched to the adjacent pavement. Alternatively, the full lane width may be resurfaced to provide uniform texture and friction characteristics.

ASPHALT PAVEMENTS

Granular base and subbase layers should be replaced as discussed for sprayed seal pavements, above.

The asphalt thickness must be at least equal to that in the existing pavement. Generally, reinstatement of asphalt surfacing is similar in technique to pot hole repair. Edges of existing pavement should be cut straight and vertical. The sides and base should be tack coated prior to placing asphalt.

In some cases, a slight crown may be formed in the asphalt surfacing to allow for subsequent consolidation of the trench although the amount of consolidation is somewhat difficult to estimate. High standards of compaction of materials that minimise further consolidation under traffic are preferred.

As with sprayed seal surfacings, above, a temporary surfacing may be applied for later completion of reinstatement.

Cold mix patching materials may be used as temporary surfacing. In such cases, the full depth of cold mix should be removed when placing the final asphalt surface. Cold mix materials are not generally suitable as permanent surfacing of road openings.

CONCLUSION

Reinstatement of road openings should be carried out with materials that provide a quality that is at least equal to the existing pavement. High standards of compaction are required to avoid further settlement and depressions in the final surface. Where possible, the surfacing should be finished to match the texture, surface type and colour of the rest of the pavement.

For more information on any of the construction practices discussed in "pavement work tips", please contact either your local AUSTROADS Pavement Reference Group representative or AAPA — tel (03) 9853 3595; fax (03) 9853 3484; e-mail: info@aapa.asn.au

A complete list of "pavement work tips" issues is available on AAPA's web site: www.aapa.asn.au

Issues may be downloaded using Adobe Acrobat Reader. Copies may also be obtained from AAPA. Material may be freely reproduced providing the source is acknowledged.

This edition was prepared by John Rebbechi in consultation with members of the National Asphalt Research Coordination Group (NARC).

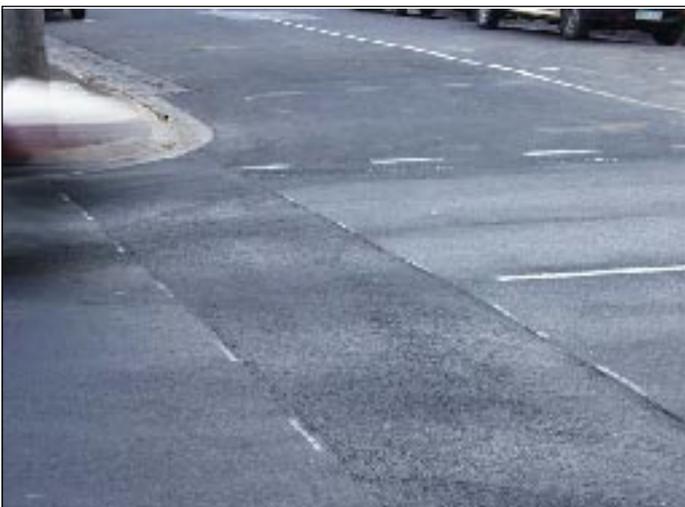


Figure 2: Neat reinstatement



Figure 3: Poorly executed reinstatement