PAVEMENT **WORK TIPS**

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Profiling

Introduction

Profiling or Cold planing, is controlled milling of pavement using a revolving drum, having spirally set teeth, incorporated in a heavy self-propelled unit. Machines come in various sizes from small machines with 250 mm width of cut, up to large powerful machines of 2.2 m drum width. Most of the larger machines load the milled material directly into trucks.

The Milled asphalt (RAP: recycled asphalt planings) is a valuable product that has the potential to be completely recycled. Care needs to be taken to avoid contamination with base course material and should ideally be milled separately.

PRINCIPAL USES

Correcting pavement shape

Taking out ruts, bumps, depressions or other uneven areas of pavement to allow a uniform thickness of new asphalt surface to be placed.

Removing deteriorated asphalt surfacing

Removing old asphalt which is fatty, bleeding, ravelling, cracked or otherwise deteriorated, prior to placing new surface.

Patching

Rapid, neat, removal of pavement materials to controlled depth to expedite pavement patching

Crossfall and Super-elevation correction

Changing the slope or crossfall of a pavement.

Edge planing

Removal of asphalt adjacent to kerb and channel or adjoining asphalt surfaces to enable an asphalt overlay to be placed without creating height differences and to produce a smooth riding pavement joint.

Trenching

Cold planing is a quick and efficient process for narrow cuts to take out longitudinal cracks in a pavement or to assist location of services with minimal pavement damage.

Shoulder improvement

Where shoulder materials are to be removed for pavement widening or upgrading, a profiler can remove existing material efficiently with little of no hindrance to existing traffic.

Re-texturing

Where asphalt resurfacing is to be placed in areas of high shearing stresses, such as roundabouts and intersections, cold planing provides a well textured surface for a strong bond to the new surface. Texturing is also sometimes used on smooth surfaces to improve skid resistance. In such cases, the texture is influenced by set-up of cutting teeth, depth of cut, and machine travel speed.

Equipment

Some machines can be fitted with fine or micro fine milling drums to give a surface finish with smaller groove depth and less surface texture.

Fine milling drums are only intended for thin surfacing works and have a limited depth of cut. Miro fine drums are only intended to take off a very thin layer of the existing surfacing.
The texture values (by sand patch test) that can be expected from cold milling are:

- Normal: greater than 8mm
- Fine: between 4 and 8mm
- Micro Fine: less than 4mm

A coarse textured milled pavement may not allow water to drain freely from OG asphalt and a micro fine texture is more suitable for applying a seal or geotextile seal. If a milled surface is to be trafficked, fine milling may be preferred when all road users are considered.

JOB SITE PROCEDURE

Planning

Determine job requirements, area, depth of cut, etc. and location of services (pit covers and the like). Ensure there are adequate trucks for the size of the project & appropriate traffic management.

Choose the right machine for the job. If the machine is too small, extra costs can be incurred in traffic control, asphalt crew waiting time and delays to traveling public. A large machine may not have the maneuverability required for small jobs and incur higher machine costs. As a general rule, machines of 500 mm width or less would be limited to jobs of around 1,000 m2, machines up to 1 m width to jobs around 2,000 m2 , and larger jobs best suited to the wider 1.4 to 2.2 m machines.

Determine the owner and disposal of excavated material.

Operations

In addition to manual setting of cutting depth, larger modern machines also provide for automatic control of profile using devices such as stringlines, laser beam, sensing of adjoining pavement or preset onboard computer. Automatic devices should be capable of producing profiled surface levels to a tolerance of ±5 mm.

Some machines have a further control option of predetermined crossfall from a reference device working from one side of the machine only.

Finishing Off

A great deal of cold planing work is done in situations where the excavated area is backfilled with asphalt or other pavement material prior to re-opening to traffic. In some situations the cold planed surface is open to traffic. In such circumstances the following actions are necessary.

Ensure that edges are suitably ramped. Any change in level greater than about 30 mm should have a wedge of asphalt placed so that longitudinal edges have a maximum slope of about 1 in 5, and so that transverse edges have a maximum slope of 1 in 10 on low speed roads, increasing to 1 in 20 for roads with traffic speeds over 75 km/h.

Adopt appropriate traffic management that includes signage to manage road user hazards associated with uneven surfaces.

AUSTRALIAN ASPHALT PAVEMENT ASSOCIATION

Austroads

For more information on any of the construction practices discussed in ***Pavement Work Tips***, please contact your local Austroads representative or AAPA:

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A complete list of ***Pavement Work Tips*** issues is available at **www.aapa.asn.au**

Pavement Work Tips issues may be downloaded using Adobe Acrobat Reader.

This edition was prepared by members of the ***Austroads Working Group***.