INTERLAYER APPLICATIONS OVER MILLED SURFACES

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Why do we mill surfaces?

Milling of existing pavement surfaces assists the engineer in restoring the pavement life by adding a new overlay but still maintain drainage performance and curb height.

The AASHTO guide for Design of Pavement Structures III-135 5.7.6 relays the following on surface milling for design:

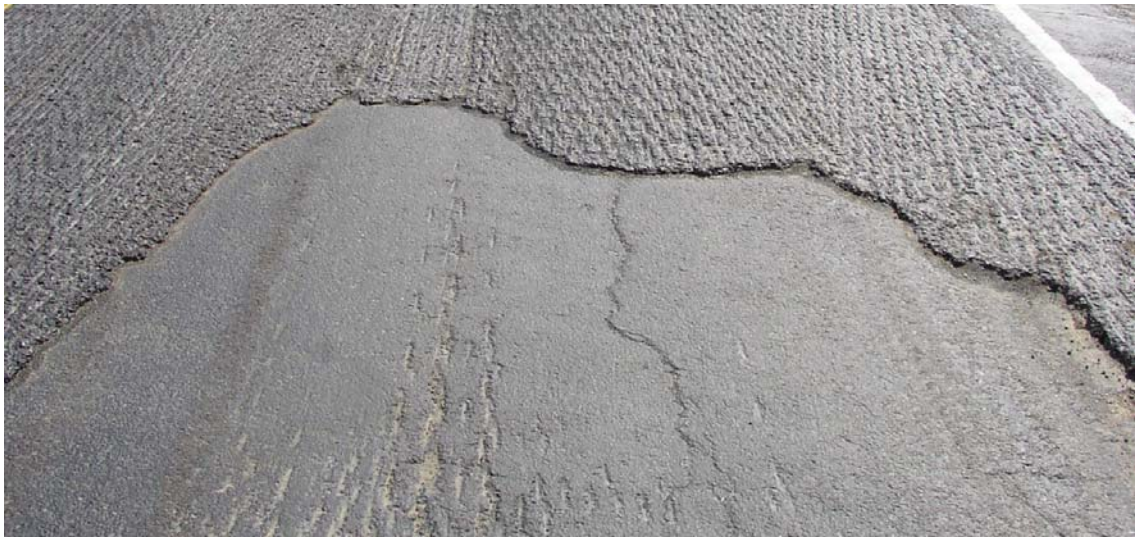
"If the AC surface is to be milled prior to overlay, the depth of milling should be considered in the determination of the effective thickness design. No adjustment is needed if the depth of milling does not exceed the minimum necessary to remove surface ruts. If a greater depth is milled, the AC thickness remaining after milling should be use in determining the effective thickness designs."

Most milling operations result in an irregular or non-uniform surface.

The milling texture is defined by the tooth spacing on the milling drum and by the speed of the milling machines. The resulting surfaces are grooved surfaces, that comprise uniformly spaced crests and troughs. The surfaces can be relatively smooth, or defined as a micro-milled surface - with crest to trough depths of ¼" of less, or can be very coarse - with crest to trough depths of 1" or greater.

	
Micro-Milling Drum	Typical Milled Surface Texture

Depending on the depth of milling relative to the interface between two lifts, there could be localized small or large areas (4 square inches to 100 square feet) of scabbing (areas where the remaining surface is removed and left bare) which is surrounded by the milled surface. These areas can be -.25inches to 1" deep, with near vertical surfaces at the transition between the two areas. These "scabbed areas are challenging in that the tack coat and the paving interlayer need to conform to the varying surfaces and the transition between the two surfaces.



TenCate Mirafi® Interlayers best Suited to Milled Surfaces

Mirafi® MPV paving fabrics easily accommodate the varying surface conditions, no matter how coarse the milling texture. The tack coat quantity required for the installation of the Mirafi® MPV needs to be increased with the increase in texture. See the table below.

For Mirafi® MPM and MPG products, the milling texture depth has to be restricted to 3/8th inch or less. The most common milling texture depth is however 3/8th inch. Relative to the normal tack coat application rate, the rate has to be increased to account for the increased surface area of a milled surface. See the table below.

Milled Surface Texture	**Texture ≤ 3/8 ”**	**Texture > 3/8 “**
Add to Application Rate [gal/sy]	+ 0.01	+ 0.02

Traffic on interlayers over a milled surface should be limited to construction vehicles only.

Cleaning the Milled Surface:

Milled surfaces are typically associated with a high quantity of dust and fines. Cleaning the milled surface requires more attention and effort than an existing or new asphalt surface to get it clean enough. Although mechanical brooms are required, they typically simply move the dirt around, and are only partially successful. It is recommended that a vacuum truck or water should be used to clean the surface.

Installing the Interlayer on a Milled Surface:

After the tack coat is placed, and the interlayer installed on the tacked and milled surface, the interlayer should be seated with a pneumatic tire roller.

Asphalt emulsions are not recommended for use on a milled surface because they will pool in the "valleys" of the milled surface, resulting in differential curing, and therefore deliver non-uniform adhesion.

In some cases milling will expose the aggregate base layer. These exposed aggregate areas should be repaired with hot mix asphalt to form a bound layer.

Paving on an Interlayer over a Milled Surface:

A minimum of 1.5 inches compacted asphalt overlay should be placed over all interlayer surfaces.

There should be no difference in the paving or compaction activities for any project where the interlayer has been installed on a milled surface.