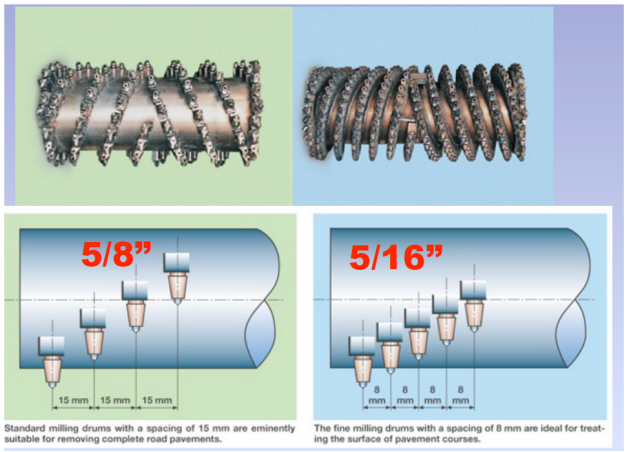
Milling Best Practices

Factors that Influence the Quality of a Milled Surface

- **Cutting Drum Type**
- **Speed of Milling Operation**
- **Number of Haul Trucks**
- **Condition of Cutting teeth**
- **Use of Electronic Grade Controls**
- **Proper Cutting Depth**
- **Quality Clean-Up**

Cutting Drum Type

- **Cutting drums are typically available with teeth spacing of either 5/8" (standard) or 5/16" (fine textured).**
- **In general, the greater the number of teeth, the smoother the texture of the milled surface.**



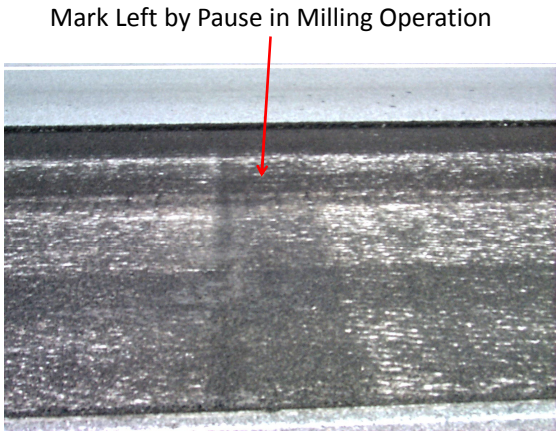
Speed of Milling Operation

- **However, a cutter with 5/8" spacing can yield a smooth surface if the forward speed is reduced.**
- **TDOT Spec. 415.03: When milling the roadway for hot mix overlays the maximum allowable forward speed shall be:**
  - **60 ft/min when the teeth spacing is ½ - 5/8 ".**
  - **80 ft/min when the teeth spacing is < ½ ".**

Milling Best Practices

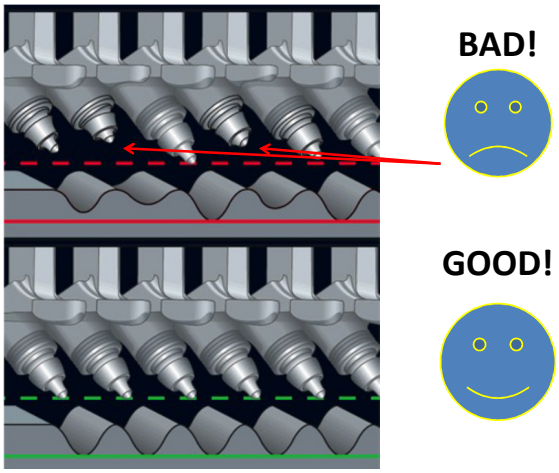
Number of Haul Trucks

- **The number of haul truck available should be sufficient to allow the milling operation to progress at a constant rate.**
- **Not having enough trucks will cause the milling operation to periodically stop, which can leave an excessively-milled surface where the machine was stopped.**



Condition of Cutting Teeth

- **Cutting teeth should be routinely inspected for damage or uneven wear.**
- **This can create a non-uniform milled surface and may be indicated by lines or streaks visible in the milled surface**



Use of Electronic Grade Controls

- **Electronic grade/slope control systems, similar to those used on modern pavers, can significantly improve the smoothness of the milled surface.**
- **TDOT Spec. 415.03: When milling the Interstate or controlled access freeways, the planing machine shall be capable of restoring pavement profile with a non-contact leveling system. The non-contact leveling system shall have a minimum of three sensors dispersed the length of the machine.**

Milling Best Practices

Proper Cutting Depth

- **The specified milling depth will be listed on the construction project plans, but this is only the target value. What if there is material from the layer being milled that is not removed?**
- **Often, there will be remnants of a milled layer that are left by the milling operation. This is known as "scabbing", and must be addressed by project personnel.**
- **The milling depth MUST be increased to the extent that the "scabs" are consistently being prevented/removed.**

Quality Clean-Up

- **In the past, TDOT has occasionally allowed a portion of the fine milled material to remain in place. THIS IS NO LONGER PERMITTED.**
- **All milled material must be removed prior to the placement of tack coat for the new pavement layer.**
- **This includes superfine dust; which may require the use of a vacuum sweeper truck.**

The Bottom Line…

415.03-General Requirements.
…. The finished surface on the Interstate and controlled access freeways shall be of uniform profile throughout, without any *scabbing, scallops, gouges, ridges, or other imperfections resulting from worn cutter teeth, improper operating speeds, poor equipment maintenance, or other instances of poor workmanship.*

It Oughtta Look Like This!