

24th July 2025

Operational and Technical Issues:

- Some common-sense things....
- Some practical videos.....
- Best practices in traffic accommodation;
- Pothole repairs using cold mix
- Patching using Slurry or Road Patch
- Patching using a walk-behind roller

John Onraët - SAT

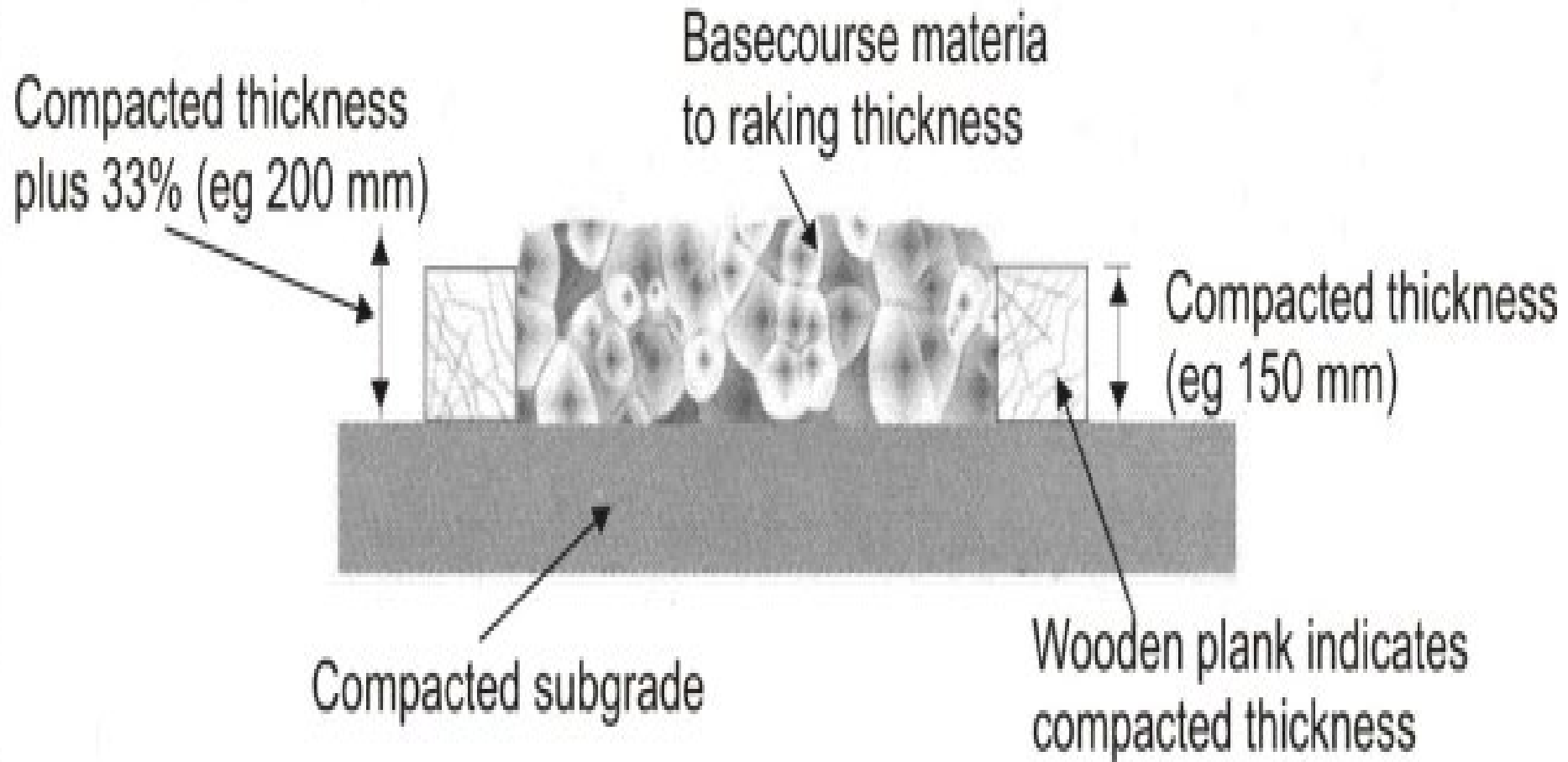
Some important facts.... The “fluff factor”

For a repair of 25 m long and 6 m wide, requiring a base of 150 mm compacted thickness, calculate required quantity (Q) as follows:

$$\begin{aligned} Q &= 25 \times 6 \times (0.150 + 33\%) \\ &= 150 \times (0.150 + 0.050) \\ &= 150 \times 0.200 \\ &= 30 \text{ m}^3 \text{ (loose)} \end{aligned}$$

loose thickness = compacted thickness + 33%

Method to achieve even thickness of uncompacted base



Primer and tack coats

A background photograph showing a group of construction workers in various uniforms (blue, orange, and grey) standing around a white truck. The truck's bed is filled with a dark, granular material, likely asphalt or gravel. The scene is outdoors, with trees and buildings visible in the background. The image is overlaid with a semi-transparent yellow rectangle containing the title and a list of bullet points.

- difference between primer and tack
- selection criteria – prime and tack
- types, application and advantages

Hot / Warm / Cold mix asphalt

- Selection: the importance of high quality product
- Choice between 10mm Medium and 7mm Fine
- For most “minor” works use Fine
 - easier to work by hand
 - minimised segregation
 - compacts easier (especially thin layers)
 - usually has a higher bitumen content



Patching & repairs



Cracks, Potholes & Failures

- crocodile cracks
 - named after look of crocodile skin
 - mostly in the wheel tracks
 - fatigue caused by traffic
- random cracks
 - no regular pattern
 - often open
 - surrounding surface in good condition





- is surrounding surface sound?
- remove loose material & neaten edges
- check underlying material (base?)
- asphalt backfill



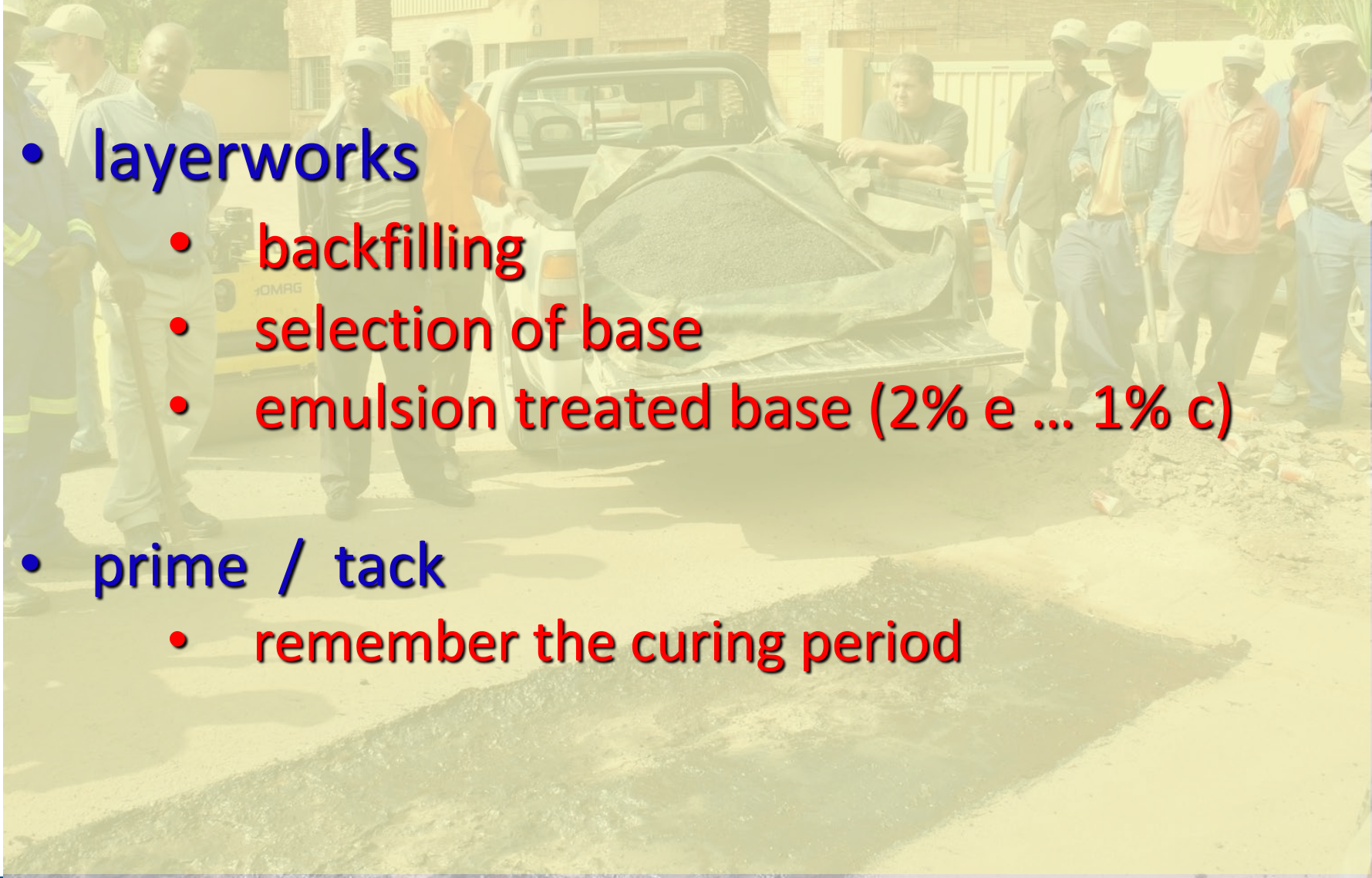
A photograph of a road construction site. In the foreground, a rectangular excavation has been made in the asphalt road surface. The excavation is filled with a dark, granular material, likely gravel or crushed stone. The sides of the excavation are sloped. A red arrow points to the sloped side. In the background, a worker in a blue shirt and orange safety vest stands near a piece of construction equipment. Another worker is visible further back. Orange traffic cones are placed along the road to mark the work area. The road extends into the distance under a clear sky.

Neat excavation
to sound
material

Sloped
sides

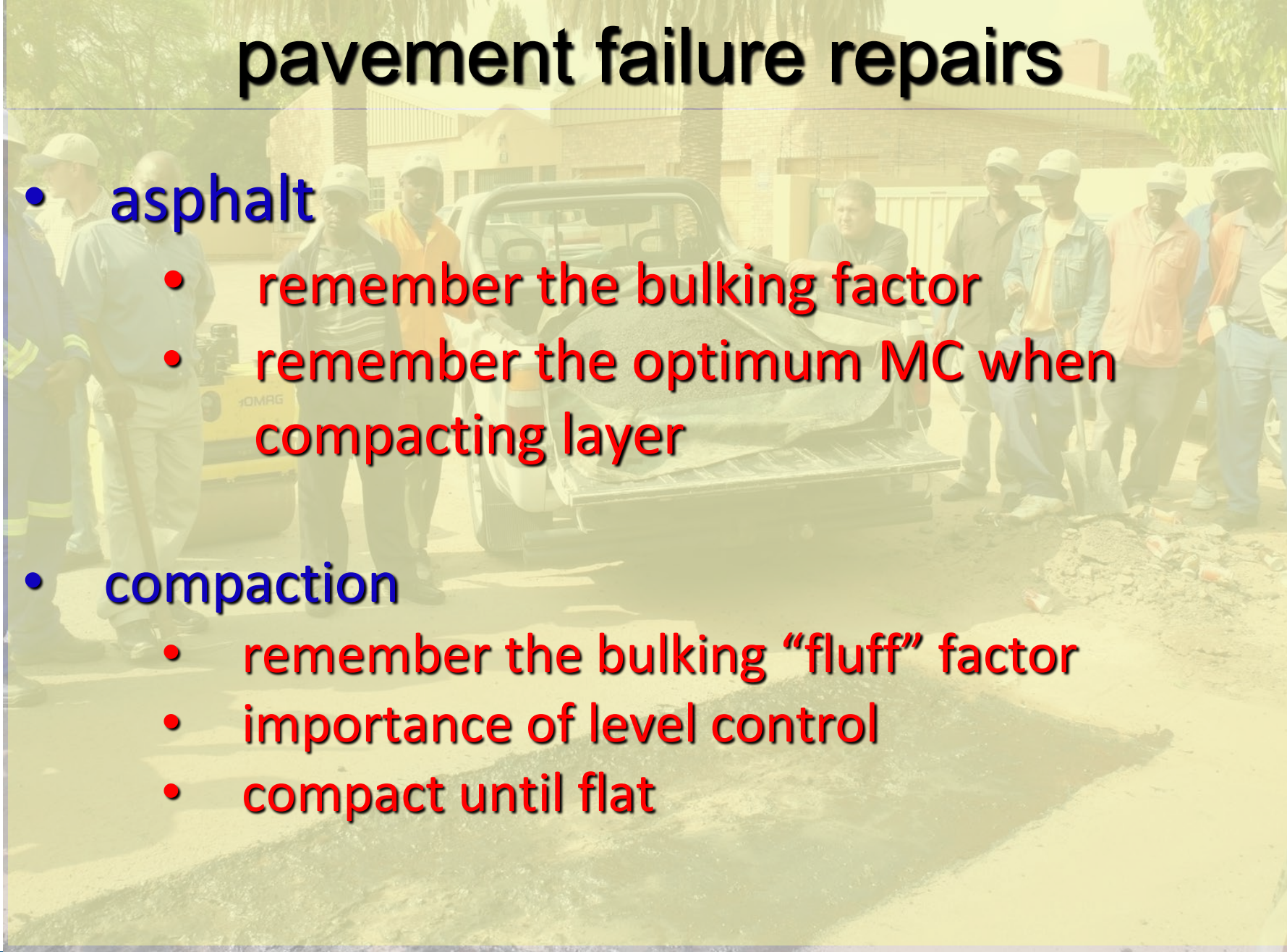
pavement failure repairs

- layerworks
 - backfilling
 - selection of base
 - emulsion treated base (2% e ... 1% c)
- prime / tack
 - remember the curing period



pavement failure repairs

- asphalt
 - remember the bulking factor
 - remember the optimum MC when compacting layer
- compaction
 - remember the bulking “fluff” factor
 - importance of level control
 - compact until flat



Comptacted thickness	Pre-compaction thickness	Coverage (m ² /ton)
20 mm	25 mm	20
25 mm	30 mm to 35 mm	16
30 mm	40 mm	14
35 mm	40 mm to 50 mm	12
40 mm	50 mm to 55 mm	10

pavement failure repairs

- cold mix asphalt
 - either too stiff & difficult to compact ...
 - ... is porous & fails during wet weather
- or too soft & compactible ...
 - ... soft in hot weather & shoves
- prefer too stiff but must seal with eg Water Block



pavement failure repairs

- sealing
 - edges
 - surface (particularly cold mix)
- traffic control on public roads
 - very very important





Thank you

