

## FURTHER INVESTIGATIONS ON THE USE OF THE DYNAMIC TRACK STABILISER AFTER TAMPING

This report supplements previous work in ascertaining the effects upon sleeper lateral resistance and track vertical geometry when using the dynamic track stabiliser (DTS) after tamping.

Two sites were selected. One for lateral resistance and geometry measurement, and one for geometry measurements only. For the lateral resistance tests, measurements were made pre-maintenance and post tamping + DTS. For the geometry test, measurements were made pre-maintenance, post tamping and post tamping + DTS.

The main conclusions and recommendations are:

- It can still be concluded that a critical rail temperature (CRT) for track maintained with a tamper and DTS would typically be 50°C, which would be perfectly satisfactory for most summer situations.
- Less than half of the track quality improvement from tamping is lost after use of the DTS. This contradicts previous research and it is believed that this is due to tamping design schemes with high lifts being applied rather than a maintenance tamp. Tamping design schemes may also improve some of the long wavelength irregularities whereas a maintenance tamp will only improve short wavelengths. The subsequent loss of quality caused by the DTS will also only effect the short wavelengths.
- The nominal tamping lift at Site 1 was twice that at Site 2. However, the deterioration due to use of the DTS was very similar for both sites, suggesting that it is not highly dependent on initial lift as long as the nominal lift is not less than 25mm. Therefore, the use of DTS is not recommended after a maintenance tamp with a typical 15mm to 20mm lift.
- If the DTS is used immediately after tamping, there is scope to reduce the embargo on tamping the ECML between May and September and the 'three day rule'. This is providing a tamping design scheme with a nominal lift of at least 25mm has been applied. The extent to which these rules can be relaxed would have to be subject to some consideration.