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Date:	03/12/2011
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Level 2

Marking of track for tamping machines

Endorsement and Authorisation

Endorsed by:



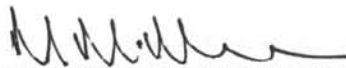
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Issue record

Issue	Date	Comments
1	December 2011	First issue.

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 01 April 2012.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 3 (Option Selection) to continue to comply with the issue of any relevant Network Rail standards current when GRIP Stage 3 was completed and not to comply with requirements contained herein, unless stipulated otherwise in the scope of this standard.

Reference documentation

NR/L2/TRK/2102, *Design and construction of track.*

NR/L2/TRK/001/C01, *Inspection and maintenance of permanent way – Geometry and gauge clearance.*

NR/L3/TRK/3242, *Marking of track for stoneblowing machines.*

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1 Purpose

This standard is part of a pair of related standards, the other being NR/L3/TRK/3242, *Marking of track for stoneblowing machines*, that specify correct and accurate track marking. Consistent track marking will:

- a) avoid confusion between the operators and Network Rail Technical Staff about the work required;
- b) reduce or remove damage to infrastructure and preventing delays caused due to overrun as the damage is repaired. Sometimes such damage necessitates planning of further shifts which further reduce access for other works;
- c) allows for tamping closer to obstructions where previously whole sleepers may have been avoided. This can lead to better and more accurate quality track;
- d) provide intangible benefits of:
 - 1) increased engagement of the TQS on site;
 - 2) improved relationships and communication between NR and operators (external contractors) on site;
 - 3) greater “buy-in” to the pre-site preparation and design process.

2 Scope

This Network Rail standard specifies the process for the marking up of track on Network Rail’s infrastructure prior to the use of tamping machines.

This Network Rail standard applies to all permanent and temporary markings made to the track on Network Rail infrastructure.

3 Permanent marking

NOTE Attention is drawn to NR/L2/TRK/2102, 11.3 and NR/L2/TRK/001/C01, 5.31.

3.1

Cant shall be shown in millimetres. The numerals shall be parallel to the rail, marked on the high side of the bearer/sleeper and in the approved materials.

3.2

Where two level base plates exist (i.e. the CANT on adjacent roads on S&C is different), the employers’ representative on site shall notify the Lead operator prior to tamping and reach a clear understanding on the cant to be applied.

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3.3

In transitions, the cant shall be shown in steps of 5 mm.

3.4

The length of all transition curves and the radii of all circular curves shall be shown in metres.

The numerals and letters shall be parallel to the sleeper. Where the two dimensions appear on the same sleeper, the transition length shall be shown on the transition side of the sleeper, and the radius on the curve side.

3.5

At the bottom of a transition, the length of the transition together with the zero cant and an arrow indicating the direction of the zero canted track shall be shown.

3.6

At the top of transitions (and at each end of the transition between circular curves of similar flexure and different radii), the radius of the circular curve and the length of the transition shall be shown together with the full cant and an arrow indicating the direction of the fully canted track.

3.7

All numbers, letters and arrows shall be black on a yellow background (colour code 08E51) on the high rail side of all sleepers.

3.8

All markings shall be of such a size so as to be clearly legible from the cab of an on track machine in normal operating mode. The minimum height for CANT markings shall be 60 mm, and 43 mm for transition markings.

3.9

For markings painted on the sleeper, proprietary yellow and black paint together with stencils for the numerals, letters and arrows shall be used.

On creosoted timber sleepers:

- a) the markings shall be applied to marine plywood pieces, fixed to the sleepers; or
- b) purpose-made pre-printed black on yellow plates may be securely fixed to the sleepers or other approved products.

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3.10

To enhance visibility of change of geometry, it is recommended that (as well as geometry plates) the top surface of the sleeper is painted yellow over the complete length at each end of a transition, excluding the rail fastening areas.

3.11

On circular curves, the full cant and radius, together with a double-headed arrow, shall be shown at every quarter-mile post.

3.12

On reverse curve transitions, the zero cant at the bottom of each transition shall be shown on both sides of the sleeper.

3.13

NOTE Permanent signs are required at each end of a site where prohibitions apply, e.g. ballast glued site or direct fastening structures. The restrictions will normally prohibit any On-Track Machine.

3.14

Virtual transitions shall be marked with the two radii and Full Cant with double headed arrow and "VT".

3.15

All curves and adjacent transitions where the design cant deficiency exceeds 150 mm shall be marked every 200 m and at each quarter milepost with a plate on the sleeper in the four-foot.

The plate shall be blue, with the words "High Cant Deficiency" or "HCD" (high cant deficiency) in white, as shown in Figure 1.

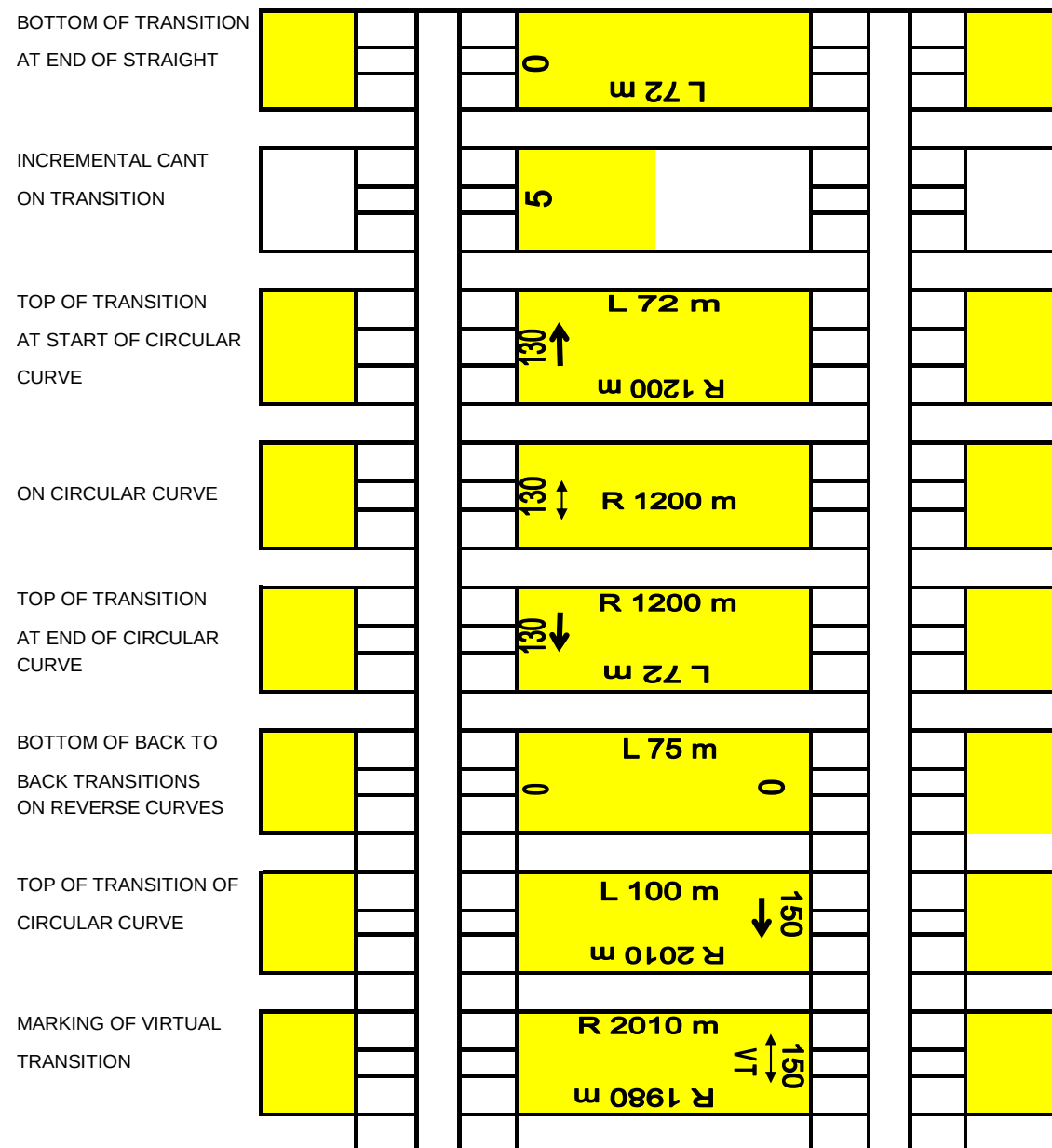


Figure 1 – "High Cant Deficiency" plate

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3.16

Permanent markings shall be made as shown in Figure 2.



Markings are to be in metric on the high rail side

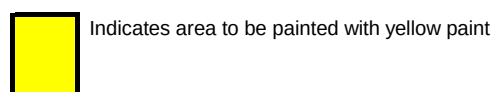


Figure 2 – Permanent marking of track geometry

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4 Temporary marking

4.1 General

4.1.1

Marking obstructions shall be as follows.

- a) Marking shall be in accordance with the relevant part of Section 5 of this document; or
- b) if it is not possible to mark the track as specified in Section 5 due to site conditions or exceptional circumstances, the Network Rail representative and the machine operator shall:
 - 1) agree and specify any deviation prior to commencement of work; and
 - 2) record this agreement on the Daily Work Return (signed record of work).

4.1.2

All marks shall be made with either white or yellow chalk, crayon or spray paint.

NOTE These colours show up better at night. Renewals sites prefer chalk or crayon over spray paint (due to the mess left behind).

4.1.3

Cables shall be gathered together, made to cross the track parallel to the sleepers and marked with spray paint.

NOTE Cables present a serious risk if they are damaged by tamping tines, to safety and performance.

4.1.4

NOTE In OHLE areas, electrical bonds are identified by being coloured red or yellow (either with sleeving or paint).

To avoid any confusion and potential risk, yellow spray paint shall not be used on the red areas. The cable position shall be marked with lines adjacent to the cable position.

4.1.5

All changes to rail section and sleeper/bearer type shall be marked to indicate rail section and sleeper type, e.g. G44CEN60.

4.1.6

Where design scheme lift and slews are to be applied manually by the operator, they shall be marked on the track in accordance with Appendix B.