



CI-0802

TAB 8: HEAVY RAIL
Trackwork

SWITCH STANDS

Where hand throw turnouts are used the following switch stands shall be used:

Throw Turnout	Switch Stand
Main Line Tracks	31B switch stands only, with red reflectorized target and red & green reflectorized target tip assembly per CN Standard Plan TS-701.
Sidings and Yard Tracks	17B, 36D or 20B stand, with yellow & green reflectorized target. No. 22 semi-automatic stand with yellow & green reflectorized target may be used in yards only with permission of GO Transit.

Switch stands shall be placed on the turnout side of the main track except where the view is obstructed or clearance is restricted. The switch stand handle shall be positioned so that when the switch is in the normal position, the handle faces away from the frog and away from the track. When the switch is lined for the diverging route, the handle should move in the same direction as the points.

TRACK TIES

Timber Ties

On main line tracks, install **CN grade #1 hardwood ties**, 2.590 m (8'-6"), long at 517 mm centres, 1932 ties per kilometre, (20-3/8" centres, 3110 ties per mile). On secondary tracks or main line tracks primarily used by GO trains, install #2 hardwood or ties at 540 mm centres, 1852 ties per kilometre, (21-1/4" centres, 2980 ties per mile). Do not mix hardwood and softwood ties. See CNSPC 3300, Appendix B for information which relates tie installation to train speed and traffic volumes. See Figure for timber tie dimensions.

All new timber ties shall be 2.6 m (8'-6"), long. The longer 2.6 m ties may be intermixed with existing 2.4 m (8'-0") long ties. A set of timber transition ties must be installed between concrete ties and timber ties.

Turnout Ties

Turnout ties, or switch ties are a set of ties of various pre-defined lengths and spacing, supporting the entire turnout structure. The length & spacing of turnout ties may affect available access for switch heater ducts.

Turnout ties remain perpendicular to the straight route. (Some European turnouts have "fanned" turnout ties). Ties under slip switches and some crossings (diamonds) are located perpendicular to the long diagonal.



CI-0804

TAB 8: HEAVY RAIL
Track Layout and Construction

TRACK ASSEMBLY

This section summarizes how the material described in Section 3 should be assembled

ITEM	MAIN LINE	YARD & USRC
Rail weight	115# RE	115# RE, 100# ARA-A
Track tie. All track ties 8'-6" long	#1 THW	#2 THW or TSW
Tie spacing	517 mm (20-3/8")	540 mm (21-1/4")
	3110 ties per mile	2980 ties per mile
Tie plate	14" DS	14" or 11" DS
Turnout	#20, #12	#10, #8
Ballast depth below bottom of tie	305 mm (12")	230 mm (9")
Ballast shoulder width	305 mm (12")	150 mm (6")
Tie plate-to-tie fastening	Cut spikes, screw spikes	Cut spikes
Rail-to tie plate fastening	Elastic, or cut spikes	Cut spikes
Rail anchors	Improved Fair	Improved Fair
Frog	RBM	RBM, SGM or bolted
Crossing (diamond) frog	Manganese insert	N/A

CONTINUOUS WELDED RAIL

The minimum length of CWR is approximately 120 metres, considering the longitudinal restraining capacity of standard rail anchors. Anything shorter is "Welded Rail". Where practical, CWR shall be used on all main line track. CWR must be laid at the preferred laying temperature, and de-stressed in accordance with CN Rail Standard Practice Circular 3205.

WELDING OF RAILS

Where practical rails shall be flash butt welded by the supplier and delivered by rail in CWR strings. Where rails have to be field welded a portable flash butt welding machine shall be used. Where field flash butt welding is not possible, rails can be Thermit welded.