



Clearances and Wire Lines Policy

This policy deals with railway clearances. Issues include regulatory minimum standards in Canada and the United States, exceptions to these clearance standards, as well as reporting and approvals procedures. Other issues are emergency restrictions, and the special case of power and communication wire crossings.

1.0 General

- a. The term “railway clearances” refers to the distance from the track to the nearest obstruction. Vertical clearances are measured parallel to the plane of the top of rails. Lateral clearances are measured from the track center and at right angles to the plane of the top of rails.
- b. The term “**Local Engineering Manager**” refers to the **Division Engineer** or **Superintendent Engineering** for the territory.

2.0 Railway Clearances

- a. For safety reasons, railway clearances require constant attention. Watch for any structure, pile of material or other obstruction that reduces the clearances detailed here in this *Policy*. Promptly correct or report to the **Local Engineering Manager** any reduction of these clearances that is not specifically authorized.
- b. When carrying out work programs, do not change the general level of the track, its alignment, curve elevation, or distance from adjacent tracks without the authority of the **Local Engineering Manager**. Such changes may be an issue when:
 - i. surfacing and lining track where overhead or lateral clearances are involved (for example, at tunnels, rock cuts, snowsheds, and bridge approaches).
 - ii. working alongside signals, fuelling stations and platforms.

3.0 Responsibilities

- a. The **Local Engineering Manager** is responsible for clearances on CP property on his/her territory.
 - i. has a record of locations of restricted clearances for the territory.

- ii. reviews the annual report of restricted clearances contained in the **DIMSL** system prepared by the **Clearance Bureau** and advises the **Clearance Bureau** of necessary changes or corrections.
 - iii. identifies expected changes to clearances in scopes of work.
 - iv. identifies and reports changes to clearances as a result of program and project work.
 - v. advises the **Clearance Bureau** of changes to restricted clearances due to work on his/her territory related to track and right-of-way, signals and communication, bridge and structures, third-party activity.
- b. The **Clearance Bureau** is responsible for maintaining official records of less than standard clearance.
- i. maintains and retains records of restricted clearances in the **DIMSL** (Dimensional Load) system based on information from the **Local Engineering Manager** and from periodic survey.
 - ii. produces a report of restricted clearances contained in the **DIMSL** system on an annual basis.
- c. Crews performing work that affect clearances, such as changes in track alignment or elevation, construction of structures or installation of signal equipment that encroach the clearance envelope (Figures 12-1, 13-1, 14-1, 15-1), must report changes to the **Local Engineering Manager**.

4.0 Standard Clearances – Minimums (Canada)



- a. In Canada, the standard “Respecting Railway Clearances for Canada” was filed by the Railway Association of Canada and approved by the Minister of Transport, May 14, 1992. This new standard replaces those prescribed in *CTC General Order No. E-2*.
- b. In the *Appendix, Figures 12-1, 13-1 and 14-1* show Canadian Pacific Railway’s minimum clearances for structures, bridges and tunnels on all tracks in Canada. The 23'-0" minimum height above top of rail shown in *Figure 12-1* is for new construction. No further allowance will be required for future surfacing.
- c. Within industrial sites, where it is not possible to obtain the required track clearances shown in *Figure 12-1*, use the minimum clearances shown in *Figure 15-1*.
- d. For curved tracks, increase the lateral clearances shown in *Figures 12-1, 13-1, 14-1 and 15-1* by the amount of 1 inch per degree of curvature. Clearances for all structures, bridges, and tunnels are measured either parallel to or at right angles to the plane of the top of rails.

5.0 Standard Clearances – Minimums (USA)



- a. In the USA, legal clearance requirements are defined by each state. Chapter 28 of the *AREMA* manual contains a reference table showing various legal clearance requirements by state.
- b. In the case of industrial sites and curved tracks in the USA, *section 4.0, c and d* also apply.

6.0 Less Than Standard Clearances



- a. In certain locations or in the case of structures built before a certain date, less than standard clearances may be allowed.

In Canada, this is the case with all existing structures, bridges, snow-sheds, overhead timber bridges and tunnels constructed prior to May 14, 1992. As long as these existing constructions met previous clearance limits, they can remain until they need to be modified or replaced for operational reasons. At that time, these constructions must meet the requirements of *section 3.0, b through d*.

- b) Clearances not meeting the requirements of sections 3.0 and 5.0 may be permitted at the following locations:
 - i. on a track at a main shop, diesel shop or car shop.
 - ii. permanent structures that provide for or support locomotive and car wash facilities.
- c) **IMPORTANT:** In emergencies, temporary restricted clearances may be needed in order to ensure safe train movement. In this case, train crews **MUST** be notified of any temporary operating restrictions. If the restriction will exist for more than 2 weeks, a request for approval must be submitted to the **Director Track Standards** as specified in *section 8.0, b*.

7.0 Reporting Less Than Standard Clearances - *Form MWS 170*

- a. Use *Form MWS 170* to report to the **Clearance Bureau** any encroachments (or their alteration or removal) on allowable clearances. See *Figure 16-1* for a sample of form *MWS 170*. (For clearance standards in Canada and the USA, and for standards applying to yards and industrial tracks, refer to *section 4.0, b through d*.)
- b. The **Local Engineering Manager**, within the first month of each year, must review all *MWS 170* forms and promptly advise the **Director Track Standards** of any revisions. If no revisions are required, the Manager must confirm this in writing to the **Director Track Standards**.

8.0 Requesting Approval of Less Than Standard Clearances

8.1. General

- a. Where circumstances do not permit the clearance standards outlined in *sections 3.0 and 5.0*, the **Director Track Standards** may authorize exceptions. Except in emergencies, do not start building any structure providing less than standard clearances without the **Director Track Standards'** approval.
- b. When submitting a request for approval of less than standard clearance to the **Director Track Standards**, include the following information:
 - i. reasons for less than standard clearance.
 - ii. whether operations and car movements over the track will require a locomotive, a car puller or simple gravity.
 - iii. whether locomotives will pass the point of less than standard clearance.
 - iv. what other types of cars will pass the point of less than standard clearance.
 - v. specific confirmation that:
 - the track cannot be realigned to avoid the less than standard clearance.
 - the restricting object cannot be placed where it would no longer present an obstruction.
 - vi. whether the less than standard clearance will be permanent or temporary.
 - vii. a detailed diagram showing:
 - the relative positions of the track and the obstruction.
 - cross sections at each point of less than standard clearance. Indicate the vertical clearance from the top of rail and the lateral clearance from the center line of the track.
 - the location of the less than standard clearance sign(s), if required.

8.2. Temporary Restricted Clearances

The **Director Track Standards** must approve all temporary restricted clearances required to allow repair or construction of railway bridges and other overhead structures. Advise the **Director Track Standards** 2 weeks before installing any falsework. So that dimensional traffic can be protected, report immediately any constructed clearances and the expected duration of the encroachment. The **Local Engineering Manager** must ensure that any temporary restricted clearance is defined in special instructions so that train crews will be aware of the location.

9.0 Restricted Clearance Signs

- a. At all locations where the **Director Track Standards** has approved a less than standard clearance, restricted clearance signage must conform to *Standard Plan No. F-14-41-1*. Where obstructions or terrain prevent the erection of restricted clearance

signage, the less than standard clearance should be clearly defined in special instructions.

- b. Restricted clearance signs will not be required where restricted clearance exists at locations outlined in *section 6.0, b and c*.

10.0 Track Centers

10.1.General



- a. In Canada, the standard distance between track centers is as follows (in Canada these distances are also the legal minimum for all tracks built or re-arranged after May 14, 1992.):

Main tracks	13 ft. 0 in.
Main tracks and sidings	14 ft. 0 in.
Main or running track and parallel yard tracks	14 ft. 0 in.
Yard tracks	13 ft. 6 in.
Parallel ladder tracks	18 ft. 0 in.
Ladder and other tracks	15 ft. 0 in.
Freight shed tracks	12 ft. 0 in.
Team tracks in pairs	12 ft. 0 in.
Passenger station tracks without platforms between	13 ft. 0 in.

FIGURE 10 - 1

- b. In the USA the following minimums apply to new construction or re-arranged track :



Main tracks	14 ft. 0 in.
Any two subsidiary tracks	14 ft. 0 in.
Adjacent subsidiary track to main track	15 ft. 0 in.
Ladder track adjacent to any parallel track	17 ft. 0 in.
Two adjacent parallel ladder tracks	19 ft. 0 in.
Lead, repair and caboose tracks	14 ft. 0 in.
Team tracks in pairs	14 ft. 0 in.
Unloading tracks at platforms	14 ft. 0 in.

FIGURE 10 - 2

- c. Where circumstances do not permit these minimum distances between track centers, the **Director Track Standards** may authorize exceptions. Do not begin construction of tracks with less than these minimum distances without an approval from the **Director Track Standards**.

10.2.Curvature and Super-elevation

The minimum distance between track centers specified in *paragraph 10.1* must be increased to account for curvature and super-elevation as follows:

- i. add 2 inches per degree of curvature.

- ii. if the curve elevation of the outer track exceeds the curve elevation of an adjacent inner track, add an additional 2-1/2 inches per inch of difference between these curve elevations.

11.0 Wire Lines

11.1.Safety Considerations

- a. **IMPORTANT: DO NOT** touch wire lines unless you are certain they are of such low voltage as to be safe to touch.
- b. **IMPORTANT:** To avoid the risk of electric shock, **DO NOT** measure the clearance height of power lines and other high voltage lines with a tape, cord, pole, or any other direct measuring device. This information, when required, must be obtained by the **Local Engineering Manager** by indirect measurement such that the wires not be touched.

11.2.Guidelines – Canada



- a. Power wires crossing over any track in Canada must be at least 24 feet above top of rail. (At the time of installation, this height should be 25 feet above top of rail to allow for ballast lifts.)
- b. In Canada, communications, signal and other wire crossings must be at least 24 feet above top of rail. (At the time of installation, this height should be 25 feet above top of rail to allow for ballast lifts.)
- c. Report to the **Local Engineering Manager** any wire crossing suspected of being lower than minimum requirements, as outlined in *paragraph 11.2 a and b*. The **Local Engineering Manager** can then make arrangements to have the crossing measured and, if necessary, raised.
- d. When constructing or renewing pole lines on the right of way, place the poles not less than 30 feet from the centerline of the nearest track – where the width of the right of way will permit. On narrower rights of way, poles should be placed as far as possible from the center line of the nearest track.

11.3.Guidelines – USA



- a. In the USA, power wires crossing over any track must be at least 27 feet above top of rail. (At the time of installation, this height should be 28 feet to allow for ballast lifts.) These are the required clearances for **lines carrying less than 750 volts**. Higher voltages need more clearance.
- b. Communications, signal and other wire crossings must be at least 25 feet above top of rail (At the time of installation, this height should be 26 feet above top of rail to allow for ballast lifts.)
- c. Report to the **Local Engineering Manager** any wire crossing suspected of being lower than minimum requirements, as outlined in *paragraph 10.3 a and b*. The

Local Engineering Manager can then make arrangements to have the crossing measured and, if necessary, raised.

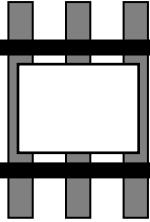
- d. In the USA, when constructing or renewing pole lines on the right of way, place the poles not less than 25 feet from the centerline of the nearest track – if the width of the right of way will permit. On narrower rights of way, poles should be placed as far as possible from the centerline of the nearest track. At public crossings in the USA, the law requires that poles stand at least 12 feet from the near rail of main lines, and at least 7 feet from the near rails of sidings.

11.4. Wire Trouble

- a. Only qualified employees should make repairs to signal and power wires.
- b. Crews should take special care to watch for fallen poles, broken or crossed wires, or wires fouled by trees or other objects. When it is known that power lines are not involved:
 - i. brace up fallen poles.
 - ii. remove obstructions and crosses.
 - iii. make temporary repairs to telegraph and telephone wires, if possible.
- c. Report the location and nature of all wire trouble to the Rail Traffic Controller.
- d. Overhead wire locations should be identified by signage as per Plan F-14-73-1 so that personnel and equipment working on the track can be advised of the existence of the wires so as not to contact the wires with booms, cranes etc.

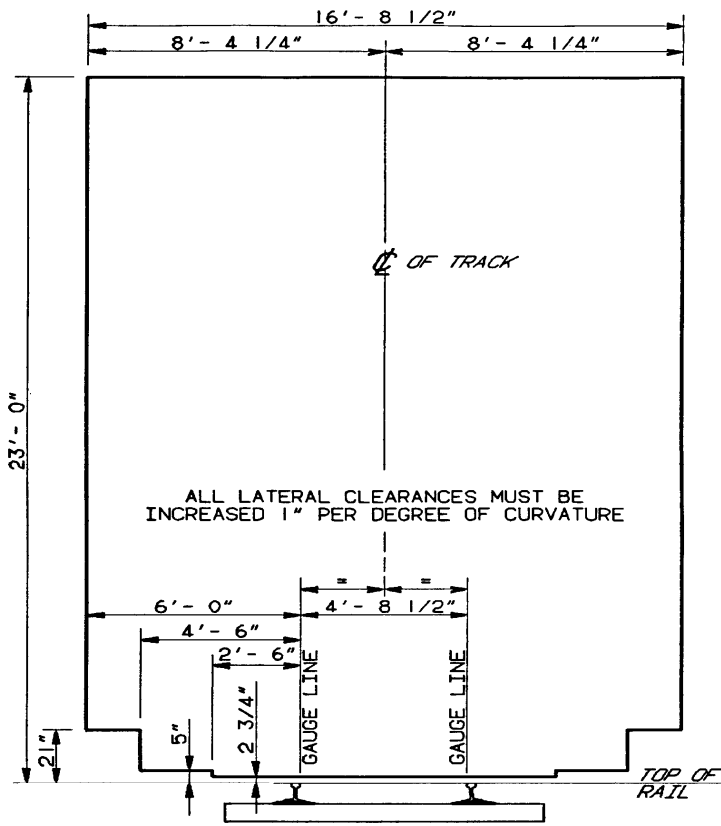
11.5. Signage

- a. Overhead wire signs are to be installed in accordance with standard plan F-14-73-1.



Appendix – Clearances and Track Centers

12.0 Structures

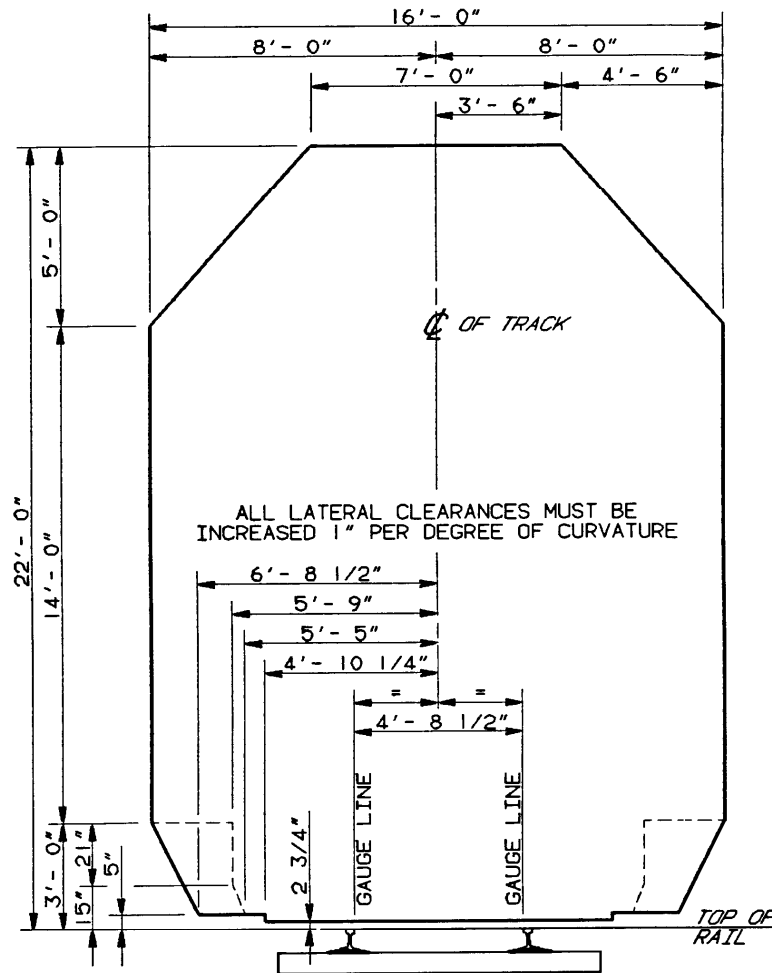


STRUCTURES

ALL TRACKS EXCEPT INDUSTRIAL SIDINGS.

Figure 12 - 1

13.0 Railway Bridges, Snowsheds and Overhead Timber Bridges

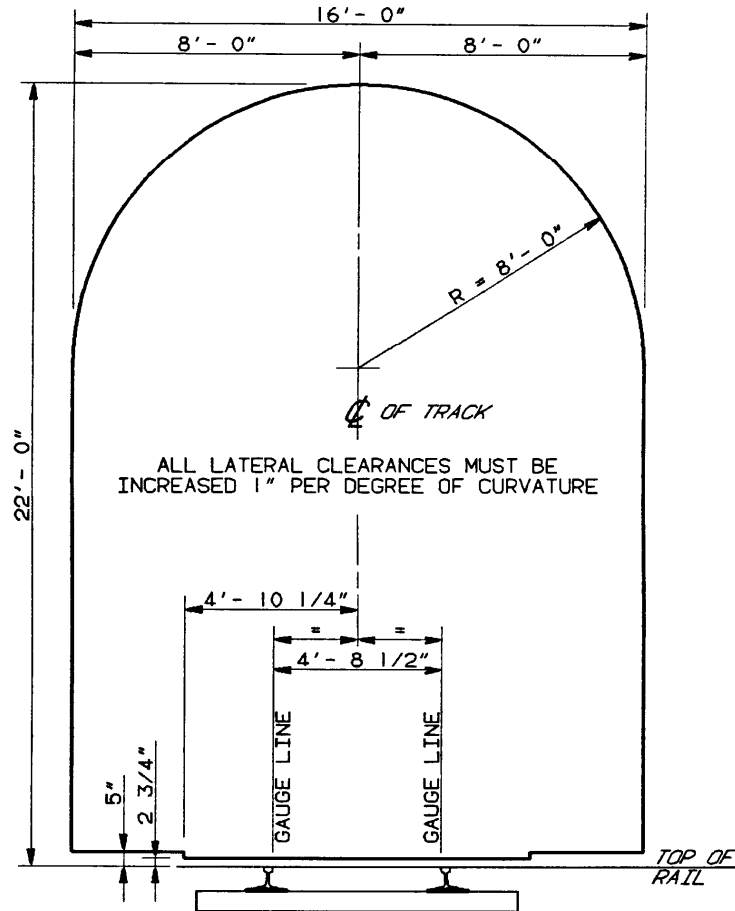


RAILWAY BRIDGES, SNOWSHEDS AND OVERHEAD TIMBER BRIDGES

BROKEN LINES INDICATE MINIMUM CLEARANCES THAT MAY BE USED WHEN AUTHORIZED BY THE CHIEF ENGINEER.

Figure 13 - 1

14.0 Railway Tunnels



RAILWAY TUNNELS

Figure 14 - 1

15.0 Industrial Sidings

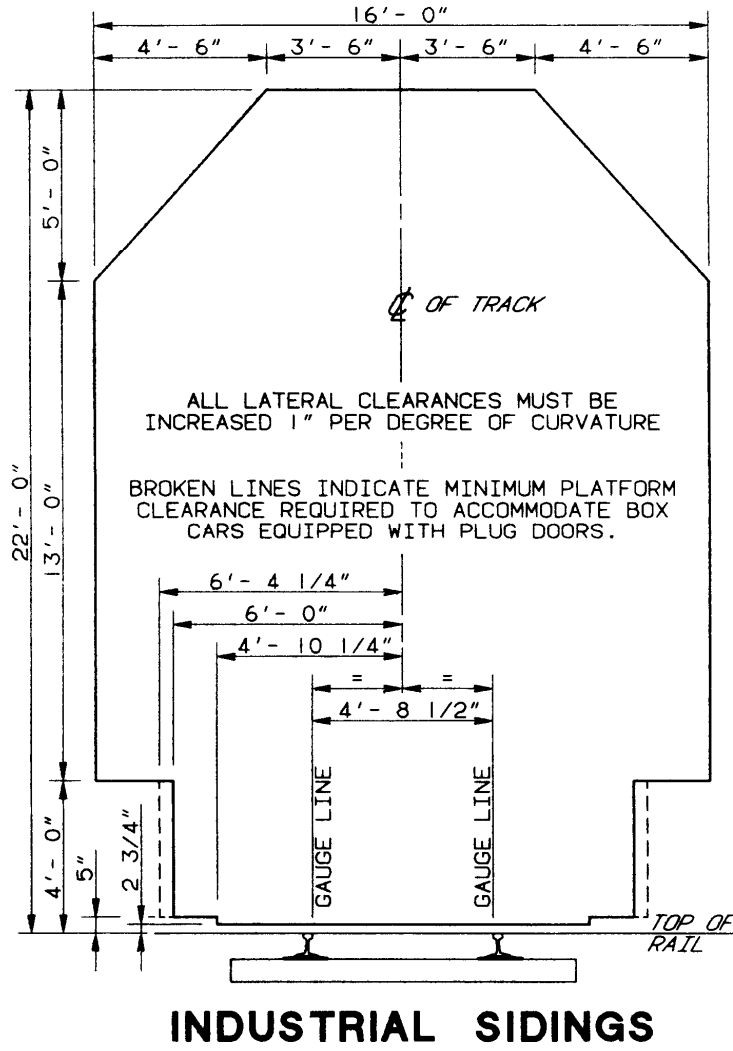


Figure 15 - 1

16.0 Form MWS 170 Sample

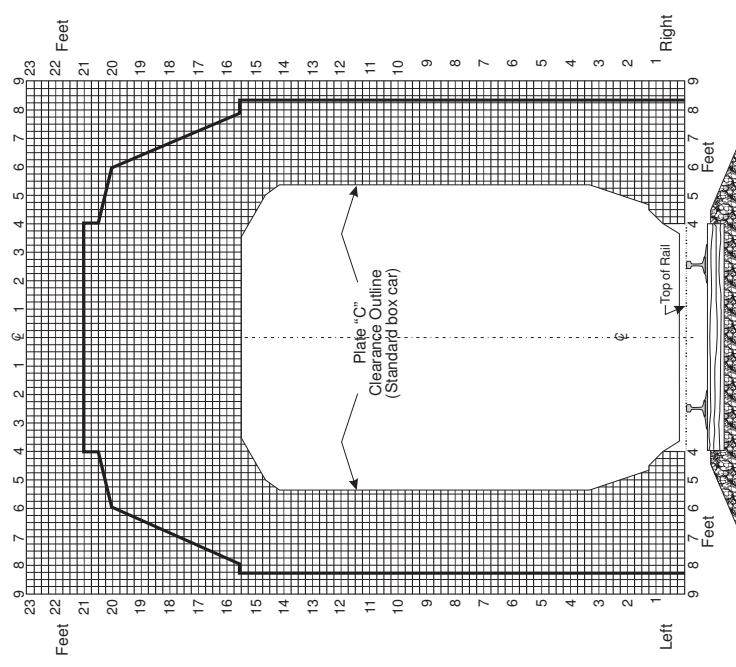
Subdivision FOX LAKE		Mileage 40.82	
Track Description SINGLE MAIN TRACK			
Description of Obstruction THRU TRUSS BRIDGE			
° of Curve (L)		° of Curve (R)	
---		---	
Elevation of Curve ---			

Height above Top of Rail	Left		Right	
	Distance from Centre	Height above Top of Rail	Distance from Centre	Height above Top of Rail
0'-0"	8'-3 1/4"	0'-0"	8'-4"	8'-4"
15'-7"	8'-3 1/4"	15'-7"	8'-4"	8'-4"
15'-7"	7'-10"	15'-7"	7'-10 1/2"	15'-7"
20'-0"	5'-11"	20'-0"	6'-0"	20'-0"
20'-6"	3'-11"	20'-6"	4'-0"	20'-6"
21'-0"	3'-11"	21'-0"	4'-0"	21'-0"
21'-0"	0'-0"	21'-0"	0'-0"	21'-0"

Remarks
JARDINE RIVER

■ The terms "right" and "left" in all cases are taken as determined when facing in the direction in which the mileage increases.
■ Dimensions should be supplied to the nearest 1/4 inch.

Form: MWS 170 (34/10/07)
CP Rail System



CLEARANCE DIAGRAM

Note: Clearances are not. Vertically they are measured at right angles to the plane of the rails. Horizontally they are measured at right angles from a centre line at right angles to the plane of the rails. No other allowance has been made for curvature and no allowance has been made for oscillation.

R.O. WAY
Manager, Engineering Maintenance

95-01-01
Date (yy-mm-dd)

Figure 16 - 1



Clearances and Wire Lines Policy

**Clearance and Wire Lines Policy
Table of Contents**

1.0	General.....	1
2.0	Railway Clearances.....	1
3.0	Responsibilities.....	1
4.0	Standard Clearances – Minimums (Canada)	2
5.0	Standard Clearances – Minimums (USA)	3
6.0	Less Than Standard Clearances.....	3
7.0	Reporting Less Than Standard Clearances - <i>Form MWS 170</i>	3
8.0	Requesting Approval of Less Than Standard Clearances	4
9.0	Restricted Clearance Signs.....	4
10.0	Track Centers.....	5
11.0	Wire Lines.....	6
12.0	Structures	8
13.0	Railway Bridges, Snowsheds and Overhead Timber Bridges.....	9
14.0	Railway Tunnels	10
15.0	Industrial Sidings	11
16.0	Form MWS 170 Sample	12

Notes

Figure numbering corrections made in Sections 4.0 and 7.0. ERM April 28, 2016
