



2011

# Manual for Railway Engineering

Volume 4

## Systems Management

Chapter 2 Track Measuring Systems

Chapter 13 Environmental

Chapter 16 Economics of Railway Engineering and Operations

Chapter 28 Clearances

AAR Scale Handbook

Guide for SI Metrication

General Subject Index

RECEIVED

SEP 07 2012

CITY OF WOODINVILLE  
DEVELOPMENT SERVICES



## Part 1



# Clearance Diagrams – Fixed Obstructions<sup>1</sup>

— 2001 —



### TABLE OF CONTENTS

Section/Article	Description	Page
1.1	Special Notes (1984) .....	28-1-2
1.2	General Outline (1983) .....	28-1-3
1.3	Railway Bridges (1983) .....	28-1-4
1.4	Single-Track Railway Tunnels (1983) .....	28-1-5
1.5	Double-Track Railway Tunnels (1983) .....	28-1-6
1.6	Railway Side Tracks and Industrial Tracks (1983) .....	28-1-7
1.7	Highway Structures Over Railroads (2001) .....	28-1-8
1.8	Overhead Electrification (1983) .....	28-1-10



### LIST OF FIGURES

Figure	Description	Page
28-1-1	General Outline .....	28-1-3
28-1-2	Railway Bridges .....	28-1-4
28-1-3	Single-Track Railway Tunnels .....	28-1-5
28-1-4	Double-Track Railway Tunnels .....	28-1-6
28-1-5	Railway Side Tracks and Industrial Tracks .....	28-1-7
28-1-6	Highway Structures Over Railroads .....	28-1-9
28-1-7	Overhead Electrification .....	28-1-10



<sup>1</sup> References, Vol. 32, 1931, pp. 95, 715; Vol. 33, 1932, pp. 109, 677; Vol. 35, 1934, pp. 675, 1109; Vol. 37, 1936, pp. 292, 1065; Vol. 39, 1938, pp. 427, 877; Vol. 49, 1948, pp. 273, 671; Vol. 51, 1950, pp. 341, 874; Vol. 52, 1951, pp. 404, 356; Vol. 53, 1952, pp. 612, 1032; Vol. 54, 1953, pp. 834, 1332; Vol. 61, 1960, pp. 545, 1025; Vol. 63, 1962, pp. 338, 621; Vol. 70, 1969, p. 436; Vol. 76, 1975, p. 233; Vol. 84, 1983, p. 106; Vol. 85, 1984, p. 61. Reapproved with revisions 1984.

LIST OF TABLES

Table	Description	Page
28-1-1	Lateral Clearance Increase for Fixed Obstruction . . . . .	28-1-2



SECTION 1.1 SPECIAL NOTES (1984)

- a. The clearances shown are for tangent track and new construction. Clearances for reconstruction work or for alteration are dependent on existing physical conditions and, where reasonably possible, should be improved to meet the requirements for new construction. Equivalent metric dimensions are shown in parentheses (millimeters) based on 1' -0" = (304.8 mm).
- b. On curved track, the lateral clearances each side of track centerline shall be increased 1-1/2 inches (38.1 mm) per degree of curvature. When the fixed obstruction is on tangent track but the track is curved within 80 feet (24,384 mm) of the obstruction, the lateral clearances each side of track centerline shall be increased as shown in Table 28-1-1.

Table 28-1-1. Lateral Clearance Increase for Fixed Obstruction

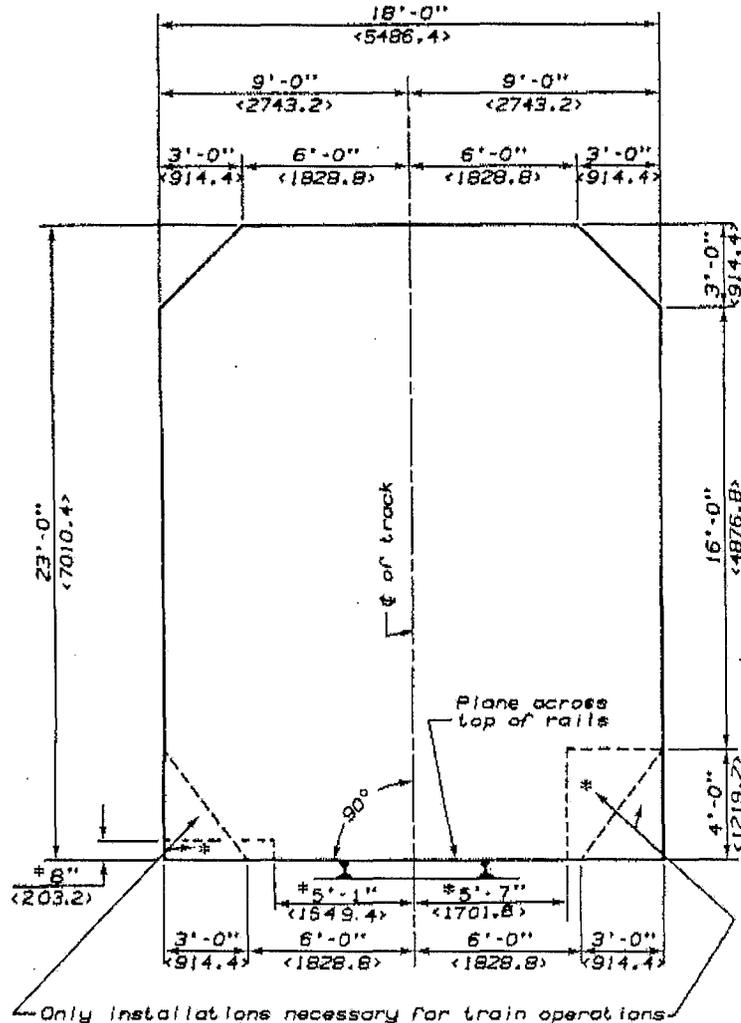
Distance from Obstruction to Curved Track		Increase Per Degree of Curvature	
Feet	(Millimeters)	Inches	(Millimeters)
20	(6,096)	1-1/2	(38.100)
40	(12,192)	1-1/8	(28.575)
60	(18,288)	3/4	(19.050)
80	(24,384)	3/8	(9.525)

- c. On superelevated track, the track centerline remains perpendicular to a plane across top of rails. The superelevation of the outer rail shall be in accordance with the recommended practice of the AREMA.
- d. In some instances state or Canadian laws and individual railroads require greater clearances than these recommended minimums. Any facility adjacent to or crossing over railroad tracks must not violate applicable state laws, Canadian law, or requirements of railroads using the tracks. As information, a summary of the various state laws is shown in chart form in Table 28-3-3.

SECTION 1.2 GENERAL OUTLINE (1983)

EXHIBIT 18  
PAGE 4 OF 10

For a general outline for tangent track, refer to Figure 28-1-1. The information found in Section 1.2 will apply to this illustration.

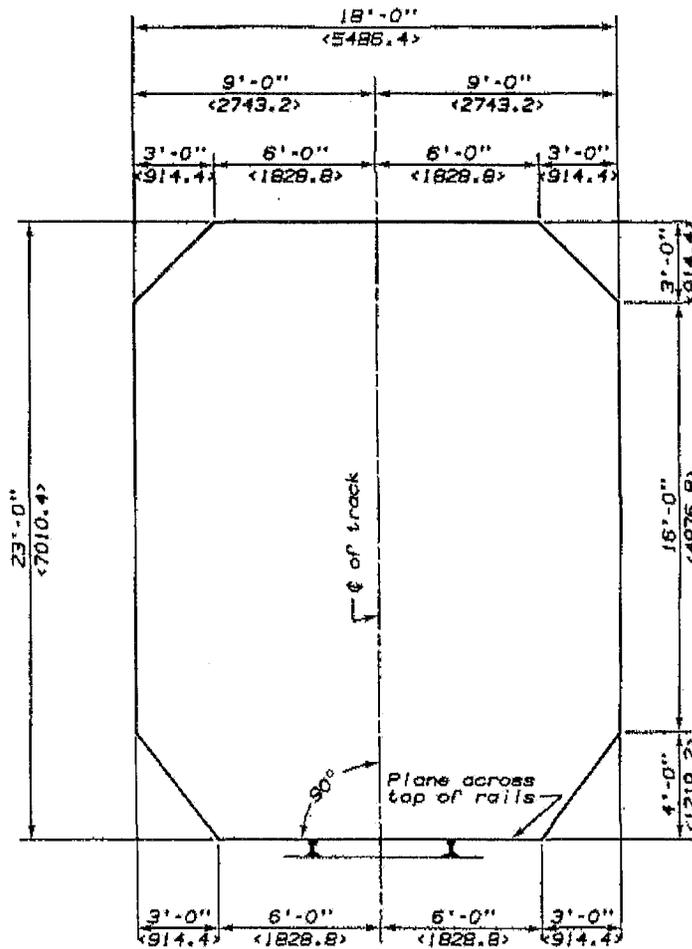


\*Passenger train operations only  
TANGENT TRACK  
Bracketed dimensions are in mm.

Figure 28-1-1. General Outline

SECTION 1.3 RAILWAY BRIDGES (1983)

For railway bridges, refer to Figure 28-1-2. The information found in Section 1.1 will apply to this illustration.



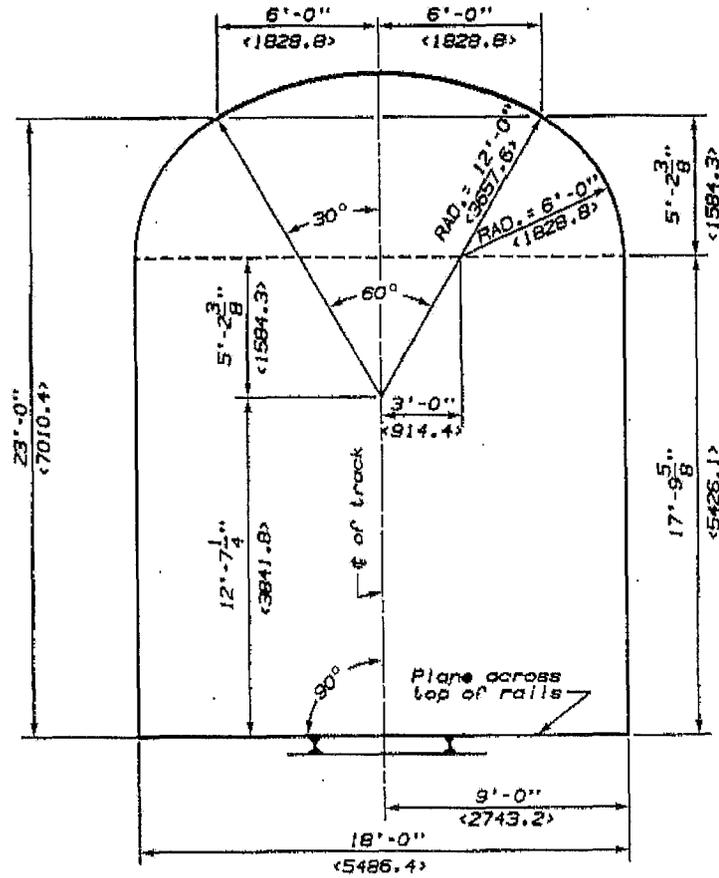
TANGENT TRACK  
Bracketed dimensions are in mm.

Figure 28-1-2. Railway Bridges

SECTION 1.4 SINGLE-TRACK RAILWAY TUNNELS (1983)

For single-track railway tunnels, refer to Figure 28-1-3. The information found in Section 1.1 will apply to this illustration.

EXHIBIT 16  
PAGE 6 OF 10



TANGENT TRACK

Bracketed dimensions are in mm.

Figure 28-1-3. Single-Track Railway Tunnels

SECTION 1.5 DOUBLE-TRACK RAILWAY TUNNELS (1983)

For double-track railway tunnels, refer to Figure 28-1-4. The information found in Section 1.1 will apply to this illustration.

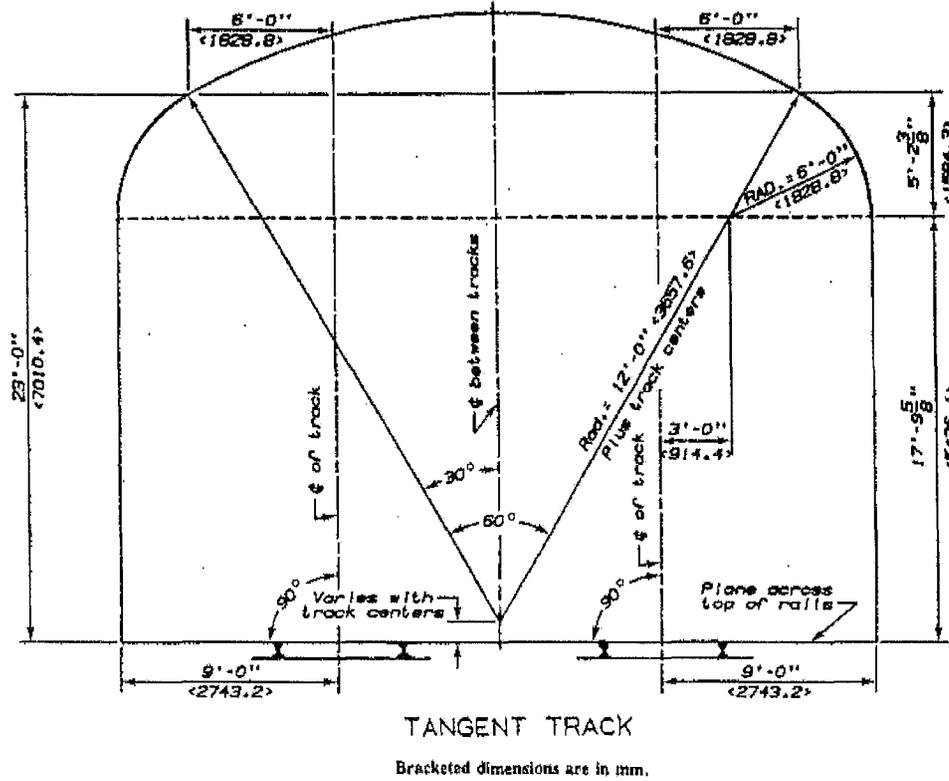


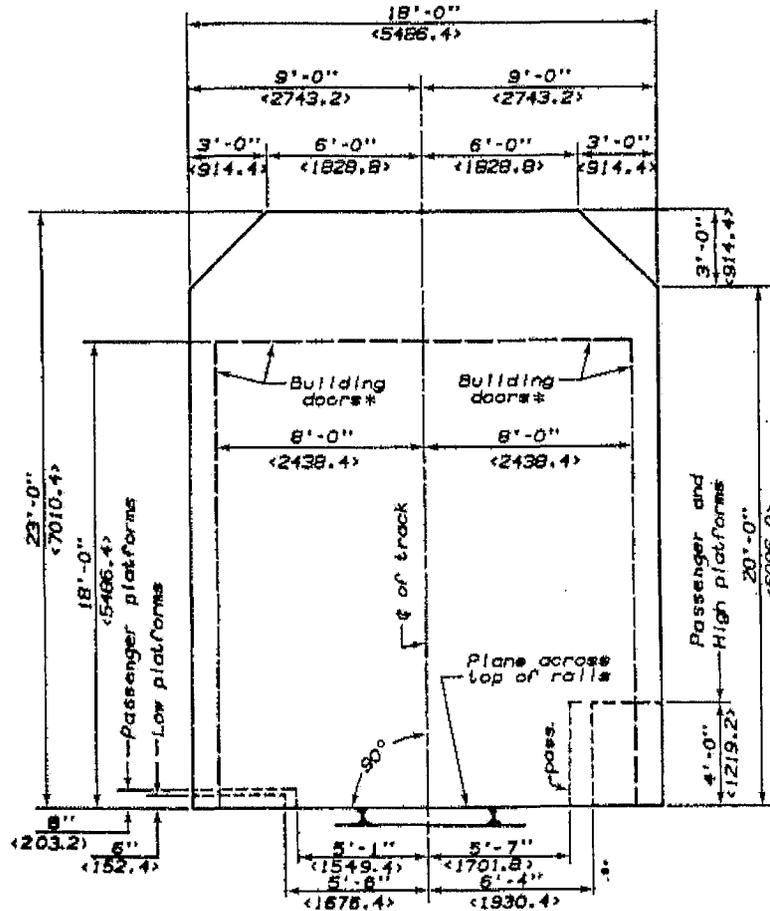
Figure 28-1-4. Double-Track Railway Tunnels

SECTION 1.6 RAILWAY SIDE TRACKS AND INDUSTRIAL TRACKS (1983)

For railway side tracks and industrial tracks, refer to Figure 28-1-5. The information found in Section 1.1 will apply to this illustration.



EXHIBIT 18  
PAGE 8 OF 10



TANGENT TRACK

THE 6'-4" <1930.4> DIMENSION WILL ACCOMMODATE CARS WITH EITHER FLUSH SLIDING DOORS OR PLUG DOORS. CARS WITH HINGED DOUBLE DOORS REQUIRE 8'-0" <2438.4> CLEARANCE. WHERE 6'-4" <1930.4> PLATFORM IS USED, FULL CLEARANCE SHOULD BE PROVIDED ON THE OPPOSITE SIDE.

ENCLOSED TRI-LEVELS AND OTHER SPECIALIZED HIGH EQUIPMENT WILL REQUIRE ADDITIONAL DOOR HEIGHT, WHEN NECESSARY AND JUSTIFIED, ENVIRONMENTAL CONTROLS, ETC., RAILROAD APPROVAL FOR REDUCED BUILDING CLEARANCE CAN BE GIVEN PROVIDED APPROVAL OF EXCEPTIONS TO ANY GOVERNMENTAL CLEARANCE LAWS IS OBTAINED.

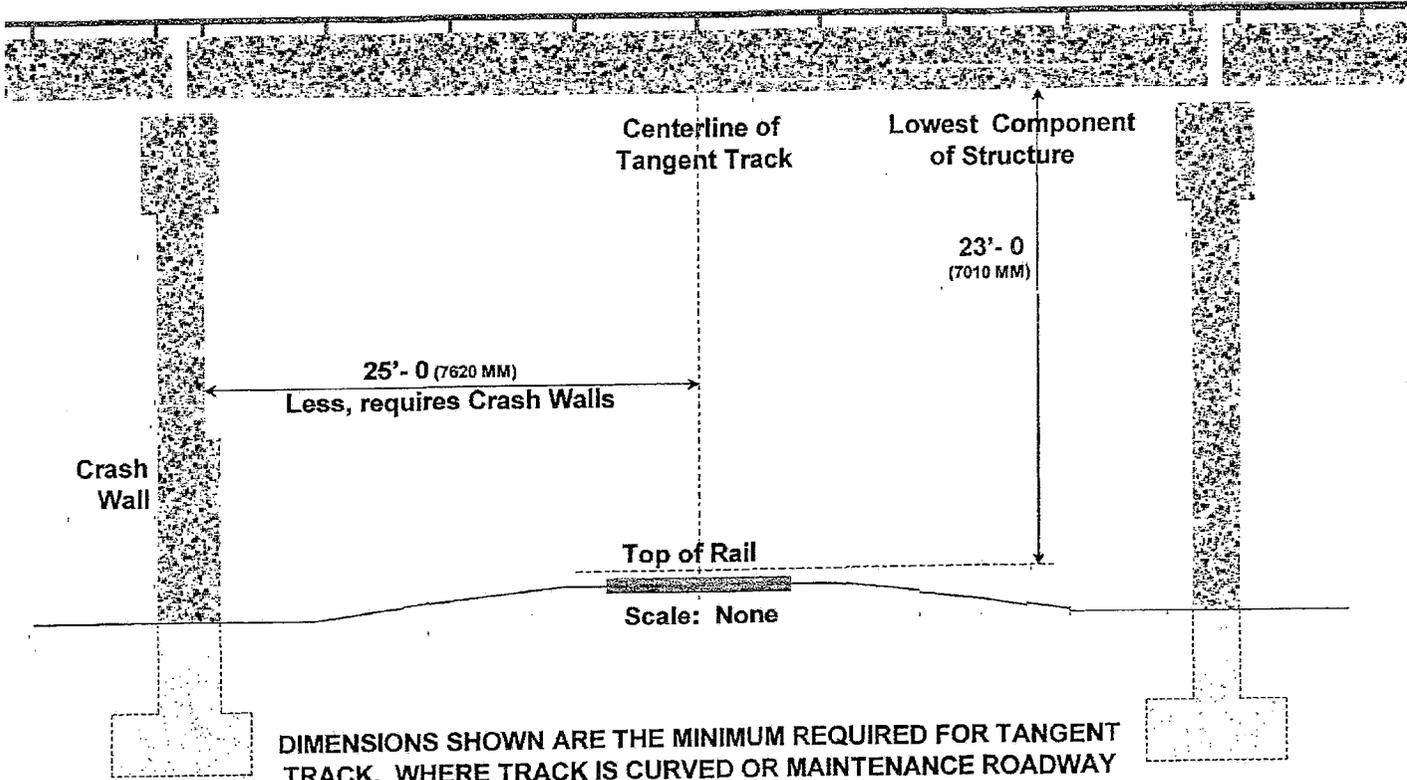
BRACKETED DIMENSIONS ARE IN MM.

Figure 28-1-5. Railway Side Tracks and Industrial Tracks

SECTION 1.7 HIGHWAY STRUCTURES OVER RAILROADS (2001)

For overhead highway structures over railroads, refer to Figure 28-1-6. The information found in Section 1.1 will apply to this illustration.





DIMENSIONS SHOWN ARE THE MINIMUM REQUIRED FOR TANGENT TRACK. WHERE TRACK IS CURVED OR MAINTENANCE ROADWAY EXISTS, THESE MINIMUMS WILL INCREASE.

(NOTE: For bridge pier design specifications, see AREMA Chapter 8.)

Figure 28-1-6. Highway Structures Over Railroads

EXHIBIT 8  
PAGE 10 OF 10