

Appendix T2 - Car Parking and Manoeuvring Layout

Advice Note: Guidance regarding the design of parking, loading and manoeuvring area requirements for activities is contained within the Regional Infrastructure Technical Specifications as updated from time to time.

T2.1 KiwiRail Level Crossing Sightline Requirements and Diagrams

Level Crossing Sight Triangles and Explanations

Developments near existing level crossings

T2.1.1 It is important to maintain clear visibility around level crossings to reduce the risk of collisions. All the conditions set out in this standard apply during both the construction and operation stages of any development.

Approach sight triangles at level crossings with Stop or Give Way signs

T2.1.2 On sites adjacent to rail level crossings controlled by Stop or Give Way Signs, no building, structure or planting shall be located within the shaded areas shown in Figure 1. These are defined by a sight triangle taken 30m from the outside rail and 320m along the railway track.

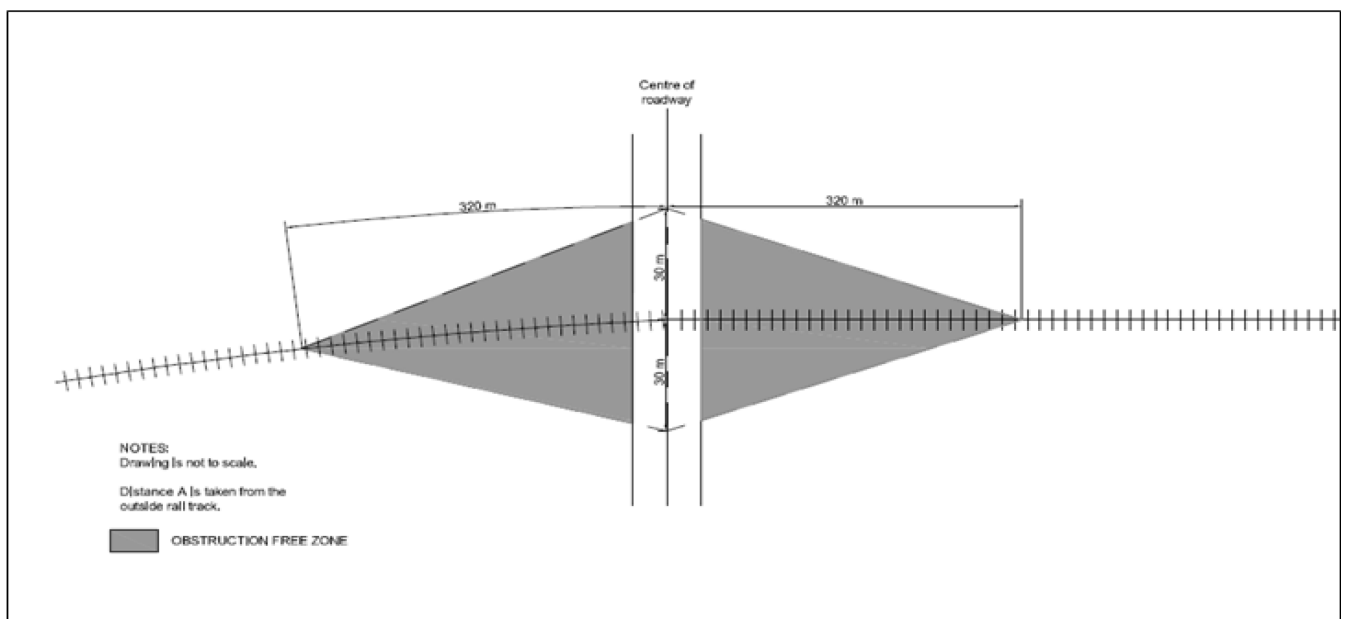


Figure 1: Approach Sight Triangles for Level Crossings with “Stop” or “Give Way” Signs

Advice Note:

The approach sight triangles ensure that clear visibility is achieved around rail level crossings with Stop or Give Way signs so that a driver approaching a rail level can either:

- See a train and stop before the crossing; or
- Continue at the approach speed and cross the level crossing safely.

Of particular concern are developments that include shelter belts, tree planting, or a series of building extensions. These conditions apply irrespective of whether any visual obstructions already exist.

No approach sight triangles apply for level crossings fitted with alarms and/or barrier arms. However, care should be taken to avoid developments that have the potential to obscure visibility of these alarm masts. This is particularly important where there is a curve in the road on the approach to the level crossing, or where the property boundary is close to the edge of the road surface and there is the potential for vegetation growth.

Restart sight triangles at level crossings

T2.1.3 On sites adjacent to all rail level crossings, no building, structure or planting shall be located within the shaded areas shown in Figure 2. These are defined by a sight triangle taken 5m from the outside rail and distance A along the railway track. Distance A depends on the type of control (Table 1).

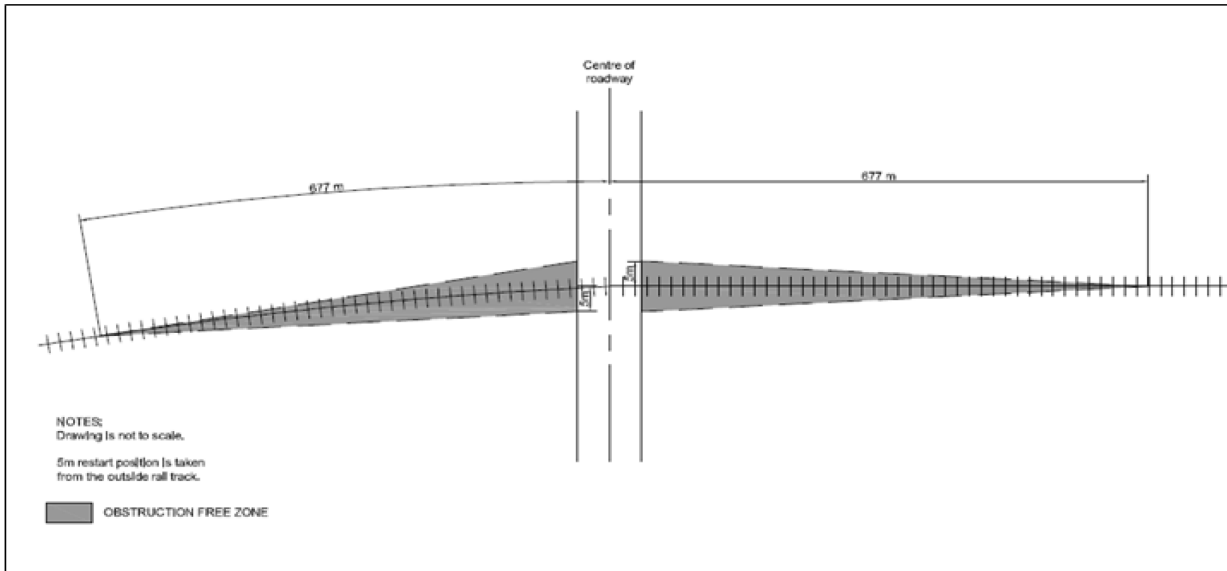


Figure 2: Restart Sight Triangles for all Level Crossings

Table 1: Required Restart Sight Distances For Figure 2

Required approach visibility along tracks A (m)		
Signs only	Alarms only	Alarms and barriers
677m	677m	60m

Notes:

- Figures 1 and 2 show a single set of rail tracks only. For each additional set of tracks add 25m to the along-track distance in Figure 1, and 50m to the along-track distance in Figure 2.
- All figures are based on the sighting distance formula used in NZ Transport Agency Traffic Control Devices Manual 2008, Part 9 Level Crossings. The formulae in this document are performance based; however the rule contains fixed parameters to enable easy application of the standard. Approach and restart distances are derived from a:
 - Train speed of 110km/h
 - Vehicle approach speed of 20km/h
 - Fall of 8 % on the approach to the level crossing and a rise of 8 % at the level crossing
 - 25m design truck length
 - 90° angle between road and rail

Advice Note:

The restart sight line triangles ensure that a road vehicle driver stopped at a level crossing can see far enough along the railway to be able to start off, cross and clear the level crossing safely before the arrival of any previously unseen train.

Of particular concern are developments that include shelter belts, tree planting, or a series of building extensions. These conditions apply irrespective of whether any visual obstructions already exist.