TO	Inland Rail
FROM	Manager Engineering Services
DATE	29 October 2025
SUBJECT	Technical Note for EEG-00-01 Requirements for Electrical Aerials Crossing ARTC Infrastructure
TITLE	EEN-00-01 Technical Note – Overhead Wiring Clearances for Inland Rail

References

EEG-00-01 Requirements for Electric Aerials Crossing ARTC Infrastructure

ETS-07-00 Clearances

Background

There are numerous existing electrical aerial crossings on the Inland Rail brownfield upgrade sections. The application of Structure Outline F of ETS-07-00 (7.1m) to determine the minimum clearances from top of rail to conductors on ARTC mainline track in accordance with EEG-00-01 would require the installation of new poles at significant cost. The use of the F2M Kinematic Envelope (6.737m) instead of Structure Outline F would result in a significant reduction of interventions when applied to existing aerials over the Inland Rail brownfield sections.

It is noted that ARTC procedures do not permit working on top of double stack containers and the risk of contact with overhead electrical aerials is associated with trespassing.

Scope

This technical note is applicable to existing electrical aerials over Inland Rail brownfield upgrade sections.

New pole and wire installations shall be in accordance with EEG-00-01.

Design Requirement Details

The clearance values for electrical aerials over ARTC mainline track in EEG-00-01 are based on Structure Outline F of ETS-07-00 Appendix B (7.1m) plus the clearances prescribed in AS/NZS 7000:2016 Table 3.7 Clearances from Structures (Clearance D). The minimum height of the conductor above the top of the highest rail for non-electrified mainline tracks under the worst sag condition are summarised in Table 1 of EEG-00-01.

Applying the values in Table 3.7 Clearances from Structures (Clearance D) of AS/NZS 7000:2016 to the F2M Kinematic Envelope (6.5m plus 237mm) results in a significant reduction of interventions. The minimum clearance requirements for brownfield upgrade sections of the Inland Rail based on the F2M KE is summarised in Table 1.

Technical Amendments Summary

Table 1:

Aerial Crossing Voltage (U)	Minimum Height Above Rail Design Level for Mainline Track (m)	
	As Per EEG-00-01: Using Structure Outline F (7.100m)	Using F2M Kinematic Envelope (6.737m)
0V < U ≤ 1000V Insulated	7.700	7.200*
0V < U ≤ 1000V Bare active	7.700	7.337
1000V < U ≤ 33kV	8.600	8.237
33kV < U ≤ 132kV	9.600	9.237
132kV < U ≤ 275kV	10.600	10.237
275kV < U ≤ 330kV	11.100	10.737
330kV < U ≤ 500kV	12.100	11.737

**Note:* *In some locations, minimum clearances may be achieved by replacing uninsulated conductors with insulated conductors. IRPL will apply a minimum clearance of 7.2m in these instances (7.1m Structure Outline F plus 0.1m electrical clearance for up to 1000V and insulated).*

The following flowchart shows the methodology for assessing the works required to meet the minimum clearances requirements for electrical aerials above Inland Rail brownfield sections.