TO	ARTC (Network Wide)
FROM	Manager Engineering Services / Senior Signalling Standards Engineer
DATE	10/12/2025
SUBJECT	Technical Note for Removal of Redundant Aerial Wires – Network Wide
REFERENCE	ESN-04-01 Technical Note – Removal of Redundant Aerial Wires v1.0

References:

- ESP-25-01 *Signal Design Process*
- EGP-04-01 *Engineering Drawings and Documentation*
- ESC-21-01 *Inspection and Testing of Signalling – Roles, Responsibilities & Authorities*
- ESC-21-02 *Inspection and Testing of Signalling – Plans, Programs, Documentation and Package*
- ESC-21-03 *Inspection and Testing of Signalling – Inspection and Testing Principles*
- ESC-21-04 *Inspection and Testing of Signalling – Standard Forms*

Background

The Aerial Line Wire (ALW) infrastructure across the ARTC network is life-expired and experiencing high-fault incidence rates due to a combination of theft, adverse weather events and failing infrastructure.

Removal of redundant wires should be undertaken when those wires are taken out of service due to infrastructure upgrades; this has previously not occurred and a legacy state of redundant wires remaining adjacent to in-service wires is thus present. In addition, due to the administration of projects, signalling drawings generally are not updated to identify the wires made redundant by those projects.

The above has resulted in a situation where:

- Redundant wires remain on ALW infrastructure adjacent to in-service wires
- Redundant wires are not reflected as such on signalling drawings
- In sections of ALW infrastructure where redundant and in-service wires are present, the higher the number of wires increases the likelihood that the section will be targeted by theft of the wires, resulting in train delays; and
- The timeframe for fault rectification is extended due to inaccurate drawings in signalling zone boxes.

The objective of this Technical Note is to reduce failures on the ALW infrastructure. Removal of redundant wires, leaving only the in-service wires, reduces the potential for failures associated with criminal activity (theft), weather events (shorting of wires) and vegetation.

When lines are cut from theft or otherwise fail, tails left at insulators can impact in-service wires which causes short-circuits. This results in outages to the signalling system, which causes train delays and requires attendance by Signal Technicians for rectification.

Under the ARTC Standards identified in the *References* section, removing redundant wires would require compliance with the full design lifecycle and documentation updates. This Technical Note is underpinned by a Risk Assessment and ERMS Risk Workshop #865, developed to support the removal of redundant ALW during the Aerial Line Wire Removal Project under the Network Investment Program. A key consideration is the risk of erroneously disconnecting in-service circuits, with controls in place to mitigate this risk.

This Technical Note may be utilised in other sections ARTC's network to remove redundant aerial wires where capital upgrade works to decommission the ALW infrastructure is not yet forecast, but can only be done so:

- With the approval of the Operations (Engineering) Business Unit;
- With the approval of the local Signalling Maintenance Engineer; and
- With review for applicability of the Risk Assessment aforementioned.

This may be undertaken to improve the reliability, availability, maintainability and safety of those sections where ALW infrastructure remains in-service.

Scope

As the redundant aerial wires do not form part of the in-service signalling system, removal does not alter the signalling system architecture or operation. This Technical Note provides approval to undertake the removal of redundant aerial wires without the need for a Waiver against the ARTC Standards listed in the *References* section. Note that all references to Signalling Maintenance Engineer within this Technical Note are specific to those who hold the relevant competency per ESP2001F-27 (ARTC Signalling Matrix).

Removal of the wires must be undertaken in alignment with the requirements of the following sections.

Testing Documentation Requirement Details

As the removal of redundant wires does not impact the in-service signalling system, required documentation may be included in a Minor Works Package (MWP). The composition of the MWP shall be determined in consultation with the local Signal Maintenance Engineer and Infrastructure Projects Technical Services team. At minimum, it must include an agreed Work Instruction.

Design and Drawing Requirement Details – ESP-25-01 / EGP-04-01 / ESC-21-02 / ESC-21-04

Removal of redundant aerial wires may be undertaken without updating PTV DMS source records, Aconex DMS source records, other digital source records and records held at the relevant Provisioning Centre; only the onsite mark-up of box copies shall be undertaken.

The mark-up of onsite box copies must be undertaken by a competent resource (per the ESP2001F-27 ARTC Signalling Matrix and in agreement with the local Signalling Maintenance Engineer) and clearly show:

- The redundant wires that have been removed;
- The name and RIW number of the resource who correlated and marked the wire redundant;
- The date the work was undertaken; and
- The record number of the specific Work Instruction and MWP relevant to the work.

The above is also to be recorded in the relevant Work Instruction within the MWP approved by the local Signalling Maintenance Engineer. For the avoidance of doubt, the above means that the removal of redundant aerial wires can be undertaken without adhering to the full design process and without updating records held in PTV DMS or Aconex DMS.

Updates to source records are to be undertaken when the next capital upgrade project occurs (i.e. decommissioning of the ALW infrastructure). The marked-up box copies are to be scanned and recorded in the Minor Works Package and provided digitally to the local Signalling Maintenance Engineer via Aconex (if related to a specific project) or email (if undertaken through MPM / RCRM / AWP) with the completed Work Instruction and MWP documentation.

Testing Requirement Details – ESC-21-01 / ESC-21-04

Testing of the system once the removal of wires has been completed is to be determined in co-ordination with the Business-As-Usual practises of the relevant Provisioning Centre and with input from the local Signal Maintenance Engineer. This testing will consist of, at minimum, the clearing of signals in both directions once the redundant wires have been removed.