

# Signal Design and Standards Applicability

ESI-05-13

## Applicability

ARTC Network Wide	SMS
-------------------	-----

## Document Audience & Main Points

Audience	Main Points
Signal Designers, Signal Maintenance Engineers, Signal Construction Engineers and Signal Project Engineers	<ul style="list-style-type: none"> <li>Like for Like Renewals are limited to maintenance activities of replacing a piece of equipment with an identical item and do not involve any changes to Signal Design.</li> <li>Any renewal of equipment requiring new or amended Signal Design, must undergo a full design check and review of all assumptions and inputs to the design process and be in accordance with current engineering standards, if required.</li> </ul>

## Document Status

Version #	Date Reviewed	Prepared by	Reviewed by	Endorsed	Approved
1.0	20/02/2017	Standards	Stakeholders	Signal Standards Engineer	Acting General Manager – Technical Standards 07/03/2017

## Background

Like for Like Renewals which are straightforward replacements of signalling equipment with identical pieces of equipment are covered by the Like for Like Renewal Procedure ESM-00-20. These are usually associated with renewal of trackside apparatus such as track circuit equipment, electric point mechanisms, level crossing mechanisms, signals and similar items.

However, this procedure is not applicable where the configuration of the equipment or design principles are changed. In these cases, the full signal design process must be applied to ensure the renewed equipment is in accordance with current standards and meets the operational requirements.

---

## Safety Objective

To ensure that, in situations where renewal or reconfiguration of signalling equipment requires changes to the engineering drawings, the changes to the engineering drawings are to be compliant with the current signalling standards. In addition, the design is to be reviewed against the current operational requirements.

## Like for Like Renewals

*Refer Like for Like Renewal Procedure ESM-00-20, Section 2.6.*

A like for like renewal is one where a piece of signalling equipment is replaced with an identical item.

Where the equipment to be installed is not “exactly” identical, or the signal drawings require amendment, then this is NOT a Like for Like Renewal.

## Work considered Not Like for Like - Modification to Engineering Drawings

The following situations require signal design to be undertaken:

- Equipment replacement is not identical
- Signal drawings or data involve changes
- There is a change to signalling principles

The modified signal design must be in accordance with current engineering standards. Where the situation is such that updating to current standards is unwarranted, it must be covered by an engineering waiver.

The modified design requires the designer to check and review all assumptions and inputs to the signal design process. In particular the signal designer shall review:

- The operations requirements to be consistent to the previous design
- Train types to be consistent with the previous design (e.g. train braking)
- Train speeds or line speed not changed from previous design
- External issues such as road vehicle types on level crossings

***These instances are NOT covered by Like for Like Renewal Procedure ESM-00-02.***

## Example Case Studies

### Case Study 1

Level Crossing upgraded to predictor type crossing operation under the Like for Like Renewal procedure is not acceptable.

### Case Study 2

Level Crossing renewals carried out with local signalling arrangements not meeting the current standards. A risk assessment by design of the current arrangements is required and whether to continue with the present arrangements or modify the design accordingly.