



Appendix I, *GRIP Stage 4 – Preliminary Scheme Design*

Network Rail guidance

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1 Introduction

1.1 Background

The concept of Modular Signalling has been adopted and developed within Network Rail to introduce new products and changes in the implementation of signalling projects in order to bring about significant cost savings.

1.2 Purpose

This guidance document describes in more detail the processes that need to occur during the Preliminary Scheme Design stage, as described in the main section of the Modular Signalling Handbook. It sets out the documentation and activities that have to be carried out or produced in order to create the Preliminary Design for deployment of the Modular Signalling system on a route. Although the document contains guidance the process described is approved best practice.

The number of documents that need to be produced during GRIP Stage 4 has been reduced compared to the number needed for a conventional resignalling scheme because of the simple and repeated nature of the system and of the routes for which it is suitable for application on.

Other documents within the Modular Signalling Handbook set out the technical standards, constraints, components and applications which form the Modular Signalling system and should be referred to when carrying out Preliminary Scheme Design.

This stage of the project lifecycle requires input from the Supplier who will be implementing the works, to produce certain design details from which more accurate costs can be calculated and to enable long lead work items to commence.

The project is tendered at the end of GRIP Stage 3 – the Requirements Analysis stage, to obtain:

- a price for the Supplier delivered works in this Preliminary Design stage, and
- a price for the GRIP 5 to 8 works (which may be subject to slight revision at the end of this stage)

At the end of this period of development the scope, price and programme for the proposed works will be confirmed.

The products required from the stage to achieve this are as follows, split between those produced by Network Rail and those produced by the supplier: Liaison between Network Rail and the Supplier will be required during this period to achieve compatibility between designs.

1.3 Scope

This document applies to any resignalling scheme that has been designated a “Modular Signalling scheme” by the Professional Head, Signals and Controls and the Head of Operations Development. Such schemes will make use of Modular Signalling principles, technology and processes which are fundamentally different from those used for a conventional resignalling scheme undertaken by Network Rail.

1.4 Definitions

Common definitions are contained in the main section of the Modular Signalling Handbook.

2 Design process

- The following sections describe in detail the processes that need to occur during the Preliminary Scheme Design stage, as described in the main section of the Modular Signalling Handbook.
- It sets out the documentation and activities that should be carried out or produced in order to create the Preliminary Design for deployment of the Modular Signalling system on a route.

3 Preliminary design – Produced by Network Rail

3.1 Network Change Notice

The standard industry process and format should be used, with the necessary stakeholder consultation having been carried out during the Requirements Analysis period.

3.2 Scheme plans

Production of the scheme plan should start in the pre-GRIP period. It should use the Omnicom Engineering Ltd OS3D HD Kiosk tool to capture details and positions of existing infrastructure assets against the Data Requirements Specification to form the base signalling plan using the ISP-Scheme tool.

Following Approval in Principle of the scheme plans in GRIP Stage 3, final approval should be carried out by one of two ways.

- If the fringes are *not* already operated by TCB, the scheme plans and the associated Retained Equipment Interface Specification should be reviewed for approval by an MSRP meeting so that operation and design of the fringes has been optimised for simple implementation and operational effectiveness.
- If the fringes are already operated by TCB, the Minor Scheme Review process (see NR/L2/SIG/30035) should be used for approval of the scheme plans and the associated REIS.

3.3 Signal and sign sighting forms

Signal and sign sighting should be carried out by a Signal Sighting Committee using an approved desktop signal sighting tool as much as possible to minimise the time taken by the process. The Gioconda “GSST” system is one such approved tool.

The video film recorded from the NR Track Recording Unit to facilitate creation of the scaled plans of the existing infrastructure can be used in a signal sighting tool to create the signal sighting video. Population of the signal sighting tool will require reference to positional information from the data capture activity in order to calibrate the tool.

In general, with the simple layouts involved, it is possible to agree the sighting of signals on lines adjacent to that from which the filming was carried out – e.g. wrong direction signals on bi-directional routes, shunt signals on sidings.

It is not mandatory to carry out visits to site to inspect the proposed signal positions unless there are specific reasons for doing so, such as a request from the Signal Sighting Committee.

The cant and curve radius at the proposed signal position can be obtained from data held at the NR Engineering Data Centre, by use of the Signalling Clearance Calculator Tool.