

Ref:	NR/L2/SIG/11201 – Mod A15
Issue:	4
Date:	04/06/2011
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Level 2

Signalling Design: Module A15 - Arrangement and Presentation

Endorsement and Authorisation

For endorsement and authorisation, please refer to
NR/L2/SIG/11201

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Issue record

Issue	Date	Comments
4	June 2011	Modularisation of handbook and guidance notes, contains content of former NR/GN/SIG/11701 Part M.

Compliance

This Module is mandatory and shall be complied with by Network Rail and its contractors if applicable from 03/09/2011.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 3 (Option Selection) to continue to comply with the issue of any relevant Network Rail standards current when GRIP Stage 3 was completed and not to comply with requirements contained herein, unless stipulated otherwise in the scope of this standard.

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1 General Arrangement

General requirements for format and symbols are given in [NR/L2/SIG/11201](#), as are special requirements for conformity of presentation when existing installations are altered.

1.1 Functional Grouping

The following groups of design details should be produced:

- layout plans, schematics and overview documents, generally required to obtain Approval in principle (see [NR/L2/SIG/11201, Module A2](#), Section 1);
- control tables (see [NR/L2/SIG/11201, Module A2](#), Section 3);
- engineering details (see [NR/L2/SIG/11201, Module A2](#), Section 4); and
- operational and maintenance details (see [NR/L2/SIG/11201, Module A2](#), Section 5).

Generally group (a) forms part of the design input for group (b) and likewise group (b) for group (c).

1.2 Geographical Grouping

Generally, design details should be geographically grouped as follows, so as to facilitate the implementation of [NR/L2/SIG/11010](#), with separate index sheet(s) for each group (see [NR/L2/SIG/11201, Module A10](#)):

- Signalling plans divided at interlocking boundaries (where practicable) and signal box boundaries. (An overlap between signal boxes may be necessary so that each plan shows all functions controlled from its respective signal box, up to the approach side of the first caution signal.)
- Control tables grouped to each interlocking, ground frame, or automatic level crossing.
- Engineering details grouped to each apparatus housing (or suite of apparatus cases identified as a single lineside location), together with the trackside equipment directly fed and the through circuits described in Section 5.4.
- Longitudinal details, such as bonding plans and cable plans, divided at interlocking boundaries.
- Power distribution details grouped to the power supply point.

For production purposes only, details for adjacent signal boxes or interlockings may be combined, e.g. as in scheme plan production, provided that the design records are arranged to be divided at the interlocking boundaries defined by the signalling plans.

In non-track circuit block areas there may be gaps between signalling plans of adjacent signal boxes. In this case separate signalling plans may be provided for any in-section ground frames or level crossings. These should be cross referenced on the signalling plan of the main signal box.

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2 Colour Presentation

2.1 New and Altered Works

Red and green colouring should be used on production copies of design details to indicate changes as follows:

- Red = new equipment to be installed or commissioned.
- Green = redundant equipment to be recovered.

The colour convention may be applied to individual drawing elements by either:

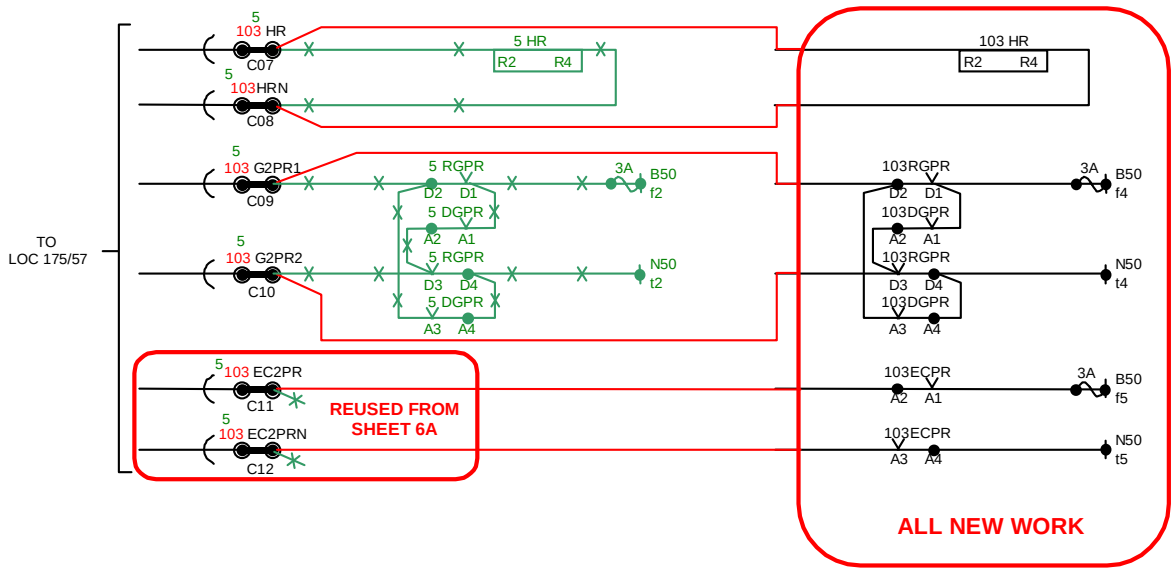
- a) CAD colour plotting (preferred);
- b) drafting in black (e.g. on negatives) and applying colour shading to prints by hand (non-preferred when photocopying prints for issue); or
- c) hand drafting in colour (on paper).

The style of presentation, a), b) or c), should be consistent on any one sheet. They are illustrated in Figures 1 and 2, for the “one drawing” and “two drawing” methods, respectively.

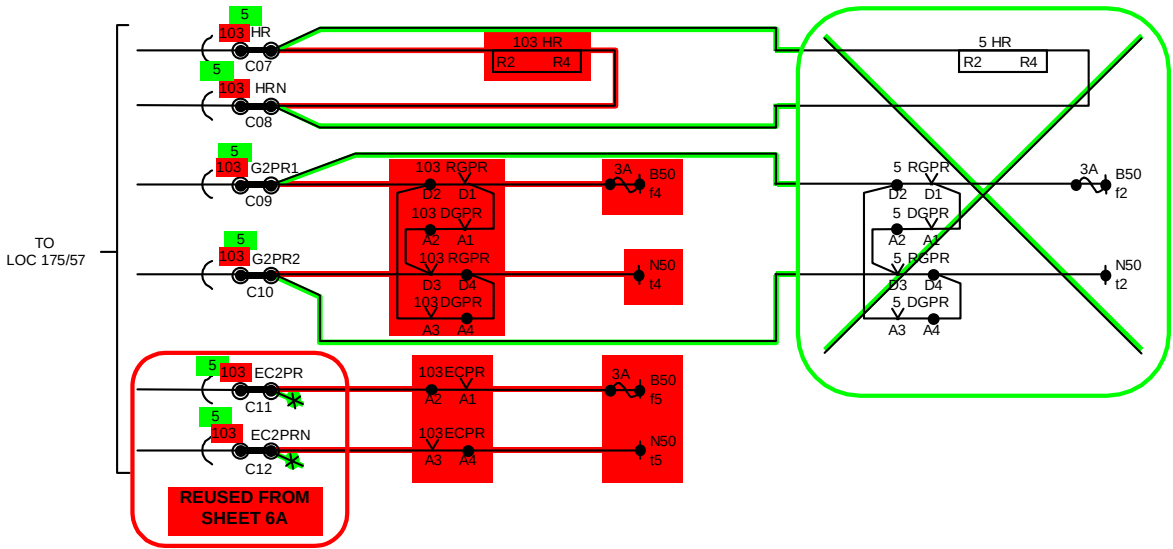
Where a new drawing, or discrete parts of a drawing, depict all new work to be installed, the drawing, or the discrete parts bounded by a red border, should be endorsed in red “ALL NEW WORK”. (An example of a complete drawing is given in [NR/L2/SIG/11201, Module A2](#), Figure 12.) Where recoveries are such that a complete drawing, or discrete parts of a drawing, become redundant then the drawing should bear a large green cross through the sheet, or through the discrete parts bounded by a green border. The techniques described in this paragraph avoid the need to colour individual elements and, under these circumstances, are preferred for each style, a), b) and c).

Recoveries may be additionally identified with small green or black crosses. Dotted green should not be used to show recoveries, due to confusion with dotted symbols depicting equipment physically removed but remaining in the interlocking logic (see [NR/L2/SIG/11201, Module A1](#)).

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a) Colour Plotting (preferred)



b) Colour Shading (non-preferred)

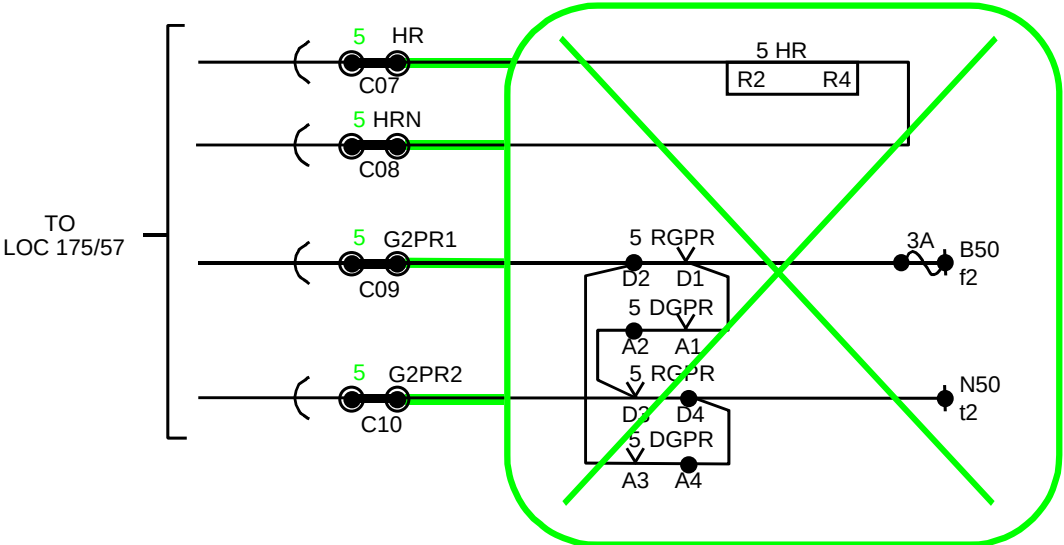
Colour Drafting appears similar to style a).

c) Colour Drafting

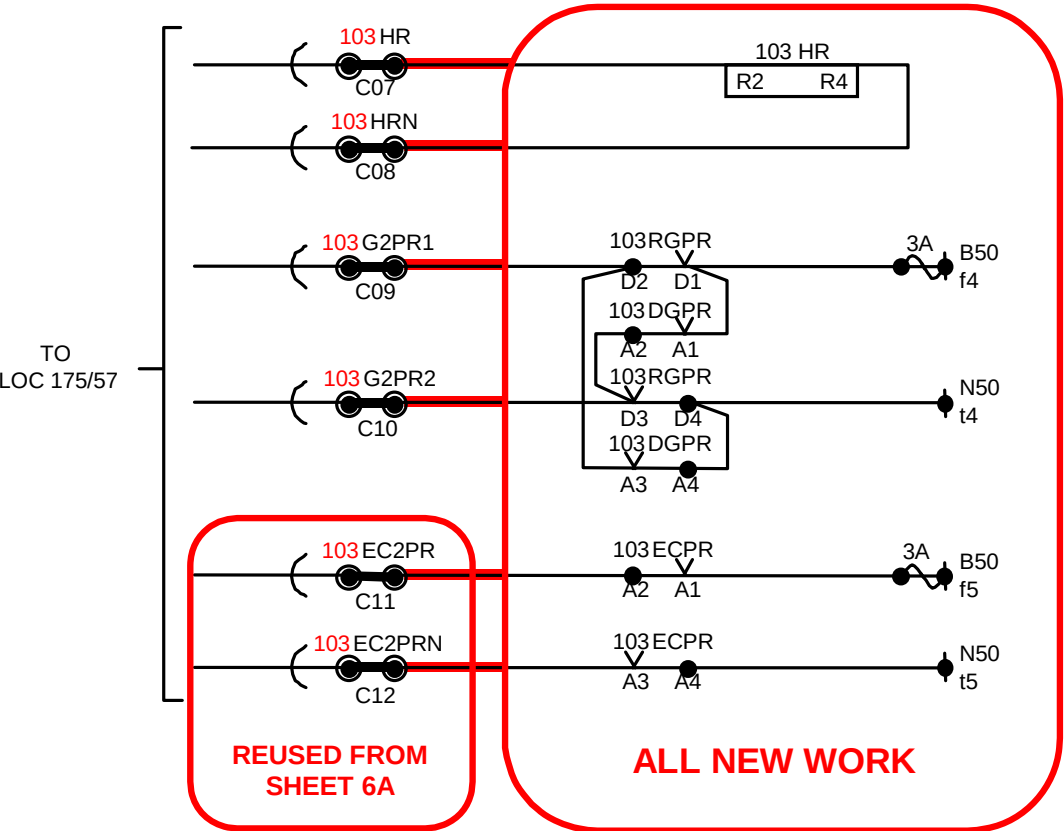
Note: The use of small green or black crosses is optional.

Figure 1 – Colouring Styles - Typical Examples (“One Drawing” Method)

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i) Green Sheet (G)



ii) Red Sheet (R)

Note: This example is similar for all colouring styles.

Figure 2 – Colouring Styles - Typical Example (“Two Drawing” Method)

Where an existing element is transferred from one drawing to another, both drawings should bear a suitably coloured note to that effect, quoting the relevant sheet numbers. This is to assist traceability in analysis and record production.

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The status of each sheet produced (i.e. red, green, combined, new, abolished) should be shown on the index. (An example is given in [NR/L2/SIG/11201, Module A2](#), Figure 11.)

The use of the colour blue to identify post-construction modifications is described in [NR/L2/SIG/11201, Module A12](#).

The colouring of not yet commissioned or redundant functions is considered in [NR/L2/SIG/11201, Module A1](#).

2.2 Special Colour Applications

Colours may be used for special purposes on design details, both production and record copies. Where the colours are not otherwise defined, a key should be provided.

In cases of potential conflict with Section 2.1, measures should be taken to prevent confusion. This may require the omission of the special colouring from production copies.

Examples of special colour applications include:

- to identify track sections, usually blue and yellow alternately on up lines; green and brown/orange alternately on down lines; but abutting track sections should always be given different colours (see also [NR/L2/SIG/11201, Module A2](#), Section 4.2);
- to show the actual colour of the product, e.g. road sign profiles, or signalling display systems (coloured in accordance with former RGS [GK/RT0025](#) (as mandated [TI 157](#));
- to distinguish dimension lines, location areas and interlocking boundaries, etc. from the drawing details (usually using the colour blue): and
- to identify the ownership of underground utilities, e.g. on level crossing ground plans.

3 Layout Plan Convention

A layout plan is a single line plan, drawn to scale where specified in [NR/L2/SIG/11201, Module A2](#), showing signalling features and identities, and includes:

- scheme plans ([NR/L2/SIG/11201, Module A2](#), Section 1.1);
- signalling plans ([NR/L2/SIG/11201, Module A2](#), Section 1.2);
- stage scheme plans ([NR/L2/SIG/11201, Module A2](#), Section 1.8);
- location area plans ([NR/L2/SIG/11201, Module A2](#), Section 4.1);
- map search plans ([NR/L2/SIG/11201, Module A2](#), Section 4.13.2);
- sub-route and sub-overlap plans ([NR/L2/SIG/11201, Module A2](#), Section 4.13.3);
- operating notice diagrams ([NR/L2/SIG/11201, Module A2](#), Section 5.5); and
- safety diagrams ([NR/L2/SIG/11201, Module A2](#), Section 5.6).

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3.1 Sheet and Text Size

Where plans are required to be of greater length than the metric standards, non-standard drawing sizes may be used provided that their height corresponds to the height of one of the standard A sizes and their length is a multiple of 210mm. This makes it possible for prints of all plans can be folded to A4 size. When folded the title block should be visible.

Generally a minimum text size of 2mm should be used.

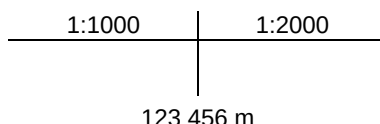
See [NR/L2/SIG/11201](#) for conformity of presentation when existing installations are altered.

3.2 Scaling

Longitudinal scales should be determined by considering:

- the extent of the plan (see Section 1.2);
- the sheet size and convenient length (see Section 3.1);
- the degree of congestion using standard size symbols;
- the need to avoid sheet breaks and scale changes in S&C and other complex areas;
- the need to keep scale changes to a minimum; and
- the use of standard scales in the range of 1:500 to 1:10000.

Scale changes should be dimensioned and shown as follows. If the whole plan is to the same scale, the scale should be shown in the title block.



To avoid users being misled when plans are plotted at other than the intended size, the longitudinal scale should be illustrated in some manner, such as:

- by providing a dimensioned 100m scale line above the title block (if all the plan is to the same scale);
- by providing an actual 100mm line above the title block, stating "this copy is only plotted at correct scale if this line is 100mm long"; or
- by providing detachable scale rules in the plan margins.

Although transverse distances are not generally to scale, standard spacing should be adopted, which should not be less than:

- distance between adjacent tracks 10mm
- platform width 8mm

Certain plans for convenient use may be drawn not to scale, but geographically correct, e.g. operating notice diagrams.