

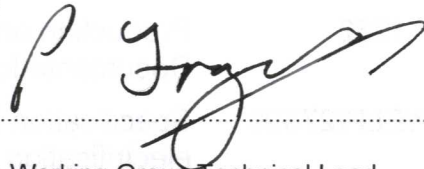
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Level 2

Production of Isolation Diagrams, Isolation Instructions, Comprehensive Track Diagrams and Operations Diagrams

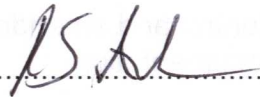
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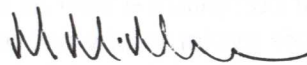
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Issue record

Issue	Date	Comments
1	6 March 2010	First Issue

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 05 June 2010.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 4 to continue to comply with the Issue of any relevant Network Rail Standards current when GRIP Stage 4 was reached and not to comply with requirements contained herein, unless the designated Standard Owner has stipulated otherwise in the accompanying Briefing Note.

Reference documentation

GL/RT 1252	Production and Management of Electrification Isolation Documentation
NR/SP/ELP/27300	Specification for Computer Aided Design formats for electrification and plant documentation
NR/SP/ELP/27044	Allocation of Designations for Switching Stations, Auxiliary Supply Points, Electrical Sections, Overhead Line Switches, Circuit Breakers and the Like, for AC Electrified Lines
NR/L3/MTC/EP0203	Control and amendment of electrification isolation documentation
NR/L2/ELP/21120	E&P Records Management Process

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1 Purpose

The purpose of this standard is to standardise the content and format of Isolation Diagrams, Electrical Isolation Instructions, Comprehensive Track Diagrams (CTDs) and Operations Diagrams.

2 Scope

This standard shall be followed when producing Isolation Diagrams, Electrical Isolation Instructions, CTDs and Operations Diagrams. This company standard is not retrospective and shall apply to all Isolation Diagrams, Electrical Isolation Instructions, Comprehensive Track Diagrams and Operations Diagrams issued as from the date of this standard.

3 Definitions and Abbreviations

3.1 Definitions

Isolation Diagram	An approved document produced specifically to facilitate the safe and efficient planning and implementation of isolations of the overhead line and conductor rail equipment. Each diagram shall contain all information concerning electrical feeding, electrical sectioning, signalling, track and other infrastructure as is necessary. Diagrams are produced for all AC and DC electrified lines (except where CTDs are in use).
Isolation Instruction	An approved document to be read in conjunction with the associated Isolation Diagram. Each instruction page shall contain the required switching, safe working limits and any relevant comments for complete isolations of electrical sections and associated sub-sections.
Comprehensive Track Diagram	An approved document produced specifically to facilitate the safe and efficient planning and implementation of isolations of conductor rail equipment. Each diagram shall contain all information concerning electrical feeding, electrical sectioning, required switching, signalling, track and other infrastructure as is necessary. CTDs are produced only for Southern routes 3rd rail DC electrified lines.
Document Management Agent (DMA)	Person who controls the production and amendment of master isolation documents, and prepares them for publication on Connect and arranges for issue via the CPDs
Operations Diagram	An approved document produced specifically to facilitate the safe and efficient planning and implementation of isolations of power distribution equipment at HV switching stations such as Feeder Stations, Substations, Auto Transformer Feeder Stations and Track Sectioning Cabins.
Produced	Surname and initial of competent person who has produced / prepared the document.

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Checked	Surname and initial of competent person who has checked the document for technical content and format.
Approved	Surname and initial of competent person who has approved the document for issuing.
HV Switching Station	The term used to denote the following types of Distribution location: Feeder Stations, Substations, Auto Transformer Feeder Stations, Track Sectioning Cabins Track Sectioning Locations, Track Paralleling Hut, Mid Point Track Sectioning Cabins, Structure Mounted Outdoor Switchgear etc.

3.2 Abbreviations

AC	Alternating Current
ATF	Autotransformer Feeder
ECR	Electrical Control Room
CAD	Computer Aided Design
CPD	Controlled Publications Distributors
CTD	Comprehensive Track Diagram
DC	Direct Current
DEP	Designated Earthing Point
DMA	Document Management Agent
ECML	East Coast Main Line
O&CS	Operations & Customer Services
OLE	Overhead Line Equipment
NRG	National Records Group
TPH	Track paralleling Hut
VDU	Visual Display Unit

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4 Isolation Diagrams

4.1 Basic Information

Isolation Diagrams shall be produced in accordance with the current Network Rail CAD Standard.

Isolation Diagrams shall make use of the CAD symbol library, seed files and standard borders when being produced.

Isolation Diagrams shall show all electrified lines. They shall show all connections providing the electrical continuity of the overhead line/conductor rail equipment e.g. cables, bare feeders, auto transformer feed, connections to switches, switches, switching stations, structure numbers on which equipment is mounted and signal supply point connections, whether OLE or busbar connected.

Return current connections, including Return Conductors are not shown. Stations, tunnels and unwired tracks connecting with or adjacent to electrified lines are shown along with those signals, point numbers and bridges shown in the Signallers isolation instructions. (These diagrams are produced by the O&CS function).

Where local earths are required at 400m spacing due to the close proximity of Electricity Supply Industry overhead power lines, the power line proximity symbols shall be included on the diagram. The structure numbers shown on the symbols shall be the nearest Designated Earthing Point (DEP) at, or outside of the extremities where additional earthing is required. Designations of OLE and buildings shall be in accordance with the principles laid down NR/SP/ELP/27044. The name of all switching stations and their designation shall be shown adjacent to the equipment located at the switching station.

4.2 Layout of Isolation Diagrams, Symbols and Title Block

Details of the standard symbols to be used are shown in the appropriate “key to symbols” drawing and are contained in the Network Rail drawing specific CAD cell libraries. Where it is required to introduce further symbols, details should be forwarded to the Head of Electrical Power Engineering for approval prior to inclusion in this document and the relevant CAD cell library.

Isolation Diagrams shall be drawn to show all symbols in the correct along track sequence.

Overhead Line Equipment and its connections shall be drawn in “as fitted” positions except in complex areas where clarity would be impaired. In this case diagrams shall be correct in along track sequence but positions of equipment may vary in across track position from “as fitted”. Variations from “as fitted” shall be kept to a minimum and shall be clearly indicated using the symbols designated for this.

The isolation diagrams shall contain all point numbers and the details necessary for their utilisation with those signal numbers quoted in the Signaller’s isolation instructions.

Bare feeders shall be shown in their entirety.