

Category 1 Standard

S1171

All Plant - Acceptance, Use and Maintenance

*This standard should be complied with as soon as possible and shall be complied with in full by **1 January 2016**.*

*This standard together with three other A2 Versions of Plant standards S1172, S1173 and S1174 replace the existing A1 Plant standards which will remain in place until **1 January 2016**.*

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Contents

1	Purpose	5
2	Scope	5
2.1	Types of Plant	5
2.2	Area of Application	5
2.3	Plant Ownership	6
3	Part 1 – General Requirements	7
3.1	Plant Categorisation & Terminology	7
3.2	Management Arrangements and Accountabilities	7
3.3	Supply of Plant and Plant Related Services	7
3.4	Compliance with International, European, National and UK Railway Industry Standards and Codes of Practice	7
3.5	Requirements for the Identification of Plant	8
3.6	Records	8
3.6.1	Record of Acceptance – All Plant	8
3.6.2	Records of Inspection and Maintenance	8
3.6.3	Asset Inventory - Plant Owned by LU	9
3.6.4	Condition Assessment and Reporting – Plant Owned by LU	9
3.7	Documentation and Safety Information Carried/Displayed on Plant	9
3.7.1	Documentation to be Carried on Plant – All Plant	9
3.7.2	Safety Information to be Displayed on Plant	10
4	Part 2 - Requirements for the Acceptance of Plant	11
4.1	General	11
4.2	Requirements for Acceptance - Normal Use	14
4.2.1	Business Acceptance	14
4.2.2	Engineering Acceptance	14
4.2.3	Safety Acceptance - Verification of Acceptable Risks	16
4.2.4	Operational Acceptance	16
4.3	Requirements for Acceptance - Controlled Trials	17
4.5	Assurance	18
5	Part 3 – Requirements for Planning for the Use of Plant	19
5.1	Selection of Plant	19
5.2	Preparing a Safe System of Work for the Use of Plant	19
5.2.1	Documented Safe System of Work	19
5.2.2	Planning for the use of Plant	20
5.2.3	Use of Plant - Selection and Planning of Protection against Train and other rail vehicle Movements	21
5.2.4	Use of Plant - Planning of Precautions against Electric Shock	22
5.2.5	Planning for the Use of Railborne Plant	23
5.2.6	Planning for the Use of Cranes - Lift Plan	24
6	Part 4 – Requirements for the Use of Plant	27
6.1	Safety Requirements for Use of All Infrastructure Plant	27
6.1.1	Prevention of Damage to the Infrastructure	27
6.1.2	Transportation of Plant and Materials	28
6.1.3	Plant Transported on or in Rail Vehicles or Trailers	28
6.1.4	Plant used on or in Rail Vehicles	29
6.1.5	Transportation of Site Personnel on Plant	29
6.1.6	Site Lighting	29
6.1.7	Before Working with Plant	30
6.1.8	Exclusion from High Risk Areas	31
6.1.9	Repairs and Adjustments Undertaken on Site	31
6.1.10	Infringement of Gauge	32
6.1.11	Use of Plant Incorporating Internal Combustion Engines	32
6.1.12	Use of Plant with the Potential to Release Noxious or Flammable Fumes	37
6.1.13	Use of Plant Producing Debris	37
6.1.14	Use of Plant Classified as 'Hot Working'	37
6.1.15	Use of Plant with potential to cause or be affected by Electromagnetic Interference	38
6.1.16	Security of Plant	38
6.1.17	Failure of Devices Used to Control Risk	39
6.1.18	Action Required Following an Incident	39
6.1.19	Reporting and Promulgating High Risk Occurrences	40
6.2	Safety Requirements for the Use of Railborne Plant	40

6.2.1	All Railborne Plant	40
6.2.2	On-Track Machines (OTM)	41
6.2.3	On-Track Plant (OTP)	41
6.3	Safety Requirements for the Use of Non-Railborne Plant	43
6.3.1	Non-Railborne Plant and Road Vehicles used Lineside or on or Near the Line	43
6.3.2	Use of Tall Plant adjacent to the Railway	44
6.4	Safety Requirements for the Use of Specific Plant and for Specific Activities Involving the Use of Plant	44
6.4.1	Cranes	44
6.4.2	Specific Safety Requirements for Handling Rail	51
6.4.3	Specific Safety Requirements for the Use of Track Jacks	53
6.4.4	Flails	55
6.4.5	Strimmers	56
6.4.6	Chain Saws	56
6.4.7	Rail Skates	56
6.4.8	Disc Cutters	56
7	Part 5 - Inspection and Maintenance	57
7.1	General Requirements	57
7.2	Maintenance Plan	57
7.3	Inspection	57
7.4	Maintenance	58
7.5	Inspection and Maintenance Undertaken by Plant Operators	59
7.6	Additional Requirements for Railborne Plant	60
7.7	Records	60
7.8	Additional Requirements for the calibration of Inspection and Measuring Equipment	62
7.9	Assurance	62
8	Part 6 - Competence and Fitness	63
8.1	Ensuring Competence	63
8.2	Competence Requirements	63
8.3	Specific Competence Requirements – On Track Machines (OTMs)	64
8.4	Specific Competence Requirements – Cranes	64
8.5	Frequency of Competence Re-Assessment	65
8.6	Fitness	65
9	References	67
9.1	References	67
9.1.1	Statutory documents	67
9.1.2	British Standards	67
9.1.3	Other national standards	67
9.1.4	Industry codes of practice	67
9.1.5	TfL company documents	68
9.1.6	Other	69
9.2	Abbreviations	69
9.3	Definitions	70
9.4	Person accountable for the document	74
9.5	Document history	74
10	Attachments	74
10.1	Attachment 1 – Plant Classification and Terminology	75
10.2	Attachment 2 – Content of Use of Plant Safety Plan	76
10.2.1	Introduction	76
10.2.2	Nature and Use of UPSPs	76
10.2.3	Production of the UPSP	76
10.2.4	Format of the UPSP	77
10.2.5	Content of the UPSP	77
10.2.6	Definitions and Abbreviations	83
10.2.7	References	83
10.3	Attachment 3 - Content of Maintenance Plan	84
10.3.1	Introduction	84
10.3.2	Purpose	84
10.3.3	Scope	84
10.3.4	Content	84
10.4	Attachment 4 - Content of a Trial/Test Management Plan	86
10.4.1	Introduction	86
10.4.2	Purpose of TTMP	86
10.4.3	Format and Content of TTMPs	86

10.4.4	Description of the Plant or Plant Related Change	86
10.4.5	Objective of Test/Trial	86
10.4.6	Nature and Location of the Trial/Test	86
10.4.7	Management Arrangements and Accountabilities	87
10.4.8	Safety Risks and Mitigations	87
10.4.9	Contingency Plans	87
10.4.10	Records and Reports	87
10.4.11	Document History and Status	87
10.5	Attachment 5 - Hazards on the LU Network	88
10.5.1	Purpose	88
10.5.2	General Hazards	88
10.5.3	Specific Hazards	88
10.6	Attachment 6 - Plant Which Requires Operator Re-Assessment More Frequently Than Every Five Years	91
10.7	Attachment 7 - Non-Railborne Plant Questionnaire Example	92

1 Purpose

- 1.1 This Standard is one of four Standards which together define the requirements for the design, construction, acceptance, use and maintenance of portable and transportable plant intended for use on the LU Infrastructure.
- 1.2 The purpose of this standard is to define the requirements for the **acceptance, use and maintenance** of all types of portable and transportable plant.
- 1.3 The engineering requirements for specific types of plant and the requirement for verification of conformity with these engineering requirements are set out in the other three Plant Standards as follows:
 - S1172 – On-Track Machines
 - S1173 – On-Track Plant
 - S1174 – Non-Railborne Plant
- 1.4 The requirements set out in this Standard are intended to control the risks associated with the use and maintenance of portable and transportable plant. The risks to be controlled are those which have the potential to affect safety, the train service, the environment and the Company's business, finances and reputation
- 1.5 This standard, replaces standard S1171 Issue A1

2 Scope

2.1 Types of Plant

- 2.1.1 This standard applies to all portable and transportable Plant with the exception of basic hand tools and battery powered hand tools that have not been designed or adapted for use on a railway.

GN001 – Examples of basic hand tools are spanners, hammers, and shovels. Although these tools are outside of the scope of this standard they must still be fit for purpose and only used for their intended purpose and in accordance with the Company Management System.

- 2.1.2 The range of plant covered by this standard is sub-divided into groups with similar attributes and requirements. The principal sub-division is between Railborne and Non-Railborne Plant. Details of the groups and definitions used for the various categories of plant, collectively referred to as 'Plant', are shown in Attachment 1.

GN002 - Attachments and Inspection/Measuring Equipment are classified as Non-Railborne Plant and therefore subject to the same requirements for design and acceptance as Non-Railborne Plant.

2.2 Area of Application

- 2.2.1 This standard applies to Plant intended for use or storage anywhere on the LU Infrastructure, as defined in Section 9 of this standard but **excluding** the interior of enclosed workshops or Premises that are not accessible to the Company's customers and to fully enclosed worksites and construction sites that are located away from the track and separated from the track by a physical barrier which is clear of the Structure Profile and sufficiently extensive and robust to prevent Plant within

the worksite or construction site from interfering with the safe and reliable operation of the railway.

2.3 Plant Ownership

- 2.3.1 This standard applies to all Plant within the scope defined by 2.1 and 2.2 above, irrespective of ownership or the length of time that the Plant is to be deployed.

3 Part 1 – General Requirements

3.1 Plant Categorisation & Terminology

- 3.1.1 For the purpose of this document the term 'Plant' is used as the generic description for all machines, tools, attachments and other equipment within the defined scope.
- 3.1.2 The categories, terms and definitions for the various types of Plant are set out in Attachment 1 and are, as far as possible, the same as those used in UK National Standards and European Standards. These categories, terms and definitions shall be used for all aspects of the acquisition, use and management of Plant on the LU Infrastructure.

3.2 Management Arrangements and Accountabilities

- 3.2.1 All Plant intended for use on the LU Infrastructure must have clearly defined management arrangements with defined accountabilities for ownership, use, inspection and maintenance.
- 3.2.2 For all Plant that requires Acceptance and Registration (see Section 4 below), the details of these management arrangements and accountabilities must be submitted with the application for Plant Acceptance (see Section 5.2.1.2).

3.3 Supply of Plant and Plant Related Services

- 3.3.1 All Plant intended for use on the LU Infrastructure and all Plant related services that are to be performed on the LU Infrastructure shall be sourced from TfL approved suppliers.

3.4 Compliance with International, European, National and UK Railway Industry Standards and Codes of Practice

- 3.4.1 Where this standard requires compliance with other London Underground, National, European or International Standards or Guidance Documents, the relevant document and specific requirement is quoted or referenced in this Standard.
- 3.4.2 The references to other Standards and related Guidance Documents made in this Standard will normally be restricted to the primary document although compliance is required with all secondary documents referenced by the Primary document unless non-compliance is instructed or formally agreed by LU.
- 3.4.3 Where no specific issue or version is quoted for the Standards and Guidance Documents referenced in this Standard, the latest authorised version of each referenced Standard or Guidance Document shall be used. Where a specific issue or version of a document is quoted in this Standard the quoted issue or version must be used unless LU formally instruct otherwise.
- 3.4.4 The approach to the use and maintenance of Plant as set out in the M&EE Codes of Practice issued by the RSSB shall be considered as 'best practice' and shall be adopted unless either of the following apply:-
- This would lead to a contravention of LU Standards.
 - It can be demonstrated that an alternative approach would be in the best interest of LU.
- 3.4.5 The primary Standards, Guidance Documents and Codes of Practice referenced in this Standard are listed in Section 9.1.

GN003 - Many of the requirements and associated guidance set out in this Standard are taken from the UK Rail Industry Standard RIS-1700-PLT issue 3, Safe Use of Plant for Infrastructure Work.

3.5 Requirements for the Identification of Plant

3.5.1 Items of Plant which require periodic examination in order to comply with statutory provisions or for the purpose of calibration shall be uniquely identified using a system approved by LU.

3.5.2 With the exception of some hand tools or other Plant where the attachment of information is impracticable, all Plant intended for use on the LU Infrastructure shall be uniquely identified and shall carry identification of ownership.

GN004 - The requirement set out in 3.5.2 applies irrespective of the ownership of the Plant concerned.

GN005 - The physical design of the Plant may limit the amount of information that it is possible to display in traditional format and consideration should be given to the use of bar-codes or electronic tagging.

GN006 - Particular requirements relating to the allocation of identification numbers to On-Track Machines are set out in LU standard S1172.

3.5.3 Where LU owned Plant is allocated a company Asset Number this shall be displayed in a prominent position on the Plant.

3.5.4 All Railborne Plant and all Plant which may be stored on site shall have a contact telephone number, for contacting the owner of the Plant, displayed in a clearly visible position (see also paragraph 6.1.16 regarding the requirement for storage licences).

GN007 - Where small items of Plant are to be stored in an enclosed container it is acceptable for the contact details for the Plant owner/custodian to be displayed on the container rather than on the Plant.

3.5.5 Diesel or petrol powered Plant, that has been approved for use in Enclosed locations (see section 6.1.11), shall be fitted with a durable tag or label in a prominent position and indicating that the item of Plant concerned has been approved for use in Enclosed locations, subject to compliance with all relevant safety controls.

3.6 Records

3.6.1 Record of Acceptance – All Plant

3.6.1.1 Information and evidence relating to the acceptance of individual items or types of Plant shall be held on the LU Approved Plant Register (see Section 4 of this standard).

3.6.2 Records of Inspection and Maintenance

3.6.2.1 Plant owned by LU

3.6.2.1.1 Records of inspection and maintenance, including faults and fault rectification shall be held on an LU approved database and maintained up-to-date.

3.6.2.1.2 All records of faults shall contain sufficient detail to enable fault types and trends to be identified, the effectiveness of routine inspection and maintenance to be evaluated and the emergence of any potential safety hazards to be identified.

3.6.2.1.3 Records shall be held of last inspection and next due inspection for all Plant requiring periodic calibration and all Plant subject to statutory requirements in terms of periodic inspection.

3.6.2.2 Plant Hired by LU or Owned or Hired by LU Contractors

3.6.2.2.1 Records of inspection and maintenance as may be required to satisfy statutory obligations shall be available and accessible to LU.

3.6.2.2.2 Records of maintenance and fault management for all individual items of Plant that has been approved by LU shall be available for inspection by LU upon request.

GN008 - LU require access to information about the inspection and maintenance work undertaken by Plant suppliers in order to establish the required level of confidence in the condition and performance of the Plant provided for use on the LU Infrastructure.

3.6.3 Asset Inventory - Plant Owned by LU

3.6.3.1 Details of individual items of LU owned Plant with a replacement value of greater than £20,000 shall be included in the appropriate asset register in accordance with the TfL Group Finance Manual Accounting Policy.

3.6.4 Condition Assessment and Reporting – Plant Owned by LU

3.6.4.1 The condition of all Plant owned by LU must be monitored and recorded on a regular basis.

3.6.4.2 For all LU owned Plant with a replacement value of greater than £20,000, the condition and estimated residual life of the Plant must be reported annually in accordance with LU Standard S1042 Asset Condition Reporting.

3.7 Documentation and Safety Information Carried/Displayed on Plant

3.7.1 Documentation to be Carried on Plant – All Plant

3.7.1.1 Plant shall, where applicable, carry documentation as evidence of:

- Statutory examination.
- Performance tests.
- Calibration.

GN009 - It is recommended that the next maintenance due date is displayed on each item of Plant. For the purposes of this clause the maintenance due date is for examination / testing by skilled Plant maintenance staff. It does not include pre-work checks by the operator.

GN010 - Examples of performance tests are pressure holding tests for rail stressing equipment, sound level tests of automatic warning device (AWD), measurement of neat exhaust emissions, etc. Individual employers may align this with the maintenance due date.

GN011 - Evidence should be provided on the item of Plant that statutory requirements have been met, for example portable appliance testing (PAT) of electrical tools and examination by a competent person of lifting equipment etc.

3.7.1.2 Railborne Plant shall carry with it the following documentation as a minimum:

- Operating Manual
- Use of Plant Safety Plan
- Plant Acceptance Certificate.
- Certificate of Technical Conformance.
- Route Availability data
- Thorough Examination Certificate
- Log Book for recording evidence of maintenance undertaken, including reporting and rectification of defects.

3.7.1.3 Plant Used to Undertake Lifting Duties shall carry the following additional documentation:-

- Evidence of the last thorough examination, as required by the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER).
- Load-Radius charts (duty charts), where applicable.

GN012 - The load radius chart for knuckle boom cranes is often a label beside the controls. Requirements for duty charts of hydraulic excavators used as cranes are set out in RIS-1530-PLT.

GN013 - Knuckle boom cranes includes machines formerly known as lorry loaders.

3.7.2 Safety Information to be Displayed on Plant

3.7.2.1 Information essential to the safe use of Plant shall, where practicable, be permanently displayed on the Plant in a clearly legible form and in a position where it is easily visible to users.

GN014 - The Provision and Use of Work Equipment Regulations 1998 requires all (safety) markings to be clearly visible.

GN015 - Examples of safety information include:-

- The requirement for specific PPE when using the Plant.
- The direction of operation of braking mechanisms.
- Warnings indicating hot or cold surfaces.
- Extent of tail swing on rotating superstructures.
- The direction of rotation of machinery.

GN016 - Where possible the safety information displayed on Plant shall comply with BS EN ISO 12100:2010 and preference should be given to the use of pictograms.

4 Part 2 - Requirements for the Acceptance of Plant

4.1 General

4.1.1 All Railborne Plant and some Non-Railborne Plant (see 4.1.2 below) shall be subject to formal acceptance and registration in accordance with LU Standard S1011, Product Acceptance and Registration.

GN017 - 'Product Acceptance' specifically relating to Plant is referred to as 'Plant Acceptance' and employs the same principles and processes and the same roles and responsibilities as set out in LU Standard S1011, Product Acceptance and Registration.

The principles and processes defined in S1011 include the requirement for evidence of acceptability in terms of the following elements:

- **Business Justification** - Evidence that there is a supported business case for the Plant and that no other currently approved Plant is available to meet the users requirements.
- **Engineering Acceptance** – Evidence that the Plant complies with:-
 - UK statutory requirements.
 - LU Standards
 - LU Specified Requirements.
- **Safety Acceptance** – Demonstration of tolerable and ALARP risks in all permitted use.
- **Operational Acceptance** – Documented arrangements for safe use and maintenance while the Plant is on LU managed infrastructure.

Evidence to show that each of the above four elements have been adequately considered is required for all applications for Plant Acceptance irrespective of the type, ownership or intended use of the Plant concerned. ***However, the scope and complexity of the information required to support approval will depend on the type of Plant and the proposed use.***

4.1.2 Non-Railborne Plant for which both the design and intended use fall within the scope of this standard (see Section 2) shall be subject to formal Acceptance and Registration unless the party intending to use the Plant is able to demonstrate that this is unnecessary. The need for the formal Acceptance of Non-Railborne Plant shall be determined by completing (electronically) the assessment questionnaire provided in the Approved Plant Register. The questionnaire must be completed by the party intending to use the Plant and, on each occasion, reviewed and endorsed by a competent authorised employee of TfL. An *uncontrolled* example of a questionnaire can be found in Attachment 7 however the live version on the Approved Plant Register should be used at all times.

GN018 - The scope of the assessment required for Non-Railborne Plant will be determined by the Assessor/Reviewer and where the Plant is not designed or adapted specifically for railway use the assessment will normally be limited to those aspects of the Plant or its intended use that are identified on the questionnaire as representing potential risk to LU.

GN019 - The Approved Plant Register incorporates two questionnaires relating to Non-Railborne Plant, one for Powered Plant and one for Non-Powered Plant.

These questionnaires are designed to help parties intending to use Non-Railborne Plant to determine if Plant Acceptance and Registration is required by establishing the following risk related facts about the Plant and its intended use:-

- Is the specially designed or adapted for railway use.
- Does the Plant display a compliant CE mark
- Does the Plant come with instructions for its use and maintenance
- Is the Plant of an established design
- Will the Plant only be used for its intended purpose
- Will the Plant be used or stored in Enclosed Locations
- Is the Plant intended to be used in a location or at a time that involves railway specific risks.

Table 3 of LU standard S1174 lists the typical situations relating to the use of Non-Railborne Plant that may create a railway specific risk and specifies the design requirements that the Plant may need to comply with to address this risk.

GN020 - The LU Approved Plant Register is accessible via the internet as follows:-

- Search for ***plantandcranesforlu.com*** and log in with:-
- User name. Readonlyuser
- Password. Plant

4.1.3 Where the completed questionnaire indicates that Acceptance is required for the Non-Railborne Plant and/or its intended use, the party proposing to use the Plant will be required to submit an electronic application for Plant Acceptance using the Approved Plant Register.

4.1.4 Where it is determined that Non-Railborne Plant ***does not require*** Plant Acceptance the user must ensure that the Plant concerned is used and maintained in accordance with the manufacturer's instructions, the Company's Management System and established good practice.

4.1.5 Where Attachments require Plant Acceptance the assessment shall include consideration of their use in conjunction with nominated host machines or types of host machine. Where Attachments are approved, the registration of their acceptance shall include the details of each host machine or host machine type with which the Attachment can be used.

4.1.6 The LU Approved Plant Register shall be used for all:-

- Initial assessments of the need for Acceptance (the Non-Railborne Plant questionnaires)
- Applications for acceptance.

4.1.7 The Approved Plant Register shall also be used to:-

- Record all applications for Plant Acceptance.
- Retain all records of assessment (initial and acceptance).
- Record acceptance or rejection (including copy of CTC for Railborne Plant).
- Record any conditions attached to acceptance
- Issue Plant Acceptance Certificates.

4.1.8 The specific requirements to be met for each individual application for the acceptance of Plant shall be determined by the appointed LU Assessors/Reviewers and set out in an Acceptance Plan collated by the LU Lead Assessor/Reviewer and endorsed by the Approver.

GN021 - The development of the assessment plan by the appointed LU Assessors/Reviewers will always be led by the LU Lead Assessor/Reviewer and should involve the following stakeholders:-

- LU Product Sponsor
- Manufacturer
- Supplier
- User
- Maintainer
- Approver

4.1.9 All evidence required to demonstrate compliance with the defined requirements must be provided by the Product Sponsor supporting approval of the Plant.

4.1.10 For all Plant requiring Plant Acceptance, the acceptance must be obtained before the Plant is brought into use on the LU Infrastructure.

4.1.11 The period for which Acceptance is granted will depend on a number of factors and will be at the discretion of the Approver.

GN022 - The Acceptance of On-Track Plant will normally be valid for a maximum of 7 years after which time the machine will require full re-assessment to the standards in force at the time.

4.1.12 Acceptance of Plant may be for normal use or solely for the purpose of undertaking trials or tests.

4.1.13 The approval of Plant may be for individual items of Plant or for groups of identical types of Plant from the same Manufacturer (Type Approval).

4.1.14 The Acceptance of Plant is subject to compliance with any conditions or limitations stated on the Plant Acceptance Certificate and, in the case of Railborne Plant, compliance with any additional conditions or limitations included on the Certificate of Technical Conformance (CTC).

4.1.15 Where Plant Acceptance has lapsed or where LU have withdrawn Plant Acceptance an application for Plant Acceptance must be submitted and approved before the Plant can be brought back into use on the LU Infrastructure.

4.1.16 Plant with current LU Plant Acceptance that has been modified while away from the LU Infrastructure, or Railborne Plant which has not been operational on the LU

infrastructure for 6 months or more, shall not be brought back into use on the LU Infrastructure until approved by the LU Head of Track Engineering.

- 4.1.17 The request for approval of modifications, changes in use or changes of maintenance shall be submitted using the Approved Plant Register and providing full details of the proposed changes which, where relevant, must include evidence of compliance with statutory requirements and LU standards and evidence that the proposed change will not adversely affect safety or performance.

GN023 - Where the scope of assessment is limited to the modification and its effects, the re-certification will retain the same expiry date as the original Acceptance Certificate. A full re-assessment of the machine will be needed to obtain a longer period of certification.

- 4.1.18 Changes affecting the design, use or maintenance of Plant with valid LU Plant Acceptance and currently in use on the LU Infrastructure shall not be implemented until approved by the LU Head of Track Engineering.

4.2 Requirements for Acceptance - Normal Use

4.2.1 Business Acceptance

- 4.2.1.1 The application for Acceptance of all Plant for normal use shall include evidence that:

- there is a genuine requirement for the Plant.
- the proposed design and use of the Plant supports the agreed LU Technical Strategy.
- the commercial arrangements for procuring or hiring the Plant are acceptable.

GN024 - The demonstration of a genuine requirement for the Plant should include evidence that the Company doesn't already have access to approved Plant which is available and able to perform the required function.

The demonstration of Commercial acceptability should include evidence that the supplier and the arrangements under which the Plant is to be procured / hired are acceptable to LU.

The nature of the evidence required in respect of the Commercial and Business factors may vary depending on the ownership of the Plant concerned.

4.2.2 Engineering Acceptance

4.2.2.1 General

- 4.2.2.1.1 In all cases where Plant Acceptance is required for Normal use or for Trial use the application for acceptance shall include the following three elements of Engineering Acceptance :

- Evidence of compliance with relevant legislation.
- Evidence of conformity with LU standards.
- Evidence of compliance with LU Specified Requirements.

- 4.2.2.1.2 Confirmation of Engineering Acceptance for Railborne Plant shall be recorded by the issue of a Certificate of Technical Conformance authorised by the LU Head of Rolling Stock.

4.2.2.1.3 Confirmation of Engineering Acceptance for Non-Railborne Plant shall be recorded by issue of the Plant Acceptance Certificate.

4.2.2.1.4 Where Plant or a modification to Plant is being designed specifically for LU, the assessment of compliance with Legislation, Standards and Specified Requirements shall include documented design reviews.

4.2.2.2 Evidence of Compliance with statutory requirements

4.2.2.2.1 The manufacturer/supplier of Plant is responsible for ensuring that their products and services comply with statutory requirements and shall provide any specific evidence of compliance that may LU may reasonably request.

GN025 - The nature and scope of any assessment of the evidence of compliance with statutory requirements should be determined on the basis of the level of confidence in the manufacturer making the declaration of compliance and the risks associated with the Plant and its intended use. As a minimum the Manufacturer/Supplier will normally be required to provide the formal Declaration of Conformity that is required to support the award of a CE mark.

4.2.2.3 Evidence of Compliance with Standards

4.2.2.3.1 The scope of the evidence provided to demonstrate compliance with LU Standards shall include design, construction and maintenance.

GN026 - The assessment of 'maintenance' in respect of compliance with standards requires confirmation that the scope and detail of the maintenance information provided by the manufacturer complies with the requirements defined in the standards and that if applied is likely to keep the machine in a safe and serviceable condition throughout its planned service life.

4.2.2.3.2 The assessment requirements and the methods of assessment to be used to demonstrate conformity with standards are set out in the Plant Design standards S1172 for On-Track Machines, S1173 for On-Track Plant and S1174 for Non-Railborne Plant.

GN027 - Where evidence of non-compliance is found action should be taken to correct this. Where the achievement of compliance is impracticable, undesirable or unaffordable, a Concession must be obtained from LU to formalise acceptance of the non-compliance. LU Standard S1641 – Concessions to Standards sets out the requirements for requesting a Concession.

4.2.2.4 Evidence of Compliance with Specified Requirements

4.2.2.4.1 The scope and nature of the assessment required to demonstrate compliance against Specified Requirements shall be determined by the Lead Assessor/Reviewer and incorporated into the Acceptance Plan.

GN0028 - Specified Requirements typically include performance requirements for the Plant and any specific requirements such as noise or other emission levels that, for the proposed application, are required to be lower than those permitted by the relevant Standard.

4.2.3 Safety Acceptance - Verification of Acceptable Risks

4.2.3.1 The application for Acceptance of all Plant intended for Normal Use shall include evidence that all credible hazards which could arise from the permitted use of the Plant have been identified and eliminated or mitigated to a point where the residual risks are demonstrably tolerable and ALARP.

GN029 - The nature of the hazard identification and risk assessment will depend on the design of the Plant and its intended use. For Non-Railborne Plant the hazard identification and risk assessment should concentrate on those aspects of the Plant and its intended use which determined the need for Acceptance.

GN030 - Hazard identification should be done by an appropriate number of competent persons using established techniques and recommended good practice.

GN031 - The approach taken to hazard identification and risk assessment should be as set out in LU standard S1526, The assessment and management of health safety and environmental risk.

GN032 - The identification and evaluation of risks associated with the design and use of Railborne Plant should be undertaken using the principles set out in BS EN 50126 – Railway Applications – The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS).

4.2.3.2 Wherever practicable, hazards shall be eliminated or reduced using engineering means. Where it is necessary to place reliance on procedures for mitigation, these must be achievable and sustainable and the responsibility for their implementation clearly defined. Procedural mitigations shall be included in the Use of Plant Safety Plan (UPSP - see 5.2.1.2) or the documented safe system of work for those items of Non-Railborne Plant where a UPSP is not required.

4.2.4 Operational Acceptance

4.2.4.1 The arrangements required to ensure the safe use of individual items or types of Railborne Plant shall be set out in a Use of Plant Safety Plan (UPSP), meeting the requirements of Paragraph 5.2.1.2 of this standard. The UPSP must be applicable to all intended applications of the Plant and shall, where necessary, be supplemented with additional arrangements to control site or application specific risks. The UPSP must be submitted as part of the application for Plant Approval. The requirements for UPSPs are set out in Attachment 2.

4.2.4.2 The requirement for a Use of Plant Safety Plan to be prepared for Non-Railborne Plant shall be determined by the Lead Assessor/Reviewer when preparing the acceptance plan. Where it is determined that a Use of Plant Safety Plan is not required, the user is required to ensure that the arrangements for the safe use of the Plant are included in the documented safe system of work.

GN033 - The requirement for a Use of Plant Safety Plan for Non-Railborne Plant will depend on the estimated level of risk associated with the Plant and its intended use.

4.2.4.3 The arrangements to be used to ensure the safe and effective performance of any inspection, maintenance and repair work that is to be undertaken on Railborne

Plant whilst on the LU Infrastructure must be submitted in the form of a Maintenance Plan as part of the application for Plant Approval.

- 4.2.4.4 The requirement for a Maintenance Plan to be prepared for Non-Railborne Plant shall be determined by the Lead Assessor/Reviewer when preparing the acceptance plan. Where it is determined that a Maintenance Plan is not required, the user is required to ensure that the arrangements for the safe Maintenance of the Plant at the worksite are included in the documented safe system of work.

GN034 - The requirement for a Maintenance Plan for Non-Railborne Plant will depend on the estimated level of risk associated with the design of the Plant and the likely frequency nature of maintenance and repair interventions that will be required at the worksite.

GN035 - The content of a typical Maintenance Plan are set out in Attachment 3.

GN036 - For relatively simple Plant it is acceptable for the UPSP and Maintenance Plan to be combined into one document.

GN037 - For Non-Railborne Plant where it has been decided that a Maintenance Plan is not required, the arrangements for the maintenance or repair of the Plant at the worksite should be included in the documented safe system of work.

4.3 Requirements for Acceptance - Controlled Trials

- 4.3.1 Applications for the approval of Plant where the intended use is solely for the purpose of tests or trials must be supported with the following evidence and information:

- Trial/Test Management Plan.
- Details of any known non-compliance with relevant Standards.
- Evidence that any risks associated with the tests or trials will be tolerable and ALARP at all times, taking full account of any known non-compliance with Standards.
- Evidence of readiness to implement the Trial/Test Management Plan.

GN038 - The introduction of Plant for the purpose of testing or trialling of Plant on the LU managed infrastructure must be formally approved through the Plant Acceptance process. However, the requirements to be met for approval to test/trial Plant are likely to be different from those associated with Normal use.

In order to obtain approval for test/trial use of Plant the Applicant must demonstrate that the arrangements for the tests/trials have been properly planned, that appropriate hazard identification/risk assessment has been undertaken and that any residual risks are tolerable and ALARP.

Compliance with LU's Engineering Standards is preferred but not obligatory for Plant under test/trial provided the nature of any non-compliance is understood and addressed through the risk assessment.

- 4.3.2 The Test/Trial Plan must comply with the relevant aspects of Section 3.18 of LU Standard S1538 and also provide the information specified in Attachment 4 of this Standard, including the details of the accountable Test Manager and assurance that the approved risk management measures will be fully implemented.

- 4.3.3 For tests or trials of Railborne Plant a Certificate of Technical Conformance (CTC) must be authorised by the LU Head of Rolling Stock before the Plant can be placed onto the track at any location on the LU Infrastructure irrespective of the proposed Protection arrangements.

GN039 - The requirements to be satisfied before the CTC can be issued will depend on the location of the proposed trials and in particular the degree of separation from the Operational Railway

4.4 Modifications

- 4.4.1 All modifications undertaken on Plant which has previously been approved for use on the LU Network shall be notified to the LU Approver and formal approval obtained from LU before the modified Plant is used on the LU Network.
- 4.4.2 Where LU determines it necessary, the existing Plant Acceptance will be withdrawn and further approval must be obtained for the modified Plant.

4.5 Assurance

- 4.5.1 The use and maintenance of Plant shall be routinely monitored using a risk based assurance regime meeting the requirements of LU Standard S1538, Assurance.
- 4.5.2 The results of the assurance activity shall be used to identify deficiencies and trends and to direct improvement actions.
- 4.5.3 The plans for assurance activity and the results obtained shall be held in a form and location readily accessible to all interested parties.

5 Part 3 – Requirements for Planning for the Use of Plant

5.1 Selection of Plant

- 5.1.1 When selecting Plant from the Approved Plant Register the user shall ensure that the intended use is within the scope of the approved use and compliant with the Use of Plant Safety Plan submitted as part of the original application for approval. Where this is not the case or where doubt exists, approval for the intended use shall be obtained from the Head of Track Engineering or their nominated representative.

GN040 - It is important that users selecting Plant from the register of Approved Plant establish and comply with all requirements and the conditions recorded at the time the Plant was originally approved.

These requirements and conditions are likely to include:-

- Limitations of use (as defined on the Plant Acceptance Certificate and, for Railborne Plant, the CTC)
- Protection requirements
- Inspection and maintenance requirements
- Operator/maintainer competence requirements
- PPE

Access to this information will normally be through the Approved Plant Register.

- 5.1.2 The selection of the Plant for particular works and applications involving site specific risks shall include appropriate and auditable risk assessment and shall require the compilation of evidence that the Plant is suitable for the intended purpose and that the arrangements needed to ensure that safety risks will remain tolerable and ALARP at all times are practicable, achievable and sustainable. The required safety controls shall be recorded in a Site/Task Specific Method Statement as set out in Section 5.2 below.

- 5.1.3 The hazard reviews and risk assessments required prior to the use of Plant shall consider specific risks associated with the LU Infrastructure in addition to the general risks associated with a railway environment. Attachment 5 provides a summary of LU specific risks.

- 5.1.4 When intending to use Plant which is not currently approved for use on the LU Infrastructure or not approved for the intended use, Plant Acceptance must be obtained in accordance with Section 4 of this Standard, before the Plant is deployed.

5.2 Preparing a Safe System of Work for the Use of Plant

5.2.1 Documented Safe System of Work

5.2.1.1 Documented Safe System of Work - General Requirements

- 5.2.1.1.1 All work undertaken on the LU Infrastructure shall be carried out using a documented safe system of work.

- 5.2.1.1.2 Where work on the LU Infrastructure involves the use of Plant the documented safe system of work shall include an inventory of all Plant that is to be used and, for each item or type of Plant shall make reference to:-

- The manufacturer's operating instructions
- The manufacturer's maintenance instructions
- The Use of Plant Safety Plan (where appropriate – see 4.2.4.2)

- The Maintenance Plan (where appropriate – see 4.2.4.4)

5.2.1.1.3 Where more than one item of Plant is being used on a worksite the documented safe system of work shall ensure that unacceptable safety risks do not arise as a consequence of any intentional or accidental interaction between the items of Plant.

5.2.1.1.4 Where the works involve Plant performing lifting operations, the documented Safe System of Work shall incorporate a Lift Plan, see Section 5.2.6.

5.2.1.1.5 If circumstances dictate the need for a change to the documented safe system of work involving the use of Plant after work has commenced, only a competent authorised person shall be permitted to make the change.

5.2.1.2 Documented Safe System of Work - Use of Plant Safety Plans

5.2.1.2.1 UPSPs are required to set out the arrangements for ensuring the safe use of individual items of Plant or identical types of Plant for all intended working locations and in all permitted operating modes. They are required to form part of the documented Safe System of Work for activities involving the use of Railborne Plant and for some types of Non-Railborne Plant and must be submitted with the application for Plant Acceptance, see Section 4.

5.2.1.2.2 UPSPs are required to define arrangements for the use of the Plant concerned which will ensure compliance with this Standard and with established Good Practice.

5.2.1.2.3 The required format and basic content of a typical UPSP are described in Attachment 2.

GN041 - Use of Plant Safety Plans are normally of a generic nature insofar as they set out the requirements for ensuring the safe use of Plant at a range of locations and for a range of applications, each of which is likely to have its own specific hazards. It is therefore usually necessary to supplement the UPSP with method statements and/or working instructions designed to mitigate site and application specific risks.

5.2.2 Planning for the use of Plant

5.2.2.1 When planning work, consideration shall be given to additional requirements for using Plant. These include, but are not limited to, the following:

- a) The need for a site visit during daylight hours (where LU safety regulations permit this) to identify the hazards at the site and the precautions that need to be put in place for using the particular item of Plant
- b) The transport of the Plant to and from the site
- c) The ability of the Plant to transport personnel and that it is certificated (or approved) to do this
- d) The loading and unloading of Plant at the site
- e) Specific site lighting requirements for the Plant
- f) The noise, exhaust emissions and other fumes or discharges resulting from the use of Plant and the precautions needed to control these hazards.

- g) The additional hazard arising from the use of multiple items of Plant on the same site, including the cumulative effect of emissions and the increased risk of collision.
- h) Access for the Plant and positions of safety for personnel involved with using the Plant and affected by the Plant
- i) Any areas of limited space and clearance associated with the use of the Plant
- j) Load carrying capacities of platform surfaces, bridges and other track supporting structures, and lifts that may be used
- k) Storage locations, including security of the Plant on site.
- l) Compatibility of different types of Plant used at a worksite.
- m) Potential impact of the use of Plant on line side residents.
- n) Fire precautions required.

5.2.3 Use of Plant - Selection and Planning of Protection against Train and other rail vehicle Movements

5.2.3.1 Protection during Traffic Hours

5.2.3.1.1 The LU Rule Books define the requirements for protecting staff and Plant on or about the Track from the movement of Trains and other rail vehicles.

5.2.3.1.2 Plant shall not be used on or near the Track during Traffic Hours unless *all* of the following apply:

- a) It is not reasonably practicable to undertake the work in Engineering Hours
- b) The Plant has been specifically approved for use in these circumstances and
- c) Compliance with the documented Safe System of Work will result in tolerable risks which are ALARP.

5.2.3.2 Protection during Engineering Hours and within Possessions

5.2.3.2.1 With the exception of Trolleys, Lightweight Demountable Machines and Lightweight Trailers, the movement of Railborne Plant during Engineering Hours shall be confined within the limits of a Possession, Specified Area or Engineer's Current Area as appropriate.

GN042 - In the Line Clear/Line Safe area, Trolleys, Lightweight Demountable Machines and Lightweight Trailers may be placed on the Track during Engineering Hours without the requirement for additional Protection.

GN043 - Details relating to the establishment, use and removal of Possessions, Specified Areas and Engineer's Current Areas are set out in Rule Books 14 and 15

5.2.3.2.2 The movement of On Track Machines entering or leaving a Possession shall be planned to comply with LU Rule Book 15.

5.2.3.2.3 Where Plant is required to operate within a Possession next to an adjacent line which is open to Traffic, the Safe System of Work must ensure that no part of any Plant or associated load is able to infringe the Structure Profile of the open

line and that a physical barrier is provided to prevent staff, including Plant Operators, from moving into a position where they are at danger from Trains or other rail vehicles or live conductor rails on the adjacent Line.

GN044 - The technical requirements for movement limiting devices and other features that are used to enable machines to work with the adjacent line open to Traffic are defined in LU standards S1172 for On-Track Machines, S1173 for On-Track Plant and S1174 for Non-Railborne Plant.

5.2.3.3 Protection in Depots

5.2.3.3.1 Where Plant is placed or used on or near the Track in depots, Protection from moving trains and other rail vehicles shall be provided in accordance with LU Rule Book 15.

5.2.3.3.2 Railborne Plant shall not be placed on the Track in Depots or Sidings unless its proposed deployment complies with the relevant Depot safety procedures and has been approved by the Duty Depot Manager or their nominated representative.

5.2.3.4 Protection in Sidings

5.2.3.4.1 Where Plant is placed or used on or near Track classified as sidings, Protection from moving trains and other rail vehicles shall be provided in accordance with LU Rule Book 15

5.2.3.4.2 Railborne Plant shall not be placed on the Track classified as sidings unless its proposed deployment complies with the relevant safety procedures and has been approved by the relevant Line Controller or their nominated representative.

5.2.4 Use of Plant - Planning of Precautions against Electric Shock

5.2.4.1 Protection from Traction Current

5.2.4.1.1 Work involving the use of Plant shall not be planned to take place on or near the track while the traction current is charged unless the Plant concerned is approved for use in these circumstances. Work should only be planned in these circumstances when it is not reasonably practicable for the work to take place in Engineering Hours or to isolate the traction current for the duration of the work **and** where risk assessment shows that the proposed work can be undertaken safely with the traction current charged.

5.2.4.2 Use of Plant - Protection of and from Buried Power Cables

5.2.4.2.1 The plans for all work involving the use of Plant for drilling or excavation into the track bed shall include a requirement for a pre-works survey to identify buried cables in accordance with the following LU Standards:-

- S1552 Contract QUENSH Conditions
- S1114 Safe Systems of Work on or Near Electrical Equipment.

GN045 - CAT scanning equipment used for the detection of buried cables must be approved by LU through the Plant Acceptance procedure.

5.2.4.3 Use of Plant - Protection of and from Line Side Power Cables

5.2.4.3.1 The planning of all work involving the use of Plant near to line-side cables shall include a requirement for a pre-work site survey, conducted during daylight hours where permitted by LU access/safety rules, to provide the information needed to

establish a safe system of work. Consideration shall be given to the marking and/or physical protection of the line side cables.

5.2.4.4 Use of Plant - Protection of and from Overhead Electrified lines

- 5.2.4.4.1 The planning of all work involving the use of Plant near to the overhead electrified lines of an adjacent railway shall involve appropriate liaison with the infrastructure manager responsible for the adjacent railway line and the establishment of a safe system of work endorsed by both parties.

GN046 - Where Plant is to be operated adjacent to charged overhead traction equipment, special provisions may be required to eliminate the risk of electrocution.

5.2.4.5 Use of Plant - Protection from Stray and Induced Currents

- 5.2.4.5.1 Some locations on the LU Network have special earthing arrangements due to the potential presence of stray or induced currents in the discharged conductor rails. Special precautions may be required when planning works involving the use of Plant at these locations. Details of the locations concerned are available from the LU Head of Power Engineering.

5.2.5 Planning for the Use of Railborne Plant

5.2.5.1 Route Availability

- 5.2.5.1.1 When planning for the use of Railborne Plant confirmation must be obtained that the Plant has 'Route Availability' for Travelling at the worksite and Running/Travelling on the route to and from the worksite. This will include, where different, Running/Travelling on the route the Plant may be required to Run/Travel during emergency recovery.
- 5.2.5.1.2 Where the nature of work to be undertaken at the worksite causes temporary non-compliance with track standards such as structure gauge or track geometry, a competent person shall determine whether the Railborne Plant can safely Travel and Work over the parts of the line affected by the works and, if so, whether any restrictions are required in order to maintain adequate safety margins.
- 5.2.5.1.3 Where Plant is capable of exceeding its Running/Travelling Load Gauge/ Kinematic Profile and /or wheel loading when in the Working mode, the acceptability of its operation must be determined by an authorised competent person on a task/location specific basis.

GN047 - The permitted limits for the loads imposed on the track and any under track structures are defined in LU Standards S1172 and S1173. These standards also set out the actions to be taken where there is a risk that these limits may be exceeded.

5.2.5.2 Permitted Speeds.

5.2.5.2.1 OTM in Traffic Hours

- 5.2.5.2.1.1 When planning for the movement of OTM in Running mode (Traffic Hours) the maximum speed shall be the speed shown on the Certificate of Technical Conformance (CTC).

GN048 - LU Rule Book 18 specifies that the maximum permitted speed of Engineer's vehicles is 30 mph (48 km/h).

5.2.5.2.2 OTM and OTP under Protection (Possessions, Specified Areas or Engineering Hours)

5.2.5.2.2.1 When planning for the movement of OTM and OTP in Travelling mode the maximum permitted speed shall be the speed shown on the Certificate of Technical Conformance (CTC).

5.2.5.2.2.2 For Trolleys the maximum permitted speed is 3 mph (5km/h)

5.2.5.2.2.3 For Lightweight Demountable Machines (Motorised Trolleys) the maximum permissible speed is 10 mph (16 km/h) in the Line Safe area and 5 mph (8 km/h) in the Line Clear Area.

5.2.5.3 Gradient and Cant

5.2.5.3.1 The capability of Plant to Run/Travel/Work safely on a gradient or on canted track shall be assessed as part of the Acceptance of the Plant and any limitations or restrictions shall be recorded on the Certificate of Technical Conformance and in the Use of Plant Safety Plan.

5.2.5.3.2 The planning for the use of Plant that has limitations in respect the gradients or cants on which it can safely operate shall require the gradients and cants that will be encountered by the Plant when Running, Travelling and Working to be established and if necessary confirmed by site inspection prior to the deployment of the Plant.

5.2.5.3.3 The Safe System of Work documented for activities involving the use of Railborne Plant shall ensure that the risk of runaway or overturning is eliminated under all foreseeable conditions including failure and emergency situations and during any subsequent recovery.

5.2.5.4 Axle Counters

5.2.5.4.1 When work is to take place in an area with axle counters consideration shall be given to the potential for operation of the axle counters by Railborne Plant.

GN049 - This is especially relevant where an item of Plant is placed on the track and passed over an axle counter which registers its presence. If the Plant is removed from the track the section will continue to show occupied.

5.2.5.5 Communications

5.2.5.5.1 The Safe System of Work for activities involving the use of Railborne Plant where Plant Operators are positioned on the Plant during use shall include details of the arrangements for providing effective and where necessary fail-safe communication between Plant Operators and staff on the ground working with or in the vicinity of the Plant.

5.2.6 Planning for the Use of Cranes - Lift Plan

5.2.6.1 Every lifting operation involving the use of lifting equipment shall have a documented lift plan as part of the documented Safe System of Work.

GN050 - Generic lift plans are acceptable for routine lifting of a repetitive nature, such as in depots with overhead hoists, lorries unloading the same products etc. However, each lift of equipment on a worksite should be planned and documented beforehand. An acceptable method of lift planning is set out in M&EE Group Code of Practice COP 011.

5.2.6.2 Equipment for which a lift plan is required shall include all Plant used for lifting as follows:

- Purpose-built rail cranes
- Road cranes working within the railway boundary
- Hydraulic excavators used as cranes
- Knuckle boom cranes
- Fork lift trucks
- Jacks
- All other items included within the definitions of lifting equipment set out in the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER).

5.2.6.3 The lift plan shall incorporate the requirements of LOLER and BS 7121 Part 1: 2006, and additionally include adequate control measures for the following railway specific risks:

- Infringement by the crane or the load of the Structure Profile of lines open to Traffic.
- Control of stability on canted track and gradients
- Control over the safe working load related to rated duties
- Tandem lifting.

GN051 - The lift plan for the crane should take into account the following:

- a) The weights and symmetry of the load(s) to be lifted, including any possible adhesion between the ground and load or load and structure. When a load cannot be weighed, calculated, or estimated accurately, technical assistance should be obtained.
- b) The weight of the lifting accessories to be used, for which due allowance should be made in the crane loading.
- c) The radius, track cant and track gradient (or ground slope if not rail mounted) on which the crane will be required to lift each load.
- d) The details of any special instructions which apply to the lifting equipment to be used, or to the method of lifting to be employed.
- e) The suitability of track and ground conditions to withstand the concentrated loads imposed by wheels or outriggers of the crane.
- f) The clearance between the crane and loads to overhead and adjacent structures, for example bridges, overhead line equipment, signal posts, lineside cabinets etc. Where applicable this should be indicated on a site diagram.
- g) Any sub-surface works or services eg culverts, drains, building construction, etc, which have the potential to be damaged by the lifting operation or affect the safe operation of the crane. Where applicable these should be indicated on a site diagram.

- h) All other rail vehicles in the vicinity. These should be listed, their use defined and their position and direction of approach clearly indicated.
- i) An assessment of the possession requirements of running lines upon which the crane stands and adjacent running lines, including electrical isolation.
- j) Any requirements for liaison with other parties responsible for work in the same possession.
- k) The requirement for removing or slewing OLE for the duration of the work.
- l) The provision for controlling the operation on site.
- m) Any requirements for cranes working independently but in close proximity on the same site. The limits of travel should be agreed in advance.
- n) Any requirements for tandem or multiple crane lifting. See also clause 6.4.1.2.1e.
- o) The requirement to work on a bridge, arch, viaduct or embankment. Advice and authority of the relevant infrastructure manager should be obtained to ensure the structure is capable of supporting the crane and the assessed loads.
- p) The limits of the lifting operation and positions of safety for work groups.
- q) Adequate resources (including sufficient Slings) are available.
- r) An assessment of the potential requirement to inspect the lifted components for damage caused by the lifting process.
- s) Method of communication (noting likely environmental conditions such as noise, lighting etc).
- t) Any requirement for the crane to travel under load.

GN052 - An acceptable method of establishing control measures for tandem lifting is set out in M&EE Group Code of Practice COP 008.

5.2.6.4 Lift plans shall be written by staff competent in lifting operations.

GN053 - Lift plans should be written by personnel possessing the competencies for a Crane Controller as set out in Section 8.4. The Crane Controller (planning) should obtain all the necessary information to ensure a safe lifting operation and decide on a lift plan.

6 Part 4 – Requirements for the Use of Plant

6.1 Safety Requirements for Use of All Infrastructure Plant

6.1.1 Prevention of Damage to the Infrastructure

6.1.1.1 Before using Plant, an assessment shall be made to ensure that the track, lineside and under-track equipment, including supporting structures, will not be damaged by the use of the Plant.

GN054 - Particular attention should be given to ensure against damage that may be difficult to detect prior to the subsequent passage of trains or other rail vehicles.

6.1.1.2 Loads on sleepers shall be limited to avoid overstressing of sleepers and to prevent damage:

- a) Wheeled vehicles that have a loading greater than 6 tonnes per axle shall not be permitted to run directly on sleepers or bearers.
- b) Wheeled or tracked vehicles shall not be permitted to run directly over in-situ conductor rails.
- c) Tracked vehicles shall not be permitted to run over running rails, sleepers or other infrastructure components etc, without the use of suitable protection to prevent damage.

GN055 - Tracked Plant with rubber or similar surfaces on the tracks may be allowed to run over running rails without additional protection subject to this being confirmed in the Plant Acceptance Certificate for the Plant concerned.

6.1.1.3 Plant shall be used such that it does not damage the ballast shoulder.

6.1.1.4 Plant which grips or clamps to a rail shall be approved in accordance with Section 4 of this Standard prior to use and the assessment shall establish that the Plant will not damage the rail under any credible and foreseeable conditions of use. The Plant shall only be used in accordance with the Use of Plant Safety Plan and manufacturer's approved documented instructions.

6.1.1.5 A site survey shall be undertaken before any activity where Plant grips or clamps to the rail web to mitigate the risks of damaging:

- Signal cables and bonds.
- Axle counter equipment
- Force transducers
- Accelerometers
- Other items that may be fastened to the rail web.

6.1.1.6 A site survey shall be undertaken to determine the presence and routes of any cables and services before using Plant for excavating or driving anything into the ground. Where cables or services are present, a safe system of work which prevents them from being damaged shall be developed and implemented (see also Section 5.2.4.2).

GN056 - The positioning of temporary lighting poles and other items that have spikes should be considered where driving the spike into the ground could damage underground pipework and cabling.

6.1.1.7 Plant shall not be placed or used on platforms, decks, bridges or other structures without confirmation that the structure is strong enough to bear the weight of the Plant and any load it could be carrying and any dynamic loading that may occur during its operation.

GN057 - The requirements for determining loads on structures and limiting values are set out in the following LU Standards:-

- S1051 – Bridges and Structures
- S1053 – Building and Station Structures.

6.1.1.8 The use of dynamic track stabilisers or machines with similar actions shall not be permitted unless an assessment of risk to the infrastructure has been carried out.

6.1.1.9 When using any Plant, but in particular Railborne Plant, precautions must be taken to ensure that the top surface of the running rails does not become contaminated with grease or any other materials that may adversely affect the safe running of trains.

6.1.2 Transportation of Plant and Materials

6.1.2.1 The transportation of Plant about the LU Network shall be planned and managed in a way which will minimise risks including those involving injury to customers or staff, damage to LU operational assets and damage to the Plant itself.

6.1.2.2 Plant shall not be transported on escalators or carried in lifts unless this is done by prior agreement of the relevant LU asset steward and in full compliance with Attachment 9 of LU Standard 1-092 Escalators and Passenger Conveyers.

6.1.3 Plant Transported on or in Rail Vehicles or Trailers

6.1.3.1 Plant and materials moved on or in rail vehicles or trailers shall:

- a) Be secured and be within the relevant load gauge (unless the fouled line is protected from rail movements, in accordance with the LU Rule Books 14, 16 & 18.
- b) Be loaded such that the weight is distributed in accordance with the loading requirements of the rail vehicle.

GN058 - The dimensions of loading gauges and the requirements for the acceptance of out-of-gauge loads are contained in LU Standard S1156, Gauging and Clearances.

GN059 - The securing of Plant shall where possible prevent movement or damage under the following levels of acceleration:-

- Longitudinal – 5g
- Lateral – 1g
- Vertical – 2g

6.1.3.2 When loading or unloading Plant and materials from rail vehicles where there is a possibility of the adjacent line(s) being fouled by that Plant or materials, then such

lines shall be protected by following the requirements of LU Rule Books 14, 16 & 18.

6.1.3.3 The method adopted for loading or unloading Plant and materials from rail vehicles shall be safe and shall ensure that the rail vehicle, Plant and infrastructure are not damaged.

6.1.4 Plant used on or in Rail Vehicles

6.1.4.1 When Plant is used on or in a rail vehicle the following risks, which form a non-exhaustive list, shall be assessed:

- a) The possibility of fouling adjacent lines by the configuration of the Plant
- b) Where Plant, or part of the Plant, is designed to move whilst on a rail vehicle, the effect on the stability and ride performance of the rail vehicle
- c) The stability of the combination of the rail vehicle and Plant, and load where applicable
- d) The potential for exceeding permitted axle weights during operation and the forces on the track
- e) Movement of, or collision with, the rail vehicle causing damage to the Plant.

6.1.4.2 The following controls shall be applied, where applicable, to the specific item of Plant:

- a) Slew locks / slew limiters, compliant to RIS-1530-PLT issue 4, to be used to prevent uncontrolled movement of the superstructure during transit and / or limiting arc of slew when operating close to adjacent lines or other structures
- b) A reliable means of limiting jib height etc when proposing to work under electricity supply lines or other structures
- c) Where necessary, the safe working load of the Plant to be reduced to mitigate risks of overloading and instability.
- d) Consideration of the position of the Plant to evenly distribute the load on vehicles to improve axle loading etc
- e) Any limitation stipulated on the Plant Acceptance Certificate.

GN060 - The design requirements for devices used to limit the movement of the moveable parts of Plant are included in LU standards S1172, S1173 and S1174.

6.1.5 Transportation of Site Personnel on Plant

6.1.5.1 Site personnel shall only travel or ride on any item of Plant in areas of the vehicle specifically designed and approved for that purpose.

6.1.6 Site Lighting

6.1.6.1 Where ground-based or machine-based site lighting is required for the safe operation of an item of Plant, it shall light the area of the task being performed to a level established when identifying the Safe System of Work.