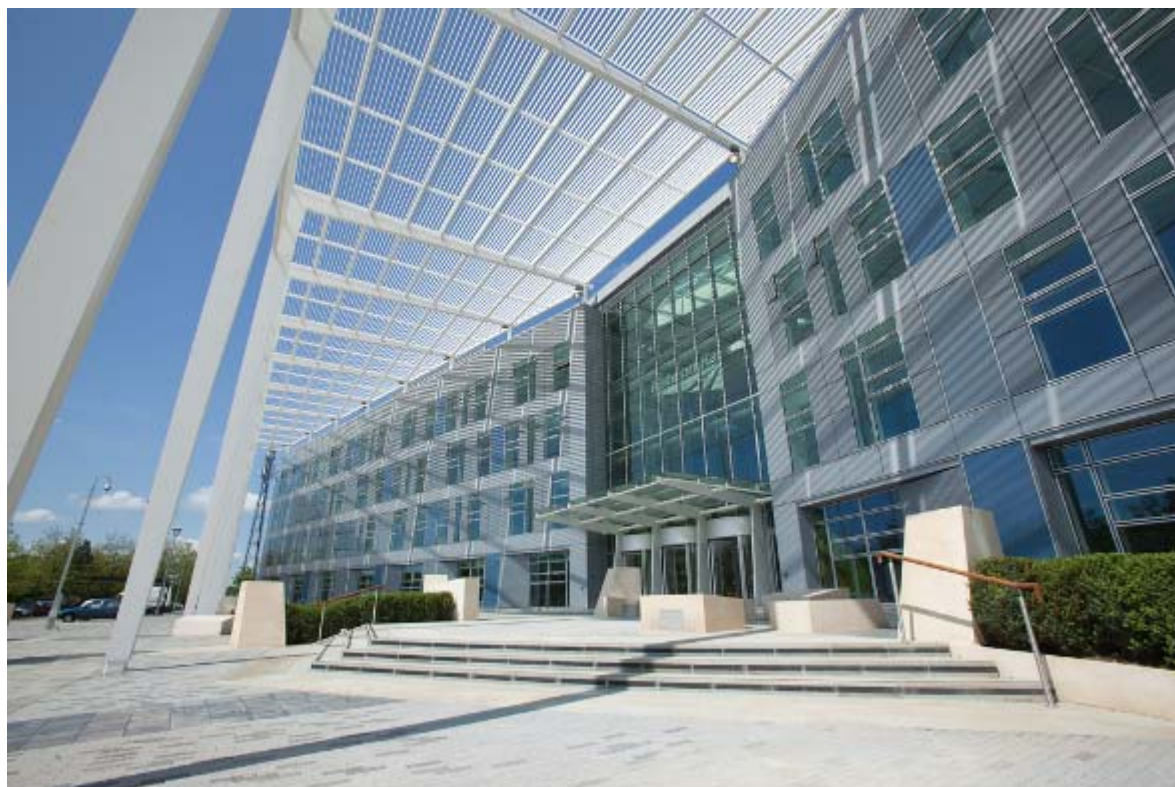




# Sustainability Requirements for Network Rail Buildings



*Asset Management Services Guidance*

**Asset Management Services Guidance****Document Identity****Sustainability Requirements for Network Rail Buildings****Authorisation Control**

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## 1 Introduction

Network Rail is currently operating in an environment of increasing prices of energy and other natural resources. In addition, the business is facing the challenge to meet sustainability targets set by emerging legislation in the UK and EU. In order to maximise resource utilisation within the business, it is becoming increasingly important to minimise the consumption of energy and other raw materials.

To improve resource efficiencies and optimise the sustainability performance of the business, incorporating environmental, social and economic factors, Network Rail must assess and measure its own performance. To do this, Network Rail requires robust sustainability measures and indicators.

## 2 Purpose

The main purpose of this guidance is to set requirements for implementing measures to improve the sustainability performance of assets, workplaces, and other buildings in the operational and commercial estate. This guidance states the scope of those requirements and mechanisms through which improvements shall be made to meet the overall sustainability objectives of Network Rail.

This guidance on introducing sustainability measures is written to demonstrate that these assets will be built, refurbished and managed in a sustainable manner at all levels of their operations by incorporating recognised, robust methodologies and metrics.

Additionally, it will compliment the Initial Industry Plan (IIP) which has identified carbon, waste, biodiversity, land use and ecology, diversity and climate change as key responsibilities for Network Rail.

This guidance also demonstrates how corporate sustainability aspirations will be delivered by continual improved performance of operational managed buildings and property against national and international sustainability indicators.

## 3 Scope

This guidance is applicable to all new construction, refurbishment, renewal, maintenance, operational management, decommissioning and demolition of buildings and properties. This includes, but is not limited to:

- Managed Stations
- Maintenance Depot Units (MDUs)
- National Delivery Services (NDS) and
- Critical / Non-critical Line Side Buildings
- Corporate offices and other staff accommodation
- Arches
- Industrial units and all other buildings

This guidance states the mandatory actions which are required to introduce robust measures to achieve our Sustainable Development objectives. It is applicable to individuals who are involved in new construction, refurbishment, renewal, maintenance, operation, decommissioning and demolition of operational property and commercial property assets.

In addition to all the relevant environmental legislative requirements, the Network Rail Sustainability Policy, Network Rail's Key Performance Indicators and relevant Network Rail Standards shall be complied with. All relevant permits, consents, licenses or obligations related to the works, managing and operations of assets shall be achieved where required.

## 4 References

### Legislation:

DfT Code of Practice      *Accessible Train and Station Design for Disabled People*

*The Building Regulations 2010*

*Regulatory Reform (Fire Safety) Order 2005*

*The Fire (Scotland) Act 2005*

TSI/PRM      *Technical Specification for Interoperability : Accessibility for Persons with Reduced Mobility for High Speed and -Conventional Lines on the Trans- European Rail Network*

*Energy Act 2011*

*Climate Change Act 2008*

*Energy Performance Directive (2002).*

CPR      *Construction Product Regulations*

SWMP      *Site Waste Management Regulations*

### British Standards

BS EN 15643-1:2010      *Sustainability of construction works. Sustainability assessment of buildings. General framework*

BS ISO 21931-1:2010      *Sustainability in building construction. Framework for methods of assessment of the environmental performance of construction works. Buildings*

*BS EN 15978:2011 Sustainability of construction works. Assessment of environmental performance of buildings. Calculation method*

*BS 8900:2005 Guidance for Managing Sustainable Development*

### **NR Standards**

*NR/L1/INI/PM/GRIP/100 - 101 Governance for Railway Investment Projects (GRIP) – Policy Manual and Project Management (Suite of Documents)*

*NR/L2/INI/CP0047 Application of the Construction Design and Management Regulations to Network Rail Construction Works*

*NR/L3/CIV/151 Technical Approval of Standard Designs and Details for Building and Civil Engineering Works*

*NR/SP/CIV/087 Management of Existing Buildings and Station Structures (formerly RT/CE/S/087)*

*NR/L2/ENV/015 Contract Requirements Environment*

*NR/L3/INI/CP0050 Environment Performance Indicators*

*NR/L3/MTC/089 Asset Management Plan*

*NR/L2/ENV/004 Waste Management Standard*

*NR/L3/MTC/SMF351 Community Impact Assessment Form*

*NR/L2/INV/002 Accident and Incident Reporting and Investigation*

*NR/L2/EBM/STP001 Network Rail Standards Management - Process Requirements*

*NR/L2/INI/02009 Engineering Management of Projects*

*NR/L2/INI/CP0069 Route Requirement Management and Engineering Remit Production*

### **Other Documents**

*GHGP Greenhouse Gas Protocol: World Resource Institute/World Business Council of Sustainable Development*

*Sustainable Best Practice Guide An Introductory Sustainable Construction Best Practice Guide, Constructing Excellence, 2010*

*Non – Domestic Building Services, Compliance*



*Gudie, H M Government, 2011*

*Managing Rail's Environmental Impacts in CP5 and Beyond, 2011*

*Sustainability Policy, Network Rail*

*Sustainability Statement, Network Rail*

*Initial Industry Plan 2011, Network Rail*

*UK Strategy for Sustainable Construction, 2008*

*RSSB - Network Rail Interim Climate Change Adaptation Report, September 2010*

*Tomorrow's Railway and Climate Change Adaptation Phase 1 Report , Research Strategy Support, RSSB*

*The Countryside Survey (CS) Integrated Assessment Report, 2010*

## 5 Roles and responsibilities

Asset Manager, Designer, Contractor, Station Manager and Construction Project Manager roles are responsible for compliance with this guidance by incorporating sustainability measures in to their design, construction and operational management practices. However, the following roles and responsibilities have been identified with specific reference to this standard:

### **Asset Manager**

Asset Managers are responsible for effective implementation of sustainability measures for the whole life cycle of the assets. He/she shall incorporate the requirements specified in this guidance as part of the Asset Management Strategy & Policy.

### **Scheme Project Manager**

Network Rail shall appoint dedicated project management resources or ensure that existing roles are extended to oversee the implementation of sustainability measurements in new, refurbished, renewal, and repair and maintenance schemes. This resource could work closely or in consultation with the scheme sponsor team. Therefore, it is highly recommended that the Scheme Sustainability Project Manager role is appointed at the GRIP 0-3 stages to facilitate the setting of sustainability related performance targets.

### **Asset Sustainability Performance Manager**

Network Rail shall appoint a dedicated asset performance manager to facilitate implementation of sustainability monitoring assessment for all operational managed assets. The sustainability performance manager shall be engaged in monitoring and tracking progress against the sustainability assessment methods and target ratings.

## 6 Definitions

**Note:** The following terms and definitions are in common usage in environmental and sustainability documentation but not all will be necessarily relevant to the measures described in this guidance

### **BREEAM Building Research Establishment Environmental Assessment Method**

BREEAM sets the standard for best practice in sustainable building design, construction and operation. BREEAM is the most widely recognised measures of a building's environmental performance.

### **CEEQUAL Civil Engineering Environmental Quality Assessment Tool**

CEEQUAL is an Assessment and Awards scheme for improving sustainability in civil engineering, infrastructure, landscaping and the public realm.

### **LEED Leadership in Energy and Environmental Design**

LEED consists of a suite of rating systems for the design, construction and operation of high performance green buildings, homes and neighborhoods.

### **SbD Secured by Design**

The SbD focuses on crime prevention of homes and commercial premises and promotes the use of security standards for a wide range of applications and products.

### **SP Safer Parking**

SP is an initiative of the Association of Chief Police Officers (ACPOs), aimed at reducing crime and the fear of crime in parking areas.

### **EPC Energy Performance Certificate**

EPC contains information on your building's energy use and carbon dioxide emissions and a recommendation report with suggestions to reduce energy use and carbon dioxide emissions.

### **CASBEE Comprehensive Assessment System for Built Environment Efficiency**

CASBEE is a green building management system in Japan

### **ENERGY STAR**

Energy Star is an international standard for energy efficient consumer products, including light fittings. Products displaying this certification mark should be used where possible.



### **NABERS National Australian Built Environment Rating System**

NABERS is a performance-based rating system for existing buildings. NABERS rates a building on the basis of its measured operational impacts on the environment.

### **The Green Guide to Specification**

The Green Guide to Specification provides you with easy-to-use guidance on how to make the best environmental choices when selecting construction materials and components.



### **ICE Demolition Protocol**

ICE Demolition Protocol provides a pragmatic set of methodology to achieve resource efficiency in demolition and refurbishment of projects.

### **Green Lease Agreements**

Green Lease Agreements is a lease for a commercial or public building which incorporates an agreement between the landlord and tenant as to how the building is to be fitted out, managed and occupied in a sustainable way.

### **Carbon Negative**

Carbon Negative is a phrase used to describe any activity that removes more carbon CO<sub>2</sub> from the atmosphere than you are responsible for creating.

### **Responsible Sourcing**

Responsible Sourcing of Construction Products provides a holistic approach to managing a product from the point at which a material is mined or harvested in its raw state through manufacture and processing, through use, re-use and recycling, until its final disposal as waste with no further value.

### **Ecological Survey**

Ecological survey is a site or desk-based survey carried out by an ecologist in the context of the proposed development and its surrounding area.

### **Embodied Carbon**

Embodied carbon also known as embodied energy, refers to the quantity of carbon (and other greenhouse gases) produced by all of the activities associated with a production process including extraction, transportation and disposal.

## **7 Policy Statement**

In response to Network Rail's plan to improve the sustainability performance of its assets, the following policy statement has been drafted to take into account the diverse nature of its assets:

Where Network Rail is responsible for new, major refurbishment, renewal, enhancement and maintenance schemes for buildings and operational properties, a recognised sustainability measurement and assessment method should be used. This includes schemes related to stations, maintenance depot units, national delivery services/depots, rail operating centres, retails, workplaces and commercial properties.

As per the sustainability procurement principles sustainability assessment criteria shall be used in procurement for all forthcoming new construction, major refurbishment, renewal and maintenance schemes.

The purpose of using these sustainability requirements is to design and deliver more sustainable buildings and operational property on a minimum Whole Life Cost (WLC) basis. Sponsors may only seek derogation from this policy from Professional Head if the business case demonstrates that employing such a formal certification would not add value.

It is recommended that the well recognised methods BREEAM (Building Research Establishment Environmental Assessment Method) or CEEQUAL

(Civil Engineering Environmental Quality Assessment Tool) shall be used for the assessment and certifications purpose. In addition, BREEAM has a wide ranging of suite of methods which should be used for operational and refurbishment stages of the building cycle.

## 8 Sustainability Requirements in Network Rail

It is suggested that a well recognised methods such as BREEAM (Building Research Establishment Environmental Assessment Method) or CEEQUAL (Civil Engineering Environmental Quality Assessment Tool) could be used for the assessment and certifications purpose. This approach needs to be implemented on the following types of interventions:

### 8.1 New Construction

All new construction schemes with an AFC exceeding £2 m shall be registered for a formal sustainability measurement and assessment method no later than GRIP 0-3 to achieve high levels of sustainability performance. This also includes schemes where a sustainability assessment is required as part of the planning process.

### 8.2 Renewal, Refurbishment, Repair, Maintenance and Enhancement

All renewal, refurbishment, repair, maintenance and enhancement schemes with an AFC exceeding £2 m shall be registered for a formal sustainability measurement and assessment method no later than GRIP 0-3 to achieve high levels of sustainability performance.

For non critical line side buildings (LSB) and critical line side buildings, sustainability measurements shall be introduced on an informal basis.

### 8.3 Operational Assets and Workplaces

Stations, maintenance depots, national delivery services, commercial estates and workplaces are recommended to use a robust assessment method such as BREEAM in Use or any other recognised method to manage and operate assets at the higher levels of sustainability performance.

### 8.4 Demolition and Decommissioning

Demolition and decommissioning schemes with a budget exceeding £2 m shall use robust resource efficiency management methods and protocols. Project teams shall be mandated to achieve targets related to waste reduction, reuse and recovery at all stages of project. All reporting requirements set by Site Waste Management Plans (SWMP) 2008 regulations shall be met.

## 9 Performance Ratings

BREEAM and/or CEEQUAL implementations in Network Rail shall aim to achieve 'Excellent'<sup>1</sup> rating where achievable in the context of minimising the whole life cost of our asset management. For further details please see **Appendix C Table 1.0** for targets to achieve.

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<sup>1</sup> A business case needs to be made where an 'Excellent' rating is not achievable.

BREEAM, CEEQUAL and SKA Ratings are the most robust methods available in UK and EU to measure the performance of all new, retrofit schemes, operational assets and estates at various performance ratings. It is envisaged that SKA Ratings and ICE Demolition Protocol will be used where necessary for demolition of assets. Please see **Appendix C Table 2.0 and 3.0**.

It is recommended that BS ISO 21931-1:2010, Sustainability in building construction, framework for methods of assessment of the environmental performance of construction works, Buildings could be referred.

It is also recommended that BS EN 15643-1:2010 Sustainability of construction works; Sustainability assessment of buildings, general framework could be referred.

## 10 Sustainability Measures

The diverse nature of Network Rail's assets requires that sustainability measures are selected which are best suited to its specific assets. These assets are a combination of buildings, platforms, canopies, foot bridges, train sheds, car parks, waiting shelters, subways, lifts, access routes, hard-standings, carriage washers, depots, signal boxes and open land.

There are number of sustainability measurement and assessment methodologies available which enable the user to benchmark, measure, evaluate and improve the performance of assets: these indicators cover energy, water, waste, transport, equipment, appliances, health and well-being, and adaptation to climate change.

Given the challenges associated with measuring, analysing and reporting environmental impacts, Network Rail has set measurement requirements according to the following categories: (Note that these follow the categories commonly used in the proprietary assessment systems such as BREEAM and CEEQUAL)

- Management Practices
- Construction and Site Management
- Stakeholder Engagement and Inclusiveness
- Health, Safety and Wellbeing
- Energy Efficiency and Reducing CO<sub>2</sub> Emissions
- Transport
- Water Efficiency
- Waste Management and Materials Resource Efficiency
- Land Use, Ecology and Pollution
- Archaeology and Heritage

### 10.1 Management Practices

This section relates to the management processes and procedures necessary to achieve sustainable solutions for the design of Network Rail's buildings and operational property. Implicit in this is the careful consideration of the whole life implications of the design strategy.

### **10.1.1 *New construction, refurbishment, repair and renewal schemes***

From GRIP 0-3 client, design team, contractor and building occupier/user shall be involved in the decision making process of the project and scheme at all levels.

They shall ensure that the appropriate procurement route is followed to achieve this and that an appropriate design modelling methodology is adopted to achieve the optimum solution. Consideration of, and adoption of BIM where appropriate, should be made at early stages of projects

Roles and responsibilities shall clearly be defined within the project.

Sustainability assessment and certification ratings shall be contractually agreed between the client and design/project team no later than GRIP 2 stage.

The agreed sustainability assessment and measurements performance shall be addressed and certified at interim design stages. For BREEAM or CEEQUAL implementations, this means that appropriate assessment ratings shall be agreed.

Innovation can make a positive contribution to project development and it is important that the risk is fairly allocated between stakeholders.

### **10.1.2 *All operational managed assets, workplaces and commercial estates***

All assets, building or commercial estate management plans should include sustainability measurement and assessment plans. These should include consideration of the following:

- Energy efficiency and carbon reduction
- Water efficiency
- Waste management
- Health and safety risk assessment
- Accessibility
- Environmental risk
- Extreme weather management
- Maintenance regimes

It is proposed that 'Guidance on Flooding' developed by the Department of Community and Local Government shall be referenced to manage the impacts of potential floods.

The asset management team should produce a building user guide which includes training of potential occupiers of the building after its completion.

## **10.2 Construction and Site Management**

All scheme contractors who will be delivering the projects on site must hold Environmental Management System, ISO 14001 or EMAS equivalent standard accreditation. These accreditations shall also include pollution prevention plans on site.

All schemes shall encourage construction sites which are managed in an environmentally, socially considerate, responsible and accountable manner.

Therefore, it is suggested that 'construction considerate scheme' or equal nationally recognised site management schemes shall be used.

Prior to setting up a construction site for any scheme with a budget in excess of £2 million, a biodiversity assessment plan must be in place to demonstrate that the site shall be managed in an effective sustainable manner.

All new, refurbishment, renewal and repair schemes shall monitor and record data on energy consumption on-site by all site equipment and plant (mobile and fixed).

Carbon dioxide emissions (total kg CO<sub>2</sub>) shall be calculated to report toward Network Rail's carbon reduction targets.

On-site water consumption by plant, equipment and temporary site offices shall be monitored and recorded until project completion.

All sites shall monitor and collect data on the transportation of construction materials on-site and construction waste collection.

Network Rail's KPI related to waste reduction, reuse and recovery during all schemes on-site shall be met by project teams.

All reporting requirements set by Site Waste Management Plans (SWMP) 2008 regulations shall be met.

Sustainable and Secure Buildings Act 2004 shall also be referenced.

All site timber used on site/scheme must be sourced in accordance with the UK Government's timber procurement policy.

There are number of tools to calculate CO<sub>2</sub> in the UK and internationally and the PAS 2050 Product Carbon Footprint Standard shall be used for Network Rail's projects/schemes.

### **10.3 Stakeholder Engagement and Inclusiveness**

All new construction and refurbishment schemes shall include wider stakeholder engagement during design and planning stages. In particular, consultation with current and futures users of assets shall be undertaken.

#### **10.3.1 All new construction and major refurbishment schemes shall:**

- specify inclusive design and shall address the requirements of disabled users.
- develop an appropriate consultation plan which includes timeline and communication strategy.
- have a dedicated community engagement consultant in place which can undertake consultation independently.
- undertake the life cycle cost analysis, service life planning assessment in order to improve design, specifications and whole life maintenance and operation of assets no later than GRIP 0-3
- comply with Building Regulations Part M (Access to and Use of Buildings).

## 10.4 Health, Safety and Wellbeing

Good design solutions need to give due consideration to positive and negative aspects of health and well-being in developing the employers requirements and scoping the design brief.

All new design schemes and major refurbishment must recognise and encourage effective design measures that promote low risk, safe and secure access to and use of buildings and overall assets.

The lighting for access roads, pedestrian areas, foot paths and cycle lanes shall be compliant with 'External Lighting Criteria'.

A consultation shall be undertaken with qualified security personnel at GRIP 1 - 3 stages to ensure compliance with 'The principle and guidance of Secured by Clients (SbD) and Safer parking' protocols and guidance where applicable.

Building Regulations Part B (Fire safety), Part D (Toxic Substances), Part E (Resistance to sound) and Part F (Ventilation) shall be referenced where applicable.

### 10.4.1 *All new construction and major refurbishment schemes shall comply with relevant industry standards where appropriate and shall:*

- ensure that day lighting, artificial lighting and occupant controls are considered at the design stage to ensure best practice visual performance and comfort.
- use CIBSE code for lighting 2009 and any other relevant industry standard.
- use BS5489-1:2003+A2:2008 lighting of roads and public amenity areas.
- specify products which are compliant with Dangerous Substances Directive 2004/42/CE.
- introduce a healthy internal environment through the specification and installation of appropriate ventilation, equipment and finishes.
- give preference to the natural ventilation by developing natural ventilation strategy where it is appropriate to do so.
- ensure that a building's acoustic performance, including sound insulation, meets the appropriate standards.
- ensure that appropriate thermal comfort levels are achieved through design, and controls according to the CIBSE AM 11 Building Energy and Environmental Modelling.
- NR/GN/CPR/401 Guidance on Contractual Health and Safety Requirements and shall be referenced.

### 10.4.2 *All operational managed assets, workplaces and commercial estates shall refer to:*

- The provisions in 10.4.1 and where these are not met in existing buildings the opportunity shall be taken to adapted / upgraded at points in the maintenance and renewal cycle where there is a business case to do this on a 'whole life cost' basis.



## 10.5 Energy Efficiency and Reducing CO<sub>2</sub> Emissions

All new construction, refurbished, renewal, repair, enhancement and maintenance schemes shall aim to minimise operational energy consumption and CO<sub>2</sub> emissions.

Energy efficiency measures should be prioritised to make better use of current energy provision and when these have been addressed consideration should be given to benign energy generation through renewable techniques.

### 10.5.1 All new construction, refurbishment, repair or renewal schemes:

- shall comply with the provisions of the Building Regulations Part L2A.
- shall receive Energy Performance Certificates (EPC) from their main works contractor where an extensive work has been undertaken related to the building services.
- shall specify energy efficient transportation systems. A strategy shall be developed on estimated numbers of lifts/escalators/moving walk systems with lowest energy consumption. Therefore draft standard CD25745-1 Energy Performance Lifts, Escalator and Moving Walks – Part 1 Energy and Conformance ISO/178/WG10 shall be referred during the development of efficient transportation strategy.
- shall calculate the energy consumption profile and total resulting CO<sub>2</sub> to produce Energy Performance Ratio.
- shall introduce or consider local energy generation from renewable sources to apply a significant proportion of the energy demand. A life cycle assessment must be undertaken.
- shall install energy sub - metering which facilitates the monitoring of operational energy consumption or introduce Building Energy Systems.
- shall use NR/SP/ELP/27228 Specification for new and upgraded lifts
- shall use NR/SP/ELP/40067 The installation and upgrading of escalators and passenger conveyors.
- shall specify the installations of energy efficient refrigeration systems (if required) and therefore reducing operational greenhouse gas emissions resulting from the system energy use. Therefore, NR/GN/CIV/166 R22 Refrigerant systems – Phasing Out shall be referenced.

New schemes related to signal boxes (Line Side Buildings) may refer to the 'Best Practice for EU Code of Conduct on Data Centre'.

All new schemes which will be IT intensive operating areas may use design consideration for a naturally ventilated and cooling criteria where appropriate.

### 10.5.2 All operational managed assets, workplaces and commercial estates:

- shall comply with the provisions of the Building Regulations Part L2B.
- shall install energy sub-metering that facilitate the monitoring of operational energy consumption or a building energy management system must be introduced.

- shall specify energy efficient light fittings for external and internal areas of the operational assets. This also applies for all new, refurbished, renewal or repair schemes.
- shall specify the installation of energy efficient refrigeration systems (if required) and therefore reducing operational greenhouse gas emissions resulting from the system energy use.
- all procured equipment shall be energy efficient such as office equipment, small powered equipment and supplementary electric heating.
- shall reference to NR/GN/CIV/166 R22 Refrigerant systems – Phasing Out.

It is highly recommended that alternative energy source shall be identified once energy demands have been reduced as far as possible. Low carbon technologies shall be explored to meet further energy requirements such as:

- Heat pumps
- Solar technologies and solar thermal technologies
- Wind turbines in consideration with cost benefit analysis.
- Biomass heating
- Offsite bio fuel production and anaerobic digestion

Note: It is important however that these 'renewable' provisions are only adopted where a 'whole life cost' analysis proves their worth in the sites considered.

## 10.6 Transport

All new construction and refurbishment schemes shall encourage building users to cycle by ensuring adequate provision of cyclist facilities.

All new schemes shall identify the alternatives means of transport to the building other than private car, thereby helping to reduce transport related emissions and traffic congestion associated with the building operations.

It is suggested that where possible 'Transport Accessibility Index' could be referenced.

All new schemes, refurbishment, repair and renewal schemes must give consideration to accommodating a range of travel options for building users.

NR/L3/CIV/160 The design of car parks for railway stations and depots shall be referenced.

It is recommended that a 'Sliding Scale' could be used to develop strategy on provision on cycle facilities.

## 10.7 Water Efficiency

As with Carbon water usage can be described as both embodied and 'unembodied'. This section refers to the use of 'unembodied' use of water through the appropriate appliances and dispersal.

All new construction, refurbishment, renewal, repair and managed schemes must specify efficient consumption of portable water for sanitary use in new and operational buildings.

Building Regulation Part G (Sanitation, hot water safety and water efficiency) shall be referenced.

All schemes shall specify water efficient components and water recycling systems.

It is recommended that grey water and /or rain water recycling systems could be specified under BS8525-1:2010 and BS85 15: 2009 codes of practice.

#### **10.7.1 All operational managed assets, workplaces and commercial estates shall:**

- specify sanitary tap ware, shower outlets for sanitary tap ware for water supply system types 1 and 2 according to the BS EN 200: 2008.
- install water consumption monitoring systems so water management practices could be introduced.
- be managed in a way to make it easier to detect and prevent water leaks, and to reduce the impact of water leaks when they occur.
- refer to NR/GN/CIV/163 Management of water supply.

### **10.8 Waste Management and Materials Resource Efficiency**

There are many wasteful activities that take place in the project lifecycle from inception, design, construction, occupation through to eventual dismantling of the asset.

Ensure the use of an effective procurement route in order to ensure integration of the stages to avoid accumulated knowledge wastage

Ensure that the 4R (Reduce, Reuse, Recycle, Recover) principles are applied across the project lifecycle.

All new, refurbished, renewal, repair schemes must specify materials and construction products with low environmental impact, including embodied carbon over the full building life cycle.

All materials and construction products shall be in compliance with CE Construction Product Regulations (CPR).

All new, refurbishment, repair and renewal schemes must recognise and encourage the specification of 'BES 6001 Responsible Sourcing of Construction Products'.

It is suggested that materials/products could be certified by BES6001 Product Certification and also BS EN 8902: 2009 Responsible sourcing sector certification schemes for construction products.

It is also recommended that materials and products could be in compliance with BS EN ISO 14025: 2010, BS EN ISO 21930: 2007, BS EN ISO 14040: 2006, BS EN ISO 14044: 2006 and BRE's Green Guide to Specification.

#### **10.8.1 All new, refurbishment, renewal and repair schemes shall:**

- specify the use of thermal insulation which has a low embodied environmental impact relative to its thermal properties and has been responsibly sourced.

- specify design to incorporate suitable durability and protection measures or design features/solutions to prevent damage to the vulnerable parts of the assets.
- specify design for waste minimisation, legal requirements, waste from site preparation, and on-site waste management.
- specify the use of recycled and secondary aggregates, thereby reducing the demand for virgin material and optimising material efficiency in construction.
- specify the provision of dedicated storage facilities for building's operational recyclable waste streams, so that waste is diverted from landfill or incineration.
- introduce /promote resource efficiency and the effective management and reduction of construction waste.
- All schemes with budgets exceeding £300 k shall comply with legislation on Site Waste Management Plan (SWMP) 2008.

Additionally, the following Network Rail standards shall be referenced:

- NR/L3/CIV/037 Managing the risk arising from mineral extraction and landfill

### ***10.8.2 All operational managed assets, workplaces and commercial estates shall***

- The provisions in 10.8.1 and where these are not met in existing buildings the opportunity shall be taken to adapted / upgraded at points in the maintenance and renewal cycle where there is a business case to do this on a 'whole life cost' basis.

## **10.9 Land Use, Ecology and Pollution**

The extensive corridors and associated spaces, under Network Rail's stewardship provide a unique opportunity to create an integrated approach to the improvement of the rail environment and its built infrastructure while at the same time enhancing the quality and quantity of ecology and biodiversity within the UK.

All new construction schemes must encourage use of previously developed and /or contaminated land. All new construction schemes should avoid land which has not been previously used for site preparation and completion of construction works.

All new schemes, refurbishment, repair and renewal schemes shall employ a suitably qualified ecologist (SQE) to carry out a site survey and produce a full ecological assessment report no later than GRIP 2 stage.

All repair and renewal schemes must consider land for development that already has limited value to wildlife and the protection of existing ecological features by construction works.

It is recommended that Countryside Survey Guidelines could be used for broader Habitat definitions and information.

A habitat and landscape management plan, appropriate to the site should be produced for at least the first five years after project completion. This shall be handed over to the building occupants and includes:

- Management of any protected features on site
- Management of any new, existing or enhanced habitats
- A reference to the current or future site level or local biodiversity Action Plan.

All new, refurbishment, repair, renewal schemes shall avoid, reduce and delay the discharge of the rainfall to public sewers and watercourses, therefore minimising the risk of localised flooding on and off site, watercourse pollution and other environmental damage.

#### **10.9.1 All new, refurbishment, renewal and repair schemes shall:**

- have refrigerants in a moderately air tight enclosure (or mechanically ventilated plant room)
- an automated permanent refrigerant leak detection system installed to cover high risk parts of the plant or where a refrigerant leak age/charge loss detection system is specified,
- use a robust and tested automated permanent refrigerant leak detection system.
- NR/L3/CIV/005 Railway drainage systems manual shall be referenced.

All new, refurbishment, repair or renewal schemes shall encourage the supply of heat and /or cooling from a system that minimises NOx emissions, and thus reduce pollution of the local environment.

To ensure that external lighting is concentrated in the appropriate areas and that upward lighting is minimised, reducing unnecessary light pollution, energy consumption and nuisance to neighbouring properties.

To reduce the likelihood of noise from the development affecting nearby noise sensitive buildings.

Building Regulations Part E shall be referenced.

EU Directive 2004/42/EC Volatile Organic Compounds (VOCs) Resulting from Certain Industrial Activities shall be complied.

### **10.10 Archaeology and Heritage**

Network Rail manages a significant historical estate which must accommodate the safety and operational requirements of a modern transport system.

All new construction and major refurbishment shall ensure the protection of archaeological and heritage aspects of all existing assets where applicable. In particularly following aspects shall be considered:

- Preserve a building's heritage by retaining original features, fixtures and fittings.
- Comply with legislative requirements where archaeological surveying is required.

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- Consider local history and heritage in the design of renewal and enhancement schemes in particularly treatments of façades where possible.
  - Maximise the use of local building materials
  - Seek to bring valued disused buildings back into use where a commercial case can be made.
  - Where they cannot be retained in operational use they should be released for other uses.
  - Ensure all necessary planning and listed building legislation is complied with



## 11 Appendix A Network Rail Related Standards

<p><b>General</b></p>	<ul style="list-style-type: none"> <li>• NR/L2/INI/CP0047 Application of the Construction Design and Management Regulations to Network Rail Construction Works.</li> <li>• NR/L2/ENV/015 Contract Requirements Environment.</li> </ul>
<p><b>Management</b></p>	<ul style="list-style-type: none"> <li>• RT/CE/S/087 Management of Existing Buildings and Station Structures,</li> <li>• NR/L3/INI/CP0050 Environment Performance Indicators</li> <li>• NR/L1/CIV/032 The management of structures</li> <li>• RT/CE/S/087 Management of existing buildings and station structures</li> <li>• NR/L3/CIV/006 Handbook for the examination of structures</li> <li>• NR/L3/FIR/107 Fire safety – fire risk assessment</li> <li>• NR/L3/FIR/108 Fire safety – fire extinguishers</li> <li>• NR/L3/MTC/SE0112 Managing asbestos risk</li> <li>• DfT/TS Code of Practice on Accessible train and station design guide for Disabled people</li> <li>NR/L2/ENV/004 Waste Management Standard</li> </ul>
<p><b>Construction</b></p>	<ul style="list-style-type: none"> <li>• NR/L3/CIV/140 Model clauses for civil engineering works</li> <li>• NR/L2/CIV/003 Engineering assurance of building and civil engineering works</li> </ul>
<p><b>Health and Wellbeing</b></p>	<ul style="list-style-type: none"> <li>• NR/L3/CIV/164 Legionnaires' disease – the control of Legionella bacteria in water systems</li> <li>• NR/GN/CIV/165 De Icing of operational property assets.</li> <li>• NR/L3/MTC/RCS0216/GH05 Asbestos</li> <li>• NR/L3/MTC/RCS0216/GH05 Asbestos</li> <li>• NR/L3/CIV/300 Managing complaints about pigeons</li> <li>• NR/L3/CIV/028 The management of reports of safety – related events on civil engineering infrastructure</li> <li>• NR/L3/CIV/142 Management of abnormal road loads</li> </ul>

	<ul style="list-style-type: none"><li>• NR/L3/CIV/076 Management of risk of bridge strikes from road vehicles and waterborne vessels</li><li>• NR/L3/FIR/101 Fire safety managed stations</li><li>• NR/L3/FIR/102 Fire safety – operational estate</li><li>• NR/L3/FIR/103 Fire safety – offices and competency training delivery centres.</li><li>• NR/LE/FIR/105 Fire Safety – property: business space, freight and miscellaneous portfolio</li><li>• NR/L3/FIR/106 Fire maintenance</li></ul>
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## 12 Appendix B Policies and Legislative Drivers

There are number of policies and legislative related to the above measures shall be referenced such as:

<p><b>Stakeholder Engagement and Inclusiveness</b></p>	<ul style="list-style-type: none"> <li>• CABE Guidance on Inclusion and Inclusive Design.</li> <li>• Planning Policy Statement (PPS) 1: Delivering Sustainable Development (2005).</li> <li>• Rights of Way Act (2000).</li> </ul>
<p><b>Transport</b></p>	<ul style="list-style-type: none"> <li>• Climate Change Adaptation Plan for Transport (2010- 2012).</li> <li>• Disability and Discrimination Act.</li> <li>• Low Carbon Transport – A Greener Future: A Carbon Reduction Strategy for Transport 2009.</li> <li>• Planning Policy Statement (PPS) 1: Planning for a Low Carbon Future in a Changing Climate.</li> <li>• Renewable Transport Fuel Obligation.</li> <li>• Transport Carbon Reduction Delivery Plan.</li> </ul>
<p><b>Water Efficiency</b></p>	<ul style="list-style-type: none"> <li>• British Standards BS8515:2009: Rainwater Harvesting Systems.</li> <li>• Control of Pollution (Oil Storage England) Regulations (2001).</li> <li>• Flood and Water Management Act (2010).</li> <li>• Ground Water Regulations (1998).</li> <li>• Planning Policy Guidance (PPG) 21: Pollution Incident Response Planning.</li> <li>• Planning Policy Statement (PPS) 25: Development and Flood Risk.</li> <li>• Water Act (2003).</li> <li>• Water Framework Directive (2010).</li> </ul>
<p><b>Archaeology and Heritage</b></p>	<ul style="list-style-type: none"> <li>• Ancient Monuments and Archaeology Act (1979).</li> <li>• Planning Policy Statement (PPS) 5: Planning for the Historic Environment (2010).</li> <li>• Managing Change in the Historic Environment – a Memorandum of Guidance on Listed Buildings and Conservation Areas.</li> <li>• The Town &amp; Country Planning (Listed Buildings and Conservation Areas) Act (1990).</li> </ul>

<p><b>Waste and Resource Efficiency</b></p>	<ul style="list-style-type: none"> <li>• Environment Agency Gypsum and Plasterboard Waste Guidance (2009).</li> <li>• Environmental Protection Act (1990).</li> <li>• Environmental Permitting (England and Wales) (2010) Pollution Prevention and Control Regulations Scotland (2000) and Northern Ireland (2003).</li> <li>• European Waste Framework Directive</li> <li>• (2006).</li> <li>• Hazardous Waste (England and Wales) Regulations (2005) and Special Waste (Scotland) Regulations (1996).</li> <li>• Landfill Directive (1999).</li> <li>• Landfill Tax (1996).</li> <li>• BES 6001 Responsible Sourcing of Construction Products.</li> <li>• EU Directive 2004/42/EC Volatile Organic Compounds (VOCs) Resulting From Certain Industrial Activities.</li> </ul>
<p><b>Health and Wellbeing</b></p>	
<p><b>Land Use, Ecology and Pollution</b></p>	<ul style="list-style-type: none"> <li>• Biodiversity Action Plans - UK and Local.</li> <li>• National Planning Guidance.</li> </ul>
<p><b>Energy Efficiency and Carbon Reduction</b></p>	<ul style="list-style-type: none"> <li>• Carbon Reduction Commitment Energy Efficiency.</li> <li>• Climate Change Act (2008) – Carbon Budgets, Feed-in Tariffs and Renewable Heat Incentives.</li> <li>• Energy Performance Directive (2002).</li> <li>• Gas Regulation 846/2006.</li> <li>• Low Carbon Transition White Paper.</li> <li>• Ozone Depleting Potential (ODP) Regulation 2037/2000.</li> <li>• Renewable Obligation Certificates.</li> </ul>

## 13 Appendix C

**Table 1.0 BREEAM or CEEQUAL Targets to be achieved by Network Rail Schemes > 2 m**

	New Construction	Major Refurbishment/ Enhancement	Renewal, Repair and Maintenance	Operational / In Use
<b>Buildings (including buildings within Stations)</b>	Excellent or Very Good	Very Good	Good	Very Good
<b>Maintenance Depots</b>	Excellent or Very Good	Very Good	Good	Good
<b>Light Maintenance Depots</b>	Excellent or Very Good	Good	Good	Good
<b>NDS - Storage &amp; Distribution Depots</b>	Excellent or Very Good	Very Good	Good	Good
<b>Car Parks</b>	Excellent or Very Good	Very Good	Good	N/A
<b>Waiting Shelters</b>	Excellent or Very Good	N/A	N/A	N/A
<b>Foot Bridges</b>	Excellent or Very Good	N/A	N/A	N/A
<b>Subways &amp; Train sheds (roof)</b>	Excellent or Very Good	Good	N/A	N/A
<b>Canopies</b>	Excellent or Very Good	N/A	N/A	N/A
<b>Depot Sheds</b>	Excellent or Very Good	Good	N/A	N/A
<b>Carriage Washers</b>	Excellent or Very Good	Good	N/A	N/A
<b>Platforms</b>	Excellent or Very Good	N/A	N/A	N/A
<b>Arches (Full Conditioned)</b>	N/A	Very Good	Very Good	Very Good
<b>Retail (Full Conditioned)</b>	Excellent or Very Good	Very Good	Very Good	Very Good
<b>Workplace Offices</b>	Excellent or Very Good	Very Good	Very Good	Very Good
<b>Signalling Centres</b>	Excellent or Very Good	Very Good	Good	Good
<b>Workplace Training Centres</b>	Excellent or Very Good	Very Good	Very Good	Very Good
<b>Workplaces Depots</b>	Excellent or Very Good	Very Good	Good	Good

**Table 2.0 SKA (RICS) Targets to be achieved by Network Rail Schemes**

	Major Refurbishment/ Enhancement	Renewal, Repair and Maintenance
<b>Buildings</b>	Gold	Silver
<b>Light Maintenance Depots</b>	Gold	Silver
<b>NDS - Storage &amp; Distribution Depots</b>	Silver	Silver
<b>Waiting Shelters</b>	N/A	N/A
<b>Depot Sheds</b>	N/A	N/A
<b>Arches (Full Conditioned)</b>	Gold	Silver
<b>Retail (Full Conditioned)</b>	Gold	Silver
<b>Signalling Centres</b>	Gold	Silver
<b>Workplace Offices</b>	Gold	Gold
<b>Workplace Training Centres</b>	Gold	Gold
<b>Workplaces Depots</b>	Gold	Silver



**Table 3.0 Recommended Sustainability assessment methods and measures for Network Rail Schemes**

	New Construction	Renewal, Enhancement, Repair and Maintenance	Operational/In Use	Decommissioning/Demolition
<b>Buildings (including buildings within Stations)</b>	BREEAM for New Construction	BREEAM /BREEAM Bespoke	BREEAM In Use	ICE Demolition Protocol
<b>Canopies</b>	CEEQUAL	CEEQUAL	Energy Efficient Products	SWMP Compliance
<b>Car Parks</b>	CEEQUAL	CEEQUAL	Energy Efficient Products	SWMP Compliance
<b>Waiting Shelters</b>	CEEQUAL	CEEQUAL	Energy Efficient Products	SWMP Compliance
<b>Foot Bridges</b>	CEEQUAL	CEEQUAL	Energy Efficient Products	SWMP Compliance
<b>Subways &amp; Train sheds</b>	CEEQUAL	CEEQUAL	Energy Efficient Products	SWMP Compliance
<b>Access Routes</b>	CEEQUAL	CEEQUAL	Energy Efficient Products	SWMP Compliance
<b>Platforms</b>	CEEQUAL	CEEQUAL	Energy Efficient Products	SWMP Compliance
<b>Depot Sheds</b>	CEEQUAL	CEEQUAL	Energy Efficient Products	ICE Demolition Protocol
<b>Carriage Washers</b>	CEEQUAL	CEEQUAL	Energy Efficient Products	ICE Demolition Protocol
<b>Maintenance Depots</b>	BREEAM for New Construction/ BREEAM Industrial	BREEAM /Bespoke BREEAM/BREEM Industrial	BREEAM In Use	ICE Demolition Protocol
<b>Light Maintenance Depots</b>	BREEAM for New Construction/ BREEAM Industrial	BREEAM /Bespoke BREEAM Fit Outs/Ska Office	Energy Efficient Products	ICE Demolition Protocol
<b>NDS - Storage &amp; Distribution Depots</b>	BREEAM for New Construction/ BREEAM	BREEAM / BREEAM Bespoke/ Ska Retail	BREEAM In Use	ICE Demolition Protocol

	Industrial			
<b>Arches (Fully Conditioned)</b>	N/A	BREEAM/ Ska Office	BREEAM In Use	N/A
<b>Retail (Fully Conditioned)</b>	BREEAM Retail	BREEAM/ Ska Retail	BREEAM In Use	ICE Demolition Protocol
<b>Workplace Offices</b>	BREEAM Office	BREEAM Offices/Ska Office	BREEAM In Use/Ska Office	ICE Demolition Protocol
<b>Signalling Centres</b>	BREEAM/BRE EAM Data Centres	BREEAM / BREEAM Data Centres	BREEAM In Use	ICE Demolition Protocol
<b>Workplace Training Centres</b>	BREEAM for New Construction	BREEAM /BREEAM Offices/ Ska Office	BREEAM In Use	ICE Demolition Protocol
<b>Workplaces Depots</b>	BREEAM for New Construction	BREEAM /Bespoke BREEAM/Ska	BREEAM In Use/ Ska	ICE Demolition Protocol

**Note: The above proposed methods of BREEAM & Ska (RICS) are subject to change as suite of BREEAM, CEEQUAL and SKA Ratings continue to improve the measurements to align UK and EU legislations.**

#### Appendix 14 Exclusions and limitations

It is proposed that sustainability assessment and measurement methods such as BREEAM and CEEQUAL will be introduced to those assets which are directly managed and operated by Network Rail.

Refurbishments and renewals project will not introduce formal certifications where assets are going through only shell works. This means not undertaking full fabric and M&E works.

It is proposed to exclude non critical line side buildings (LSB) and critical line side buildings from a formal certification schemes because the LSB portfolio consist of smaller units, built in structures, small sheds, huts and paved areas. Many of these assets are old and sometimes listed buildings where introduction or any formal interventions related to sustainability may not be viable. However, commitment has been made for signalling centres.

Property function is reviewing the reduction of project threshold value to introduce BREEAM and CEEQUAL certifications. Commercially let property within the Property portfolio will not introduce BREEAM In Use because most of those assets are on lease to other (third party) companies.

Consultation with BRE indicates that refurbishment schemes are likely to 'Very Good' due to the requirements of the assessment model.