BRIDGES
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# Bridges Healthcare (Richmond) Limited

# RICHMOND INN

## Sustainability Statement

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# Richmond Inn.
# London Borough of Richmond upon Thames.
# Bridges Healthcare (Richmond) Limited.

**SUSTAINABILITY**
SUSTAINABILITY STATEMENT

REVISION 02 – 04 MAY 2022

## Audit sheet.

| Rev. | Date | Description of change / purpose of issue | Prepared | Reviewed | Authorised |
|---|---|---|---|---|---|
| 01 | 27/04/2022 | Draft issue for review | H. Thompson | G. Braga | J. Ford |
| 02 | 04/05/2022 | First issue | H. Thompson | G. Braga | J. Ford |
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This document has been prepared for Bridges Healthcare (Richmond) Limited only and solely for the purposes expressly defined herein. We owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. The consequences of climate change and the effects of future changes in climatic conditions cannot be accurately predicted. This report has been based solely on the specific design assumptions and criteria stated herein.

Project number: 23/24424
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# Contents.

## Executive Summary.

This document presents the Sustainability Strategy for the Richmond Inn development which has been informed by both national and local policy requirements, the Applicant's vision and sustainable design and development guidance and frameworks including, but not limited to.

- United Nations Sustainable Development Goals (UN SDGs).
- National Planning Policy Framework.
- Adopted London Borough of Richmond upon Thames Local Plan (Adopted 3rd July 2018).
- Emerging London Borough of Richmond upon Thames Local Plan 2021 (anticipated to be adopted in Autumn 2024).
- BREEAM UK New Construction 2018.

To capture the multi-faceted sustainability benefits and values that the Proposed Development can bring to the Site, local community, surrounding businesses, and future building users, five defined factors – the people, the building, the social network, the natural environment, and the economic aspects – inform our proposed sustainability framework. These are summarised below:

### Physical Capital – "Building the Future"

An all-electric building services strategy with a top-up gas boiler (10% of the domestic hot water) is proposed to enable ongoing carbon emission reductions. During concept design development, the energy strategy for the Site will meet current adopted carbon emission reduction targets set within the local and regional planning policies. The design team will consider a 'performance' rather than 'compliance' led approach to design to assist the Applicant in achieving the measured reductions in carbon emissions in operation.

### Social Capital – "Connecting People"

The proposal is for an accessible and inclusive development that creates an important connecting place within the local area and delivers high-quality spaces to the local and wider community. During the life span of the development, the project will engage with the local community and relevant stakeholders through public consultations, to ensure the Proposed Development responds to the community needs.

The contractor will seek employees associated with the construction stage in a fair and just manner to ensure diversity and equal opportunities are provided on site.

### Economic Capital – "Responsible Growth"

Enabling sustainable growth through the creation of jobs and opportunities through collaboration with the main contractor, the Proposed Development can create new career opportunities and reduce the skills and training gaps in the local area. Material and other resource procurement will endeavour to be sourced locally to support local suppliers and other businesses, where possible.

### Human capital – "Happy and Healthy"

The user health and wellbeing are at the centre of the design to ensure a comfortable, safe, and enjoyable environment is created and make the Proposed Development a sociable, accessible, and well-connected place that attracts people from surrounding communities.

The Proposed Development is aiming to make a positive contribution to the healthcare and wellness tourism in Richmond.

### Natural capital – "Positive impact"

All aspects of the design, construction and operation of the Proposed Development will be developed to promote biodiversity, attract local fauna, offer an ecological refuge, and have no negative impact on the environment. Key considerations relate to pollution, local air quality, resource demand, waste, and biodiversity.

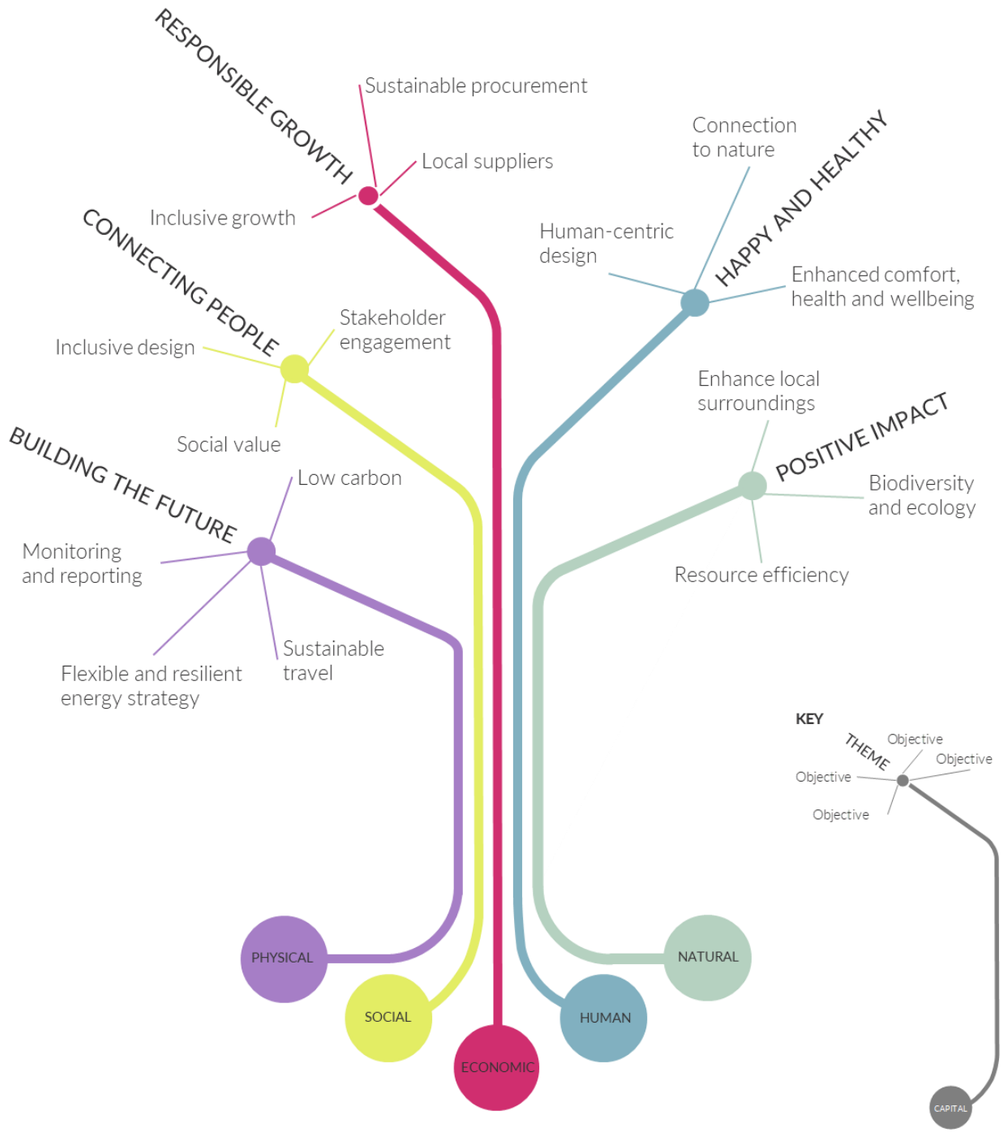



Figure 1: Approach to sustainability for the Richmond Inn development.

# 1. Introduction.

## 1.1 Purpose of the report.

This document has been prepared on behalf of Bridges Healthcare (Richmond) Limited, hereafter referred to as the 'Applicant', in support of the outline planning application for the development of the Richmond Inn in the London Borough of Richmond upon Thames, hereafter referred to as the 'Proposed Development'.

The Sustainability Statement summarises the pertinent regulatory and planning policies applicable to the Proposed Development and sets out how the Proposed Development addresses the relevant policy requirements.

This report outlines the proposed approach to sustainability. Please to refer to:

- Appendix A: For an outline response to the Local Policy requirements.
- Appendix B: For a detailed review of relevant planning policy requirements.
- Appendix C: BREEAM UK New Construction 2018 Pre-Assessment.

## 1.2 Description of Development.

The Description of the Proposed Development is as follows: *Partial demolition and extension of Richmond Inn for Class C2 visitor accommodation providing care and physiotherapy-led rehabilitation, highways works, car and cycle parking, refuse storage, landscaping and other associated works.*

## 1.3 Site Description.

The site comprises the existing Richmond Inn hotel, which is a 44-bed hotel which has been vacant since its closure in March 2020.

The Richmond Inn is located on the corner of Sheen Road and Church Road in Richmond. The site extends to 0.13ha in total and comprises the hotel building (with ancillary meeting rooms and lounges) as well as a central courtyard area and surface car park for customers, which is accessed from Sydney Road. The main visitor entrance is provided at Sheen Road.

The Sheen Road frontage comprises four storeys in total, whilst the Church Road and Sydney Road frontages provide three storeys of accommodation.

The site is situated within the Sheen Road Conservation Area and, whilst the building is not statutorily listed, it is identified as a locally listed building (reference 82/00850/BTM) under the Council's local list (also known as a 'Building of Townscape Merit'). The site is considered to mark the important junction of Sheen Road and Church Road, which are two key routes through this part of the borough.

In terms of accessibility, the site has a PTAL of 6a (excellent), being a four minute walk from the rear entrance of Richmond Station and in close proximity to bus stops on Sheen Road and Church Road.

The scheme delivers a total of 2,698.24 sqm of GIA, when combining the GIA that is being retained and the new GIA. Please refer to Table 1 below.

Table 1. Proposed Land Uses (sqm GIA).

| Level | GIA – To be retained | GIA – New | GIA – Total |
|---|---|---|---|
| Lower Ground Floor | 221.12 | 435.14 | 656.26 |
| Ground Floor | 221.26 | 469.16 | 690.42 |
| First Floor | 212.89 | 464.19 | 677.08 |
| Second Floor | 210.60 | 463.88 | 674.48 |
| TOTAL | 865.87 | 1,832.37 | 2,698.24 |

Please refer to Figure 2 for an illustrative view of the Proposed Development from Church Road overlooking South.

Figure 2. Illustrative CGI view of the Proposed Development from Church Road overlooking South (Credit: Ackroyd Lowrie Architects)

# 2. Overview of Policies and Drivers.

## 2.1 Relevant National and Local Policies.

A detailed policy review has been undertaken and can be found in Appendix B of this report.

In summary, planning policy documents applicable to the Proposed Development have been identified and include the below. This is not a GLA referable scheme and therefore, the project will comply with the London Borough of Richmond Adopted Local Plan. The emerging Draft Local Plan has been reviewed but does not form material consideration in planning determination until 2024.

- United Nations Sustainable Development Goals (UN SDGs).
- National Planning Policy Framework.
- Adopted London Borough of Richmond upon Thames Local Plan (Adopted 3rd July 2018).
- Emerging London Borough of Richmond upon Thames Local Plan 2021 (anticipated to be adopted in Autumn 2024).
- BREEAM UK New Construction 2018.

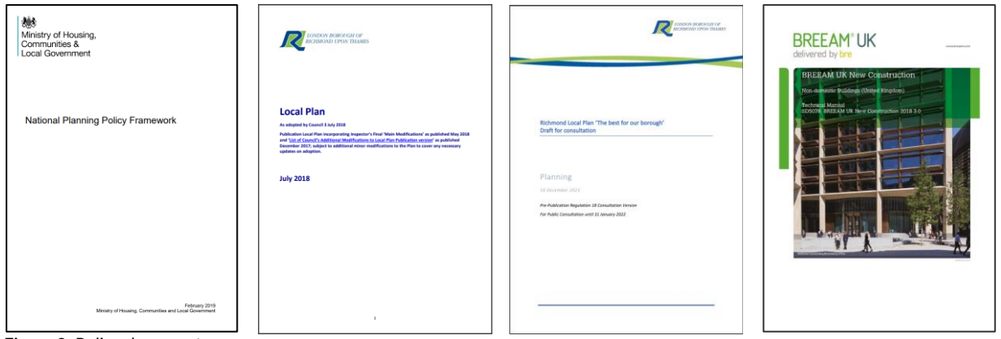


Figure 3. Policy documents.

### 2.1.1 Key findings

Key targets from these documents are summarised below:

- Resource efficient approach to be adopted throughout the design process minimising the quantity of materials used within the design and seeking for alternative design options where practical.
- Early-stage risk assessment will be completed assessing potential risks to the building from Climate change. Mitigation measures to be incorporated and reviewed at each stage of the design process in order to ensure suitable protection measures are incorporated into the design.
- The courtyard area will be enhanced throughout the design, contributing to an improved human wellbeing experience.
- Inclusive design will be incorporated throughout the design considering users of all disabilities, age, gender.
- Local sustainable procurement will be selected where feasible throughout the design. The BREEAM Mat 03 Responsible Sourcing Materials credit is targeted within the BREEAM assessment, ensuring responsible sourcing of materials throughout the process.
- All timber will be FSC/PEFC certified in line with the UK Timber Procurement Policy.
- Biodiversity will be maximised throughout the development where possible, and general enhancement of planting throughout the Site.
- Energy strategy centres on an all-electric building services approach with gas boiler to provide just 10% of the domestic hot water.

## 3. Approach to Sustainability.

The following strategy addresses a wide range of sustainability subject areas and covers various headline sustainability categories. The strategy confirms the applicable policies and the Applicant's aspirations and measures of sustainability that would be implemented at the Proposed Development.

The design of the Proposed Development is based on sustainable design and construction principles as informed by planning requirements and industry best practice. It is on this basis that we are utilising a sustainability framework based on five defined factors, i.e., the people, the buildings, the social network, the natural environment, and the economic aspects as illustrated in Figure 4 to capture the multi-faceted sustainability benefits and values that the Proposed Development could bring to the following areas:

- Application Site.
- Local community.
- Surrounding businesses.
- Future building users.

Figure 4. Proposed framework for sustainability – Creating value.

The original idea for the five capitals was introduced by Forum for the Future and it was designed to assist organisations to develop a vision of what sustainability looks like for their operations, products, and services. We have embraced this approach as it promotes a holistic, interdisciplinary approach to sustainability which is aligned with our understanding of sustainable development.

Our strategy is based on the concept of realising real term social, economic, and environmental benefits to all stakeholders and investors and thereby generating value and wealth in the communities we create.

Table 2. Five Capitals.

| | |
|---|---|
| Physical Capital | "Building the future"<br>Creating high quality buildings ensures PHYSICAL VALUE is increased where buildings and infrastructure project an image of design for longevity and allow people to navigate easily on foot/by bicycle. |
| Social Capital | "Connecting people"<br>By enabling community identity, SOCIAL VALUE is increased where a great place brings people together and creates a community. |
| Economic Capital | "Responsible Growth"<br>By ensuring equity for all, ECONOMIC VALUE is increased where all users of a place feel they have a level of ownership of the asset and buy-in to the outcomes it is seeking to achieve. |
| Human Capital | "Happy and healthy"<br>With a focus on people, HUMAN VALUE is increased where quality and longevity of life is improved, and happiness is increased. |
| Natural Capital | "Positive impact"<br>By seeking to achieve positive gain, NATURAL VALUE is increased where existing quality is protected, and new complementary resources are introduced. |

**The Delivery Framework**
Working with all key stakeholders, an overall vision for the development has been defined. Workshops have been held in collaboration with the client and project team to help create a charter including innovative initiatives and key objectives to be delivered as a result of the project. As illustrated in Figure 5 and Figure 6, the strategy responds to the five elements of our defined framework; and is intended that the agreed objectives are tracked and monitored throughout project delivery and operational phases.

**Environmental Assessment**
In line with local policy drivers and the Applicant's sustainability aspirations, a BREEAM Pre-assessment strategy has been put together. The Proposed Development is targeting a BREEAM 'Excellent' rating.

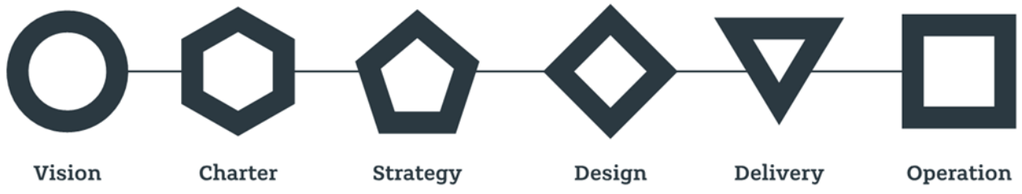



Figure 5. Sustainability strategy – Delivery phase (inception to completion).

## 4. Sustainability Strategy.

The strategy for the Proposed Development addresses key sustainability challenges and opportunities, responds to the requirements of the applicable policies, and implements the Applicant's aspirations.

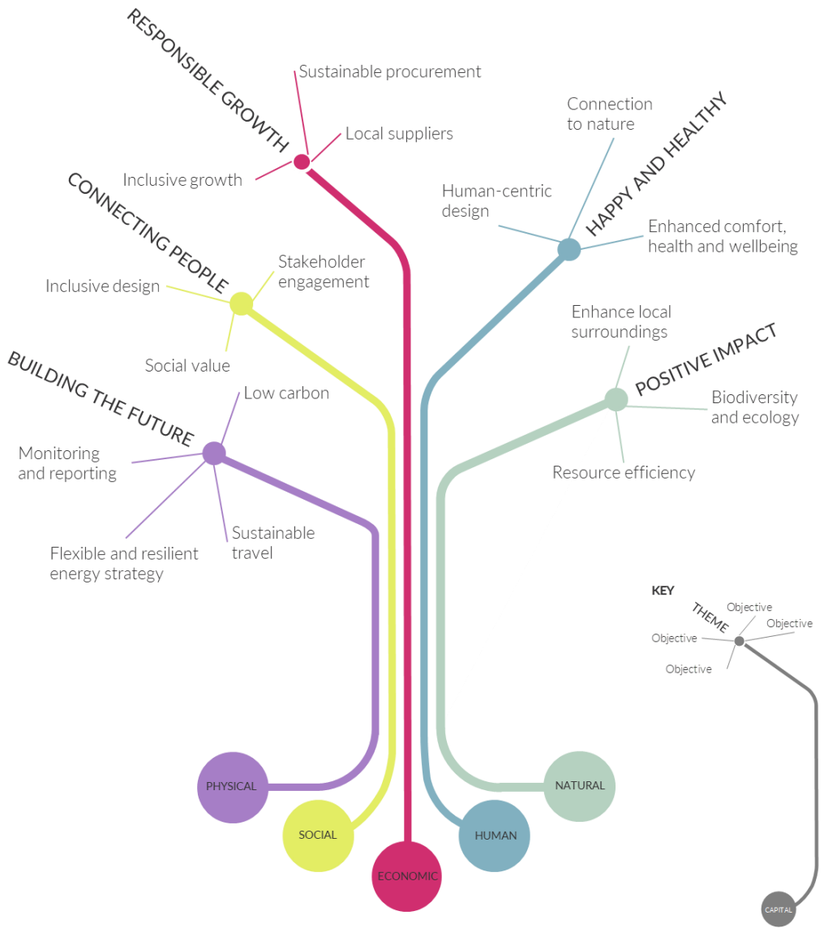
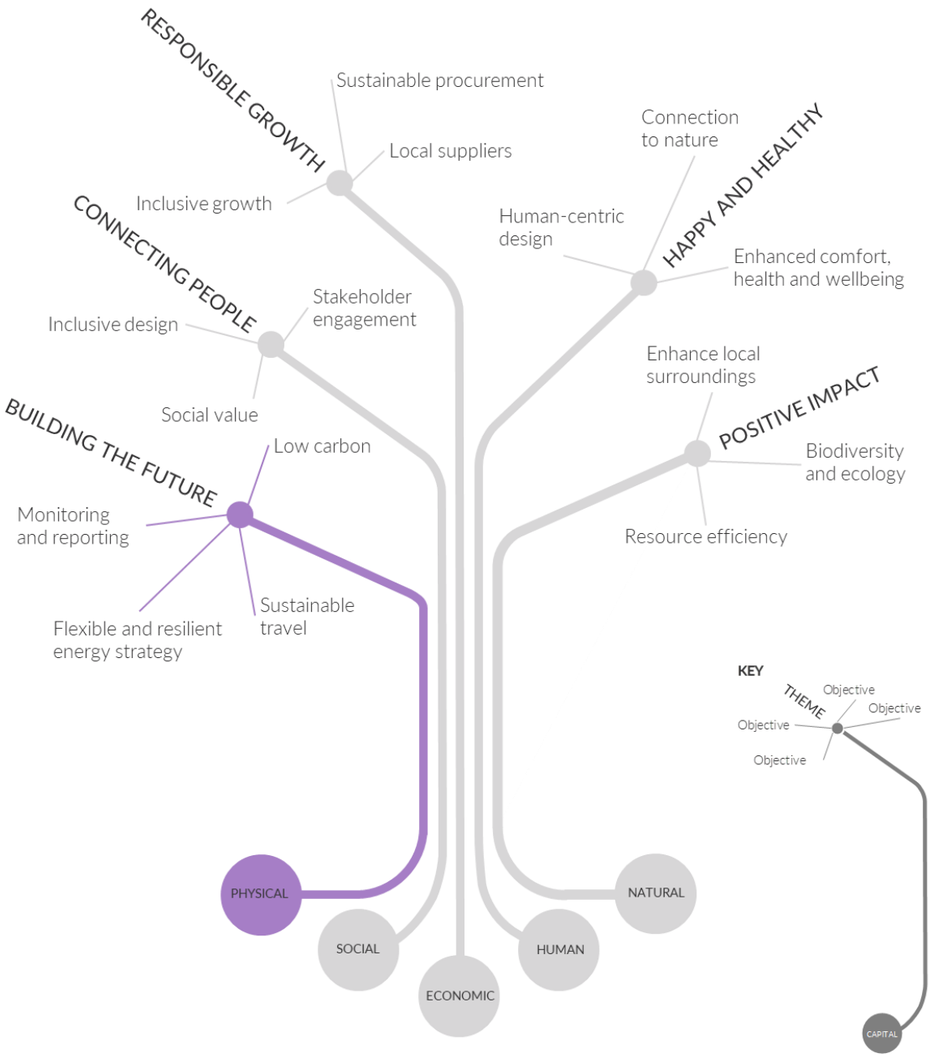



Figure 6. The sustainability strategy illustrated – key themes and areas.

### 4.1 Physical Capital – "Building the Future".

Physical value is all about creating an exemplar environment where people can live, work and visit.

The Proposed Development will be designed to create a high quality place ensuring that physical value is increased where the development projects an image of design for longevity and allows people to navigate easily on foot and by bicycle.




**Approach to Energy**

Please see the Energy Strategy to find detail of the approach to energy for the Proposed Development. Recommendations have been proposed regarding the approach to the reducing carbon dioxide ($CO_2$) emissions and optimising energy efficiency within the development. The strategy includes building regulations compliance modelling as well as an assessment of the viability of a number of low and zero carbon solutions.

The Proposed Development is a major development but is not a GLA referable scheme. In line with the Richmond's Adopted Local Plan 2018 (and Draft Local Plan 2021) the Proposed Development will follow The London Plan Energy Hierarchy of 'Be Lean', 'Be Clean', and 'Be Green' to reduce the $CO_2$ emissions of the entire development. The regulated $CO_2$ emissions reduction target is zero-carbon with a minimum of 35% $CO_2$ reduction on-site. In addition, SAP 10 carbon factors have been adopted as per recommendations on the Greater London Authority (GLA) Energy Assessment Guidance (April 2020).

The Proposed Development is anticipated to achieve approximately a 33% sitewide reduction in $CO_2$ emissions beyond the baseline scheme (using SAP 10 carbon factors) at Be Lean stage via passive design and energy efficiency measures. At Be Green stage, the Proposed Development is anticipated to achieve approximately a further 34% sitewide reduction in $CO_2$ emissions beyond the Be Lean scheme (using SAP 10 carbon factors).

Overall, it is anticipated that the Proposed Development could achieve 67% reduction in $CO_2$ emissions beyond the baseline scheme. To enable the Proposed Development to meet the Zero Carbon target, a one-off carbon offset payment of approximately £230,603 will be required in line with Richmond's Local Plan. This figure is based on a shortfall of 81 tonnes $CO_2$ per year for a period of 30 years at a rate of £95 / tonne of $CO_2$.

The energy strategy for the Proposed Development has addressed the key elements of Richmond's Local Plan on energy and will make a positive contribution to reducing the county's $CO_2$ emissions.

**Monitoring and reporting**

Effective energy metering will be enabled by the provision of suitable infrastructure within the buildings services systems. This will enable energy usage of the heat-pump systems to be monitored, and the system performance optimised. Electrical and thermal meters will be provided on the main central Heat Pumps, providing data on plant energy consumption throughout the year.

Each area of high energy load will be sub-metered in order to monitor energy consumption in greater granularity and facilitate billing and reporting. An effective monitoring system is specified for the Proposed Development in the form of a Building Management System (BMS).

**Sustainable travel**

The site is in an area with a Public Transport Accessibility Level (PTAL) of 6a. This represents an excellent level of access to public transport services. The site is near up to 5 bus service from Church Road and Sheen Road. There are also underground and overground services available from Richmond Station.

The site is in an area with an existing network of wide footways including on Sydney Road, Church Road and Sheen Road. These footways provide pedestrian access from the site to public transport services, local shops and parks. The site is also served by existing cycle lanes on Church Road. Sheen Road is also a signed cycle route. These routes link to the wider network of safe and convenient routes in Richmond.

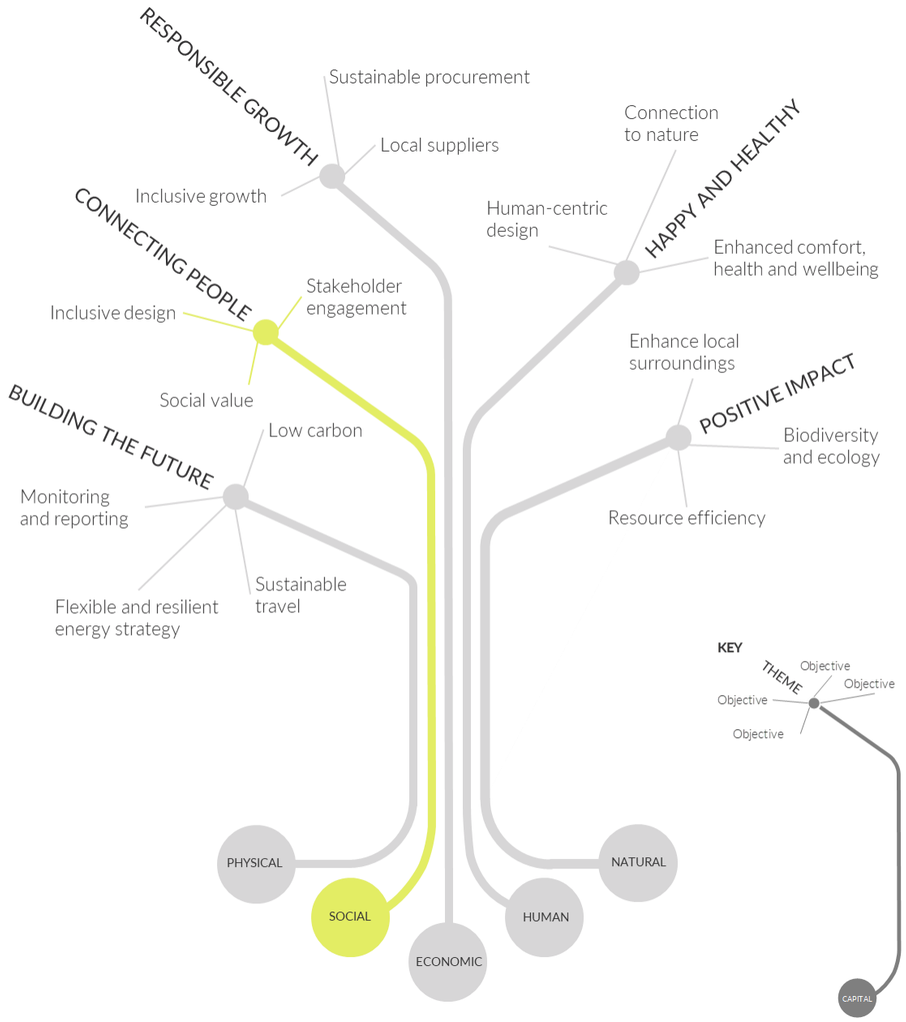
The site is highly accessible by walking and cycling and cycle parking will be provided to encourage cycling.

A Travel Plan will also be implemented which will promote sustainable travel options. The reduced parking at the site will encourage staff and visitors to adopt sustainable travel modes.

### 4.2 Social Capital – "Connecting people".

A development is only as strong as its people and communities, and social value is all about opening opportunities for them to thrive. A key theme for the development is to enhance the existing communities and provide opportunities to involve local stakeholders to be part of the journey.

When a project embraces this unique local identity – one that considers the full diverse range of value that the community both offers and could benefit from – you create a place for the people… a place that becomes more than its bricks and mortar and delivers an immeasurable long-term legacy, showing that together we are stronger.




**Inclusive Design**

Inclusive design centres on the design of an environment so that it can be accessed and used by as many people as possible, regardless of age, gender, and disability. An environment that is designed inclusively is not just relevant to buildings; it also applies to surrounding open spaces, wherever people go about everyday activities. In terms of the Richmond Inn development, inclusive and accessible design has been integrated into the design process and reflected in the proposed design. This includes accessible rooms and passing space in the corridors.

The design proposals accommodate the new usage, and the building will meet all users' needs in terms of accessibility. Buro Happold have been appointed as Accessibility Consultants for the project. This shows the level of commitment to ensuring an inclusive and accessible environment is designed.

The Proposed Development will be designed to comply with the following documents and guidance:

- Approved Document M: Access to and use of buildings Volume 1: Dwellings – 2015 edition (incl. 2016 amendments)
- Equality Act 2010
- Adopted Local Plan for London Borough of Richmond upon Thames

Please refer to documentation from the Accessibility Consultants for further detail of how inclusive design principles have been applied.

**Stakeholder Engagement**

The Proposed Development engaged with interested parties via Public Consultation exercises as part of the pre-application process. This allowed the local community to have direct communication with the project and ensured a sense of community is felt with the project. The Stakeholder Consultation credits within the BREEAM assessment (Man 01) are targeted, which shows a commitment to ensuring the stakeholder consultations are undertaken and recorded in line with the criteria outlined in the BREEAM assessment. Please see Appendix C for the BREEAM Pre-Assessment.

**Social Value**

The development will seek to create an inclusive and accessible place which welcomes all via a diverse offer, complimenting rather than competing with local social, economic, and cultural infrastructure. The development will be designed so that everyone can get to and move thorough the place on equal terms regardless of age, disability, and ethnicity or social grouping. In addition, the scheme will ensure a respectful approach to neighbouring properties, responding to overlooking and views. Shaping buildings with consideration to their townscape and heritage impact, that connects to the surrounding neighbours to improve local connectivity.

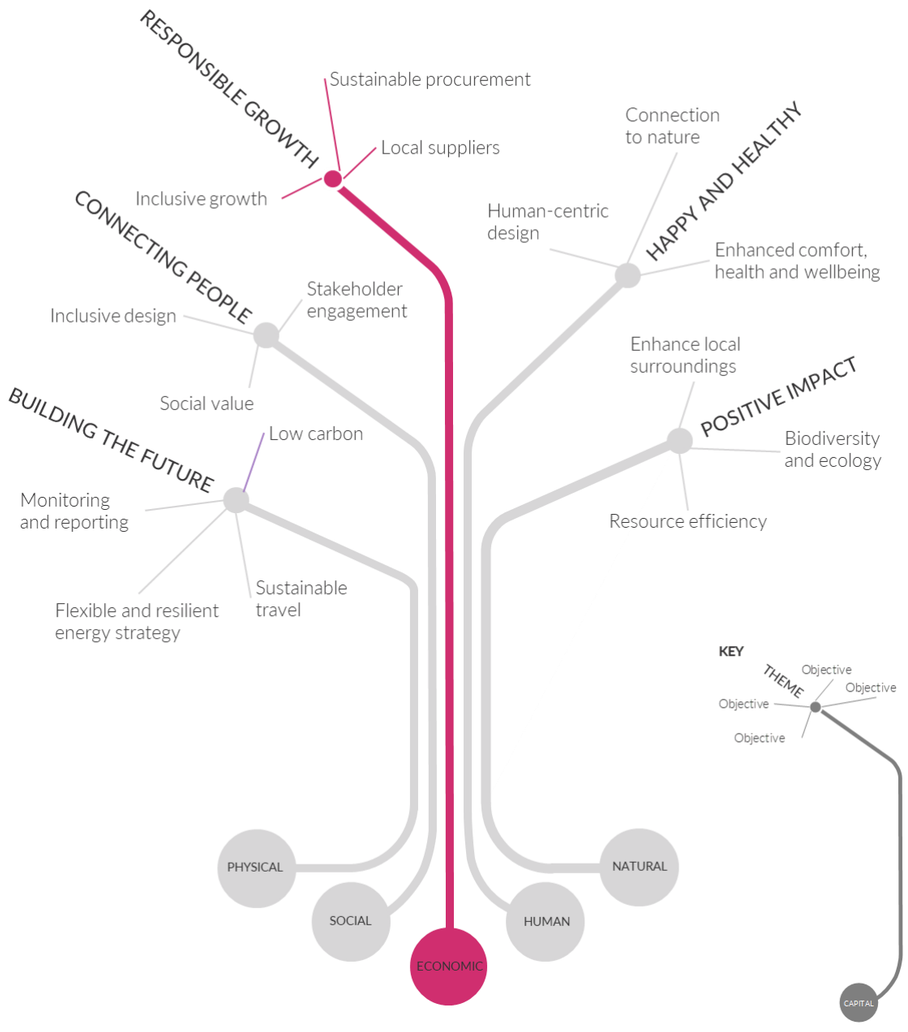
This will provide opportunities via a flexible framework approach, safeguarding future connections to adjacent development parcels, without compromising their development potential.

The Social Value and Inclusive Design elements for the project are in line with the adopted Local Plan Policy LP30 which priorities the Health and Wellbeing of building users.

The Proposed Development is aiming to make a positive contribution to the healthcare and wellness tourism in Richmond.

### 4.3 Economic capital – "Responsible Growth".

By ensuring that priority is given to local small and medium enterprises and local material providers, this will enable benefits to the region to be realised. These economic outcomes are a way to unite stakeholders and demonstrate how design and tangible lasting outcomes are interlinked.




#### Inclusive Growth

In view of the fact that the Proposed Development is 44-bed hotel, in addition to employment during construction, the Proposed Development will also be sure to generate a number of employment opportunities during the operational stage. Please refer to the planning statement for the number of jobs to be created by the Proposed Development.

The Proposed Development is aiming to make a positive contribution to the healthcare and wellness tourism in Richmond.

#### Sustainable Procurement

Producing and implementing a sustainable and robust procurement strategy is critical to achieving waste is minimised and circular economy principles are adequately applied to the Proposed Development. The design team will be required to work towards supporting targets such as BREEAM Mat 03 Responsible sourcing of construction products criteria. This means that a Sustainable Procurement Plan will be implemented. It also means that the materials within the superstructure are appropriately sourced in line with the BREEAM recognised responsible sourcing certification schemes. Please see Appendix C for the BREEAM Pre-Assessment.

Throughout the project life cycle, where materials are substituted throughout the programme, it will be encouraging a similar like-for-like material is selected in order to ensure the environmental, economic, and social impact is maintained.

#### Local Suppliers

The scheme will aim to support the local procurement of materials, with prioritisation of products under a recognised responsible certification scheme such as BES 6001, ISO 14001, CARES. Opting for suppliers and products with certified ratings, will ensure products are selected with a lesser environmental, economic, and social impact across their supply chains thus promoting more economically, socially, and environmentally responsible practices across the industry.

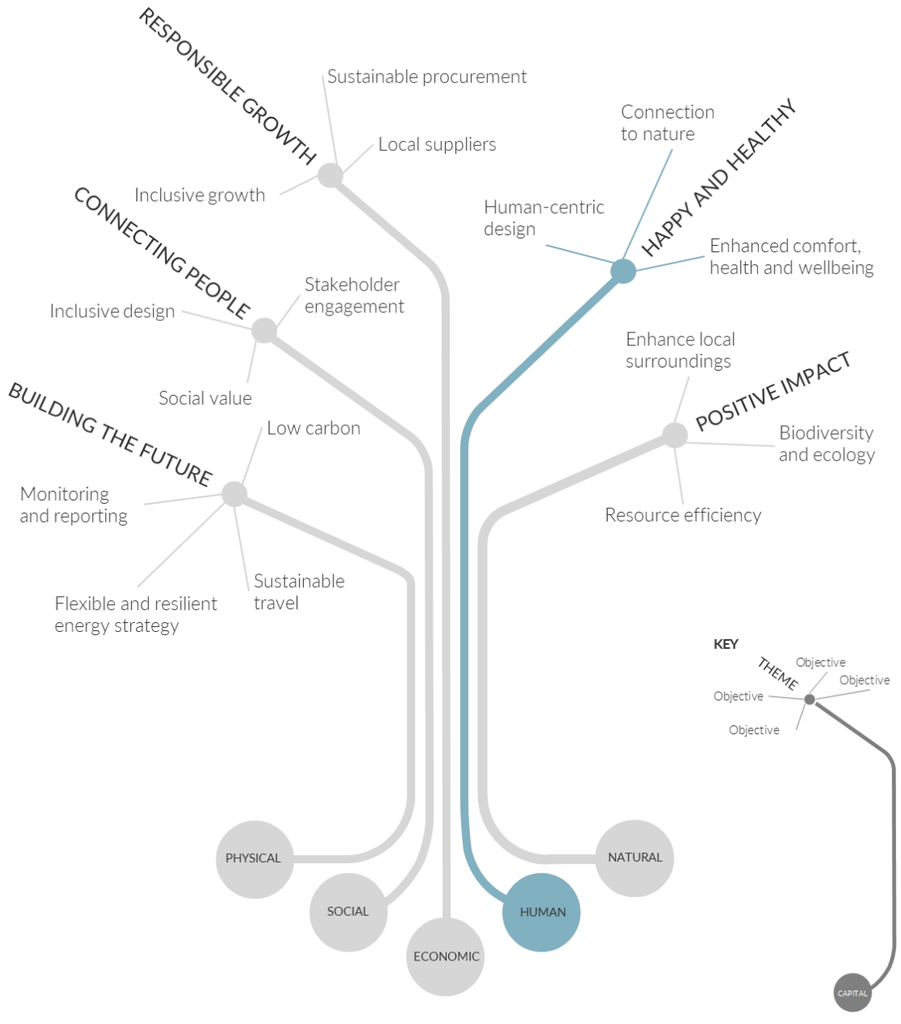
The Proposed Development has a Sustainable Procurement Plan in place to sets out a clear framework for the responsible sourcing of construction products to guide procurement throughout a project and by all involved in the specification and procurement of construction products. The team will be required to work towards supporting targets such as BREEAM Mat 03 Responsible sourcing of construction products. The design team will be encouraged to consider local procurement overall national, and European procurement where possible in order to work at reducing carbon emissions further.

### 4.4 Human capital – "Happy and Healthy".

We know that people are happier and healthier when they feel safe and supported, and their senses and basic requirements have been considered.

This human-centric approach is about looking at both individual and collective needs throughout the life cycle of the development, not just during operation– considering the diversity of human experiences, as well as the factors that bring us together to create a culture of inclusivity and balance and is a key consideration for the proposed scheme.

Putting people at the heart of the design process and ensuring everyone that lives, works and visits the development feels valued is integral to human capital.




**Human-Centric Design**

The development will be sure to consider and ensure human health and wellbeing is centred throughout the design of the development. In terms of comfortability within the design, the development will be sure to ensure best practice in visual performance and comfort is in place through appropriate internal daylighting levels, internal and external lighting levels an adequate view out and glare control measures are incorporated in order to maximise health and mental wellbeing as well as general productivity. These will be measured for example by the Hea 01 Visual Comfort credits that are targeted with the BREEAM assessment.

**Connection to Nature**

In line with the development's Human Centric Design, the Proposed Development will seek to maximise the natural environment throughout external areas. The project proposes to improve the courtyard area within the development to provide access to greenspace and a restaurant with outdoor seating area. By providing access to nature, mental health and wellbeing of building users will be enhanced, as a connection to nature has been proven to be beneficial to human health.

The enhancement of the biodiversity of this urban site is a key element of the landscape design proposals. Greening within the site area, and provision of permeable hard surfaces has resulted in the Urban Greening Factor target of 0.3 being met and exceeded. Significant greening elements that have been maximised include:

- Predominantly permeable hard surfaces throughout
- Flat roofs to incorporate green roof substrates for extensive roof systems and attenuation
- Hedge planting (both existing retained and proposed hedging) to the frontage
- New specimen trees to be located in engineered connected tree pits
- Vertical greening through the planting of climbing plants to the boundaries, pergola, and certain building elevations
- Large areas of perennial and shrub planting to the courtyard and building perimeter

These proposals will provide an enhanced connection to nature for users.

Urban Greening has been used to develop a high-quality landscape and green infrastructure across the Site.

**Enhanced Health and Wellbeing**

Security measures will be considered and adopted site wide, ensuring an appropriate level of safety is merged into the final design. Recommendations such as design and layout (e.g., crime prevention through environmental design), physical security (e.g., tested, and certified security products), and technological security (e.g., Tested, and certified alarms, automatic access control systems, CCTV) will be considered reducing the risk of crime to both people and property, as well as improve the health and wellbeing of the building occupiers by limiting stress from the fear of crime. Appropriate safe measures and access design considerations will be introduced around the Site, reducing the risk of crime, and ensuring all building occupants can access all, and enhance the wellbeing of users. The Hea 06 Security credit is targeted within the BREEAM assessment. Please see Appendix C for the BREEAM Pre-Assessment.

The building will be designed in line with Policy LP10 of the adopted Local Plan, that details recommended acoustic requirements, ensuring minimal disruption throughout the internal spaces, as well as air quality and light pollution parameters.

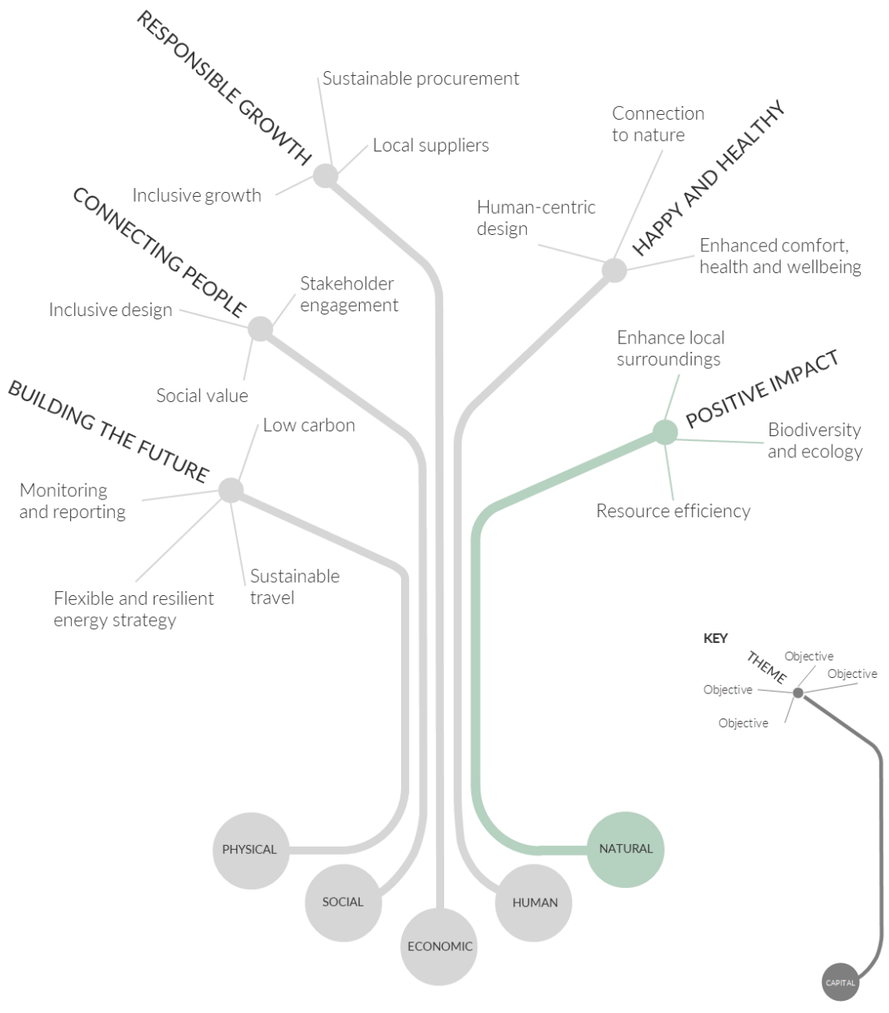
These details will ensure the comfort of the building occupants, which will enhance their health and wellbeing

### 4.5 Natural capital – "Positive impact".

Enhancing the environment is a key responsibility for the development, both within the local context and through contributing to wider climate and biodiversity challenges.

The built environment is the most powerful influence on our natural world, and when considering how we add value we have to take a bold and ambitious approach that considers both what we can remove (in terms of negative impact) and what we can add (in terms of transforming an environment for the better).

Ultimately, with the right approach, the built environment can exist and enhance our natural world in harmony. The defined targets will ensure that design and operation contribute to environmental sustainability through enhancement of ecological assets and sustainable and responsible resource management.




**Biodiversity and Ecology**

The ecology strategy for Proposed Development looks to promote biodiversity across the Site for a variety of wildlife and habitats. Biodiversity and ecology has been a key design consideration. Enhancing the biodiversity of a development is Policy LP 15 of the adopted Local Plan for Richmond.

The planting strategy is as follows:

- Specimen courtyard trees
  - Multi-stem spring flowering trees with interesting bark colour and form, such as Tibetan Cherry, Amelanchier sp.
  - Species suggestions to be taken from Arboricultural Officer.
- Lush ornamental perennial and shrub planting to sanctuary garden
  - Shade tolerant spring flowering predominantly evergreen with year round interest
  - Flowering specimen shrubs emerging to provide incidents and highlights
  - High density planting (12/m2) of perennials and shrubs
  - Tree species have been selected to promote biodiversity, attract local fauna, and offer an ecological niche and refuge.
- Vertical greening
  - Climbing plants to trained to pergola structure and building elevation.
  - Scented varieties
  - Careful species selection appropriate for maintenance level and solar aspect.
  - Irrigation to be provided, potential for rainwater harvesting to be incorporated.

**Resilience & Adaptability**

Resilience and adaptability focus on minimising the future need of carrying out works to adapt the building in response to climate change and changing weather patterns and building usage and demand. This idea evaluates asset resilience and value through consideration of the likely impacts of future climate change on the project, reducing future risks to end user safety arising from extreme weather events and climate change, as well as reducing the need for future adaptation, maintenance, and disruption throughout the building life cycle due to changing demands as well as climate change.

The Wst 05 Adaptation to Climate Change credit has been targeted for the BREEAM assessment. This means the design team will undertake a systematic risk assessment considering the impacts of climate change on the Proposed Development and evaluated how these risks can be minimised throughout the buildings projected life cycle. Please see Appendix C for the BREEAM Pre-Assessment.

**Resource Efficiency**

Resource efficiency has been referred to as *'using the Earth's limited resources in a sustainable manner while minimising impacts on the environment. It allows us to create more with less and to deliver greater value with less input.'* The aim of this notion is to encourage design teams to avoid unnecessary materials use arising from over specification without compromising structural stability, durability, or the service life of the building. As well as this, the concept can assist with reducing material cost, encourage and drive the reuse of existing materials on-site, encourage the use of materials with high levels of recycled content, and finally improve individual's knowledge on understanding and the performance of alternative design options to be considered throughout the design.

The Mat 06 Material Efficiency credit has been targeted for the BREEAM assessment. This ensures the team consider the following key principles for designing material efficiency:

- Principle 1: Design for Reuse and Recovery
- Principle 2: Designing for Offsite Construction
- Principle 3: Design for Material Optimisation
- Principle 4: Designing for Waste Efficient Procurement
- Principle 5: Design for Deconstruction and Flexibility.

## 5. Conclusion.

This report presents the Sustainability Strategy for the Proposed Development which has been informed by national and local policy requirements, the Applicant's vision and sustainable design and development guidance and frameworks including, but not limited to:

- United Nations Sustainable Development Goals (UN SDGs).
- National Planning Policy Framework.
- Adopted London Borough of Richmond upon Thames Local Plan (Adopted 3rd July 2018).
- Emerging London Borough of Richmond upon Thames Local Plan 2021 (anticipated to be adopted in Autumn 2024).
- BREEAM UK New Construction 2018.

The overarching strategy has demonstrated how Sustainability has been a key consideration from the on-set of the design, and how the design team have considered key topics in line with the Sustainability framework outlined. The following list summarises the key considerations adopted within the early stages of the design:

- Resource efficient approach to be adopted throughout the design process minimising the quantity of materials used within the design and seeking for alternative design options where practical.
- Early-stage risk assessment will be completed assessing potential risks to the building from Climate change. Mitigation measures to be incorporated and reviewed at each stage of the design process in order to ensure suitable protection measures are incorporated into the design.
- The courtyard area will be enhanced throughout the design, contributing to an improved human wellbeing experience.
- Inclusive design will be incorporated throughout the design considering users of all disabilities, age, gender.
- Local sustainable procurement will be selected where feasible throughout the design. The BREEAM Mat 03 Responsible Sourcing Materials credit is targeted within the BREEAM assessment, ensuring responsible sourcing of materials throughout the process.
- All timber will be FSC/PEFC certified in line with the UK Timber Procurement Policy.
- Biodiversity will be maximised throughout the development where possible, and general enhancement of planting throughout the Site.
- Energy strategy centres on an all-electric building services approach with gas boiler to provide just 10% of the domestic hot water.

## Appendix A – Response to Richmond's Local Plan Policies.

The current Local Plan for London Borough of Richmond upon Thames was adopted on 3rd July 2018.

The following policies have been identified as being relevant to the energy and sustainability of the development.

| Policy | Design Team Response |
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| Policy LP 10: Local Environmental Impacts, Pollution and Land Contamination | |
| A. The Council will seek to ensure that local environmental impacts of all development proposals do not lead to detrimental effects on the health, safety and the amenity of existing and new users or occupiers of the development site, or the surrounding land. These potential impacts can include, but are not limited to, air pollution, noise and vibration, light pollution, odours and fumes, solar glare, and solar dazzle as well as land contamination.<br>Developers should follow any guidance provided by the Council on local environmental impacts and pollution as well as on noise generating and noise sensitive development. Where necessary, the Council will set planning conditions to reduce local environmental impacts on adjacent land uses to acceptable levels. | See responses below. |
| Air Quality<br>B. The Council promotes good air quality design and new technologies. Developers should secure at least 'Emissions Neutral' development. To consider the impact of introducing new developments in areas already subject to poor air quality, the following will be required:<br>1. an air quality impact assessment, including where necessary, modelled data;<br>2. mitigation measures to reduce the development's impact upon air quality, including the type of equipment installed, thermal insulation and ducting abatement technology;<br>3. measures to protect the occupiers of new developments from existing sources;<br>4. strict mitigation for developments to be used by sensitive receptors such as schools, hospitals and care homes in areas of existing poor air quality; this also applies to proposals close to developments used by sensitive receptors. | The Proposed Development is air quality neutral in regard to both building emissions and transport emissions in line with the LPG Air Quality Neutral Consultation Draft. As such, no mitigation is required.<br><br>It is considered that air quality should not be viewed as a constraint to planning and the Proposed Development conforms to the principles of National Planning Policy Framework, the London Plan and the Richmond Local Plan.<br><br>Please refer to the Air Quality Impact Assessment for detailed information. |
| Noise and Vibration<br>C. The Council encourages good acoustic design to ensure occupiers of new and existing noise sensitive buildings are protected. The following will be required, where necessary:<br>1. a noise assessment of any new plant and equipment and its impact upon both receptors and the general background noise levels;<br>2. mitigation measures where noise needs to be controlled and managed;<br>3. time limits and restrictions for activities where noise cannot be sufficiently mitigated;<br>4. promotion of good acoustic design and use of new technologies;<br>5. measures to protect the occupiers of new developments from existing sources | Building service plant noise limits have been derived to protect against adverse noise impacts at the nearby residential receptors. The noise limits derived are based on: the results of the acoustic survey; British Standard BS 4142 guidance; and the preferences of London Borough of Richmond upon Thames. These limits could be conditioned in the proposed development consent.<br>A site suitability assessment in terms of noise has been carried out. Minimum acoustic performance requirements for facades are specified to demonstrate that suitable internal noise levels can be achieved through suitable design. Suitable internal noise levels could be secured by way of a condition specifying that demonstration of suitable façade design be shown via a report prior to occupation.<br><br>Please refer to the Noise Assessment for detailed information. |
| Light Pollution<br>D. The Council will seek to ensure that artificial lighting in new developments does not lead to unacceptable impacts by requiring the following, where necessary:<br>1. an assessment of any new lighting and its impact upon any receptors;<br>2. mitigation measures, including the type and positioning of light sources;<br>3. promotion of good lighting design and use of new technologies. | All external lighting will be designed in line with the BREEAM UK New Construction Pol 04 reduction of night time light pollution requirements.<br><br>All external lighting will be concentrated in the appropriate areas and that upward lighting will be minimised, thereby reducing unnecessary light pollution, energy consumption and nuisance to neighbouring properties.<br><br>The following set of recommendations will be adopted in line with ILP Guidance notes for the |

| Policy | Design Team Response |
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| | Reduction of Obtrusive Light, 2011:<br>- Limits to the average upward light ratio of the luminaires, to restrict sky glow.<br>- Limiting illuminance at the windows of nearby properties for which light trespass might be an issue.<br>- Limiting the intensity of each light source in potentially obtrusive directions beyond the site boundaries.<br>- Limiting the average luminance of the building if it is floodlit. |
| Odours and Fume Control<br>E. The Council will seek to ensure that any potential impacts relating to odour and fumes from commercial activities are adequately mitigated by requiring the following:<br>1. an impact assessment where necessary;<br>2. the type and nature of filtration to be used;<br>3. the height and position of any chimney or outlet;<br>4. promotion and use of new abatement technologies; | The proposals include a kitchen and restaurant and as such, an odour assessment has been undertaken in order to determine the potential impacts on amenity at sensitive receptor locations in the vicinity of the Proposed Development.<br>To control the odour emissions, in line with the EMAQ/Defra guidance, the ventilation and filter system must be designed to achieve high odour control. It is recommended that the odour control system is serviced and maintained according to the manufacturers specifications. These measures will reduce the potential for odour and in turn, ensures that the impact on amenity will not be significant.<br>The Proposed Development conforms to the principles of National Planning Policy Framework and LBRuT Local Plan.<br>Please refer to the Odour Risk Assessment for detailed information. |

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| Land Contamination<br>F. The Council promotes, where necessary, the remediation of contaminated land where development comes forward. Potential contamination risks will need to be properly considered and adequately mitigated before development proceeds. | Please refer to the Site Investigation report by Elliot Wood. |
| Construction and demolition<br>G. The Council will seek to manage and limit environmental disturbances during construction and demolition as well as during excavations and construction of basements and subterranean developments. To deliver this the Council requires the submission of Construction Management Statements (CMS) for the following types of developments:<br>1. all major developments;<br>2. any basement and subterranean developments;<br>3. developments of sites in confined locations or near sensitive receptors; or<br>4. if substantial demolition/excavation works are proposed. Where applicable and considered necessary, the Council may seek a bespoke charge specific to the proposal to cover the cost of monitoring the CMS. | A provisional aim of over 85% of all non-hazardous waste diverted from landfill (reused/recycled) has been identified.<br><br>It is expected that crushed brick/concrete generated by demolition works are to be reused on site. Precise figures are expected following the pre-demolition audit. |
| Policy LP 15: Biodiversity | |
| A. The Council will protect and enhance the borough's biodiversity, in particular, but not exclusively, the sites designated for their biodiversity and nature conservation value, including the connectivity between habitats. Weighted priority in terms of their importance will be afforded to protected species and priority species and habitats including National Nature Reserves, Sites of Special Scientific Interest (SSSI) and Other Sites of Nature Importance as set out in the Biodiversity Strategy for England, and the London and Richmond upon Thames Biodiversity Action Plans. This will be achieved by:<br>1. protecting biodiversity in, and adjacent to, the borough's designated sites for biodiversity and nature conservation importance (including buffer zones), as well as other existing habitats and features of biodiversity value;<br>2. supporting enhancements to biodiversity;<br>3. incorporating and creating new habitats or biodiversity features, including trees, into development sites and into the design of buildings themselves where appropriate; major developments are required to deliver net gain for biodiversity, through incorporation of ecological enhancements, wherever possible;<br>4. ensuring new biodiversity features or habitats connect to the wider ecological and green infrastructure networks and complement surrounding habitats;<br>5. enhancing wildlife corridors for the movement of species, including river corridors, where opportunities arise; and<br>6. maximising the provision of soft landscaping, including trees, shrubs and other vegetation that support the borough-wide Biodiversity Action Plan. | The site is of low ecological value with no natural habitats, or sites designated for natures conservation recorded on site. Some potential for bat roosting was observed but no foraging or roosting activity recorded in the follow on bat surveys. No impact on designated sites will occur. Enhancements include the provision of bat and bird boxes, as well as extensive green roofs and biodiversity value plant species included in the landscaping strategy. |

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| B. Where development would impact on species or a habitat, especially where identified in the relevant Biodiversity Action Plan at London or local level, or the Biodiversity Strategy for England, the potential harm should:<br>1. firstly be avoided (the applicant has to demonstrate that there is no alternative site with less harmful impacts),<br>2. secondly be adequately mitigated; or<br>3. as a last resort, appropriately compensated for. | No species or habitats covered by BAPS exist on site. Recommendations for biodiversity enhancements will benefit BAP species. |
| Policy LP 17: Green Roof and Walls | |
| Green roofs and/or brown roofs should be incorporated into new major developments with roof plate areas of 100sqm or more where technically feasible and subject to considerations of visual impact. The aim should be to use at least 70% of any potential roof plate area as a green / brown roof.<br><br>The onus is on an applicant to provide evidence and justification if a green roof cannot be incorporated. The Council will expect a green wall to be incorporated, where appropriate, if it has been demonstrated that a green / brown roof is not feasible.<br><br>The use of green / brown roofs and green walls is encouraged and supported in smaller developments, renovations, conversions, and extensions. | An extensive green roof and green wall are included in the enhancements. |
| Policy LP 20: Climate Change Adaptation | |
| A. The Council will promote and encourage development to be fully resilient to the future impacts of climate change in order to minimise vulnerability of people and property. | The Wst 05 Adaptation to Climate Change credit has been targeted for the BREEAM assessment. This means the design team will undertake a systematic risk assessment considering the impacts of climate change on the Proposed Development and evaluate how these risks can be minimised throughout the buildings projected life cycle. Mitigation measures will be implemented, where possible. |
| B. New development, in their layout, design, construction, materials, landscaping and operation, should minimise the effects of overheating as well as minimise energy consumption in accordance with the following cooling hierarchy:<br>1. minimise internal heat generation through energy efficient design<br>2. reduce the amount of heat entering a building in summer through shading, reducing solar reflectance, fenestration, insulation and green roofs and walls<br>3. manage the heat within the building through exposed internal thermal mass and high ceilings<br>4. passive ventilation<br>5. mechanical ventilation | The cooling hierarchy has been followed to reduce potential overheating and reliance on air conditioning systems, therefore reducing the impact of the urban heat island effect.<br><br>Passive and active measures were adopted before inclusion of active cooling, these include:<br>1. Heat generation will be minimised through the |

| Policy | Design Team Response |
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| 6. active cooling systems (ensuring they are the lowest carbon options). | specification of energy efficient ventilation systems, insulation on pipework and low energy lighting.<br>2. The amount of heat entering the building will be reduced by energy efficient facades to the new building with appropriate proportions of glazing and glazing shading coefficient carefully selected to minimise solar gain in the summer, but also to maximise solar gain in winter on both refurbished and new buildings.<br>3. Ceiling height in the new non-domestic building has been maximised within the constraints of the overall building heights and massing.<br>4. Openable windows have been incorporated within the Proposed Development. In addition, there will be a certain amount of natural ventilation through infiltration.<br>5. Ventilation will be provided by Air Handing Units (AHUs) and Mechanical Ventilation with Heat Recovery (MVHR) units. These units will incorporate a summer by-pass, which will allow the unit to supply fresh air without heat being transferred from the extract air into this supply air.<br>6. Comfort cooling is proposed. However, the actual cooling demand is lower that of the notional buildings.<br><br>Please see the Energy Strategy, Section 4.4 for further information. |
| C. Opportunities to adapt existing buildings, places, and spaces to the likely effects of climate change should be maximised and will be supported. | As with Part A of this Policy, the mitigation measures identified in the BREEAM Wst 05 Climate change risk assessment will be implemented in the design, wherever possible. |

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| Policy LP 21: Flood Risk and Sustainable Drainage | |
| A. All developments should avoid, or minimise, contributing to all sources of flooding, including fluvial, tidal, surface water, groundwater and flooding from sewers, taking account of climate change and without increasing flood risk elsewhere. Development will be guided to areas of lower risk by applying the 'Sequential Test' as set out in national policy guidance, and where necessary, the 'Exception Test' will be applied. Unacceptable developments and land uses will be refused in line with national policy and guidance, the Council's Strategic Flood Risk Assessment (SFRA) and as outlined in the table below.<br>In Flood Zones 2 and 3, all proposals on sites of 10 dwellings or more or 1000sqm of non-residential development or more, or on any other proposal where safe access/egress cannot be achieved, a Flood Emergency Plan must be submitted.<br>Where a Flood Risk Assessment is required, on-site attenuation to alleviate fluvial and/or surface water flooding over and above the Environment Agency's floodplain compensation is required where feasible. | Flood Risk Assessment has been produced and finds the site to be at very low risk or flooding from all sources including fluvial, groundwater, sewers, reservoirs and groundwater. Site is confirmed as located in Flood Zone 1. |
| Basements and subterranean developments<br>B. Basements within flood affected areas of the borough represent a particularly high risk to life, as they may be subject to very rapid inundation. Applicants will have to demonstrate that their proposal complies with the table outlined in the policy. | N/A |
| Sustainable drainage<br>C. The Council will require the use of Sustainable Drainage Systems (SuDS) in all development proposals. Applicants will have to demonstrate that their proposal complies with the following:<br>1. A reduction in surface water discharge to greenfield run-off rates wherever feasible.<br>2. Where greenfield run-off rates are not feasible, this will need to be demonstrated by the applicant, and in such instances, the minimum requirement is to achieve at least a 50% attenuation of the site's surface water runoff at peak times based on the levels existing prior to the development. | Greenfield runoff rates are not achievable. Betterment of 33.3% achieved in the 1:1 year storm event, increasing to 72.4% for the 1:10yr storm event and 66.1% for the 1:100yr and greater storm events. |
| Flood defences<br>D. Applicants will have to demonstrate that their proposal complies with the following:<br>1. Retain the effectiveness, stability and integrity of flood defences, river banks and other formal and informal flood defence infrastructure.<br>2. Ensure the proposal does not prevent essential maintenance and upgrading to be carried out in the future.<br>3. Set back developments from river banks and existing flood defence infrastructure where possible (16 metres for the tidal Thames and 8 metres for other rivers).<br>4. Take into account the requirements of the Thames Estuary 2100 Plan and the River Thames Scheme, and demonstrate how the current and future requirements for flood defences have been incorporated into the development | The Civil Engineers have stated this is not applicable for this site. |

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| 5. The removal of formal or informal flood defences is not acceptable unless this is part of an agreed flood risk management strategy by the Environment Agency. | |
| Policy LP 22: Sustainable Design and Construction | |
| A. Developments will be required to achieve the highest standards of sustainable design and construction to mitigate the likely effects of climate change. Applicants will be required to complete the following:<br>1. Development of 1 dwelling unit or more, or 100sqm or more of non-residential floor space (including extensions) will be required to complete the Sustainable Construction Checklist SPD. A completed Checklist has to be submitted as part of the planning application.<br>2. Development that results in a new residential dwelling, including conversions, change of use, and extensions that result in a new dwelling unit, will be required to incorporate water conservation measures to achieve maximum water consumption of 110 litres per person per day for homes (including an allowance of 5 litres or less per person per day for external water consumption).<br>3. New non-residential buildings over 100sqm will be required to meet BREEAM 'Excellent' standard.<br>4. Proposals for change of use to residential will be required to meet BREEAM Domestic Refurbishment 'Excellent' standard (where feasible). | The Sustainable Construction Checklist has been completed with input from the design team.<br><br>To ensure sustainability principles are adequately designed into the Proposed Development, a BREEAM assessment is being undertaken and a rating of 'Excellent' is targeted. Please see Appendix C for detailed assessment breakdown. |
| Reducing Carbon Dioxide Emissions<br>B. Developers are required to incorporate measures to improve energy conservation and efficiency as well as contributions to renewable and low carbon energy generation. Proposed developments are required to meet the following minimum reductions in carbon dioxide emissions:<br>1. All new major residential developments (10 units or more) should achieve zero carbon standards in line with London Plan policy.<br>2. All other new residential buildings should achieve a 35% reduction.<br>3. All non-residential buildings over 100sqm should achieve a 35% reduction. From 2019 all major non residential buildings should achieve zero carbon standards in line with London Plan policy.<br>Targets are expressed as a percentage improvement over the target emission rate (TER) based on Part L of the 2013 Building Regulations.<br>C. This should be achieved by following the Energy Hierarchy:<br>1. Be lean: use less energy<br>2. Be clean: supply energy efficiently<br>3. Be green: use renewable energy | The Proposed Development followed the Energy Hierarchy of 'Be Lean', 'Be Clean', and 'Be Green' to reduce the $CO_2$ emissions of the entire development.<br><br>The regulated $CO_2$ emissions reduction target is zero-carbon with a minimum of 35% $CO_2$ reduction on-site. In addition, SAP 10 carbon factors have been adopted as per recommendations on the Greater London Authority (GLA) Energy Assessment Guidance (April 2020).<br><br>The Proposed Development is anticipated to achieve approximately a 32% sitewide reduction in $CO_2$ emissions beyond the baseline scheme at Be Lean stage via passive design and energy efficiency measures. At Be Green stage, the Proposed Development is anticipated to |

| Policy | Design Team Response |
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| | achieve approximately a further 35% sitewide reduction in $CO_2$ emissions beyond the Be Lean scheme.<br>Overall, it is anticipated that the Proposed Development could achieve 67% reduction in $CO_2$ emissions beyond the baseline scheme.<br>To enable the Proposed Development to meet the Zero Carbon target, a one-off carbon offset payment of approximately £233,374 will be required in line with Richmond's Local Plan. This figure is based on a shortfall of 81.89 tonnes $CO_2$ per year for a period of 30 years at a rate of £95 / tonne of $CO_2$.<br><br>The energy strategy for the Proposed Development has addressed the key elements of Richmond's Local Plan on energy and will make a positive contribution to reducing the county's $CO_2$ emissions. |
| Decentralised Energy Networks<br>D. The Council requires developments to contribute towards the Mayor of London target of 25% of heat and power to be generated through localised decentralised energy (DE) systems by 2025. The following will be required:<br>1. All new development will be required to connect to existing DE networks where feasible. This also applies where a DE network is planned and expected to be operational within 5 years of the development being completed.<br>2. Development proposals of 50 units or more, or new non-residential development of 1000sqm or more, will need to provide an assessment of the provision of on-site decentralised energy (DE) networks and combined heat and power (CHP).<br>3. Where feasible, new development of 50 units or more, or new non-residential development of 1000sqm or more, as well as schemes for the Proposal Sites identified in this Plan, will need to provide on-site DE and CHP; this is particularly necessary within the clusters identified for DE opportunities in the borough-wide Heat Mapping Study. Where on-site provision is not feasible, provision should be made for future connection to a local DE network should one become available.<br>Applicants are required to consider the installation of low, or preferably ultra-low, NOx boilers to reduce the amount of NOx emitted in the borough. | No connection opportunities to existing district heating networks in the vicinity of the site have been identified. CHP is not proposed due to poor carbon reduction and adverse air quality impacts.<br><br>The proposed site wide energy centre (ASHPs and Boiler) will be future proofed to allow connectivity to an area wide heating network if one become available in the future.<br><br>Low-carbon technology (ASHP) is proposed as the main heat source for the Proposed Development. The boiler (with ultra-low NOx emission) is proposed just to provide a top-up of 10% of the domestic hot |

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| Local opportunities to contribute towards decentralised energy supply from renewable and low-carbon technologies will be encouraged where appropriate. | water demand, during peak period only. |
| Retrofitting<br>E. High standards of energy and water efficiency in existing developments will be supported wherever possible through retrofitting. Householder extensions and other development proposals that do not meet the thresholds set out in this policy are encouraged to complete and submit the Sustainable Construction Checklist SPD as far as possible, and opportunities for micro-generation of renewable energy will be supported in line with other policies in this Plan. | The BTM on Sydney Road is being retained and refurbished to achieve higher standard for the internal rooms.<br><br>By retaining and refurbishing an existing building, circular economy principles are being implemented. |
| Policy LP 23: Water Resources and Infrastructure | |
| A. The borough's water resources and supplies will be protected by resisting development proposals that would pose an unacceptable threat to the borough's rivers, surface water and groundwater quantity and quality. This includes pollution caused by water run-off from developments into nearby waterways. | Drainage proposals include omitting the existing soakaway which will improve groundwater quality by removing untreated water from discharging to the ground. Permeable paving is proposed which will treat any surface water runoff from the higher pollution risk areas, however, given the low vehicle movements the pollution risk is considered low.<br><br>The proposed drainage network will discharge to a surface water sewer. |
| Water Quality<br>B. The Council encourages proposals that seek to increase water availability or protect and improve the quality of rivers or groundwater.<br>The development or expansion of water supply or waste water facilities will normally be permitted, either where needed to serve existing or proposed new development, or in the interests of long term water supply and waste water management, provided that the need for such facilities outweighs any adverse land use or environmental impact.<br>Where rivers have been classified by the Environment Agency as having 'poor' status, any development affecting such rivers is encouraged to improve the water quality in these areas. | Drainage proposals include omitting the existing soakaway which will improve groundwater quality by removing untreated water from discharging to the ground. Permeable paving is proposed which will treat any surface water runoff from the higher pollution risk areas, however, given the low vehicle movements the pollution risk is considered low.<br><br>The proposed drainage network will discharge to a surface water sewer rather than a watercourse. |
| Water and sewerage provision<br>C. New major residential or major non-residential development will need to ensure that there is adequate water supply, surface water, foul drainage | Thames Water have been contacted by the Civil Engineer to confirm there is capacity in |

| Policy | Design Team Response |
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| and sewerage treatment capacity to serve the development. Planning permission will only be granted for developments which increase the demand for off-site service infrastructure where:<br>1. sufficient capacity already exists, or<br>2. extra capacity can be provided in time to serve the development, which will ensure that the environment and the amenities of local residents are not adversely affected.<br>Applicants for major developments will be required to provide evidence in the form of written confirmation as part of the planning application that capacity exists in the public sewerage and water supply network to serve their development.<br>Any new water supply, sewerage or waste water treatment infrastructure must be in place prior to occupation of the development. Financial contributions may be required for new developments towards the provision of, or improvements to, such infrastructure. | the existing sewer network. Confirmation will be provided upon receipt. |
| Policy LP 24: Waste Management | |
| Waste Management The Council will ensure that waste is managed in accordance with the waste hierarchy, which is to reduce, reuse or recycle waste as close as possible to where it is produced. The Council will require the following:<br>1. All developments, including conversions and changes of use are required to provide adequate refuse and recycling storage space and facilities, which allows for ease of collection and which residents and occupiers can easily access, in line with the guidance and advice set out in the Council's SPD on Refuse and Recycling Storage Requirements.<br>2. All developments need to ensure that the management of waste, including the location and design of refuse and recycling facilities, is sensitively integrated within the overall design of the scheme, in accordance with policies on Local Character and Design.<br>3. Development proposals, where appropriate, should make use of the rail and the waterway network for the transportation of construction, demolition and other waste. Development proposals in close proximity to the river should utilise the river for the transport of construction materials and waste where practicable.<br>4. All major developments, and where appropriate developments that are likely to generate large amounts of waste, are required to produce site waste management plans to arrange for the efficient handling of construction, excavation and demolition waste and materials.<br>Proposals affecting existing waste management sites, as well as proposals for new or additional waste management facilities, will be assessed against the policies of the West London Waste Plan (2015). | Adequate refuse and recycling storage space and facilities has been incorporated into the scheme to serve the proposed use. Further detail is included within the Design and Access Statement.<br><br>Pre-demolition and pre-refurbishment audits will be undertaken to determine whether refurbishment or reuse is feasible and, in the case of demolition, to maximise the recovery of material for subsequent high grade or value applications onsite and offsite.<br><br>To promote resource efficiency and to prevent illegal waste activities, a Resource Management Plan (RMP) written in line with best practice will be undertaken.<br><br>The pre-demolition, pre-refurbishment audits and the RMP will comply with BREEAM UK New Construction Wst 01 requirements and follow the methodology. |

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| Policy LP 30: Health and Wellbeing | |
| Planning, at all levels, can play a crucial role in creating environments that enhance people's health and wellbeing. The Council promotes and supports healthy and active lifestyles and measures to reduce health inequalities.<br>A. The Council will support development that results in a pattern of land uses and facilities that encourage:<br>1. Sustainable modes of travel such as safe cycling routes, attractive walking routes and easy access to public transport to reduce car dependency.<br>2. Access to green infrastructure, including river corridors, local open spaces as well as leisure, recreation and play facilities to encourage physical activity.<br>3. Access to local community facilities, services and shops which encourage opportunities for social interaction and active living, as well as contributing to dementia-friendly environments.<br>4. Access to local healthy food, for example, allotments and food growing spaces.<br>5. Access to toilet facilities which are open to all in major developments where appropriate (linked to the Council's Community Toilet Scheme).<br>6. An inclusive development layout and public realm that considers the needs of all, including the older population and disabled people.<br>7. Active Design which encourages wellbeing and greater physical movement as part of everyday routines. | The site is highly accessible by walking and cycling. Cycle parking will be provided to encourage cycling.<br><br>A Travel Plan will also be implemented which will promote sustainable travel options.<br><br>Several local facilities are within walking distance of the site which can be accessed using the existing footway network near the site.<br><br>The reduce parking at the site will encourage staff and visitors to adopt sustainable travel modes.<br><br>Please refer to the Health Impact Assessment for detailed information. |
| B. This policy will be delivered by requiring developments to comply with the following:<br>1. A Health Impact Assessment must be submitted with all major development proposals.<br>2. The Council will manage proposals for new fast food takeaways (A5 uses) located within 400 metres of the boundaries of a primary or secondary school in order to promote the availability of healthy foods.<br>3. Existing health facilities will need to be retained where these continue to meet, or can be adapted to meet, residents' needs.<br>4. Applications for new or improved facilities or loss of health and social care facilities will be assessed in line with the criteria set out in the Social and Community Infrastructure policy. | Please refer to the Health Impact Assessment (HIA) that has been submitted as part of the planning application. |
| Policy LP 44: Sustainable Travel Choices | |
| The Council will work in partnership to promote safe, sustainable, and accessible transport solutions, which minimise the impacts of development including in relation to congestion, air pollution and carbon dioxide emissions, and maximise opportunities including for health benefits and providing access to services, facilities and employment. The Council will do the following. | |
| A. Location of development<br>Encourage high trip generating development to be located in areas with good public transport with sufficient capacity, or which are capable of | The site is in an area with a Public Transport Accessibility Level (PTAL) of 6a. This represents an excellent level of |

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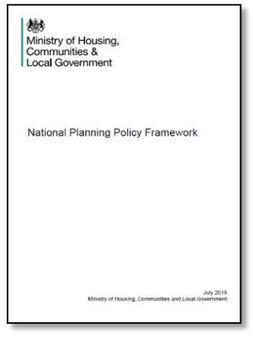
| supporting improvements to provide good public transport accessibility and capacity, taking account of local character and context. | access to public transport services. The site is near up to 5 bus service from Church Road and Sheen Road. There are also underground and overground services available from Richmond Station. |
| B. Walking and cycling<br>Ensure that new development is designed to maximise permeability within and to the immediate vicinity of the development site through the provision of safe and convenient walking and cycling routes, and to provide opportunities for walking and cycling, including through the provision of links and enhancements to existing networks. | The site is in an area with an existing network of wide footways including on Sydney Road, Church Road and Sheen Road. These footways provide pedestrian access from the site to public transport services, local shops, and parks.<br><br>The site is also served by existing cycle lanes on Church Road. Sheen Road is also a signed cycle route. These routes link to the wider network of safe and convenient routes in Richmond. |
| C. Public transport<br>Ensure that major new developments maximise opportunities to provide safe and convenient access to public transport services. Proposals will be expected to support improvements to existing services and infrastructure where no capacity currently exists or is planned to be provided.<br>Protect existing public transport interchange facilities unless suitable alternative facilities can be provided which ensure the maintenance of the existing public transport operations. Applications will need to include details setting out how such re-provision will be secured and provided in a timely manner. | The net impact of the proposals on local public transport services compared to the existing use of the site would be negligible.<br><br>Give then numerous public transport services available in close proximity of the site, it is expected that staff and visitor travel will be dispersed over different public transport modes and routes. |
| D. The road network<br>Ensure that new development does not have a severe impact on the operation, safety, or accessibility to the local or strategic highway networks. Any impacts on the local or strategic highway networks, arising from the development itself or the cumulative effects of development, including in relation to on-street parking, should be mitigated through the provision of, or contributions towards, necessary and relevant transport improvements.<br>In assessing planning applications, the cumulative impacts of development on the transport network will be taken into account. Planning applications will need to be supported by the provision of a Transport Assessment if it is a major development, and a Transport Statement if it is a minor development. | The proposals are for just two car parking spaces on site, one for the disabled and another for a visitor. The impact on the local road network is negligible and mainly limited to these two car parking spaces, servicing and drop off movements. There not be a severe impact on the local road network.<br><br>The planning application is supported by a Transport Assessment, Travel Plan and Delivery and Servicing Management Plan. This will ensure the impact on the local road network is minimal. |
| E. River transport<br>Encourage the use of the River Thames for passenger and freight transport through the protection of, improvement to, and provision of new relevant infrastructure including wharves, slipways, and piers. | Due to the nature and scale of the development, river transport would not be feasible. |
| F. Safeguarding of routes and facilities<br>Land required for proposed transport schemes as identified in the London Plan and the Council's Local Implementation Plan for Transport will be protected from developments which would prevent their proper implementation.<br>Local filling stations and supporting services such as car repair facilities will be protected from redevelopment for alternative uses unless exceptional circumstances can be demonstrated that warrant their loss. | The proposals are for the redevelopment of an existing hotel. There is no impact on land required for transport schemes. |
| G. Taxis and private hire vehicles<br>Ensure that taxis and private hire vehicles are adequately catered for in appropriate locations. | A drop off area is proposed to the rear of the building which will accommodate taxis and private hire vehicle drop offs. |

# Appendix B – Policy Context Review.

## National Policy.

### National Planning Policy Framework, February 2019

The National Planning Policy Framework sets out the Government's planning policies for England and how these should be applied1. It provides a framework within which locally prepared plans for housing and other development can be produced.




The purpose of the framework is to aid in the achievement of a sustainable development by providing guidance towards policy building that would meet the economic, social, and environmental objectives. The GLA's guidance on producing energy assessments is detailed and prescriptive. As such, responding to the relevant policies from the London Plan becomes process driven; however, the eventual strategy should seek to be as holistic and cognisant of the wider consequences of strategy decisions to the health, wellbeing, and comfort of occupants and both the social and environmental impact.

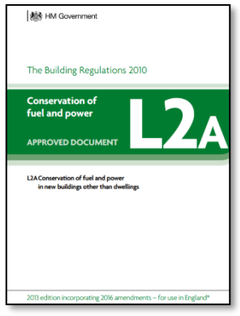
The priority actions of the framework are as follows:

- Local planning policies and decisions should exploit any opportunity to make the location sustainable, Potential actions are:
  a. Improving quality of building designs to enable sustainable use of resources such as energy and water
  b. Design of development should also reflect the local aspirations
  c. Create an environment that promotes health and well-being e.g. improve access for walking or cycling
- Policies should plan for future challenges such as climate change, flooding, and coastal change
  d. Reduce vulnerability by incorporating resistant and resilient designs
  e. Implementing designs that would reduce overall greenhouse gas emissions throughout lifecycle of building
  f. Increase use of renewable energy and low carbon energy sources
- Policies and decisions should prioritise the conservation and enhancement of natural environment
  g. Protect and enhance valued landscape, biodiversity sites and geological value and soils
  h. Protect the intrinsic character and beauty of the countryside and their accompanying ecosystem
  i. Maintain character of undeveloped coast
  j. Minimise impacts on and provide net gains for biodiversity
  k. preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.
- Promote the use of sustainable materials all stages of development.

### Current Requirements: Approved Document Part L 2013

Part L of the Building Regulations is the mechanism by which government is driving reductions in the regulated $CO_2$ emissions from new buildings. Part L1 relates to new dwellings and Part L2 relates to buildings other than dwellings. Therefore, Part L2 is applicable to the Proposed Development. Part L2A applies to new build non-residential developments, and Part L2B applies to renovation and extensions of existing non-residential developments. Therefore, Part L2A and Part L2B are both applicable to the Proposed Development.

### Current Requirements: Part L2A 2013




The Building Regulations Part L covers the conservation of fuel and power. Part L2A 2013 applies to new non-domestic buildings. It has five key criteria which must be satisfied, of which the first three are applicable at design stage.

**Criterion 1** - Achieving the Target Emission Rate (TER)
**Criterion 2** - Limits on design flexibility
**Criterion 3** - Limiting the effects of solar gains in summer
**Criterion 4** - Building performance consistent with Building Emission Rate (BER)
**Criterion 5** - Provision for energy efficient operation of the building

Criterion one

The calculated $CO_2$ emission rate for the building known as the Building Emission Rate (BER) must not be greater than the Target Emission Rate (TER).

Criterion two

The performance of the building fabric and the heating, cooling, hot water, ventilation, and fixed lighting systems should achieve reasonable standards of energy efficiency.

Criterion three

Requires that all buildings, irrespective of whether they are air-conditioned or not, to limit their solar gains during the summer period to either:

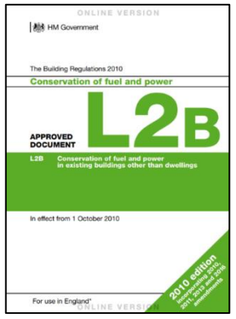
Reduce the need for air-conditioning; or

Reduce the installed capacity of any air-conditioning system that is installed.

Criterion one to three will be addressed within the energy strategy.

Currently, the Proposed Development will be assessed in accordance with the Building Regulations Part L2A.

### Current Requirements: Part L2B 2013




On a national level, the Building Regulations Part L2B covers the energy efficiency requirements to renovation and extension of existing non-domestic buildings. Alterations to existing non-domestic buildings fall under the **Building Regulations Part L2B 2013**.

For existing buildings upgrading is generally only required for elements that are to be substantially replaced or renovated, or where there is a change of use.

Simplistically, the following circumstances would trigger Part L2B requirements to be followed:

- **Provision, extension, alteration or renovation of thermal elements** e.g. upgrading external wall / floor U-values.
- **Amendments to controlled fittings and services** – e.g. windows / external doors and HVAC systems.
- **Extensions** – extensions over 100m$^2$ and greater than 25% of total useful floor area of the existing building should be carried out in accordance with Part L2A (new buildings).
- **Consequential improvements** – required when existing buildings over 1,000m$^2$ is extended or capacity of heating or cooling per m$^2$ is increased.
- **Material alterations** to existing buildings and material change of use / energy status.

Reasonable provision for newly constructed thermal elements such as those constructed as part of an extension must meet the minimum standards for controlled fittings and for new thermal elements.

Regulation 28 of Part L2B of the Building Regulations may require additional work (consequential improvements to energy performance) to be undertaken to make the existing building more energy efficient when certain types of building work are proposed, as long as it is technically, functionally, and economically feasible.

Where the work involves the provision or extension of controlled services, reasonable provision must be demonstrated by following the guidance set out in the Non-Domestic Building Services Compliance Guide 2013 edition.

**Future Requirements: Part L 2021 and beyond**

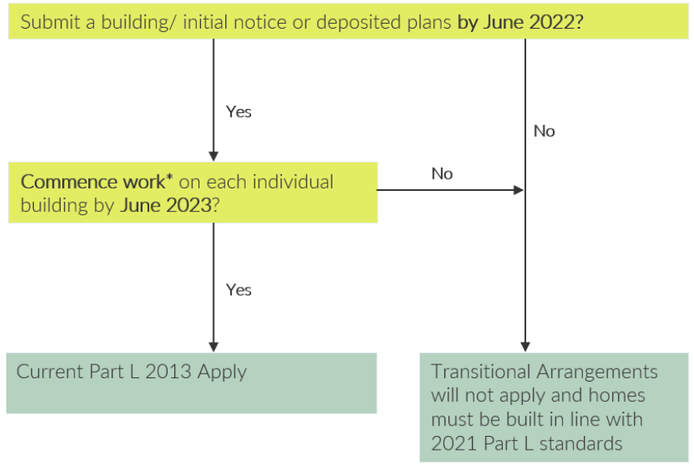
England's Building Regulations were last updated in 2013. With the substantial changes to the UK's energy landscape which have taken place since then, including the rapid decarbonisation of the UK's national electricity grid, Part L 2013 is now widely recognised as misrepresentative and no longer fit-for-purpose.

The Government released its consultation on an update to Buildings Regulations, supported by an update to the Standard Assessment Procedure (SAP 10.1) and Approved Documents L. and F. These updates were introduced in December 2021 and will come into effect in June 2022.

Buildings built to the new Part L 2021, as it will be known, are expected to deliver, on average, a 27% improvement in carbon emissions over current standards for non-domestic buildings and a 30% improvement for domestic buildings.

The Part L 2021 update is intended to act as a step change to the 2025 Future Buildings Standard performance standards.

Following the Part L update, a transition agreement is shown in Figure 4.




Note *
**Commencement work** will not change from Part L2013 definitions, which is as follows:

- Excavation for strip or trench foundations or for pad footings.
- Digging out and preparation of ground for raft foundations.
- Vibrofloatation (stone columns) piling, boring for piles or pile driving.
- Drainage work specific to the building(s) concerned.

No individual building need to change to new Part L once building works has commenced in line with the above definition.

Figure 7. Part L 2013 to Part L 2021 transition agreement

## Regional Policy.

### London Borough of Richmond upon Thames – Adopted Local Plan

The policies highlighted in Table 2 are the policies in the currently adopted London Borough of Richmond upon Thames Local Plan that have been identified as being relevant to the energy and sustainability of the development.

### London Borough of Richmond upon Thames – Draft Local Plan

There is a new emerging Local Plan for the London Borough of Richmond that is currently in draft form. This emerging Local Plan is currently going through the consultation and review process and is anticipated to become a material consideration in planning determination from 2024. Although the policies are not currently a requirement for the development, a policy summary can be found below that highlights the related policies within the emerging local plan.

Table 3. Comparison of the policies within the adopted Local Plan and the emerging Local Plan.

| Theme | Key Policy / Target | |
|---|---|---|
| | London Borough of Richmond upon Thames Local Plan (2018): Additional Policy Targets | London Borough of Richmond upon Thames Draft Local Plan (2024): Additional Policy Targets |
| | Energy & $CO_2$ Emission Reduction | |
| | Policy LP 20, 22<br>– New development, in their layout, design, construction, materials, landscaping and operation, should minimise the effects of overheating as well as minimise energy consumption in accordance with the cooling hierarchy.<br>– Adaptation to higher temperatures should be considered from the outset.<br>– Development of 1 dwelling unit or more, or 100sqm or more of non-residential floor space (including extensions) will be required to complete the Sustainable Construction Checklist SPD.<br>– New non-residential buildings over 100sqm will be required to meet BREEAM 'Excellent' standard<br>– All new development will be required to connect to existing DE networks where feasible. This also applies where a DE network is planned and expected to be operational within 5 years of the development being completed.<br>– New non-residential development of 1000sqm or more, will need to provide an assessment of the provision of on-site decentralised energy (DE) networks and combined heat and power (CHP).<br>– Require developments to contribute towards the Mayor of London target of 25% | Strategic Policy 3, Strategic Policy 4, Strategic Policy 5, Policy 38<br>– Promote zero carbon development, with the aim that all buildings and infrastructure projects in the borough will be net-zero carbon by 2050.<br>– Promote retrofitting of existing buildings, through low-carbon measures.<br>– Work with partners and local communities to improve the energy efficiency of the existing building stock and wider public realm.<br>– Maximise renewable and low carbon energy generation, storage and use, through the deployment of appropriately selected, sized and sited technologies.<br>– New development will be expected to connect to any existing decentralised energy network (DEN). Where networks do not exist, developments should make provision to connect to any future network that may be developed.<br>– Developments proposing the installation of roof level solar technologies are required to incorporate the panels over a green roof area to form a 'bio-solar roof', where the overarching biodiversity and drainage functions of the green roof will not be adversely affected. |

| Theme | Key Policy / Target | |
|---|---|---|
| | London Borough of Richmond upon Thames Local Plan (2018): Additional Policy Targets | London Borough of Richmond upon Thames Draft Local Plan (2024): Additional Policy Targets |
| | of heat and power to be generated through localised decentralised energy (DE) systems by 2025.<br>– Submit energy statement | |
| | Climate Change Resilience and Adaptation | |
| | <u>Policy LP 20</u><br>– Opportunities to adapt existing buildings, places and spaces to the likely effects of climate change should be maximised and will be supported.<br>– Adaptation to higher temperatures should be considered from the outset, not added as an afterthought. | Strategic Policy 3, Strategic Policy 4, Strategic Policy 6<br>– Minimise the effects of overheating, mitigating the urban heat island effect, managing flooding, and minimising energy consumption in accordance with the London Plan's Cooling Hierarchy.<br>– All development proposals are required to demonstrate compliance with all relevant policies on climate change and sustainable design during design, construction and operation of the development.<br>– New development proposals will be required to get as close as possible to zero-carbon on-site, rather than relying on offset fund payments to make up any shortfall in emissions. The London Plan's carbon shortfall for the assumed life of a development will be offset at a rate of £300/t as at 2021.<br>– Development of 100sqm or more of non-residential floor space (including extensions) will be required to complete the Sustainable Construction Checklist SPD.<br>– New non-residential buildings over 100sqm will be required to meet BREEAM Non-domestic New Construction 'Outstanding' standard or equivalent. A 'verification stage' certification at post occupancy stage must also be achieved, unless it can be demonstrated that this is not feasible. |
| | Air Quality | |
| | Policy LP 10, 22<br>– All non-residential buildings over 100sqm should achieve a 35% CO2 reduction. From 2019 all major non-residential buildings should achieve zero carbon standards in line with London Plan policy. | Place-based strategy, Strategic Policy 3,Strategic Policy 4, Policy 53<br>– Pilot Clean Air Zone within Richmond Town Centre.<br>– Promote routes for active travel and exercise, encouraging healthy activity and exploration of the Richmond area. |

| Theme | Key Policy / Target | |
|---|---|---|
| | London Borough of Richmond upon Thames Local Plan (2018): Additional Policy Targets | London Borough of Richmond upon Thames Draft Local Plan (2024): Additional Policy Targets |
| | – Developers should secure at least 'Emissions Neutral' development.<br>– The Council requires developments to make a significant contribution towards the Mayor of London target to achieve a 60% reduction in London's carbon dioxide emissions by 2025 against a 1990 baseline. | – Reduce greenhouse gas emissions in accordance with the London Plan's Energy Hierarchy and support the transition to a low carbon society by maximising energy efficiency, zero and low carbon heat and local renewable energy generation.<br>– The Council's Carbon Offset Fund will be used to implement projects to reduce carbon emissions across the borough.<br>– Reduce greenhouse gas emissions on-site in accordance with the London Plan's Energy Hierarchy<br>– All developments must comply with the new London Plan 2021 Policy SI1 Improving Air Quality. |
| | Water Consumption and Flood Risk Management | |
| | Policy LP 21, 23<br>– All developments should avoid, or minimise, contributing to all sources of flooding, including fluvial, tidal, surface water, groundwater and flooding from sewers, taking account of climate change and without increasing flood risk elsewhere.<br>– Flood resilient and resistant measures should be incorporated into the design of development proposals in any area susceptible to flooding to minimise and manage the risk of flooding. All parties involved on the design and development of buildings are expected to apply BS 85500:2015.<br>– Increase water availability or protect and improve the quality of rivers or groundwater. | Strategic Policy 3, Strategic Policy 8, Strategic Policy 9<br>– Adopt an integrated approach to water management which considers flood risk, sustainable drainage, water efficiency, water quality and biodiversity.<br>– Reduce water demand and meet best practice water efficiency targets.<br>– Proposals must provide mitigation and resilience against flood risk, taking advice from the Lead Local Flood Authority (LLFA) as appropriate, and provide appropriate compensation to existing flood risk levels and volumes, addressing the predicted 1 in 100 year Risk of Flooding from Surface Water (RoFSW) mapped depths as a minimum.<br>– The Council requires the use of Sustainable Drainage Systems (SuDS) in all development proposals to manage surface water runoff as close to its source as possible, using the most sustainable solutions to reduce runoff volumes and rates.<br>– Utilise the 'upper end' climate change scenarios when implementing the climate change allowances for surface water and fluvial flood risk.<br>– Development will need to ensure that there is adequate water supply, surface water, foul |

| Theme | Key Policy / Target | |
|---|---|---|
| | London Borough of Richmond upon Thames Local Plan (2018): Additional Policy Targets | London Borough of Richmond upon Thames Draft Local Plan (2024): Additional Policy Targets |
| | | drainage and sewerage treatment capacity to serve the development. |
| | Waste Management, Circular Economy, Materials | |
| | Policy LP 10, 22, 24<br>– Seek to manage and limit environmental disturbances during construction and demolition as well as during excavations and construction of basements and subterranean developments. To deliver this the Council requires the submission of Construction Management Statements (CMS).<br>– Developments will be required to achieve the highest standards of sustainable design and construction to mitigate the likely effects of climate change.<br>– Submit Sustainable Construction Checklist.<br>– Reduce, reuse or recycle waste as close as possible to where it is produced.<br>– Manage the equivalent of 100% of London's waste within London by 2031 and work towards zero biodegradable or recyclable waste to landfill by 2031. | Strategic Policy 3, Strategic Policy 7<br>– Prioritise reuse and refurbishment in preference to demolition and new construction.<br>– Ensure waste is managed in accordance with the principles of the Circular economy. |
| | Urban Greening, Biodiversity, Biophilic Design | |
| | Policy LP 13, 15, 17, 30<br>– Aim to use at least 70% of any potential roof plate area as a green / brown roof.<br>– Enhance the borough's biodiversity, in particular, the sites designated for their biodiversity and nature conservation value, including the connectivity between habitats. Weighted priority in terms of their importance will be afforded to protected species and priority species and habitats including National Nature Reserves, Sites of Special Scientific Interest (SSSI) and Other Sites of Nature Importance as set out in the Biodiversity Strategy for England, and the London and Richmond upon Thames Biodiversity Action Plans.<br>– Local Green Space, which has been demonstrated to be special to a local community and which holds a particular local significance, will be protected from | Place-based strategy, Policy 32, Strategic Policy 34, Policy 35, Policy 37, Policy 38<br>– Support greening through tree-planting and creating green walls on the lanes where appropriate.<br>– The Council will protect, conserve, promote and where appropriate enhance the Royal Botanic Gardens, Kew World Heritage Site, its buffer zone and its wider setting.<br>– Ensure all development proposals protect and appropriately enhance and restore green infrastructure<br>– The borough's Green Belt and Metropolitan Open Land will be protected and retained in predominantly open use.<br>– New open spaces, play facilities and formal and informal land for sport and recreation should be linked to the wider green infrastructure network. |

| Theme | Key Policy / Target | |
|---|---|---|
| | London Borough of Richmond upon Thames Local Plan (2018): Additional Policy Targets | London Borough of Richmond upon Thames Draft Local Plan (2024): Additional Policy Targets |
| | inappropriate development that could cause harm to its qualities.<br>– Contribute to a network of green spaces and green infrastructure as set out in policy LP12.<br>– Protect existing allotments and support other potential spaces. | – All development proposals should integrate green infrastructure and provide for urban greening.<br>– Extensive green roofs should be incorporated into developments with roof plate areas of 100sqm or more, where technically feasible. At least 70% of any potential roof plate area should be used as biodiversity-based extensive green roof. |
| | Sustainable Transport | |
| | Policy LP 44<br>– Work in partnership to promote safe, sustainable, and accessible transport solutions.<br>– Minimise the impacts of development including in relation to congestion, air pollution and carbon dioxide emissions.<br>– Maximise opportunities including for health benefits and providing access to services, facilities and employment.<br>– Ensure that major new developments maximise opportunities to provide safe and convenient access to public transport services.<br>– Ensure that new development is designed to maximise permeability within and to the immediate vicinity of the development site through the provision of safe and convenient walking and cycling routes.<br>– Charging facilities for electric vehicles will have to be provided in line with the standards set out in the London Plan, which requires 10% active provision (i.e. fully installed from the outset) plus 10% passive provision (i.e. cabling provided for easier future installation of charging equipment) in non-domestic developments. | Place-based strategy, Strategic Policy 47<br>– Strengthen pedestrian connections between different parts of the town, making the rich urban structure more legible, giving people the confidence to choose a less well-trodden path and explore the wider area.<br>– Work with others to bring about safe, sustainable, accessible transport solutions to reduce traffic congestion, reduce air pollution, including carbon dioxide emissions, improve public health, and improve access to services and employment in accordance with the policies set out in the London Plan, Mayor's Transport Strategy, and the Council's own Active Travel Strategy.<br>– Ensure that the proposed developments provide a high-quality walking and cycling environment both within the curtilage of the development and in its near vicinity so that occupants can make short journeys to local town centres, services, and work, by sustainable modes of travel.<br>– Ensure that the development proposals provide safe and suitable access to and around their developments for disabled road users in accordance with guidance set out in Manual for Streets and Inclusive Mobility. |
| | Noise Reduction | |
| | Policy LP 10<br>– Encourage good acoustic design to ensure occupiers of new and existing noise sensitive buildings are protected.<br>– Noise impact assessment. | Policy 53<br>– Encourages good acoustic design to ensure occupiers of new and existing noise sensitive buildings are protected. |

| Theme | Key Policy / Target | |
|---|---|---|
| | London Borough of Richmond upon Thames Local Plan (2018): Additional Policy Targets | London Borough of Richmond upon Thames Draft Local Plan (2024): Additional Policy Targets |
| | – Meet acoustic standards for residential design and employ mitigation measures where noise needs to be controlled and managed. | |
| | Land contamination | |
| | Policy LP 10<br>– Promote the remediation of contaminated land where development comes forward. Potential contamination risks will need to be properly considered and adequately mitigated before development proceeds. | Policy 53<br>– Promote, where necessary, the remediation of contaminated land where development comes forward. Potential contamination risks will need to be properly considered and adequately mitigated before development proceeds.<br>– manage and limit environmental disturbances during construction and demolition as well as during excavations and construction of basements and subterranean developments. |
| | Public Realm | |
| | Policy LP 1, 3, 8, 28, 29, 30<br>– Require all development to be of high architectural and urban design quality. The high quality character and heritage of the borough and its villages will need to be maintained and enhanced where opportunities arise.<br>– Require development to conserve and, where possible, take opportunities to make a positive contribution to, the historic environment of the borough.<br>– All development will be required to protect the amenity and living conditions for occupants of new, existing, adjoining and neighbouring properties.<br>– Provision of good quality social and community infrastructure is critical for social cohesion and contributes to the creation of lifetime neighbourhoods.<br>– Work with partners to encourage the provision of facilities and services for education and training of all age groups to help reduce inequalities and support the local economy. | Place-based Strategy, Strategic Policy 21, Strategic Policy 27, Policy 46, Strategic Policy 49, Strategic Policy 51<br>– Support a healthy and happy community, with spaces for people of all ages, abilities, and all walks of life.<br>– Promote healthy, sustainable and low carbon lifestyles in line with the Council's Climate Emergency Strategy<br>– The Council will seek to retain and attract investment from existing and emerging sectors to support the existing business base and create a diverse and enterprising local economy.<br>– The Council will promote the enhanced connectivity of the borough through supporting infrastructure for high speed broadband and telecommunications including next generation technology such as 5G and full fibre broadband connections. New development is expected to provide for full fibre and mobile connectivity in accordance with London Plan Policy SI 6 part A.<br>– All development will be required to protect the amenity and living conditions for |

| Theme | Key Policy / Target | |
|---|---|---|
| | London Borough of Richmond upon Thames Local Plan (2018): Additional Policy Targets | London Borough of Richmond upon Thames Draft Local Plan (2024): Additional Policy Targets |
| | – Promote wellbeing and healthy lifestyles for all and contribute to a reduction in health inequalities. | occupants of new, existing, adjoining and neighbouring properties.<br>– Work with service providers and developers to ensure the adequate provision of community services and facilities, especially in areas where there is an identified need or shortage.<br>– Support development that promotes healthy lifestyles and reduces health inequalities, and results in a pattern of land uses and facilities |
| | Offices | |
| | Policy LP 33, 41<br>– Promote the enhanced connectivity of the borough through supporting infrastructure for high-speed broadband and telecommunications.<br>– Support a strong local economy and ensure there is a range of office premises within the borough, particularly for small and medium size business activities within the borough's centres. | Place-based Strategy, Policy 23<br>– Implementing key corporate and social responsibility strategies.<br>– Support flexibility, diversity and growth of businesses, recognising the changing nature of the town centre offer, and also the important role of places outside of the core retail area.<br>– Any redevelopment proposals are required to contribute to a net increase in office floorspace. |

## Appendix C – BREEAM UK New Construction 2018 Pre-Assessment.

HOARE LEA

# Richmond Inn.
# London Borough of Richmond upon Thames.
# Bridges Healthcare (Richmond) Limited.

**SUSTAINABILITY**
BREEAM NEW CONSTRUCTION 2018
PRE-ASSESSMENT REPORT
REVISION 03 – 27.04.2022

## Audit sheet.

| Rev. | Date | Description of change / purpose of issue | Prepared | Reviewed | Authorised |
|---|---|---|---|---|---|
| 01 | 30.03.2022 | First issue | HT | GB | JD |
| 02 | 05.04.2022 | Updated after sustainability workshop | GB | HT | JD |
| 03 | 27.04.2022 | Updated after BREEAM workshop meeting | GB | HT | JD |
| | | | | | |
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This document has been prepared for Bridges Healthcare (Richmond) Limited only and solely for the purposes expressly defined herein. We owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. The consequences of climate change and the effects of future changes in climatic conditions cannot be accurately predicted. This report has been based solely on the specific design assumptions and criteria stated herein.

Project number: 2312433
Document reference: REP-2324491-5A-HT-20220427-Richmond Inn BREEAM NC 2018 Pre-Assessment-Rev03.docx

## BREEAM Audit box

| | |
|---|---|
| BRE registration number | BREEAM-0094-3233 |
| Licensed assessor | Gisele Braga |
| Assessor support | - |
| BREEAM scheme | New Construction Other Buildings (Residential) |
| BREEAM scheme version | 2018 |
| Assessment stage | Pre-Assessment |
| Technical manual version | SD5078 Issue 3.0 |
| Tier code (internal use only) | Tier 3 |

## BREEAM Credit filtering box

| | |
|---|---|
| Building type and sub-group | Residential institution (short term stay), Residential institution (short term stay) - Hotel, hostel, boarding and guest house |
| Building floor area | Total GIA approx. 2,700 sqm<br>(Refurb GIA: 866 sqm / New Build GIA: 1,832 sqm) |
| Designed to be untreated? | No |
| Building services (heating) | Wet system |
| Building services (cooling) | Comfort cooling |
| Commercial cold storage systems | Yes |
| Transportation systems | Yes |
| Laboratory (type, area and size) | No laboratories |
| Fume cupboards / containment devices | No |
| Unregulated water uses | Yes |
| External areas? | Yes |
| Statutory requirements impacting outdoor space? | No |
| Unregulated energy load | Yes |
| Post occupancy ENE01 credits targeted? | No |

# Contents.

## 1. Executive summary

This report provides an indicative BREEAM 2018 New Construction pre-assessment for the proposed Richmond Inn development.

The new build extension as well as the refurbishment part of the development will be assessed under the BREEAM New Construction Other Buildings (Residential) category and a fully fitted assessment has been conducted. The proposed development is targeting a BREEAM 'Excellent' rating as a minimum.

The current anticipated baseline score is 75.98%, equivalent to a BREEAM 'Excellent' rating, with a difference between the minimum required score for a BREEAM 'Excellent' rating of 70% of 5.98%.

A number of potential credits have also been identified that if included within the assessment strategy could result in the building achieving a potential score of 82.48%, equivalent to a BREEAM 'Excellent' rating with a difference of 12.48% above the minimum required score.

A margin of at least 3% – 7% is recommended above the minimum required score at this stage to secure the target rating taking into account contingency for design changes and potential constraints identified during the construction stage.

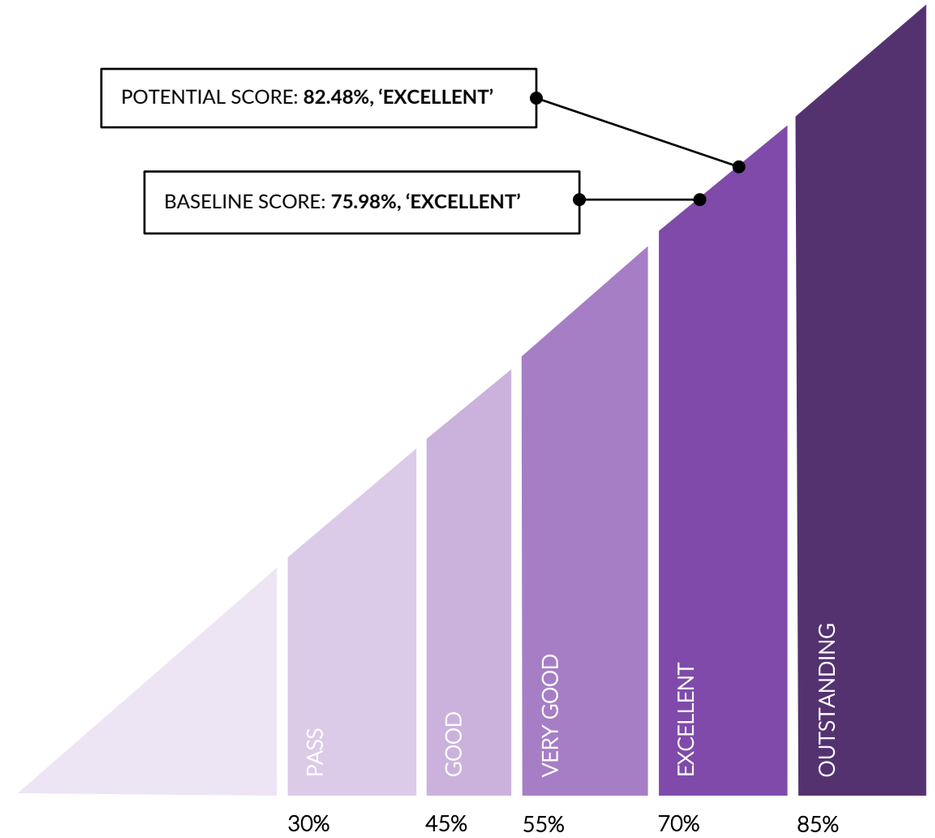


Figure 1: BREEAM 2018 Scale and Anticipated Performance Scores.

# 2. BREEAM Pre-Assessment

## 2.1 Introduction

This report relates to the proposed Richmond Inn development. It is recommended the building should be registered under the BREEAM 2018 scheme and assessed using the New Construction Other Buildings (Residential institution – short term stay) criteria. The building is currently considered to be most suitable to be assessed using a Fully fitted assessment type. The assessment will be targeting a BREEAM 'Excellent' rating as a minimum.

## 2.2 Pre-Assessment

This draft pre-assessment has been carried out independently by a qualified BREEAM assessor prior to a review by the project design team. This report sets out a route to achieving the target rating, and highlights the design team members responsible for each credit issue. Credits currently included in the credit score should be reviewed by the design team, and each team member is expected to provide feedback regarding credits under their responsibility, identifying any relevant issues. Once comments have been raised by the project team, the report and the predicted scores will be updated.

The following predicted scores have been calculated based upon experience with similar buildings and Hoare Lea's current understanding of the proposed development:

- Baseline score / rating: 75.98% equivalent to a BREEAM 'Excellent' rating.
- Potential score / rating: 82.48% equivalent to a BREEAM 'Excellent' rating.

All mandatory and minimum standards for the BREEAM 'Excellent' rating have been included within the assessment strategy for the target baseline score.

The following potential credits have been identified that allow a BREEAM 'Excellent' rating to be achieved:

MAN 03 Responsible Construction Practice

HEA03 Daylighting

ENE01 Reduction of Energy and CO2

ENE08 Energy Efficient Equipment

TRA02 Sustainable Transport Measures

WAT01 Water Consumption

MAT01 Building Life Cycle assessment

WST02 Recycled Aggregates

All mandatory and minimum standards for the BREEAM 'Excellent' rating have been included within the assessment strategy for the potential score.

Refer to Appendix A for the early-stage credit requirements and Appendix B for detailed credit requirements.

## 2.3 Project Team Members

The following are members of the design team responsible for the delivery of the proposed development and the BREEAM assessment.

Table 1: Project Team Members.

| Discipline | Organisation | Abbreviation |
|---|---|---|
| Client / Developer | Bridges Fund Management | BFM |
| Project Manager | Gardiner and Theobald | G&T |
| Development Manager | Optima Project Consultancy | OPC |
| Architect – Pre-Planning | Ackroyd Lowrie | AL |
| Architect – Post-Planning | Woods Bagot | WB |
| Building Services Consultant | Hoare Lea LLP | HL |
| Structural Engineer | Elliott Wood | EW |
| Transport Consultant | Vectos | VE |
| Landscape Architect | Camlins | CA |
| Planning Consultant | Avison Young | AY |
| Accessibility Consultant | Buro Happold | BH |
| Air Quality Consultant | Hoare Lea | HL |
| Heritage Consultant | KM Heritage | KM |
| Acoustic Consultant | Hoare Lea | HL |
| Ecologist | Greengage | GG |
| Specialist Commissioning Manager | TBC | |
| Glare Control and Daylighting Consultant | TBC | |
| Energy Assessor | TBC | |
| Cost Consultant | TBC | |
| Security Consultant | TBC | |
| LCA Consultant | TBC | |
| Vertical Transportation Consultant | TBC | |
| Operational Waste Consultant | TBC | |

## 3. Summary Score Sheet

The summary table below highlights the list of targeted credits for the current BREEAM 2018 pre-assessment. Mandatory credits to achieve a 'Very Good' rating and above are highlighted by **($M_v$).** Additional mandatory credits for an 'Excellent' or 'Outstanding' rating are highlighted by **($M_e$) and ($M_o$)** respectively. Exemplary (innovation) credits are written in brackets; e.g. (+1).

**Table 2: BREEAM Target Summary.**

| Category | Issue | Credits | | |
|---|---|---|---|---|
| | | Available | Targeted | Potential |
| Management | Man 01: Project brief and design | 4 | 4 | - |
| | Man 02: Lifecycle cost and service life planning | 4 | 4 | - |
| | Man 03: Responsible construction practices ($M_e$), ($M_o$) | 6 (+1) | 5 | +1 |
| | Man 04: Commissioning and handover ($M_e$), ($M_o$) | 4 | 4 | - |
| | Man 05: Aftercare ($M_e$), ($M_o$) | 3 | 3 | - |
| Health & Wellbeing | Hea 01: Visual comfort | 4 (+2) | 3 | +1 |
| | Hea 02: Indoor air quality | 4 (+1) | 4 | - |
| | Hea 04: Thermal comfort | 3 | 3 | - |
| | Hea 05: Acoustic performance | 2 | 2 | - |
| | Hea 06: Security | 1 (+1) | 1 | - |
| | Hea 07 Safe and healthy surroundings | 2 | 2 | - |
| Energy | Ene 01: Reduction of energy use and carbon emissions ($M_e$) ($M_o$) | 13 (+3) | 9 | +1 |
| | Ene 02: Energy monitoring (M) ($M_e$) ($M_o$) | 2 | 2 | - |
| | Ene 03: External lighting | 1 | 1 | - |
| | Ene 04: Low carbon design | 3 | 2 | - |
| | Ene 05: Energy efficient cold storage | 2 | 2 | - |
| | Ene 06: Energy efficient transportation systems | 2 | 2 | - |
| | Ene 07 Energy efficient laboratory systems | N/A | N/A | N/A |
| | Ene 08: Energy efficient equipment | 2 | 0 | +2 |
| Transport | Tra 01: Transport assessment and travel plan | 2 | 2 | - |
| | Tra 02: Sustainable transport measures | 10 | 7 | +1 |
| Water | Wat 01: Water consumption ($M_v$) ($M_e$) ($M_o$) | 5 (+1) | 2 | +1 |
| | Wat 02: Water monitoring ($M_v$) ($M_e$) ($M_o$) | 1 | 1 | - |
| | Wat 03: Water leak detection | 2 | 2 | - |
| | Wat 04: Water efficient equipment | 1 | 0 | - |
| Materials | Mat 01: Environmental impacts from construction products - Building life cycle assessment | 7 (+3) | 4 | +1 |
| | Mat 02: Environmental impacts from construction products | 1 | 0 | - |
| | Mat 03: Responsible sourcing of construction products ($M_v$) ($M_e$) ($M_o$) | 4 (+1) | 2 | - |
| | Mat 05: Designing for durability and resilience | 1 | 1 | - |
| | Mat 06: Material efficiency | 1 | 1 | - |
| Waste | Wst 01: Construction waste management ($M_o$) | 5 (+1) | 4 | - |
| | Wst 02: Use of recycled and sustainably sourced aggregates | 1 (+1) | 0 | +1 |
| | Wst 03: Operational waste ($M_e$), ($M_o$) | 1 | 1 | - |
| | Wst 04 Speculative finishes | N/A | N/A | N/A |
| | Wst 05: Adaptation to climate change | 1 (+1) | 1 | - |
| | Wst 06: Design for disassembly and adaptability | 2 | 2 | - |
| Land Use and Ecology | LE 01: Site Selection | 2 | 1 | - |
| | LE 02: Identifying and understanding the risks and opportunities for the project | 2 (+1) | 2 | - |
| | LE 03: Managing negative impacts on ecology | 3 | 2 | - |
| | LE 04: Change and enhancement of ecological value | 4 | 3 | - |
| | LE 05: Long term ecology management and maintenance | 2 | 2 | - |
| Pollution | Pol 01: Impact of refrigerants | 3 | 1 | - |
| | Pol 02: Local air quality | 2 | 2 | - |
| | Pol 03: Flood and surface water management | 5 | 4 | - |
| | Pol 04: Reduction of night time light pollution | 1 | 1 | - |
| | Pol 05: Reduction of noise pollution | 1 | 1 | - |
| Innovation | Inn 01: Approved innovation credits | 17 | 0 | - |
| | Targeted weighted score rating: | 75.98%, 'Excellent' | | |
| | Potential weighted score rating: | 82.48%, 'Excellent' | | |

## 4. Conclusion

Based upon an initial credit review independent of the project design team, it is anticipated that the Proposed Development could achieve a score of 75.98%, equivalent to a BREEAM 'Excellent' rating.

Additional potential credits have also been identified which, if targeted, could results in a higher BREEAM performance score and rating; 82.48%, equivalent to a BREEAM 'Excellent'. The potential credits include the following credit issues:

MAN 03 Responsible Construction Practice

HEA03 Daylighting

ENE01 Reduction of Energy and CO2

ENE08 Energy Efficient Equipment

TRA02 Sustainable Transport Measures

WAT01 Water Consumption

MAT01 Building Life Cycle assessment

WST02 Recycled Aggregates

Figure 2 outlines the Proposed Development scores in each category. It also outlines where potential credits could be targeted to increase the assessment score and rating.

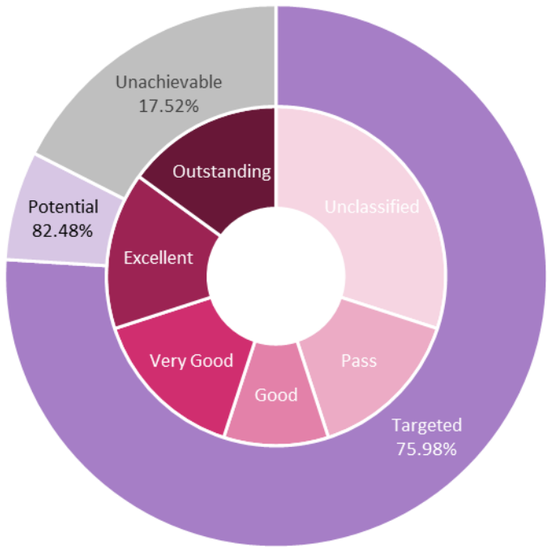


Figure 2. BREEAM Performance Summary and Targeted Credits.

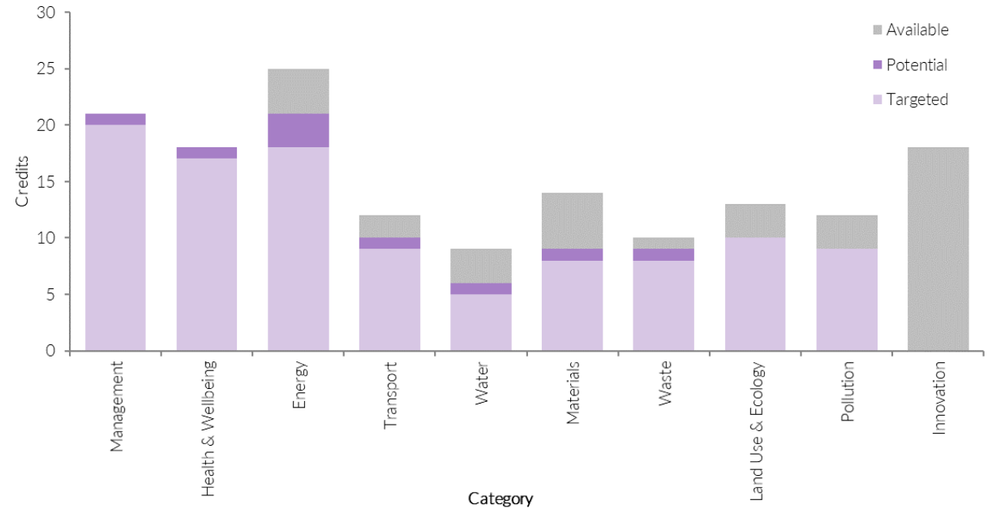


Figure 3: BREEAM Performance Summary and Targeted Credits.

# 5. Appendix A: Early Action Credits

Under the BREEAM, there are a number of credits that are time critical and require early action by the design team in order for the credits to be achieved. For these credits, the actions required prior to end of RIBA Stages 1 and 2; and the members of the design team responsible for these are listed below.

### 5.1 Project Brief Stage (RIBA Stage 1)

| Credit Issues | RIBA Stage 1 Actions | Owner |
|---|---|---|
| Man 01<br>Project brief and design | – First credit: Stakeholder consultation: By the end of Stage 1 – definition and engagement of key stakeholders (incl. team member with significant construction experience) and their roles and responsibilities.<br>– Third Credit: Sustainability champion to be appointed to facilitate the setting and achievement of BREEAM performance targets for the project by Stage 2. | Project Manager<br><br>BREEAM AP |
| Mat 06<br>Material efficiency | Consult with relevant design team members to identify and implement measures for efficient use of materials throughout all key stages. Suggested actions include:<br>– Provide details outlining activities relating to material efficiency.<br>– Provide drawings or building integrated model (BIM), calculations showing reduction of material use through design.<br>– Collate meeting notes, construction programme, and responsibilities schedule (indicating parties consulted). | Architect & Structural Engineer & MEP Engineer |
| LE 04<br>Enhancing site ecology | The ecologist must be appointed by RIBA Stage 1 to carry out initial surveys, and subsequently provide recommendations in a report at RIBA Stage 2. | Ecologist |
| LE 05<br>Long term impact on biodiversity | | |

Table 3: BREEAM 2018 Early Action Credits (RIBA Stage 1)

## 5.2 Concept Design Stage (RIBA Stage 2)

| Credit Issues | RIBA Stages 2 Actions | Owner |
|---|---|---|
| Man 01<br>Project brief and design | – First credit: Develop roles, responsibilities and contributions schedule detailing relevant roles throughout the project.<br>– Second credit: Stakeholder consultation by completion of Concept Design.<br>– Advisory professional: BREEAM performance targets to be formally agreed between the client and design/project team no later than Concept Design stage (RIBA Stage 2). | Planning Consultant<br><br>Client<br><br>BREEAM AP |
| Man 02:<br>Life cycle costing and service life planning | – An elemental level Life Cycle Cost (LCC) analysis has been carried out based on the proposals developed during RIBA Work Stage 2. | Cost Consultant |
| Hea 02<br>Indoor air quality | – Production of an indoor air quality plan (this is a prerequisite item and may block several related credits being achieved). | Air Quality<br><br>MEP |
| Hea 06<br>Security | – Appoint Suitability Qualified Security Specialist (SQSS) to conduct a Security Needs Assessment (SNA). | SQSS |
| Ene 01<br>Prediction of operational energy consumption | – Prior to completion of the concept design, relevant members of the design team hold a preliminary design workshop focusing on operational energy performance. | Sustainability<br><br>MEP |
| Mat 01<br>Environmental impacts from construction products - Building life cycle assessment | – Conduct outline design LCA assessment and options appraisal. This LCA must be submitted to BRE Global prior to planning application submission. | Architect<br><br>Civil and structural engineer<br><br>Cost Consultant |
| Mat 03<br>Responsible sourcing of materials | – Development and use a project sustainable procurement plan for the project. | Project manager<br><br>Sustainability consultant |
| Mat 06<br>Material efficiency | – Set targets and report on opportunities and methods to optimise the use of materials. Develop and record the implementation of material efficiency. | Architect<br><br>Structural Engineer<br><br>Civil engineer<br><br>MEP Engineer |
| Tra 01<br>Transport assessment and Travel plan | – A transport assessment and draft travel plan is to be developed as part of the feasibility and design stages | Transport Consultant |
| Wst01<br>Construction waste management | – Carry out a pre-demolition audit. | Demolition contractor<br><br>Client |
| Wst 05<br>Adaptation to climate change | – Conduct a climate change adaption strategy appraisal for structural and fabric resistance. | Architect + Structural Engineer |
| Wst 06<br>Design for disassembly and adaptability | – Undertake a building-specific disassembly assessment and functional adaptation strategy study.<br>– Subsequently incorporate adaption measures into the design where practical and cost effective at RIBA Stage 4. | Architect<br><br>Structural Engineer<br><br>Civil engineer<br><br>MEP Engineer |
| LE 02<br>Identifying and understanding the risks and opportunities for the project | – The project team is required to liaise and collaborate with representative stakeholders to identify and consider ecological outcome for the sites. | Ecologist<br><br>Project Manager |
| LE 03<br>Managing negative impacts on ecology | – Roles and responsibilities have been clearly defined, allocated and implemented to support successful delivery of project outcomes at an early enough stage to influence the concept design or design brief. | |

Table 4: BREEAM 2018 Early Action Credits (RIBA Stage 2)

## 6. Appendix B: Detailed Credit Assessment

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| Management | | | | | |
| Man 01<br>Project brief and design | First credit - Stakeholder consultation (project delivery):<br>Where evidence provided demonstrated that from RIBA stage 2 (design brief) or equivalent the client, building occupier, design team and contractor have met and are involved in contributing to the decision-making process for the project. As a minimum this includes meeting to identify and define their roles, responsibilities and contributions during each key phase. Consideration of contributions must meet specified minimum requirements<br><br>The project team demonstrates how the project delivery stakeholder contributions and consultation process outcomes influence the following:<br>– Initial Project Brief<br>– Project Execution Plan<br>– Communication Strategy<br>– Concept Design | 1 | 1 | ACTION REQUIRED NOW<br>Development of design responsibility matrix to identify project roles and responsibilities. How allocation of these roles and responsibilities has altered the responsibility matrix should be identified. | Project Manager |
| | Second credit - Stakeholder consultation (interested parties):<br>Where evidence provided demonstrates that prior to the completion of the Concept Design stage, all relevant interested party stakeholders have been consulted by the design team and this covers the minimum consultation content (including but not limited to functionality, impacts on local community, inclusive and accessible design). The impact this consultation has had on the Project Brief and Concept Design must be demonstrated and consultation feedback has been given to all relevant parties by the developed design stage.<br><br>A design workshop is undertaken that focuses on operational energy. | 1 | 1 | ACTION REQUIRED NOW<br>External consultation exercise to be performed that included all relevant stakeholders. Stakeholders should have the ability to comment on proposals, with all feasible consultation incorporated.<br>Consultation feedback to be provided to consultee group. | Project Manager |
| | Pre-requisite<br>The project team, early in the design process formally agrees BREEAM targets for the project.<br><br>Third credit – BREEAM AP (concept design):<br>Where evidence provided demonstrates that a BREEAM AP has been appointed to facilitate the setting and achievement of BREEAM performance target(s) for the project and evidence shows that the designed BREEAM performance target(s) has been contractually agreed and demonstrably achieved by project design. The BREEAM AP appointment must be separate to the appointed assessor. | 1 | 1 | BREEAM AP appointed for the RIBA Stage 2 to assist in setting the targets for the project. Consultant appointment documentation should include a requirement to design to the agreed target. | BREEAM AP |
| | Fourth credit – BREEAM AP (developed design):<br>Where evidence provided demonstrates that the Third credit is achieved and a BREEAM AP is appointed to monitor progress against the agreed BREEAM performance target(s). This is done by attending key project/design team meetings during the developed design and reporting to the client throughout the process. | 1 | 1 | Appointment of BREEAM AP to regularly update the design team on the progress of the BREEAM assessment and to consider how design development will impact the score.<br><br>Note: This does not form part of the BREEAM assessor's standard scope of works and would need to be an additional appointment by the Client or Contractor. | Project Manager |
| Man 02<br>Life cycle impacts | First and second credit - Elemental life cycle cost (LCC):<br>Where evidence provided demonstrates that an elemental Life Cycle Cost (LCC) analysis has been carried out based on the proposals developed during Process Stage 2 (concept design/RIBA Stage 2) or equivalent. | 2 | 2 | ACTION REQUIRED NOW<br>Elemental LCC study to be commissioned to address different design options. The design | Client & Cost Consultant |

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| | The LCC analysis shows an outline LCC plan for the project, appraising a range of options based on multiple cash flow scenarios e.g. 20, 30, 50, or 60 years and a fabric and servicing strategy for the project outlining services component and fit-out options. | | | should incorporate the lowest lifecycle cost design features. | |
| | Third credit - Component level LCC option appraisal:<br>Where evidence provided demonstrates that a component level LCC plan has been developed by end of Process Stage 4 (RIBA Stage 4) including the following component types:<br>– Envelope: e.g. cladding, windows, and/or roofing<br>– Services: e.g. heat source cooling source, and/or controls<br>– Finishes: e.g. walls, floors and/or ceilings<br>– External spaces<br>Demonstrate using appropriate examples provided by the design team, how the component level LCC plan has been used to influence building and systems design/specification to minimise life cycle costs and maximise critical value. | 1 | 1 | Update Required at RIBA Stage 4<br>Update to LCC model for the development to identify lowest lifecycle cost design features are incorporated. | Client & Cost Consultant |
| | Fourth credit - Capital cost reporting:<br>Where evidence provided demonstrates reporting of the capital cost for the building in pounds per square metre (£/$m^2$) via the BREEAM Assessment Scoring and Reporting tool, Assessment Issue Scoring tab, Management section. | 1 | 1 | Cost consultant to confirm the cost of the project with the relevant inclusions and exclusions. | Client & Cost Consultant |
| Man 03 ($M_e$) ($M_o$)<br>Responsible construction practices<br>⚠<br>Mandatory:<br>– One credit (responsible construction management) for Excellent<br>– Two credits (responsible construction management) for Outstanding | Pre-requisite<br>All timber and timber based products used on the project is 'legally' harvested and traded timber<br><br>First credit - Environmental management:<br>Evidence which demonstrates that the principle contractor operates an environmental management system (EMS) covering main operations e.g. third party certified to ISO 14001/EMAS or equivalent standard or have a structure that is in compliance with BS 8555-2003 and has reached stage 4 of implemented stage.<br><br>Evidence that the principal contractor implements best practice pollution policies and procedures on-site in accordance with Pollution Prevention Guidelines, PPG6. It is understood this document has been withdrawn, however BRE identify this still constitutes best practice. | 1 | 1 | INCLUDE WITHIN ER DOCUMENTATION<br>This requirement can be incorporated into the project's employer's requirements documentation to require the contractor to achieve. | Client & Contractor |
| | Pre-requisite<br>The client and contractor formally agree and demonstrate performance targets.<br><br>Second credit – BREEAM AP (site):<br>Evidence which demonstrates that a BREEAM AP is appointed to monitor the project to ensure ongoing compliance with relevant sustainability performance/process criteria. The defined BREEAM performance target forms a requirement of the principal contractor's contract and to achieve this credit in final post construction phase of assessment, the BREEAM-related performance target must be demonstrably achieved by the project. | 1 | 1 | INCLUDE WITHIN ER DOCUMENTATION<br>This requirement can be incorporated into the project's employer's requirements documentation to require the contractor to achieve. | Client & Contractor |
| | Third and fourth credit – Responsible construction management:<br><br>Using the BREEAM checklist - up to two credits:<br>Appoint a dedicated person to be responsible for monitoring and reporting on activities against risk evaluation documents collected.<br><br>The principal contractor evaluates the risks (on-site and off-site), plans and implements actions to minimise the identified risks, covering the following, where appropriate:<br>– Vehicle movement on and near site<br>  – Management of construction site entrance (M) | 2 | 1 (+1) | Third credit:<br>Credit targeted<br><br>Fourth credit:<br>Credit targeted as potential only<br><br>INCLUDE WITHIN ER DOCUMENTATION<br>This requirement can be incorporated into the project's employer's requirements documentation to require the contractor to achieve. | Client & Contractor |

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| | – Ensure development footprint is accessible for delivery vehicles with safety features (e.g. Side under run protection)<br>– Identify access routes to the development footprint, including for heavy vehicles to minimise the safety risks and disruption to others.<br>– Pollution management<br>– Minimise the risks of air, land and water pollution. (M)<br>– Minimise the risks of nuisance from vibration, light and noise pollution.<br>– Tidiness<br>– Practices ensure the development footprint is safe, clean and organised at all times. This includes, but is not limited to, facilities, materials and waste storage. (M)<br>– Ensure clear and safe access in and around the buildings at the point of handover. (M)<br>– Health and wellbeing<br>– Provide processes and equipment required to respond to medical emergencies. (M)<br>– The principal contractor identifies and implements initiatives to promote and maintain the health and wellbeing of all site operatives within the development footprint. This can be via site facilities, site management arrangements, staff policies etc.<br>– Establish management practices and facilities encouraging equality, fair treatment and respect of all site operatives. (M)<br>– Provide secure, clean and organised facilities (e.g. changing and storage facilities) for site operatives within the development footprint.<br>– Security processes<br>– Minimise risks of the site becoming a focus for antisocial behaviour in the local community (e.g. robust perimeter fencing, CCTV, avoid creating dark corners etc.).<br>– Training, awareness and feedback<br>– Aspects of the construction process that might impact the community are communicated regularly, ensuring that nuisance and intrusion are minimised.<br>– Ensure ongoing training is provided, and up to date, for personnel and visitors. (M)<br>– The principal contractor ensures that site operatives are trained for the tasks they are undertaking. (M)<br>– The fleet operators, undertakes driver training and awareness to promote safety within the development footprint and off site.<br>– Monitoring and reporting<br>– The fleet operators, captures and investigates any road accidents, incidents and near misses and reports them back to the principal contractor. The principal contractor analyses these items.<br>– All visitor, workforce and community accidents, incidents and near misses are recorded and action is taken to reduce the likelihood of them reoccurring. (M)<br>– Processes are in place to facilitate collecting and recording feedback from the community and to address any concerns related to the development footprint.<br>One credit is achieved for meeting the requirements for all mandatory sections, identified by (M)<br>Two credits are achieved for meeting the requirements for all mandatory and six additional requirements<br>An additional exemplar level credit is available for achieving all requirements within Table 4.1 (identified above) | | | | |
| | Exemplary credit - Responsible construction practices:<br><br>An additional exemplary level credit is available for achieving all requirements within Table 4.1 (identified above) | 1 | 0 | Credit not targeted<br><br>INCLUDE WITHIN ER DOCUMENTATION<br>This requirement can be incorporated into the project's employer's requirements documentation to require the contractor to achieve. | |

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| | Fifth and sixth credit - Monitoring of construction-site impacts:<br>Where evidence provided demonstrates the responsibility has been assigned to an individual for monitoring, recording and reporting energy use, water consumption and transport data from all on-site construction processes throughout the build programme. | 2 | 2 | Fifth credit:<br>Credit targeted<br><br>Sixth credit:<br>Credit targeted<br><br>INCLUDE WITHIN ER DOCUMENTATION<br>This requirement can be incorporated into the project's employer's requirements documentation to require the contractor to achieve. | Client & Contractor |
| Man 04 ($M_v$), ($M_e$), ($M_o$)<br>Commissioning and handover<br>⚠<br>Mandatory:<br>– One credit (commissioning test schedule and responsibilities) and criterion 11 (Building User Guide for Very Good and above | First credit - Commissioning and testing schedule and responsibilities:<br>– Where evidence provided demonstrates a schedule of commissioning and testing that identifies and includes a suitable timescale for commissioning and re-commissioning of all complex and non-complex building services and control systems and testing and inspecting building fabric, and that all commissioning is done in accordance with current Building Regulations, BSRIA and CIBSE guidelines.<br>– An appropriate project team member(s) is appointed to monitor and programme pre-commissioning, testing, and where necessary, re-commissioning on behalf of the client<br>– The principal contractor accounts for the commissioning and testing programmes, responsibilities and criteria within their budget and main programme of works, allowing for sufficient time to complete commissioning and testing prior to handover.<br>– Specific requirements relate to BMS commissioning | 1 | 1 | INCLUDE WITHIN ER DOCUMENTATION<br>This requirement can be incorporated into the project's employer's requirements documentation to require the contractor to achieve | Contractor |
| | Second credit - Commissioning - design and preparation:<br>Where evidence provided demonstrates a specialist commissioning manager is appointed during the design stage with responsibility for:<br>– Undertaking design reviews<br>– Providing commissioning management input<br>– Management of commissioning and performance testing. | 1 | 1 | INCLUDE WITHIN ER DOCUMENTATION<br>This requirement can be incorporated into the project's employer's requirements documentation to require the contractor to achieve | Contractor |
| | Third credit - Testing and inspecting building fabric:<br>Where credit 1 is achieved and evidence provided demonstrates that the integrity of the building fabric is quality assured through compliant post construction testing and inspection. Any defects identified in the thermographic survey or airtightness testing reports are rectified prior to building handover and close out. | 1 | 1 | INCLUDE WITHIN ER DOCUMENTATION<br>This requirement can be incorporated into the project's employer's requirements documentation to require the contractor to achieve. | Contractor |
| | Fourth credit - Handover:<br>– Where evidence provided demonstrates that Building User Guides are provided and are appropriate to all users of the building (general users including staff and if applicable residents, as well as the non-technical facilities management team/building manager). This must be presented to the building user first and amended to suit the occupier's needs.<br>– A training schedule is prepared for building occupiers/premises mangers, timed appropriately around handover and proposed occupation plans in addition to training for building occupiers (non-technical building users). | 1 | 1 | INCLUDE WITHIN ER DOCUMENTATION<br>This requirement can be incorporated into the project's employer's requirements documentation to require the contractor to achieve | Contractor |
| Man 05 ($M_e$), ($M_o$)<br>Aftercare<br>⚠<br>Mandatory: | First credit - Aftercare support<br>There is (or will be) operational infrastructure and resources in place to provide aftercare support to the building occupier(s), which includes the following as a minimum:<br>a. A meeting programmed to occur between the aftercare team/individual and the building occupier/management (prior to initial occupation, or as soon as possible thereafter) to: | 1 | 1 | Credit targeted.. | Client<br>Occupant<br>Contractor |

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| – One credit (commissioning implementation) for Excellent<br>– One credit (commissioning implementation) for Outstanding | i. Introduce the aftercare team or individual to the aftercare support available, including the Building User Guide (where existing) and training schedule/content.<br>ii. Present key information about the building including the design intent and how to use the building to ensure it operates as efficiently and effectively as possible.<br>iii. On-site facilities management training, to include a walkabout of the building and introduction to and familiarisation with the building systems, their controls and how to operate them in accordance with the design intent and operational demands.<br>b. Initial aftercare support provision for at least the first month of building occupation, e.g. on-site attendance on a weekly basis to support building users and management (this could be more or less frequent depending on the complexity of the building and building operations).<br>c. Longer term aftercare support provision for occupants for at least the first 12 months from occupation, e.g. a helpline, nominated individual or other appropriate system to support building users/management.<br><br>There is (or will be) operational infrastructure and resources in place to coordinate the collection and monitoring of energy and water consumption data for a minimum of 12 months, once the building is occupied. This is done to facilitate analysis of discrepancies between actual and predicted performance, with a view to adjusting systems and/or user behaviours accordingly. | | | | |
| | Second credit - Commissioning - implementation<br>The following seasonal commissioning activities will be completed over a minimum 12-month period, once the building becomes substantially occupied:<br>a. Complex systems - Specialist Commissioning Manager:<br>i. Identify changes made by the owner or operator that might have caused impaired or improved performance.<br>ii. Testing of all building services under full load conditions, i.e. heating equipment in mid-winter, cooling/ventilation equipment in mid-summer, and under part load conditions (spring/autumn).<br>iii. Where applicable, testing should also be carried out during period of extreme (high or low) occupancy.<br>iv. Interviews with building occupants (where they are affected by the complex services) to identify problems or concerns regarding the effectiveness of the systems.<br>v. Produce monthly reports comparing sub-metered energy performance to the predicted ones.<br>vi. Re-commissioning of systems (following any work needed to serve revised loads), and incorporating any revisions in operating procedures into the operations and maintenance (O&M) manuals.<br>b. Simple systems (naturally ventilated) - external consultant/aftercare team/facilities manager:<br>i. Review thermal comfort, ventilation, and lighting, at three, six and nine-month intervals after initial occupation, either by measurement or occupant feedback.<br>ii. Identify deficiencies and areas in need of improvement.<br>iii. Re-commission systems and incorporate any relevant revisions in operating procedures into the O&M manuals. | 1 | 1 | Credit targeted. | Client<br>Occupant<br>Contractor<br>MEP |
| | Third credit - Post occupancy evaluation<br>The client or building occupier makes a commitment to carry out a post occupancy evaluation (POE) exercise one year after initial building occupation.<br>The POE is carried out by an independent third party and needs to cover:<br>a. A review of the design intent and construction process (review of design, procurement, construction and handover processes).<br>b. Feedback from a wide range of building users including Facilities Management on the design and environmental conditions of the building covering:<br>i. Internal environmental conditions (light, noise, temperature, air quality)<br>ii. Control, operation and maintenance<br>iii. Facilities and amenities | 1 | 1 | Credit targeted.. | Client<br>Occupant<br>Contractor |

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| | iv. Access and layout<br>v. Energy and water consumption<br>vi. Other relevant issues<br><br>The independent party provides a report with lessons learned to the client and building occupiers.<br><br>The client or building occupier makes a commitment to carry out the appropriate dissemination of information on the building's post occupancy performance. This is done to share good practice and lessons learned and inform changes in user behaviour, building operational processes and procedures, and system controls. | | | | |
| Health and Wellbeing | | | | | |
| Hea 01<br>Visual comfort | First credit - Control of glare from sunlight<br>Glare control assessment is developed to identify how areas at risk of glare are protected. The glare control assessment would also identify where areas deemed not at risk are located.<br><br>In addition, a glare control strategy must be developed in tandem with the lighting strategy to ensure that glare is minimised whilst avoiding potential conflict with the lighting control systems, therefore avoiding higher than expected energy consumption. | 1 | 1 | Credit targeted. | Architect & Daylight / Glare Control Consultant |
| | Second and third credits – Average daylighting:<br>– Where evidence provided demonstrates that the relevant building areas meet good practice daylighting criteria as outlined in the BREEAM manual, in addition to room depth criterion, daylight uniformity or annual illuminance levels. | 1 | 0 (+1) | Credit targeted as potential only. | Architect & Daylight Consultant |
| | Fourth credit - View out:<br>Where evidence provided demonstrates that 95% of floor areas in relevant building areas are within 8m of a wall which has a window or permanent opening that provides an adequate view out. The window/opening must be ≥20% of the surrounding wall area. | 1 | 1 | Can be assessed now against architectural designs. | Architect |
| | Fifth credit - Lighting levels and controls:<br>Where evidence provided demonstrates that internal and external lighting is designed in accordance with the required standard.<br>– Internal lighting in all relevant areas of the building is designed to provide an illuminance (lux) level appropriate to the tasks undertaken. This can be demonstrated through a lighting design strategy that provides illuminance levels in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard.<br>– For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 7 sections 2.4, 2.13, 2.15, 2.20, 6.10 and 6.20.<br>– For external areas, lighting provided is specified in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas Lighting of roads and public amenity areas, Code of Practice for the design of road lighting, BSI, 2013 and BS EN 12464-2:2014 light and lighting - Lighting of work places - Part 2: Outdoor work places.<br><br>Lighting should be zoned as follows (and in accordance with the BREEAM manual):<br>– In office areas, zones of no more than four workplaces<br>– Workstations adjacent to windows/atria and other building areas separately zoned and controlled<br>– Dining, restaurant, café areas: separate zoning of servery and seating/dining areas<br>– Retail: separate zoning of display and counter areas<br>– Bar areas: separate zoning of bar and seating areas | 1 | 1 | ACTION REQUIRED AT STAGE 4<br>To be included within the Employer's Requirements MEP documentation. | MEP |

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| | Exemplary credits:<br>Up to two credits are available where evidence is provided which demonstrates that the exemplary level daylight requirements and the exemplary level artificial lighting requirements are achieved, as outlined in the BREEAM manual. | 2 | 0 | Daylight credit:<br>Credit not currently targeted<br><br>Artificial light credit:<br>Credit not currently targeted | Architect &<br>Daylight<br>Consultant |
| Hea 02<br>Indoor air quality | Prerequisite - Indoor air quality (IAQ) plan:<br>Where evidence provided demonstrates that an indoor air quality plan has been produced no later than the end of concept design stage, with the objective of facilitating a process that leads to design, specification and installation decisions and actions that minimise indoor air pollution during occupation of the building. The IAQ must include:<br>– Removal of contaminant sources<br>– Dilution and control of contaminant sources<br>– Where present, consideration is given to the air quality requirements of specialist areas such as Laboratories<br>– Procedures for pre-occupancy flush out<br>– Third party testing and analysis<br>– Maintaining good indoor air quality in-use. | - | - | Indoor air quality plan to be developed for the ventilation design for the project. | Architect<br>MEP<br>IAQ Specialist |
| | First credit - Ventilation:<br>Where fresh air is provided in accordance with the relevant standard for ventilation based on the building type.<br>Ventilation pathways are designed to minimise the ingress and build up of pollutants inside the building.<br>Suitable filtration is provided to reduce the impact of external air pollution.<br><br>Filtration to be design in accordance with BS EN 13779:2007 Annex A3. The specified filters should achieve a minimum Indoor Air Quality of IDA2.<br><br>For air-conditioned and mixed-mode buildings: the building's air intakes and exhausts are over 10m apart to minimise recirculation and intakes are over 20m from sources of external pollution or designed in accordance with BS EN 13779:2007 Annex A2.<br>Areas of the building subject to large and unpredictable or variable occupancy patterns have $CO_2$ or air quality sensors specified and:<br>– In mechanically ventilated spaces, the sensor(s) are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space.<br>– In naturally ventilated spaces, the sensors either have the ability to alert the building owner/manager when $CO_2$ levels exceed the recommended set point, or are linked to controls with the ability to adjust the quantity of fresh air, i.e. automatic opening windows/roof vents.<br><br>For naturally ventilated or mixed mode buildings, the design demonstrates that the ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates in accordance with CIBSE AM10 | 1 | 1 | Credit targeted. | Architect &<br>MEP |
| | Second credit - Emissions from building products<br>Where evidence provided demonstrates that three of the five available product types meet the emission limits, testing requirements and additional requirements identified by the Table 5.11 in the BREEAM criteria. All wood based products should be tested and classed as formaldehyde E1 as a minimum.<br><br>Compliance is achieved where the Emission limit (1) identified by the testing requirement (2) as well as any other additional requirements are met. | 2 | 2 | Second credit:<br>Credit targeted<br><br>Third credit:<br>Credit targeted | Architect &<br>Contractor |

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
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| | | Available | Targeted (Potential) | | |
| | Product types include:<br>– Interior paints and varnishes<br>– Wood based products<br>– Flooring materials<br>– Ceiling wall and acoustic and thermal insulation materials<br>– Interior adhesives and sealants (including flooring adhesives)<br><br>Third credit - Emissions from building products<br>Where evidence provided demonstrates that all of the product types listed meet the emission limits, testing requirements and any additional requirements listed in Table 5.11. | | | | |
| | Fourth credit - Post-construction indoor air quality measurement<br>Where evidence demonstrates that formaldehyde and TVOC emissions are measured post construction but pre-occupancy and do not exceed the emissions criteria.<br><br>The formaldehyde and TVOC analysis demonstrates that levels are within best practice emission limits.<br><br>TVOC<br>Does not exceed 500 µg/ $m^3$over 8 hours.<br>In accordance with ISO 16000-5 and ISO 16000-6 or ISO 16017-1<br><br>Formaldehyde<br>Does not exceed 100 µg/ $m^3$ averaged over 30 minutes (World Health Organization guidelines for indoor air quality: Selected pollutants, 2010<br><br>Sampled in accordance with ISO 16000-2 and ISO 16000-3 | 1 | 1 | INCLUDE WITHIN ER DOCUMENTATION<br>This requirement can be incorporated into the project's employer's requirements documentation to require the contractor to achieve. | Client & Contractor |
| | Exemplary credit:<br>One credit<br>– Three of the product types listed meet the emission limits, testing requirements and any additional requirements listed in Table 5.12 of the BREEAM criteria.<br>– Where wood-based products are not one of the three selected product types, all wood-based products used for internal fixtures and fittings must be tested and classified as formaldehyde E1 class as a minimum. | 1 | 0 | Credit not currently targeted | |
| Hea 04<br>Thermal comfort | First credit: Thermal modelling<br>Where evidence provided demonstrates that thermal modelling has been carried out using software in accordance with CIBSE AM11. The modelling demonstrates that the building design and services strategy can deliver thermal comfort levels in occupied spaces in accordance with the criteria set out in CIBSE Guide A Environmental Design (winter) and CIBSE TM52/TM59 methodologies (summer) as appropriate to the building and/or building areas. | 1 | 1 | Credit targeted. | MEP & Energy Modeller |
| | Second credit: Design for future thermal comfort<br>Where credit 1 is achieved and evidence provided outlines that the thermal modelling demonstrates that the building design and services strategy can deliver thermal comfort levels in occupied spaces in accordance with the criteria set out in CIBSE Guide A Environmental Design, and CIBSE TM52/TM59 for a projected climate change environment.<br><br>Where these levels are not met the project team demonstrates how the building has been adapted or designed to be easily adapted in future using passive design solutions. Additionally, evidence is provided for air-conditioned buildings, the PMV and PPD indices based on the modelling are reported via the BREEAM assessment scoring and reporting tool. | 1 | 1 | Credit targeted | MEP & Energy Modeller |

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
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| | | Available | Targeted (Potential) | | |
| | Third credit: Thermal zoning and controls<br>Where credit 1 is achieved and the thermal modelling analysis has informed the temperature control strategy for the building and its users.<br>The strategy for proposed heating/cooling system(s) demonstrates that it has addressed the following:<br>– Zones within the building and how the building services could efficiently and appropriately heat or cool these areas. For example, consider the different requirements for the central core of a building compared with the external perimeter adjacent to the windows.<br>– The degree of occupant control required for these zones, based on discussions with the end user (or alternatively building type or use specific design guidance, case studies, feedback) considers:<br>– User knowledge of building services<br>– Occupancy type, patterns and room functions (and therefore appropriate level of control required)<br>– How the user is likely to operate or interact with the system(s), e.g. are they likely to open windows, access thermostatic radiator valves (TRV) on radiators, change air-conditioning settings etc.<br>– The user expectations (this may differ in the summer and winter) and degree of individual control (i.e. obtaining the balance between occupant preferences, for example some occupants like fresh air and others dislike draughts).<br>– How the proposed systems will interact with each other (where there is more than one system) and how this may affect the thermal comfort of the building occupants.<br>– The need or otherwise for an accessible building user actuated manual override for any automatic systems. | 1 | 1 | Credit targeted. | MEP |
| Hea 05<br>Acoustic performance | Four credits:<br>Up to four credits can be awarded where the following criteria is met.<br>**One credit**<br>Airborne sound insulation values are at least 3 dB higher and impact sound insulation values are at least 3 dB lower than the performance standards in the relevant building regulations or standards.<br>**Two credits**<br>Airborne sound insulation values are at least 5 dB higher and impact sound insulation values are at least 5 dB lower than the performance standards in the relevant building regulations or standards.<br>**Third credit:**<br>Achieve indoor ambient noise levels that comply with the design ranges given in Section 7 of BS 8233:2014<br>**Fourth credit:**<br>Achieve the requirements relating to sound absorption and within the common spaces of the building described in the relevant building regulations or building standards national guidance. | 4 | 4 | ACTION REQUIRED NOW<br>Acoustic assessment of the proposed spaces to feed into architectural and structural design. | Acoustician & Architect |
| Hea 06<br>Security | One credit - Security of site and building:<br>Where evidence provided demonstrates that a suitably qualified security specialist (SQSS) conducts an evidence-based Security Needs Assessment during or prior to Concept Design (RIBA Stage 2). The recommendations from the SQSS must be implemented into the design. | 1 | 1 | ACTION REQUIRED NOW<br>A Security Needs Assessment (SNA) is required to be performed by a Suitability Qualified Security Specialist (SQSS). An assessment such as SABRE would be appropriate. Following assessment of the scheme, the design incorporates the recommendations of the scheme. | Architect |
| | Exemplary level criteria<br>A compliant risk based security rating scheme has been used e.g. SABRE. The performance against the scheme has been confirmed by independent assessment and verification. | 1 | 0 | Credit not currently targeted<br><br>ACTION REQUIRED NOW | SQSS |

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| | | | | A Security Needs Assessment (SNA) is required to be performed by a Suitability Qualified Security Specialist (SQSS). An assessment such as SABRE would be appropriate. Following assessment of the scheme, the design incorporates the recommendations of the scheme. | |
| Hea 07<br>Safe and healthy surroundings | First credit - Safe access:<br>Where external site areas form part of the assessed development the following apply:<br>– Dedicated and safe cycle paths are provided from the site entrance to any cycle storage, and connect to offsite cycle paths where applicable.<br>– Dedicated and safe footpaths are provided on and around the site providing suitable links for the following:<br>  – The site entrance to the building entrance,<br>  – Car parks (where present) to the building entrance<br>  – The building to outdoor space<br>  – Connecting to off-site paths where applicable.<br>– Pedestrian drop-off areas are designed off, or adjoining to, the access road and should provide direct access to other footpaths.<br><br>Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply:<br>– Delivery areas are not accessed through general parking areas and do not cross or share the following:<br>  – pedestrian and cyclist paths<br>  – outside amenity areas accessible to building users and general public.<br>– There is a dedicated parking or waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking.<br>– Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting.<br><br>Second credit - Outside space<br>There is an outside space providing building users with an external amenity area.<br><br>The space must be of an appropriate size to provide enough amenity for the predicted number of building users during coffee or lunch breaks to gather, socialise, relax and connect with the natural environment. The space is predominantly intended for building staff, but can be used by other building users where relevant and beneficial to the building users.<br>The outside space must:<br>– Be an outdoor landscaped area, for example a garden, balcony or terrace; the majority of the space should be open to the sky<br>– Have appropriate seating areas and be non-smoking,<br>– Be located to ensure it is accessible to all building users and avoids areas that will have disturbances from sources of noise (e.g. building services, car parks, busy roads, delivery areas etc.). | 2 | 2 | First credit:<br>Credit targeted<br><br>Second credit:<br>Credit targeted<br><br>Anticipated at the current time that the design can incorporate a compliant layout. This will need to be thoroughly considered, as there are a number of interacting criteria. | Architect |
| Energy | | | | | |
| Ene 01 ($M_e$) ($M_o$)<br>Reduction of carbon emissions | Up to nine credits:<br>Where evidence provided demonstrates an improvement in the energy efficiency of the building's fabric and services and therefore achieves lower building operational related $CO_2$ emissions.<br>The number of credits achieved is determined by comparing the Energy Performance Ratio for New Construction ($EPR_{NC}$) with the benchmarks in the table below. | 9 | 5<br>(+1) | Nine credits applicable to assessment type<br>Five credits targeted<br>One additional potential credit | MEP / Sustainability |

<table>
<tr><th>Issue</th><th>Credit Requirements</th><th>Credits<br>Available</th><th>Credits<br>Targeted (Potential)</th><th>Comments / Actions</th><th>Responsible Team Member</th></tr>
<tr><td>Mandatory:<br>– Four credits for Excellent<br>– Six credits (energy performance) and 4 credits (energy modelling and reporting) for Outstanding</td><td>
<table>
<tr><th colspan="2"></th><th colspan="2">Minimum Standards</th></tr>
<tr><th>BREEAM credits</th><th>EPR<sub>NC</sub></th><th>Rating</th><th>Minimum Requirements</th></tr>
<tr><td>1</td><td>0.1</td><td rowspan="3">-</td><td rowspan="3">Requires a performance improvement progressively better than the relevant national building regulations compliant standard</td></tr>
<tr><td>2</td><td>0.2</td></tr>
<tr><td>3</td><td>0.3</td></tr>
<tr><td>4</td><td>0.4</td><td rowspan="2">Excellent</td><td rowspan="2">Requires 4 credits to be achieved (equivalent to an EPR<sub>NC</sub> of at least 0.4).</td></tr>
<tr><td>5</td><td>0.5</td></tr>
<tr><td>6</td><td>0.6</td><td rowspan="4">Outstanding</td><td rowspan="4">Requires 6 credits to be achieved (equivalent to an EPR<sub>NC</sub> of at least 0.6) and 4 credits for Energy modelling and reporting.</td></tr>
<tr><td>7</td><td>0.7</td></tr>
<tr><td>8</td><td>0.8</td></tr>
<tr><td>9</td><td>0.9</td></tr>
</table>
</td><td></td><td></td><td>Energy performance analysis using appropriate simulation tools in order for output parameters to be used. EPR metrics to be provided.<br>Minimum number of credits for Excellent rating targeted.<br><br>NB, 4 credits are required to achieve Excellent.</td><td></td></tr>
<tr><td></td><td>Four credits - Prediction of operational energy consumption<br>Pre-requisite<br>Prior to completion of the concept design, relevant members of the design team hold a preliminary design workshop focusing on operational energy performance.<br><br>Four credits – Energy modelling and reporting<br>Undertake additional energy modelling during the design and post-construction stage to generate predicted operational energy consumption figures and report predicted energy consumption targets by end use, design assumptions and input data (with justifications). In addition, credits are achieved for completing a risk assessment to highlight any significant design, technical, and process risks that should be monitored and managed throughout the construction and commissioning process.</td><td>4</td><td>4</td><td>Credits targeted.</td><td>MEP / Sustainability</td></tr>
<tr><td></td><td>Exemplary level criteria<br>Up to two credits - Beyond zero net regulated carbon<br>The building achieves an EPR NC ≥ 0.9 and zero net regulated $CO_2$ emissions.<br><br>Energy generation from on-site and near-site LZC sources is sufficient to offset carbon emissions from regulated energy use plus a percentage of emissions from unregulated energy use. Credits are achieved based on the percentage of additional emissions from unregulated energy that are offset by LZC sources.<br><br>Three credits - Carbon negative<br>The building is deemed carbon negative where > 100% (see Table 6.2 below) of carbon emissions from unregulated (and regulated) energy use are offset by energy generated from on-site and near-site LZC sources</td><td>3</td><td>0</td><td>Beyond Zero Regulated Carbon:<br>Credits not applicable to assessment type<br><br>Carbon Negative:<br>Three credits applicable to assessment type<br>Credits not currently targeted</td><td>MEP / Sustainability</td></tr>
</table>

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| | <table><tr><th>Exemplary performance credits</th><th>Equivalent % criteria</th></tr><tr><td>1</td><td>10%</td></tr><tr><td>2</td><td>50%</td></tr><tr><td>3</td><td>>100%</td></tr></table> | | | | |
| | Two credits – Post-occupancy stage<br>Achieve maximum available credits in Ene02 Energy monitoring. In addition, preschools, primary schools, law courts, prisons and multi-residential buildings must separately monitor relevant function areas or departments in accordance with ENE02 criteria, below.<br><br>The client or building occupier commits funds to pay for the post occupancy stage. This requires an assessor to be appointed and to report on the actual energy consumption compared with the targets set in criterion 4 above.<br><br>The energy model (above) is:<br>i. Submitted to BRE and<br>ii. Retained by the building owner. | 0 | 0 | Credits not applicable to assessment type | MEP / Sustainability |
| Ene 02 (M), ($M_e$), ($M_o$)<br>Energy monitoring<br><br>Mandatory:<br>One credit for Very Good and above. | First credit: Sub-metering of major energy consuming systems<br>Where evidence provided demonstrates that the energy metering systems are installed that enable 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems. For buildings with a total useful floor area > 1000$m^2$ are metered using an appropriate energy monitoring and management system and systems in smaller buildings are metered either with an energy monitoring and management system or separate assessable energy sub-meters with pulsed or other open protocol communication outputs, to enable future connection to an energy monitoring and management system.<br><br>The end energy consuming use is identifiable to the building user through labelling or data outputs.<br><br>Large-scale medical equipment/systems can be excluded when assessing compliance with this issue (although it is recommended that sub-metering is considered in such instances). | 1 | 1 | Credit targeted. | MEP |
| | Second credit: Sub – metering of high energy load and tenancy areas<br>An accessible energy monitoring and management system or separate accessible energy sub-meters with pulsed or other open protocol communication outputs to enable future connection to an energy monitoring and management system are provided, covering a significant majority of the energy supply to tenanted areas or, in the case of single occupancy buildings, relevant function areas or departments within the building/unit. | 1 | 1 | Credit targeted. | MEP |
| Ene 03<br>External lighting | One credit:<br>Where evidence provided demonstrates that the external lighting has an average initial luminous efficacy of the external light fittings within the construction zone is not less than 70 luminaire lumens per circuit watt and that all external light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic. | 1 | 1 | INCLUDE WITHIN ER DOCUMENTATION<br>The only relevant requirement for this project relates to external lighting design. This requirement can be incorporated into the project's employer's requirements documentation to require the contractor to achieve. | MEP |
| Ene 04<br>Low carbon design | First credit - Passive design analysis:<br>Where the first credit of Hea 04 (Thermal comfort) is achieved and the project team carries out an analysis of the design to identify opportunities for the implementation of passive design solutions that reduce demands for energy consuming building services, and that these solutions are implemented meaningfully into the design. | 1 | 1 | Credit targeted. | Client & Sustainability / MEP |

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
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| | | Available | Targeted (Potential) | | |
| | Second credit - Free cooling:<br>Where the first credit is achieved, the passive design analysis includes an analysis of free cooling and identifies opportunities for the implementation of free cooling solutions. Free cooling solutions might include night time cooling, ground coupled air cooling or surface water cooling (for example); i.e. does not use active cooling. | 1 | 0 | Credit not currently targeted<br><br>There will be no free cooling technology designed into the development and there will be mechanical cooling system. | MEP / Sustainability |
| | Third credit - Low zero carbon feasibility study:<br>Where evidence provided demonstrates that a feasibility study has been carried out by the completion of the Concept Design stage (RIBA Stage 2) by an energy specialist to establish the most appropriate recognised local (on- or near-site) low or zero carbon energy source(s) for the development.<br><br>A local LZC technology/ies has been specified for the building in line with the recommendations of this feasibility study and this method of supply results in a meaningful reduction in regulated $CO_2$ emissions. | 1 | 1 | Credit targeted. | Client & Sustainability / MEP |
| Ene 05<br>Energy efficient cold storage | One credit:<br>The refrigeration system, its controls and components have been designed, installed and commissioned as follows:<br>– In accordance with the Code of Conduct for carbon reduction in the refrigeration retail sector and BS EN 378-2 Refrigeration systems and heat pumps - Safety and environmental requirements.<br>– Using robust and tested refrigeration systems/components, normally defined as those included on the Enhanced Capital Allowance (ECA) Energy Technology Product List (ETPL) or an equivalent list (see CN3.2 within the BREEAM criteria document for a list of components).<br><br>The refrigeration plant has been commissioned to comply with the criteria for commissioning outlined in BREEAM issue Man 04 Commissioning and handover.<br><br>Two credits:<br>The installed refrigeration system demonstrates a saving in indirect greenhouse gas emissions ($CO_2$ eq.) over the course of its operational life. | 2 | 2 | | MEP |
| Ene 06<br>Energy efficient transportation systems | First credit - Energy consumption:<br>Where evidence provided demonstrates that where either lifts, escalators or moving walks are required:<br>– An analysis of the transportation demand and usage patterns for the building has been carried out in accordance with BS EN ISO 25745 to determine the optimum number and size of lifts, (including counter-balancing ratio), escalators and/or moving walks.<br>– The energy consumption has been estimated for different types and the lift/escalator/moving walk system/strategy with the lowest energy consumption has been specified.<br>– Regenerative drives should be considered.<br>– The transportation system with the lowest energy consumption is specified. | 1 | 1 | Credit targeted. | Vertical Transportation Consultant |
| | Second and third credit - Energy efficient features:<br>Where evidence provided demonstrates that the first credit has been achieved and:<br>For lifts, of the following energy-efficient features the three that offer the greatest potential energy savings are specified:<br>– The lifts operate in a stand-by condition during off-peak periods.<br>– The lift car uses energy-efficient lighting and display lighting<br>– The lift uses a drive controller capable of variable-speed, variable-voltage, variable frequency (VVVF) control of the drive motor.<br><br>Where regenerative drives are demonstrated to save energy, they are specified.<br><br>For escalators and/or moving walks, each escalator and/or moving walk complies with EITHER of the following: | 1 | 1 | Second credit:<br>Credit targeted<br>Third credit:<br>Credit not applicable to assessment type | Vertical Transportation Consultant |

<table>
<tr><th>Issue</th><th>Credit Requirements</th><th colspan="2">Credits</th><th>Comments / Actions</th><th>Responsible Team Member</th></tr>
<tr><th></th><th></th><th>Available</th><th>Targeted (Potential)</th><th></th><th></th></tr>
<tr><td></td><td>– It is fitted with a load sensing device that synchronises motor output to passenger demand through a variable speed drive. OR It is fitted with a passenger sensing device for automated operation (auto walk), so the escalator operates in stand-by mode when there is no passenger demand.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Ene 08<br>Energy efficient equipment</td><td>Two credits:<br>– Identify the building's unregulated energy consuming loads and estimate their contribution to the total annual unregulated energy consumption of the building, assuming a typical/standard specification.<br>– Identify the systems and/or processes that use a significant proportion of the total annual unregulated energy consumption of the development and its operation.<br>– Demonstrate a meaningful reduction in the total annual unregulated energy consumption of the building.
<table>
<tr><th></th><th>Function / Equipment</th><th>Criteria</th></tr>
<tr><td>A</td><td>Swimming pool</td><td>1. Specify automatic or semi-automatic pool covers, or ‘liquid’ pool covers with an automatic dosing system to ALL pools, including spa pools and hot tubs.<br>2. The covers envelop the entire pool surface when fully extended.<br>3. Control the air temperature in the pool hall so that it is 1 °C above the water temperature.</td></tr>
<tr><td>B</td><td>Laundry facilities with commercial-sized appliances</td><td>Demonstrate at least one of the following for commercial-sized appliances:<br>1. Specification of heat recovery from waste water.<br>2. Use of greywater for part of the washing process. This may be recycled from the final rinse and used for the next pre-wash.<br>3. The commercial or industrial sized machines are identified as eligible for the UK’s Enhanced Capital Allowance Scheme for water.</td></tr>
<tr><td>C</td><td>Data centres</td><td>1. Design is in accordance with the ‘Best practices for the EU Code of Conduct on Data Centres’ principles with the data centre achieving at least the ‘Expected minimum practice’ level (as defined in the Code of Conduct).<br>2. Temperature set points are not less than 24°C, as measured at the inlet of the equipment in the rack.</td></tr>
<tr><td>D</td><td>IT-intensive operating areas</td><td>1. Uses a natural ventilation and cooling strategy as standard, with forced ventilation only to be used when the internal temperature exceeds 20°C and active cooling only when the internal temperature exceeds 22°C<br>2. Specify a mechanism to achieve automatic power-down of equipment when not in use, including overnight.</td></tr>
<tr><td>E</td><td>Domestic scale appliances (individual and communal facilities)</td><td>Domestic scale appliances have the following ratings (or better) under the EU Energy Efficiency Labelling Scheme, where provided:<br>1. Fridges, fridge-freezers: A+ rating<br>2. Washing machines: A++ rating<br>3. Dishwashers: A+ rating<br>4. Washer-dryers and tumble dryers: A rating.<br>OR<br>5. If any of the appliances will be purchased during occupation by the tenant/owner, information on the EU Energy Efficiency Labelling Scheme of efficient white goods must be provided to the residential areas of the building.</td></tr>
</table></td><td>2</td><td>0<br>(+2)</td><td>Credits currently targeted as potential only.</td><td>MEP / Architect / Swimming pool specialist / Kitchen specialist</td></tr>
</table>

<table>
<tr><th>Issue</th><th>Credit Requirements</th><th>Credits<br>Available</th><th>Credits<br>Targeted (Potential)</th><th>Comments / Actions</th><th>Responsible Team Member</th></tr>
<tr><td></td><td>
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<tr><td>F</td><td>Healthcare</td><td>1. The procurement of large-scale equipment (where present, see compliance note CN4) and sets of electrical equipment (where numbering more than 50) has been informed and selected by life cycle costing analysis for at least two options in accordance with HTM07-02, Part B, Chapter 1.</td></tr>
<tr><td>G</td><td>Kitchen and catering facilities</td><td>The project has incorporated at least two-thirds of the energy efficiency measures outlined in the section summaries of each of the following sections of CIBSE Guide TM50 (except as specified):<br>1. Section 8 (Drainage and kitchen waste removal)<br>2. Section 9 (Energy controls - specifically controls relevant to appliances)<br>3. Section 11 (Appliance specification - not fabrication or utensil specifications)<br>4. Section 12 (Refrigeration)<br>5. Section 13 (Warewashing: dishwashers and glasswashers)<br>6. Section 14 (Cooking appliance selection)<br>Section 15 (Water temperatures, taps, faucets and water saving controls).</td></tr>
</table>
</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="6">Transport</td></tr>
<tr><td>Tra 01<br>Transport assessment and travel plan</td><td>Two credits:<br>– Where evidence provided demonstrates that a travel plan has been developed as part of the feasibility and design stages which considers all types of travel relevant to the building type and users.<br>– The travel plan must be structured to the needs of the particular site and takes into consideration the findings of a site-specific transport survey.<br>– The travel plan must include a package of measures that have been used to steer the design of the development in order to meet the travel plan objectives and minimise car-based travel patterns. The travel plan must be demonstrated in action post construction.</td><td>2</td><td>2</td><td>A compliant travel plan is required for the development that includes recommendations for reduction of impact resultant from transport. These measures are then incorporated into the design of the development.</td><td>Transport Consultant & Architect</td></tr>
<tr><td>Tra 02<br>Sustainable transport measures</td><td>Ten credits<br>Features included to achieve a Tra02 points score. Credits are achieved based on the site's Accessibility Index and the features provided.
<table>
<tr><th>Points<br>AI < 25</th><th>Points<br>25 ≤ AI < 40 (urban centres)</th><th>Points<br>AI of ≥ 40 (metropolitan centre locations)</th><th>Credits</th></tr>
<tr><td>1</td><td>1</td><td></td><td>1</td></tr>
<tr><td>2</td><td></td><td>1</td><td>2</td></tr>
<tr><td>3</td><td>2</td><td></td><td>3</td></tr>
<tr><td>4</td><td></td><td>2</td><td>4</td></tr>
<tr><td>5</td><td>3</td><td></td><td>5</td></tr>
<tr><td>6</td><td>4</td><td>3</td><td>6</td></tr>
<tr><td>7</td><td>5</td><td></td><td>7</td></tr>
<tr><td>8</td><td>6</td><td>5</td><td>8</td></tr>
</table>
</td><td>10</td><td>7<br>(+1)</td><td>Ten credits applicable to assessment type<br>Seven credits targeted<br>One additional potential credit<br><br>Currently anticipated that sufficient features can be incorporated to achieve the targeted credits.</td><td>Transport Consultant & Architect</td></tr>
</table>

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |

| | | | |
|---|---|---|---|
| 9 | 7 | 6 | 9 |
| 10 | 8 | 7 | 10 |

Sustainability Transport Measures:

| Public transport measures | Points |
|---|---|
| **Public transport measures** | |
| – The existing AI calculated in Tra 01 achieves the following:<br>– ≥ 4 for prison or MOD sites, rural location sensitive buildings, and other building group 3<br>– ≥ 8 for all other building type | 1 |
| – Demonstrate an increase over the existing Accessibility Index through negotiation with local bus, train or tram companies to increase the frequency of the local service provision for the development; | 2 |
| – Demonstrate an increase over the existing Accessibility Index. This could be through provision of a diverted bus route, a new or enhanced bus stop, or other similar solutions. | 3 |
| – Provide a dedicated service, such as a bus route or service | 3 |
| – Provide a public transport information system in a publicly accessible area, to allow building users access to up-to-date information on the available public transport and transport infrastructure. This may include signposting to public transport, cycling, walking infrastructure or local amenities. | 1 |
| **Private transport measures** | |
| – Provide electric recharging stations of a minimum of 3kW for at least 10% of the total car parking capacity for the development. | 1 |
| – Set up a car sharing group or facility to facilitate and encourage building users to car share.<br>– Raise awareness of the sharing scheme with marketing and communication materials.<br>– Provide priority spaces for car sharers for at least 5% of the total car parking capacity for the development.<br>– Locate priority parking spaces nearest the development entrance used by the sharing scheme participants. | 1 |
| **Active travel measures** | |
| – During preparation of the brief, the design team consults with the local authority (LA) on the state of the local cycling network and public accessible pedestrian routes, to focus on whichever the LA deems most relevant to the project, and how to improve it.<br>– Agree and implement one proposition chosen with the local authority. The proposition supported by the development is additional to existing local plans and has a significant impact on the local cycling network or on pedestrian routes open to the public | 2 |
| – Install compliant cycle storage spaces to meet the minimum levels set out the BREEAM criteria | 1 |
| – Option 7 has been achieved.<br>– Provide at least two compliant cyclists' facilities for the building users, (including pupils where appropriate to the building type):<br>– Showers | 1 |

<table>
<tr><th>Issue</th><th>Credit Requirements</th><th>Credits<br>Available</th><th>Credits<br>Targeted (Potential)</th><th>Comments / Actions</th><th>Responsible Team Member</th></tr>
<tr><td></td><td>
<ul><li>Changing facilities</li><li>Lockers</li><li>Drying spaces.</li></ul>
<table>
<tr><td>Existing amenities:<br>– At least three existing accessible amenities are present, see Table 7.6 on page 179, where relevant for a Building Group.</td><td>1</td></tr>
<tr><td>Enhanced amenities:<br>– Ensure a minimum of one new accessible amenity is provided.</td><td>2</td></tr>
<tr><td>Ensure more than one new accessible amenity, in accordance with Table 7.6 within the BREEAM criteria for the relevant Building Group, is provided.</td><td>3</td></tr>
<tr><td colspan="2">Alternative transport measures</td></tr>
<tr><td>Implement one site-specific improvement measure, not covered by the options already listed in this issue, in line with the recommendations of the travel plan. Submit these for review by BRE.</td><td>1 - 3</td></tr>
</table>
</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="6">Water</td></tr>
<tr><td>Wat 01 (M), (Me), (Mo)<br>Water consumption<br>Mandatory:<br>– One credit for Good and above.<br>– Two credits for Outstanding.</td><td>Up to five credits:<br><br>Where evidence provided demonstrates that water consumption has been reduced to the following levels compared against the baseline building model:
<table>
<tr><th>% Improvement</th><th>No. of BREEAM Credits</th></tr>
<tr><td>12.5%</td><td>1</td></tr>
<tr><td>25%</td><td>2</td></tr>
<tr><td>40%</td><td>3</td></tr>
<tr><td>50%</td><td>4</td></tr>
<tr><td>55%</td><td>5</td></tr>
<tr><td>65%</td><td>Exemplary performance</td></tr>
</table>
</td><td>6</td><td>2<br>(+1)</td><td>Five credits applicable to assessment type<br>Two credits targeted<br>One additional potential credit</td><td>MEP & Architect</td></tr>
<tr><td>Wat 02 (M), (Me), (Mo)<br>Water monitoring<br>Mandatory:<br>Criterion 1 only for Good and above.</td><td>One credit:<br>– Where evidence provided demonstrates that a water meter with a pulsed output will be installed on the mains supply to each building/unit.<br>– Water-consuming plant or building areas, consuming 10% or more of the building's total water demand, need to be fitted with either sub meters or have water monitoring equipment integral to the plant or area. (Not applicable to Shell Only Assessments).<br>– Each meter (main and sub) must have a pulsed output to enable connection to a Building Management System (BMS) for the monitoring of water consumption.</td><td>1</td><td>1</td><td>ACTION REQUIRED AT STAGE 4<br>Requirements to be included within the Employer's Requirements MEP documentation and drawings. Metering strategy to be confirmed prior to issue.</td><td>MEP</td></tr>
</table>

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| | – If the site on which the building is located has an existing BMS, managed by the same occupier/owner (as the new building), the pulsed water meter(s) for the new building must be connected to the existing BMS. | | | | |
| Wat 03<br>Water leak detection | First credit - Leak detection system:<br>Where evidence provided demonstrates that a leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter is provided. | 1 | 1 | ACTION REQUIRED AT STAGE 4<br>Requirements to be included within the Employer's Requirements MEP documentation and drawings. | MEP |
| | Second credit - Flow control devices:<br>Where evidence provided demonstrates that flow control devices that regulate the supply of water to each WC area/facility according to demand are installed (and therefore minimise water leaks and wastage from sanitary fittings) | 1 | 1 | Credit targeted. | MEP |
| Wat 04<br>Water efficient equipment | First credit<br>The design team has identified all unregulated water demands that could be realistically mitigated or reduced. System(s) or processes have been identified to reduce the unregulated water demand, and demonstrate, through either good practice design or specification, a meaningful reduction in the total water demand of the building.<br><br>Unregulated water uses include (but are not limited to):<br>– Swimming pools<br>– Recreational hot tubs and hydrotherapy pools<br>– Equipment used for irrigation<br>– Vehicle wash equipment<br>– Project-specific industrial processes<br>– Water filtration and treatment processes<br>– Building services (e.g. cooling towers and humidification systems)<br><br>Credit is not applicable and will be filtered out where there is no water demand from uses other than domestic scale and sanitary use components. | 1 | 0 | Credit not currently targeted. | Landscape Architect |
| Materials | | | | | |
| Mat 01<br>Environmental impacts from construction products - Building life cycle assessment (LCA) | One - six credits: LCA superstructure<br>Up to six credits are available for development of a building LCA on of the superstructure design using either the BREEAM Simplified Building LCA tool or a Compliant LCA tool during concept design stage.<br><br>– Carry out building LCA options appraisal of 2 to 4 significantly different superstructure design options throughout the design development, using a building LCA tool that is recognised by BREEAM<br>– Submit to BRE at concept design stage prior to planning submission.<br>– Submit updated LCA assessment to BRE at technical design stage.<br><br>One credit LCA substructure<br>Carry out building LCA options appraisal of a combined total of at least six significantly different substructure or hard landscaping design options (at least two shall be substructure and at least two shall be hard landscaping). | 7 | 4<br>(+1) | Seven credits applicable to assessment type<br>Four credits targeted<br>One potential credit targeted<br><br>ACTION REQUIRED NOW<br>LCA assessment to be undertaken prior to submission of planning permission. LCA to be submitted to BRE and assessed at the developed design stage. | Architect / Structural Engineer / Civil Engineer / QS |
| | Exemplary level criteria<br>One credit – Core building services options appraisal during concept design<br>Carry out building LCA options appraisal of at least 3 significantly different core building services design options, using a building LCA tool that is recognised by BREEAM<br><br>One credit – LCA and LCC alignment | 3 | 0 | First credit:<br>Credit not currently targeted<br><br>Second credit:<br>Credit not currently targeted | Architect / Structural Engineer / Civil Engineer / QS |

<table>
<tr><th>Issue</th><th>Credit Requirements</th><th colspan="2">Credits</th><th>Comments / Actions</th><th>Responsible Team Member</th></tr>
<tr><th></th><th></th><th>Available</th><th>Targeted (Potential)</th><th></th><th></th></tr>
<tr><td></td><td>– Achieve Elemental LCC plan and Component Level LCC options appraisal credits include design options appraised as part of the LCA within the Elemental and Component LCC models.<br>– Integrate the aligned LCA and LCC options appraisal activity within the wider design decision-making process. Record this in an options appraisal summary document including the relevant cost information from the ‘elemental LCC plan’ and ‘Component level LCC option appraisal’.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Mat 02<br>Environmental impacts from construction products - Environmental Product Declarations (EPD)</td><td>One credit:<br>Where evidence provided demonstrates the designs features construction products with EPD that achieve a total EPD points score of at least 20, according to the BRE calculation methodology.</td><td>1</td><td>0</td><td>Credit not currently targeted<br><br>ACTION REQUIRED AT STAGE 4<br>Requirements to be included within the Employer's Requirements documentation.</td><td>Architect</td></tr>
<tr><td rowspan="3">Mat 03 (M), ($M_e$), ($M_o$)<br>Responsible sourcing of construction products<br><br>⚠<br>Mandatory:<br>Criterion 1 sustainable timber sourcing for all ratings</td><td>Pre-requisite<br>All timber and timber based products used on the project are ‘legally harvested and traded timber’<br><br>First credit: Enabling sustainable procurement<br>Where evidence provided demonstrates that a sustainability procurement plan is in place at by the concept design stage and is used by the design team to guide specification towards sustainable construction products.</td><td>1</td><td>1</td><td>ACTION REQUIRED NOW<br>Requirements to be included within the Employer's Requirements documentation. Contractor will be required to develop suitable reporting. Project team will be required to develop a sustainable procurement plan now for use throughout the project.</td><td>Architect & Contractor</td></tr>
<tr><td>Up to three credits:<br>Where evidence provided demonstrates the available responsible sourcing of materials (RSM) can be awarded where the applicable building materials are responsibility sourced in accordance with the BREEAM methodology.
<table>
<tr><th>RSM credits</th><th>% of available RSM points achieved</th><th>MAT03 Scope</th></tr>
<tr><td>1</td><td>≥ 10%</td><td>Superstructure</td></tr>
<tr><td>2</td><td>≥ 20%</td><td rowspan="2">As above, plus<br>– Internal finishes<br>– Substructure and hard landscaping</td></tr>
<tr><td>3</td><td>≥ 30%</td></tr>
</table></td><td>3</td><td>1</td><td>Three credits applicable to assessment type<br>One credit targeted<br><br>ACTION REQUIRED AT STAGE 4<br>Requirements to be included within the Employer's Requirements documentation. Contractor will be required to develop suitable reporting.</td><td>Architect</td></tr>
<tr><td>Exemplary credit:<br>Where evidence provided demonstrates that at least 50% of the available RSM points are achieved. Scope also includes core building services.</td><td>1</td><td>0</td><td>Credit not currently targeted<br><br>ACTION REQUIRED AT STAGE 4<br>Requirements to be included within the Employer's Requirements documentation. Contractor will be required to develop suitable reporting.</td><td>Architect</td></tr>
<tr><td>Mat 05<br>Designing for durability and resilience</td><td>One credit:<br>PART A: Protecting vulnerable parts of the building from damage<br>– Protection measures are incorporated into the building's design and construction to reduce damage to the building’s fabric or materials in case of accidental or malicious damage occurring. These measures must provide protection against:<br>– Negative impacts of high user numbers in relevant areas of the building (e.g. corridors, lifts, stairs, doors etc.).</td><td>1</td><td>1</td><td>ACTION REQUIRED NOW<br>Consideration for wear and damage to be made in addition to consideration for where (and how) protection measures will be included.</td><td>Architect</td></tr>
</table>

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| | – Damage from any vehicle or trolley movements within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas.<br>– External building fabric damage by a vehicle. Protection where parking or manoeuvring areas are within 1 metre of the building façade and where delivery areas or routes are within 2 metres of the façade, i.e. specifying bollards or protection rails.<br>– Potential malicious damage to building materials and finishes, in public and common areas where appropriate.<br><br>PART B: Protecting exposed parts of the building from material degradation<br>– Key exposed building elements have been designed and specified to limit long and short-term degradation due to environmental factors. This can be demonstrated through one of the following:<br>– The element or product achieving an appropriate quality or durability standard or design guide<br><br>OR<br><br>– A detailed assessment of the element's resilience when exposed to the applicable material degradation and environmental factors.<br>– Include convenient access to the roof and façade for cost-effective cleaning, replacement and repair in the building's design.<br>– Design the roof and façade to prevent water damage, ingress and detrimental ponding. | | | Environmental degradation assessment to be undertaken to identify how materials will be likely to be impacted by environmental hazards. | |
| Mat 06<br>Material efficiency | One credit:<br>At the preparation and brief and concept design stages, set targets and report on opportunities and methods to optimise the use of materials. These must be done for each of the following stages<br>– Preparation and brief<br>– Concept design<br>– Developed design<br>– Technical design<br>– Construction<br><br>Develop and record the implementation of material efficiency<br>– Developed design<br>– Technical design<br>– Construction | 1 | 1 | ACTION REQUIRED NOW<br>Stages 3, 4 to be completed by team. Stage 5, 6 to be included within Employer's Requirements documentation. | Architect |
| Waste | | | | | |
| Wst 01 ($M_o$)<br>Construction waste management<br>Mandatory:<br>One credit for Outstanding | One credit - Pre-demolition audit<br>Complete a pre-demolition audit of any existing buildings, structures or hard surfaces being considered for demolition. This must be used to determine whether refurbishment or reuse is feasible and, in the case of demolition, to maximise the recovery of material for subsequent high grade or value applications. The audit must cover the content of Pre-demolition audit scope:<br>– Be carried out at Concept Design stage (RIBA Stage 2) by a competent person prior to strip-out or demolition works<br>– Guide the design, consider materials for reuse and set targets for waste management<br>– Engage all contractors in the process of maximising high-grade reuse and recycling opportunities<br>– Compare actual waste arisings and waste management routes used with those forecast and investigate significant deviations from planned targets.<br><br>Three credits - Construction resource efficiency: | 5 | 3 | Pre-demolition audit:<br>Credit targeted<br>Construction resource efficiency:<br>Three credits applicable to assessment type<br>Two credits targeted<br><br>Exemplary credit:<br>Credit not currently targeted<br><br>ACTION REQUIRED NOW | Contractor |

<table>
<tr><th>Issue</th><th>Credit Requirements</th><th>Credits<br>Available</th><th>Credits<br>Targeted (Potential)</th><th>Comments / Actions</th><th>Responsible Team Member</th></tr>
<tr><td></td><td>
– Where a Resource Management Plan (RMP) has been developed covering the non-hazardous waste related to on-site construction and dedicated off-site manufacture or fabrication.<br><br>
– In addition, evidence provided demonstrates that non-hazardous construction waste (excluding demolition and excavation waste) generated by the building's design and construction meets or exceeds the following resource efficiency benchmarks:
<table>
<tr><th rowspan="2">BREEAM Credits</th><th colspan="2">Amount of waste generated per 100m$^2$ (gross internal floor area)</th></tr>
<tr><th>m$^3$</th><th></th></tr>
<tr><td>One credit</td><td>≤ 13.3</td><td>≤ 11.1</td></tr>
<tr><td>Two credits</td><td>≤ 7.5</td><td>≤ 6.5</td></tr>
<tr><td>Three credits</td><td>≤ 3.4</td><td>≤ 3.2</td></tr>
<tr><td>Exemplary level</td><td>≤ 1.6</td><td>≤ 1.9</td></tr>
</table>
</td><td></td><td></td><td>Any demolition for the site must be accompanied with a pre-demolition survey of the demolished buildings.<br><br>Thelow waste benchmark levels will be required within the Employer's Requirements documentation. These requirements can also identify that the diversion from landfill targets must be achieved.</td><td></td></tr>
<tr><td></td><td>
Fifth credit - Diversion of resources from landfill:<br>
Where evidence provided demonstrates that the following percentages of non-hazardous construction and demolition waste (where applicable) generated by the project have been diverted from landfill:
<table>
<tr><th>BREEAM credits</th><th>Type of Waste</th><th>Volume</th><th>Tonnage</th></tr>
<tr><td rowspan="3">One credit</td><td>Non-demolition</td><td>70%</td><td>80%</td></tr>
<tr><td>Demolition</td><td>80%</td><td>90%</td></tr>
<tr><td>Excavation</td><td>N/A</td><td>N/A</td></tr>
<tr><td rowspan="3">Exemplary level</td><td>Non-demolition</td><td>85%</td><td>90%</td></tr>
<tr><td>Demolition</td><td>85%</td><td>95%</td></tr>
<tr><td>Excavation</td><td>95%</td><td>95%</td></tr>
</table>
</td><td>1</td><td>1</td><td>As identified above, requirements to achieve these levels of diversion from landfill will be required to be included with Employer's Requirements documentation.</td><td>Contractor</td></tr>
<tr><td>Wst 02<br>Use of recycled and sustainably sourced aggregates</td><td>
Pre-requisite<br>
If demolition occurs on site, to encourage the reuse of site-won material on site, complete a pre-demolition audit of any existing buildings, structures or hard surfaces in accordance with Wst01 requirements.<br><br>
One credit: Project sustainable aggregate points<br>
Where evidence provided identifies amounts of aggregate used for the project, the types of aggregate, its source (location) and the transport type. This information is used to calculate the Sustainable Aggregate points score. Credits are scored as follows:
</td><td>1</td><td>0<br>(+1)</td><td>Credit currently targeted as potential only.</td><td>Civil / Structural Engineer</td></tr>
</table>

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| | Project Sustainable Aggregate Credits / Project Sustainable Aggregate points<br>1 / 3.5–6.0<br>1 exemplary performance credit / > 6.0<br><br>The calculation is based on the following aggregate uses:<br>– Engineered fill<br>– Concrete coarse aggregate<br>– Concrete fine aggregate<br>– Asphalt aggregate<br>– Granular bedding for pipes<br>– Granular bedding for hard landscape products<br>– Hydraulically bound materials | | | | |
| | Exemplary level criteria:<br>As above | 1 | 0 | Credit not currently targeted<br><br>Calculations required to identify the total amount of aggregate required for the project and the levels of recycled aggregate required to achieve compliance with the BREEAM criteria. It is anticipated that there is opportunity to achieve the standard level criteria, but due to the location, potentially not the exemplar level credit. | Civil / Structural Engineer |
| Wst 03 ($M_e$) ($M_o$)<br>Operational waste<br>⚠<br>Mandatory:<br>– One credit for Excellent and above | One credit:<br>Where evidence provided demonstrates that there is dedicated space(s) to cater for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities.<br><br>The dedicated space(s) must be:<br>– Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams<br>– Accessible to building occupants / facilities operators for the deposit of materials and collections by waste management contractors<br>– Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily/weekly operational activities and occupancy rates.<br>– The specified/installed operational waste facilities are compliant with the relevant NHS guidelines for that part of the UK.<br>Where the consistent generation in volume of the appropriate operational waste streams is likely to exist, e.g. large amounts of packaging or compostable waste generated by the building's use and operation, the following facilities must be provided as part of its waste management strategy:<br>– Static waste compactor(s) or baler(s); situated in a service area or dedicated waste management space.<br>– Vessel(s) for composting suitable organic waste resulting from the building's daily operation and use OR adequate space(s) for storing segregated food waste and compostable organic material prior to collection and delivery to an alternative composting facility.<br>– Where organic waste is to be stored/ composted on site, a water outlet is provided adjacent to or within the facility for cleaning and hygiene purposes. | 1 | 1 | A waste storage area of sufficient footprint area is required to be provided. This will have specific areas for recyclable waste and general waste and will comply with the area requirements of the BREEAM criteria.<br><br>The likelihood for a baler to be of use needs to be considered at the site. If may be required that a baler is provided. | Architect |

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| | **Additionally, for multi-residential buildings with individual bedrooms and communal facilities only:**<br>– Meet criteria 4.a and 4.b for self-contained dwellings or bedsits for every six bedrooms.<br>– Locate recyclable storage in a dedicated, un-obstructive position in communal kitchens or other appropriate communal space.<br>– Provide home composting facilities and a home composting information leaflet within the kitchen area or communal space.<br>– Provide a minimum of 10 litres of internal storage for compostable waste. | | | | |
| Wst 05<br>Adaptation to climate change | One credit - Structural and fabric resilience:<br>Where evidence provided demonstrates that a climate change adaptation strategy appraisal for structural and fabric resilience has been conducted by the end of Concept design (RIBA Stage 2) covering hazard identification and assessment, risk estimation, evaluation and management. Appraisal to identify & evaluate impact on the building over its life cycle from expected extreme weather conditions arising from climate change and, where feasible, mitigate against these impacts<br><br>ID hazards taking into account the following: structural stability, robustness, weather proofing and detailing, material durability, health and safety of occupants, impact on building contents and business continuity | 1 | 1 | ACTION REQUIRED NOW<br>A climate change adaptation plan is required to be developed. This plan and report are required to be concluded at RIBA Stage 2. As a result of this, the reporting against the requirements need to be commenced now. | Architect & Structural Engineer |
| | Exemplary credit:<br>A holistic approach to the design and construction of the current building's life cycle, to mitigate against the impacts of climate change, is represented by the achievement of these criteria.<br><br>In addition to achieving the first credit above, the following must also be achieved:<br>– Hea 04 – Thermal comfort:<br>Project team demonstrate how the building has been adapted, or designed to be easily adapted in future using passive design solutions<br>– Ene 01 – Reduction in energy use and carbon emissions<br>At least 6 credits in this issue have been achieved<br>– Ene 04 – Low carbon design<br>Passive design analysis credit has been achieved<br>– Wat 01 – Water consumption<br>Minimum of three credits in this issue have been achieved<br>– Mat 05 – Designing for durability and resilience<br>Building elements incorporate appropriate design and specification measures to limit material degradation due to environmental factors<br>– Pol 03 Surface water run off<br>Flood risk- A minimum of one credit has been achieved.<br>Surface water run off- Two credits have been achieved. | 1 | 0 | Credit not currently targeted | Architect & Structural Engineer |
| Wst 06<br>Design for disassembly and adaptability | One credit - Design for disassembly and functional adaptability - recommendations<br>Where evidence provided demonstrates that the design team conducts a study to explore the ease of disassembly and the functional adaptation potential of different design scenarios. Recommendations are required to be developed at the concept design stage. | 1 | 1 | ACTION REQUIRED NOW<br>A functional adaptability report is required for the project that identifies how the development can be adapted for future use. The report should be undertaken now. | Architect & Structural Engineer |
| | One credit - Disassembly and functional adaptability – implementation<br>Provide an update, during Technical Design, on: | 1 | 1 | Anticipated that the report recommendations can be incorporated into the design. | Architect & Structural Engineer |

<table>
<tr><th>Issue</th><th>Credit Requirements</th><th colspan="2">Credits</th><th>Comments / Actions</th><th>Responsible Team Member</th></tr>
<tr><th></th><th></th><th>Available</th><th>Targeted (Potential)</th><th></th><th></th></tr>
<tr><td></td><td>– How the recommendations or solutions proposed by Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing to the assessor.<br>– Changes to the recommendations and solutions during the development of the Technical Design.<br><br>Produce a building adaptability and disassembly guide to communicate the characteristics allowing functional adaptability and disassembly to prospective tenants.</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="6">Land Use and Ecology</td></tr>
<tr><td>LE 01<br>Site selection</td><td>First credit - Previously occupied land:<br>Where evidence is provided to demonstrate that at least 75% of the proposed development's footprint is on an area of land which has previously been developed for use by industrial, commercial or domestic purposes in the last 50 years.</td><td>1</td><td>1</td><td>ACTION REQUIRED NOW<br>Site Investigation reports to be provided that identify that the project has been at least 75% by areas previously developed.</td><td>Architect</td></tr>
<tr><td></td><td>Second credit - Contaminated land:<br>– Where evidence provided demonstrates that the site is significantly contaminated as confirmed by a contaminated land specialist's site investigation, risk assessment and appraisal. The client or principal contractor must confirm that remediation of the site will be carried out in accordance with the remediation strategy and its implementation plan.</td><td>1</td><td>0</td><td>Credit not currently targeted<br><br>ACTION REQUIRED NOW<br>Site Ground Investigation Report and Contamination report to identify the level of contamination at the site and the remediation required/undertaken.<br><br>It is not currently anticipated that there will be suitable levels of contamination on the site.</td><td>Contamination Specialist</td></tr>
<tr><td>LE 02<br>Identifying and understanding the risks and opportunities for the project</td><td>Pre-requisite - Assessment route selection<br>An assessment route for the project has been determined using BREEAM Guidance Note GN34 BREEAM Ecological Risk Evaluation Checklist.<br><br>The client or contractor confirms compliance will be and is monitored against all relevant UK and EU or international legislation relating to the ecology of the site.<br><br>Up to two credits<br>Depending on the route for compliance taken the following number of credits are available.<br><br><table><tr><th></th><th>Project team member route (Route 1)</th><th>Ecologist route (Route 2</th></tr><tr><td>Survey and evaluation</td><td rowspan="2">1 credit</td><td>1 credit</td></tr><tr><td>Determining the ecological outcomes for the site</td><td>1 credit</td></tr></table><br>Survey and evaluation<br>Route 1<br>Completion of the BREEAM Ecological Risk Evaluation Checklist indicates Assessment route 1 can be used as the assessment<br><br>Route 2<br>– An appropriate individual is appointed at a project stage that ensures early involvement in site configuration and, where necessary, can influence strategic planning decisions.</td><td>2</td><td>2</td><td>Survey and evaluation:<br>Credit targeted<br><br>Determining ecological outcomes:<br>Credit targeted<br><br>ACTION REQUIRED NOW<br>Ecology report to be commissioned/provided in order to consider how this credit can be approached.</td><td>Ecologist</td></tr>
</table>

<table>
<tr><th>Issue</th><th>Credit Requirements</th><th>Credits<br>Available</th><th>Credits<br>Targeted (Potential)</th><th>Comments / Actions</th><th>Responsible Team Member</th></tr>
<tr><td></td><td>– Prior to the completion of the preparation and brief, an appropriate level of survey and evaluation:<br>– For sites where complex ecological systems are likely to be present) has been carried out to determine the ecological baseline of the site, taking account of the zone of influence to establish:<br>– Current and potential ecological value and condition of the site, and related areas within the zone of influence.<br>– Direct and indirect risks to current ecological value<br>– Capacity and feasibility for enhancement of the ecological value of the site and, where relevant, areas within the zone of influence.<br>– Data are collated and shared with project team to inform the site preparation, design or construction works.<br><br>Determining the ecological outcomes for the site (Routes 1 and 2)<br>– Survey and evaluation criteria (criteria 3–6 above) relevant to the chosen route have been achieved.<br>– During Concept Design, the project team liaise and collaborate with representative stakeholders to identify and consider ecological outcome for the sites (appropriate to the scale and type of development) for the project.<br>– When determining the ecological outcome for the site, this must involve the identification, appraisal and selection of specific solutions and measures sufficiently early to influence key project planning decisions. This must be done in accordance with the following hierarchy of action:<br>– avoidance<br>– protection<br>– reduction or limitation of negative impacts<br>– on site compensation and,<br>– enhancement, considering the capacity and feasibility within the site, or where viable, off-site.<br>– Following this the optimal ecological outcome for the site is selected after liaising with representative stakeholders and the project team.</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>Exemplary level criteria<br>Determine the ecological outcomes for the site (sustainability-related activities)<br>When determining the optimal ecological outcome for the site consider, in addition to those outlined above, the wider site sustainability-related activities and the potential for ecosystem service related benefits.</td><td>1</td><td>0</td><td>Credit not currently targeted<br><br>Identified as a potential target subject to discussions with project ecologist.</td><td></td></tr>
<tr><td>LE 03<br>Managing negative impacts on ecology</td><td>Pre-requisite – Identification and understanding the risks and opportunities for the site<br>– The client or contractor has confirmed that compliance is monitored against all relevant UK, and EU or International legislation relating to the ecology of the site<br><br>– LE02 has been achieved<br><br><table><tr><th></th><th>Project team member route (Route 1)</th><th>Ecologist Route (Route 2)</th></tr><tr><td>Planning, liaison and implementation</td><td>1 credit</td><td>1 credit</td></tr><tr><td>Managing negative impacts of the project (limitation or compensation)</td><td>1 credit</td><td>1 or 2 credits</td></tr></table><br>One credit – Planning, liaison, implementation and data<br>– Roles and responsibilities have been clearly defined, allocated and implemented to support successful delivery of project outcomes at an early enough stage to influence the concept design or design brief.<br>– Site preparation and construction works have been planned for and are implemented at an early project stage to optimise benefits and outputs.<br>– The project team liaising and collaborating with representative stakeholders, taking into consideration data collated and shared, have implemented solutions, and measures have been selected</td><td>3</td><td>2</td><td>Planning, liaison and implementation:<br>Credit targeted<br><br>Managing negative impacts:<br>Two credits applicable to assessment type<br>One credit targeted<br><br>ACTION REQUIRED NOW<br>Ecology report to be commissioned/provided in order to consider how this credit can be approached.</td><td>Ecologist</td></tr>
</table>

<table>
<tr><th rowspan="2">Issue</th><th rowspan="2">Credit Requirements</th><th colspan="2">Credits</th><th rowspan="2">Comments / Actions</th><th rowspan="2">Responsible Team Member</th></tr>
<tr><th>Available</th><th>Targeted (Potential)</th></tr>
<tr><td></td><td>Up to two credits – Managing negative impacts of the project<br>Route 1 (one credit)<br>Negative impacts from site preparation and construction works have been managed according to the hierarchy and no net impact has resulted.<br><br>Route 2 (up to two credits)<br>Negative impacts from site preparation and construction works have been managed according to the hierarchy:<br><br>For sites where complex ecological systems are likely to be present) and either:<br>– No overall loss of ecological value has occurred (2 credits) OR,<br><br>– The loss of ecological value has been limited as far as possible (1 credit)</td><td></td><td></td><td></td><td></td></tr>
<tr><td>LE 04<br>Change and enhancement of ecological value</td><td>Pre-requisite - Identifying and understanding the risks and opportunities for the project<br>– LE 03 has been achieved. Including the following, specific to the aims of this issue:<br>– Roles and responsibilities have been clearly defined, allocated and implemented to support successful delivery of project outcomes<br>– Site preparation and construction works have been planned for and implemented at a stage that is sufficiently early in the project to optimise benefits and outputs.<br><br>– The client or contractor confirms compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site.<br><br><table><tr><th></th><th>Project team member route (Route 1)</th><th>Ecologist route (Route 2)</th></tr><tr><td>Liaison, implementation and data</td><td>N/A</td><td>1 credit</td></tr><tr><td>Enhancement of ecology</td><td>1 credit</td><td>up to 3 credits</td></tr></table><br>Route 1<br>One credit - Enhancement of ecology<br>– The project team liaising and collaborating with representative stakeholders, taking into consideration data collated and shared, have implemented solutions and measures based on recommendations from recognised ‘local’ ecological expertise, specialist input and guidance to inform the adoption of locally relevant ecological solutions and measures which enhance the site.<br>– Data collated is provided to the local environmental records centres nearest to, or relevant for, the site.<br><br>Route 2<br>One credit - Liaison, implementation and data collation<br>– The project team liaising and collaborating with representative stakeholders, taking into consideration data collated and shared, have implemented the solutions and measures selected in a way that enhances ecological value in the following order:<br>– On site, and where this is not feasible,<br>– Off site within the zone of influence.</td><td>4</td><td>3</td><td>Route 1 - Enhancement of ecology:<br>Credit not applicable to assessment type<br><br>Route 2 - Liaison, implementation and data collection:<br>Route 2 - Enhancement of ecology:<br>Three credits applicable to assessment type<br>Two credits targeted<br><br>ACTION REQUIRED NOW<br>Ecology report to be commissioned/provided in order to consider how this credit can be approached.</td><td>Ecologist & Contractor</td></tr>
</table>

<table>
<tr><th>Issue</th><th>Credit Requirements</th><th colspan="2">Credits</th><th>Comments / Actions</th><th>Responsible Team Member</th></tr>
<tr><th></th><th></th><th>Available</th><th>Targeted (Potential)</th><th></th><th></th></tr>
<tr><td></td><td>Up to three credits - Enhancement of ecology<br>– Credits are awarded on a scale of 1 to 3, based on the calculation of the change in ecological value occurring as a result of the project. This must be calculated in accordance with the process set out in either GN 35 - BREEAM, CEEQUAL, HQM Ecology Assessment Issues – Route 1 or GN 36 - BREEAM, CEEQUAL, HQM Ecology Assessment Issues</td><td></td><td></td><td></td><td></td></tr>
<tr><td>LE 05<br>Long term ecology management and maintenance</td><td>Pre-requisite - Roles and responsibilities, implementation, statutory obligations<br>– The client or contractor has confirmed that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site.<br>– Where pursued, LE 04 has been achieved, including the following specific aims of this issue:<br>– Roles and responsibilities have been clearly defined, allocated and implemented to support successful delivery of project outcomes.<br>– Site preparation and construction works have been planned for and implemented at a stage that is sufficiently early in the project to optimise benefits and outputs.<br><br>Up to two credits are available depending on the route selected.<br><br>One credit - Planning, liaison, data, monitoring and review management and maintenance<br><table><tr><th></th><th>Project team member route (Route 1)</th><th>Ecologist route (Route 2)</th></tr><tr><td>Liaison, monitoring implementation and evolving management and maintenance solutions</td><td rowspan="2">1 credit</td><td>1 credit</td></tr><tr><td>Landscape and habitat management plan</td><td>1 credit</td></tr></table><br>One credit - Planning, liaison, data, monitoring and review management and maintenance<br>– The project team liaise and collaborate with representative stakeholders, taking into consideration data collated and shared, on solutions and measures implemented to:<br>– monitor and review implementation and the effectiveness<br>– develop and review management and maintenance solutions, actions or measures.<br>– In support of the above and to help ensure their continued relevance over the period of the project the following should be considered:<br>– Monitoring and reporting of on the ecological outcomes for site implemented at the design and construction stage<br>– Monitoring and reporting of outcomes and successes from the project<br>– Arrangements for the ongoing management of landscape and habitat connected to the project (on and, where relevant, off site)<br>– Maintaining the ecological value of the site and its relationship or connection to its zone of influence<br>– Maintaining the site in line with the any sustainability linked activities, e.g. ecosystems benefits (LE 02).<br>– Remedial or other management actions are carried out which relate to those identified in LE 02, LE 03 and LE 04.<br>– As part of the tenant or building owner information supplied, include a section on Ecology and Biodiversity to inform the owner or occupant of local ecological features, value and biodiversity on or near the site.</td><td>2</td><td>2</td><td>Planning, liaison, data, monitoring and review:<br><br>Landscape and ecology management plan:<br><br>ACTION REQUIRED NOW<br>Ecology report to be commissioned/provided in order to consider how this credit can be approached.</td><td>Ecologist & Contractor</td></tr>
</table>

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| | One credit - Landscape and ecology management plan (or similar) development<br>– Landscape and ecology management plan, or similar, is developed in accordance with BS 42020:2013(210) covering as a minimum the first five years after project completion and includes:<br>– Actions and responsibilities, prior to handover, to give to relevant individuals<br>– The ecological value and condition of the site over the development life.<br>– Identification of opportunities for ongoing alignment with activities external to the development project and which supports the aims of BREEAM's Strategic Ecology Framework<br>– Identification and guidance s to trigger appropriate remedial actions to address previously unforeseen impacts<br>– Clearly defined and allocated roles and responsibilities.<br>– The landscape and management plan or similar is updated as appropriate to support maintenance of the ecological value of the site. | | | | |
| Pollution | | | | | |
| Pol 01<br>Impact of refrigerants | Pre-requisite:<br>All systems (with electronic compressors) must comply with the requirements of BS EN 378:2008, and where refrigeration systems containing ammonia are installed, they must comply with the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice.<br><br>Three credits: No refrigerant<br>Where evidence provided demonstrates that the building does not require the use of refrigerant within its building services or plant.<br><br>Two credits: DELC<br>Where evidence provided demonstrates that the systems specified using refrigerants have Direct Effect Life Cycle $CO_2$ equivalent emissions (DELC $CO_{2e}$) of ≤100 $kgCO_{2e}$/kW cooling/heating capacity.<br><br>OR<br><br>Where air-conditioning or refrigeration systems are installed the refrigerants used have a Global Warming Potential (GWP) ≤10.<br><br>One credit:<br>Where evidence provided demonstrates that the systems using refrigerants have Direct Effect Life Cycle $CO_2$ equivalent emissions of (DELC $CO_{2e}$) of ≤1000 $kgCO_{2e}$/kW cooling/heating capacity. | 2 | 1 | No refrigerant use credits:<br>Credits not applicable to assessment type<br><br>DELC credit(s):<br>Two credits applicable to assessment type<br>One credit targeted<br><br>ACTION REQUIRED AT STAGE 4<br>To be included within the Employer's Requirements Preliminaries and MEP documentation. | MEP |
| | One credit: Refrigerant leak detection<br>Where evidence provided demonstrates that the systems using refrigerants have a permanent automated refrigerant leak detection system installed, capable of automatically isolating and containing the remaining refrigerant(s) charge in response to a leak detection incident. | 1 | 0 | Credit not currently targeted<br><br>ACTION REQUIRED AT STAGE 4<br>To be included within the Employer's Requirements Preliminaries and MEP documentation. | MEP |
| Pol 02<br>Local air quality | Up to two credits:<br>All heating and hot water is supplied by non-combustion systems. For example, only powered by electricity | 2 | 2 | ACTION REQUIRED AT STAGE 4 | MEP |

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| | OR alternatively;<br>Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels set in Table 12.4 and Table 12.5 within the BREEAM Criteria document. The measurements must be provided by manufacturers, following the labelling requirements of the European directive 2009/125/EC. No credits can be awarded for Pol 02 if any of the combustion appliances are not covered in Table 12.4 and Table 12.5 within the BREEAM.<br><br>Emissions from all installed combustion plant that provide space heating and domestic hot water are required to not exceed the levels set in Table 1.21 and Table 1.22 within the BREEAM criteria. | | | To be included within the Employer's Requirements Preliminaries and MEP documentation. | |
| Pol 03<br>Surface water run off | Pre-requisite<br>An appropriate consultant is appointed to carry out and demonstrate the development's compliance with all criteria.<br><br>Part 1: Flood resilience (Up to Two credits)<br>Two credits - Low flood risk:<br>A site-specific flood risk assessment (FRA) confirms the development is in a flood zone that is defined as having a low annual probability of flooding. The FRA takes all current and future sources of flooding into consideration. These sources include:<br>– Fluvial (rivers)<br>– Tidal<br>– Surface water: sheet run-off from adjacent land (urban or rural)<br>– Groundwater: most common in low-lying areas underlain by permeable rock (aquifers)<br>– Sewers: combined, foul or surface water sewers<br>– Reservoirs, canals and other artificial sources<br><br>One credit - Medium/high flood risk:<br>Where evidence provided demonstrates that the assessed development is located in a zone defined as having a medium or high annual probability of flooding AND the ground level of the building, car parking and access is at least 600mm above the design flood level of the flood zone for the site's location OR the final design of the building and the wider site reflects the recommendations made by an appropriate consultant in accordance with the hierarchy approach outlined in section 5 of BS 8533:2017 | 2 | 2 | ACTION REQUIRED NOW<br>Flood Risk Assessment to be provided/commissioned that identifies the site's flood risk. It is currently anticipated that there is a low flood risk at the site. | Drainage Consultant |
| | Part 2: Surface water run-off<br>Pre-requisite:<br>Surface water run-off design solutions must be bespoke, i.e. they must take account of the specific site requirements and natural or man-made environment of and surrounding the site. The priority levels detailed in the Methodology must be followed, with justification given by the appropriate consultant where water is allowed to leave the site.<br><br>First credit:<br>Drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) shows a 30% improvement for the developed site compared with the pre-developed site. This should comply at the 1-year and 100-year return period events, including allowance for climate change.<br><br>Additionally, relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SUDs are in place.<br><br>Second credit:<br>Where evidence provided demonstrates that the consultant has confirmed that there is no risk of flooding of property in the event of a local drainage system failure, AND | 2 | 2 | First credit:<br>Credit targeted<br><br>Second credit:<br>The surface water runoff rate and runoff volume are not currently likely to be achieved. The runoff rate credit may be possible to be achieved based on attenuation systems, but the runoff volume credit is not likely to be achieved. | Drainage Consultant |

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| | EITHER<br>– The post development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development, including an allowance for climate change.<br>– Any additional predicted volume of run-off for the 100-year 6-hour event must be prevented from leaving the site by using infiltration or other Surface Drainage System (SUDs) techniques<br><br>OR (only where criterion no. 9 or 10 for this credit cannot be achieved)<br><br>– Justification from the Appropriate Consultant indicating why the above criteria cannot be achieved i.e. where infiltration or other SUDS techniques are not technically viable options.<br>– The post development peak rate of run-off is reduced to a limiting discharge. The limiting discharge is defined as the highest flow rate from the following options:<br>– The pre-development one-year peak flow rate<br>– The mean annual flow rate (Qbar)<br>– 2L/s/ha. | | | | |
| | Part 3: Minimising watercourse pollution<br>One credit:<br>Where evidence provided demonstrates that the following water course pollution prevention measures are covered:<br>– Appropriate Consultant confirms that there will be no discharge from the developed site for rainfall up to 5mm.<br>– Specification of Sustainable Drainage Systems (SUDs) or source control systems such as permeable surfaces or infiltration trenches<br>– Specification of oil/petrol separators (or equivalent system) in surface water drainage systems, where there is a high risk of contamination or spillage of substances<br>– Chemical or liquid gas storage areas have a means of containment fitted to the site drainage system<br>– All water pollution prevention systems have been designed and installed in accordance with the recommendations of documents such as the SUDS manual and other relevant industry best practice. They must be bespoke solutions taking account of the specific site requirements and natural or man-made environment of and surrounding the site.<br>– A comprehensive and up-to-date drainage plan of the site will be made available for the building/site occupiers.<br>– Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SUDS must be in place.<br>– All external storage and delivery areas are designed and detailed in accordance with the current best practice planning guidance | 1 | 0 | Credit not currently targeted<br><br>This credit is not likely to be achieved as there are unlikely to be soakaways dealing with rainwater events. | Drainage Consultant |
| Pol 04<br>Reduction in night time light pollution | One credit:<br>Where evidence provided demonstrates that the lighting system has been designed in accordance with the following requirements:<br>– The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the ILE Guidance notes for the reduction of obtrusive light, 2011.<br>– All external lighting (except for safety and security lighting) can be automatically switched off between 2300hrs and 0700hrs. This can be achieved by providing a timer for all external lighting set to the appropriate hours.<br>– If safety or security lighting is provided and will be used between 2300hrs and 0700hrs, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILE's Guidance notes, for example by using an automatic switch to reduce the lighting levels at 2300 or earlier.<br>– Illuminated advertisements, where specified, must be designed in compliance with ILE Technical Report 5 – The Brightness of Illuminated Advertisements. | 1 | 1 | INCLUDE WITHIN ER DOCUMENTATION<br>This requirement can be incorporated into the project's employer's requirements (MEP) documentation to require the contractor to achieve. | MEP |

| Issue | Credit Requirements | Credits | | Comments / Actions | Responsible Team Member |
|---|---|---|---|---|---|
| | | Available | Targeted (Potential) | | |
| Pol 05<br>Reduction of noise pollution | One credit:<br>Where evidence provided demonstrates that there is either no noise-sensitive areas or buildings within 800m radius of the assessed development<br><br>OR<br><br>Where there are or will be noise-sensitive areas or buildings within 800m radius of the assessed development a noise impact assessment in compliance with BS 4142:2014 has been carried out and the following noise levels measured/determined:<br>– Existing background noise levels at the nearest or most exposed noise-sensitive development to the proposed development or at a location where background condition can be argued to be similar.<br>– The noise level from the proposed site/building, as measured in the locality of the nearest or most exposed noise-sensitive development is a difference no greater than +5dB during the day (07:00 to 23:00) and +3dB at night (23:00 to 07:00). | 1 | 1 | Noise Impact assessment to be undertaken for the site identifying that building services noise will be limited in line with background noise levels. | Acoustician |
| Innovation | | | | | |
| Exemplary credits summary | Exemplary credits<br>Up to a maximum of ten credits are available:<br><br>Where the building demonstrates exemplary performance by meeting defined exemplary level performance criteria in one or more of following BREEAM assessment issues:<br><br>– Man 03 Responsible construction practices<br>– Hea 01 Visual comfort<br>– Hea 02 Indoor air quality<br>– Ene 01 Reduction of energy use and carbon emissions<br>– Wat 01 Water consumption<br>– Mat 01 Environmental impacts from construction products - Building life cycle assessment (LCA)<br>– Mat 03 Responsible sourcing of construction products<br>– Wst 01 Construction waste management<br>– Wst 02 Use of recycled and sustainably sourced aggregates<br>– Wst 05 Adaptation to climate change<br><br>One innovation credit can be awarded for each individual BREEAM issue exemplary performance level complied with.<br><br>Approved Innovations<br>One innovation credit can be awarded for each innovation application approved by BRE Global, where the building complies with the criteria defined within an Approved Innovation application form. | 10 | 0 | No exemplary level credits are currently included in the target strategy<br><br>The following exemplary level credits have included in the BREEAM potential strategy:<br>MAN03-06 Considerate Construction<br>MAT01 Building Life Cycle assessment - Third party verification | Contractor & Architect |

## 7. Appendix C: Credit Weightings BREEAM 2018

The weightings for the associated credits depending on the assessment route are shown in Table D1 below.

| Section | Section Weighting | | | No. of credits available | Value of Each Credit |
|---|---|---|---|---|---|
| | Fully-fitted | Shell only | Shell and core | Fully fitted | |
| Management | 11.0% | 12.0% | 11.0% | 21 | 0.52% |
| Health and Wellbeing | 14.0% | 7.0% | 8.0% | 18 | 0.78% |
| Energy | 16.0% | 9.5% | 14.0% | 25 | 0.64% |
| Transport | 10.0% | 14.5% | 11.5.0% | 12 | 0.83% |
| Water | 7.0% | 2.0% | 7.0% | 9 | 0.78% |
| Materials | 15.0% | 22.0% | 17.5% | 14 | 1.07% |
| Waste | 6.0% | 8.0% | 7.0% | 10 | 0.6% |
| Land Use and Ecology | 13.0% | 19.0% | 15.0% | 13 | 1% |
| Pollution | 8.0% | 6.0% | 9.0% | 12 | 0.67% |
| Innovation | 10.0% | 10.0% | 10.0% | 10 | 1.00% |

Table C1: BREEAM Credit Weightings

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