



**ELEMENT
SUSTAINABILITY**

WATERFRONT SQUARE, READING SUSTAINABILITY STATEMENT

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ELEMENT
SUSTAINABILITY

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ELEMENT SUSTAINABILITY

Executive Summary

The Waterfront Square scheme comprises the demolition of the existing buildings on the site and the introduction of an eleven-storey residential scheme, with non-residential space at ground floor level, public realm enhancements and parking.

The purpose of this statement is to summarise the relevant policy background and requirements of Reading Borough Council and to demonstrate the ways in which the developer has addressed these aims through their proposals, ensuring all practicable measures have been taken to deliver a sustainable development at this site.

The proposals will create a highly sustainable urban development, designed in accordance with Packaged Living's Sustainable Design Brief. The aim of which, is to design buildings that support the transition to a low carbon economy, catalyse the circular economy, reverse biodiversity decline, meet local / place-based needs, improve air quality and maximise occupant wellbeing and productivity.

This will be achieved through a range of sustainable design measures, which are detailed throughout this report, but in essence the proposed scheme will benefit from:

- A BREEAM Excellent rating for the ground floor non-residential space;
- A Whole Life Carbon Assessment has been produced to measure the embodied carbon of the proposed development, so that this can be monitored and compared to industry benchmarks, allowing informed decisions to be made;
- Located within a highly sustainable location, due to its close proximity to local amenities and public transport links;
- A highly efficient, fabric led 'all electric' energy strategy with no fossil fuels;
- 12% Biodiversity Net Gain (BNG) on site;
- The inclusion of sustainable urban drainage systems (SUDs) on site;
- The dwellings will be specified with efficient water fixtures and controls to achieve a calculated daily consumption of <105 litres/person/day;
- The development will provide safe access and storage facilities for cyclists;
- Waste arising during construction will be minimised through the implementation of a Site Waste Management Plan (SWMP); and,
- Appropriate thermal comfort levels will be achieved throughout the design, and controls are selected to maintain a thermally comfortable environment.

These measures will ensure that the proposed Waterfront Square scheme will deliver a highly sustainable scheme that accords with the guidance provided within the Council's Local Plan, as well as national planning and regulatory standards.



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Appendix

Appendix A - BREEAM Pre Assessment



1. INTRODUCTION

Element Sustainability has been commissioned by Packaged Living Limited to review the sustainability and energy performance of the proposed Waterfront Square residential scheme, within Reading.

The purpose of this statement is to summarise the relevant policy background and requirements of Reading Borough Council and to demonstrate the ways in which the developer has addressed these aims through their proposals, ensuring all practicable measures have been taken to deliver a sustainable development at this site.

Details of the design attributes, specifications and characteristics of the scheme are appraised in order to demonstrate how the proposals contribute to sustainable development in Reading and seek to mitigate the environmental impacts of the scheme, providing a sustainability appraisal in support of the planning application.

This report is intended to support the planning application for this development and therefore, establish an approach to the delivery of this scheme which meet the criteria outlined by the council that the developer commits to implement at the site.



2. DEVELOPMENT PROPOSALS

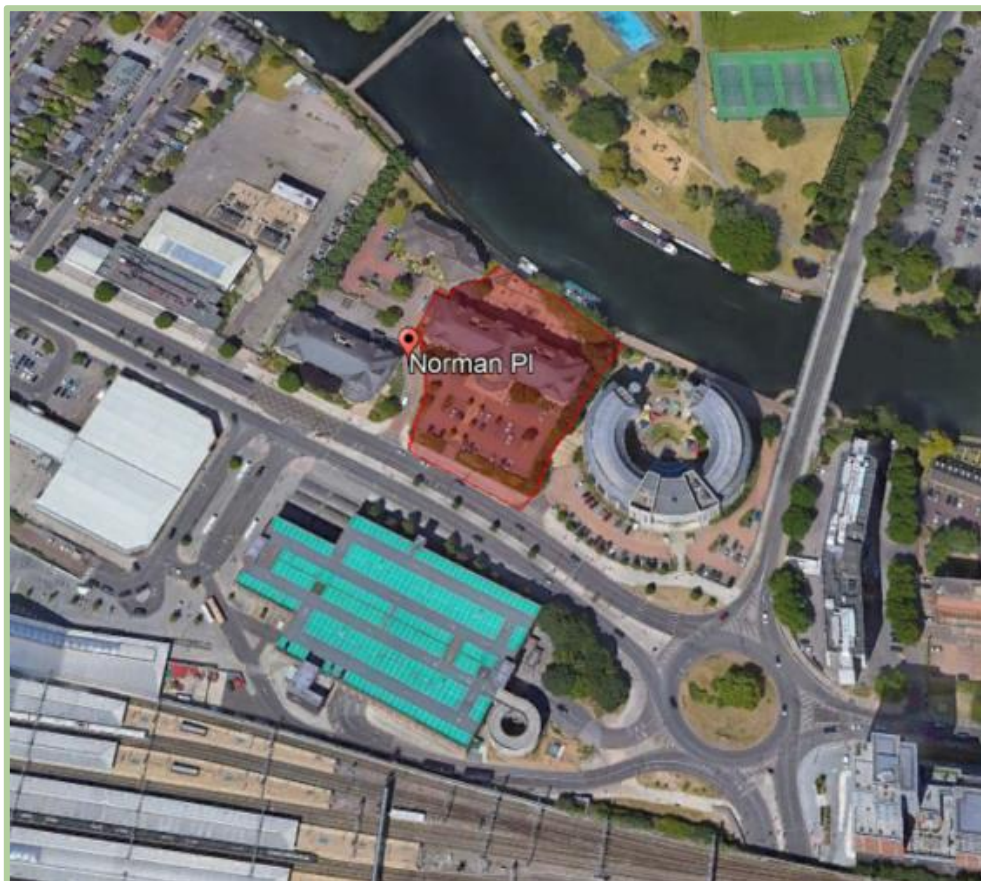
2.1 Development Site Description

The application site is located along the southern bank of the River Thames and can be accessed via Vastern Road. The site is bordered by the Thames Water office building to the east, Vastern Road to south, which splits the site from other transport and commercial buildings, including Reading Train Station and Reading Station Retail Park. There are also other commercial / residential buildings to west and the River Thames and the Thames Path are situated beyond the northern perimeter of the site, which separates the site from the Christchurch Meadow.

This brownfield plot is currently occupied by an office building with associated car parking and is located within close proximity to Reading Train Station.

It is not within a designated conservation area and the pre-development site is presented in Figure 2.1 below.

Figure 2.1 – Pre-development Site



2.2 Development Proposals

The Waterfront Square scheme comprises the demolition of the existing buildings on the site and the introduction of an eleven-storey residential scheme, with non-residential floor space provided at ground floor level, public realm enhancements and parking.



Figures 2.2 to 2.11 present the elevations and floor plans of the proposed scheme.

Figure 2.2 – Proposed North Elevation



Figure 2.3 – Proposed East Elevation



Figure 2.4 – Proposed Ground Floor Plan*Figure 2.5 – Proposed First Floor Plan*

Figure 2.6 – Proposed Second to Fourth Floor Plans



Figure 2.7 – Proposed Fifth to Sixth Floor Plan



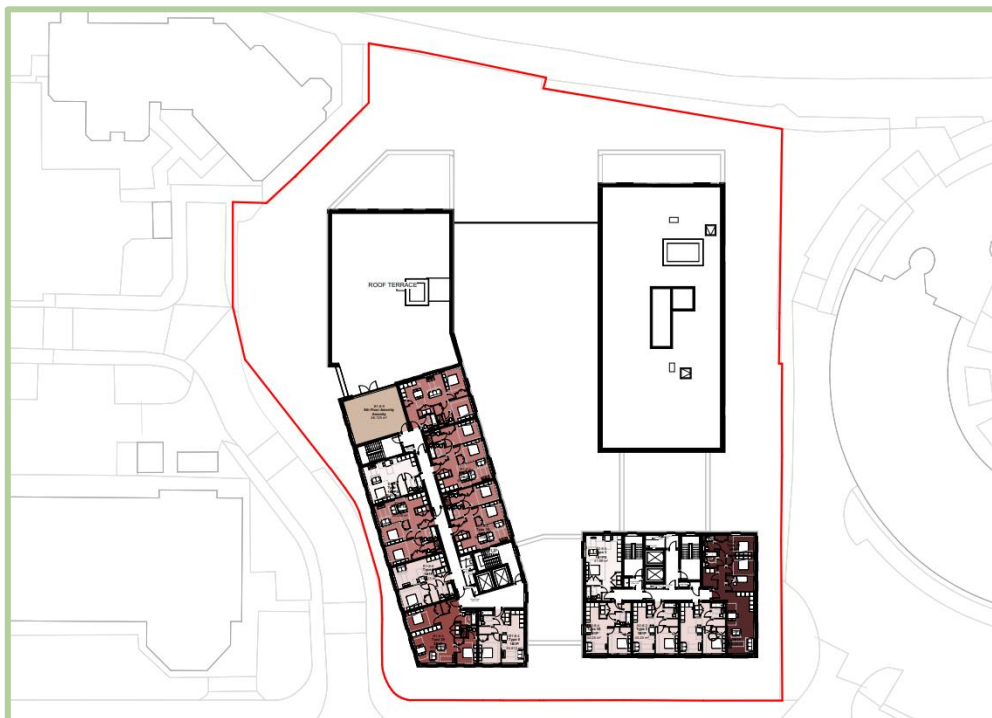
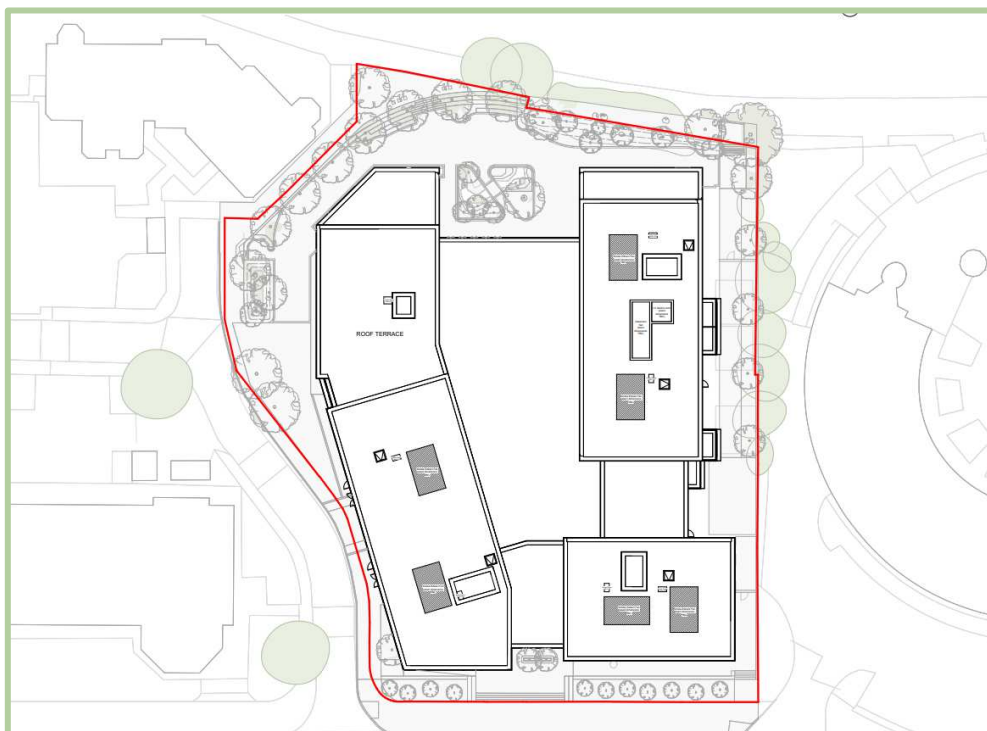
Figure 2.8 – Proposed Seventh Floor Plan*Figure 2.9 – Proposed Eighth Floor Plan*

Figure 2.10 – Proposed Ninth and Tenth Floor Plan



2.11 – Proposed Roof Plan



3. POLICY REVIEW

3.1 National Planning Policy

The National Planning Policy Framework was revised in response to the Levelling-up and Regeneration Act: reforms to national planning policy consultation on 19th December 2023 and sets out the government's planning policies for England and how these are expected to be applied.

The purpose of the planning system is to contribute to the achievement of sustainable development as per paragraphs seven to fourteen in the NPPF:

"The planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways, as set out below:

An economic role – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;

A social role – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations, and by fostering well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and

An environmental role – to protect and enhance our natural, built and historic environment, including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

These objectives should be delivered through the preparation and implementation of plans and the application of the policies in this framework. Planning policies and decisions should play an active role in guiding development towards sustainable solutions, but in doing so should take local circumstances into account, to reflect the character, needs and opportunities of each area".

Meeting the challenge of climate change, flooding and coastal change:

The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.

In paragraph 159 of the NPPF it states that:

"New development should be planned for in ways that:

- a) Avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure; and,



- b) Can help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards".

3.2 Regional Planning Policy

3.2.1 Reading Borough Council Local Plan

Reading Borough Council's Local Plan was adopted in November 2019. This contains planning policies to manage development in Reading up to 2036 and is the main document which is used to decide planning applications.

CC1: Presumption in favour of Sustainable Development – A positive approach to considering development proposals will be taken that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework (NPPF).

The Government has placed the presumption in favour of sustainable development at the heart of its approach to planning, and this is articulated in the National Planning Policy Framework.

CC2: Sustainable Design and Construction – Proposals for new development, including the construction of new buildings will be acceptable where the design of buildings and site layouts use energy, water, minerals, materials and other natural resources appropriately, efficiently and with care and take account of the effects of climate change.

To meet these requirements:

All minor non-residential developments or conversions to residential are required to meet the most up-to-date BREEAM 'Very Good' standard as a minimum.

CC3: Adaptation to Climate Change – All developments will demonstrate how they have been designed to incorporate measures to adapt to climate change. The following measures shall be incorporated into development:

- Wherever possible, new buildings shall be orientated to maximise the opportunities for both natural heating and ventilation and reducing exposure to wind and other elements;
- Proposals involving both new and existing buildings shall demonstrate how they have been designed to maximise resistance and resilience to climate change for example by including measures such as solar shading, thermal mass, heating and ventilation of the building and appropriately coloured materials in areas exposed to direct sunlight, green and brown roofs, green walls, etc;
- Use of trees and other planting, where appropriate as part of a landscape scheme, to provide shading of amenity areas, buildings and streets and to help to connect habitat, designed with native plants that are carefully selected, managed and adaptable to meet the predicted changed climatic conditions; and,
- All development shall minimise the impact of surface water run-off from the development in the design of the drainage system, and where possible incorporate mitigation and resilience measures for any increases in river flooding levels as a result of climate change.



CC4: Decentralised Energy - In meeting the sustainability requirements of this plan, developments of the sizes set out below shall demonstrate how consideration has been given to securing energy for the development from a decentralised energy source.

Any development of more than twenty dwellings and/ or non-residential development of over one thousand square metres shall consider the inclusion of decentralised energy provision, within the site, unless it can be demonstrated that the scheme is not suitable, feasible or viable for this form of energy provision.

CC5: Waste Minimisation and Storage - Development should demonstrate measures to minimise the generation of waste in the construction, use and life of buildings and promote more sustainable approaches to waste management, including the reuse and recycling of construction waste and the promotion of layouts and designs that provide adequate, well-designed space to facilitate waste storage, reuse, recycling and composting.

EN9: Provision of Open Space – All new development should make provision for appropriate open space based on the needs of the development. This can be achieved through on or off-site provision, contributions toward provision or improvement of existing leisure or recreational facilities.

On sites of fifty dwellings or more, or for developments where the availability and quality of existing open space has been identified as deficient, new provision will be sought. Development must ensure satisfactory provision of children's play areas and neighbourhood parks.

EN12: Biodiversity and the Green Network – New development shall demonstrate how the location and type of green space, landscaping and water features provided within a scheme have been arranged such that they maintain or link into the existing Green Network and contribute to its consolidation. Such features should be designed to maximise the opportunities for enhancing this network. All new development should maximise opportunities to create new assets and links into areas where opportunities are as yet unidentified.

On all sites, development should not result in a net loss of biodiversity and geodiversity and should provide a net gain for biodiversity wherever possible. Development should:

- Protect and wherever possible enhance features of biodiversity interest on and adjacent to the application site, incorporating and integrating them into development proposals wherever practicable; and
- Provide new tree planting, wildlife friendly landscaping and ecological enhancements (such as wildlife ponds, bird and bat boxes) wherever practicable.

EN16: Pollution and Water Resources – Development will only be permitted where it would not be damaging to the environment and sensitive receptors through land, noise or light pollution; where it would result in no deterioration in, or ideally enhance, ground and surface water quality; and where adequate water resources, sewerage and wastewater treatment infrastructure will be in place to support the proposed development prior to occupation.

EN18: Flooding and Sustainable Drainage Systems – All major developments must incorporate sustainable drainage systems (SuDS) as appropriate and in line with the Government's Technical Standards. Smaller schemes are encouraged to incorporate SuDS, where possible. Runoff rates should aim to reflect greenfield conditions and, in any case, must be no greater than the existing conditions of



the site. Schemes should ensure that the movement of water through vertical infiltration as well as horizontal run-off does not worsen contamination effects.

H5: Standards for New Housing - New build housing should be built to the following standards, unless it can be clearly demonstrated that this would render a development unviable:

- All new build housing will be built to the higher water efficiency standard under Regulation 36 of the Building Regulations 79;
- All major new-build residential development should be designed to achieve zero carbon homes. The Sustainable Design and Construction SPD provides the following guidance - (or if unachievable, a minimum 35% improvement in the dwelling emission rate over the target emission rate, as defined in the 2013 Building Regulations and planning contribution to offset remaining carbon emissions to zero)
- All other new build housing will achieve at a minimum a 19% improvement in the dwelling emission rate over the target emission rate, as defined in the 2013 Building Regulations.

TR4: Cycle Routes and Facilities - Developments will be expected to make full use of opportunities to improve access for cyclists to, from and within the development and to integrate cycling through the provision of new facilities. Development of new facilities for cycling, such as cycle hire points and cycle parking, will be acceptable.

TR5: Car and Cycle Parking and Electric Vehicle Charging – Development should provide car parking and cycle parking that is appropriate to the accessibility of locations within the borough to sustainable transport facilities, particularly public transport.

3.3 Supplementary Planning Documents

3.3.1 Sustainable Design and Construction Supplementary Planning Document

This sets out the council's commitment to producing sustainable buildings. It also interprets existing policy on things like climate change, energy efficiency and renewable energy, and was adopted in December 2019.

This Supplementary Planning Document (SPD) therefore explains planning requirements with regard to energy, climate change, water management and waste reduction. It is intended to supplement the policies of the Local Plan, particularly:

- CC2: Sustainable Design and Construction,
- CC3: Adaptation to Climate Change,
- CC4: Decentralised Energy,
- CC5: Waste Minimisation and Storage,
- EN18: Flooding and Drainage, and,
- H5: Housing Standards.

For residential development of ten dwellings or more, the Local Plan requires 'Zero Carbon' development, unless it can be clearly demonstrated that this would render a development unviable. Zero carbon homes is an achievable standard that, until recently, was intended to be a national requirement in the Building Regulations. It is required through planning policy for major residential new



build development, and the viability of this approach was tested through the Local Plan and was not found to place an unreasonable burden on development. The paragraphs below describe the requirements in more detail.

In achieving Zero Carbon Homes for major residential developments, the preference is that new build residential of ten or more dwellings will achieve true carbon neutral development on-site. If this is not achievable, it must achieve a minimum of 35% improvement in regulated emissions over the Target Emissions Rate in the 2013 Building Regulations, plus a Section 106 contribution of £1,800 per remaining tonne towards carbon offsetting within the Borough (calculated as £60/ tonne over a thirty-year period). £60 per tonne of carbon is a nationally recognised price of carbon and reflects the amount established by the Zero Carbon Hub. Based on a review of other Local Planning Authorities (LPA) carbon pricing.

The Sustainability Statement focuses on the questions posed in the Sustainability Checklist.

3.4 Packaged Living Sustainable Design Brief

The foundation of the Packaged Living's sustainability strategy is based on the requirements and commitments laid out in their Sustainable Design Brief (SDB) which is aligned with the Sustainable Development Goals (SDGs). Packaged Living's vision is to design buildings which support the transition to a low carbon economy, catalyse the circular economy, reverse biodiversity decline, meet local / place-based needs, improve air quality and maximise occupant wellbeing and productivity. The SDB provides minimum requirements and targets for a range of key performance indicators including:

- Net Zero Carbon – Operational and Embodied
- Sustainable Water Cycle
- Sustainable Connectivity
- Sustainable Transport
- Enhancing Biodiversity
- Good Health and Wellbeing
- Sustainable Communities and Social Value
- Third Party Certification

3.5 Applicable Targets

Based upon a review of relevant planning policy requirements, legislative drivers, and client priorities, the following list provides a brief precis of the key criteria that should be targeted for this development:

Reading Local Plan Policies:

- **CC1:** Presumption in favour of Sustainable Development
- **CC2:** Sustainable Design and Construction
- **CC4:** Decentralised Energy
- **CC5:** Waste Minimisation and Storage
- **EN9:** Provision of Open Space
- **EN12:** Biodiversity and the Green Network
- **EN16:** Pollution and Water Resources
- **EN18:** Flooding and Sustainable Drainage Systems
- **H5:** Standards for New Housing
- **TR4:** Cycle Routes and Facilities
- **TR5:** Car and Cycle Parking and Electric Vehicle Charging

Sustainable Design and Construction Supplementary Planning Document

Building Regulations, Part L - Approved Document Volume 1 and 2 (2021)

Packaged Living Sustainable Design Brief



4. SUSTAINABILITY STATEMENT

This statement provides an appraisal of the proposals and details the specific approach, design features and specifications which will contribute to reducing the environmental impact of the scheme and address all relevant policies in the Reading Borough Local Plan.

The Sustainability Statement has therefore been produced in line with the council's Sustainability Checklist and the Sustainable Design Brief.

4.1 Energy Performance and Carbon Dioxide Emissions

Local Plan Policy H5: Standards for New Housing requires all major new-build residential schemes to be zero carbon (or if unachievable, a minimum 35% improvement in the dwelling emission rate over the target emission rate, as defined in the Part L 2013 Building Regulations and planning contribution to offset remaining carbon emissions to zero).

In response to this, the proposed energy strategy produced by Hoare Lee will ensure the scheme is designed in accordance with both the energy and cooling hierarchy. The following design details will also be incorporated to ensure the scheme complies with the latest **Building Regulations Part L Approved Document Volume 1 (2021)**; Reading's adopted local planning policies and also supports the schemes Sustainable Design Brief targets:

Be Lean

- Fabric first approach;
- Optimised glazing ratio; and,
- Air permeability of 3.00m³/hm² @ 50Pa.

Be Clean

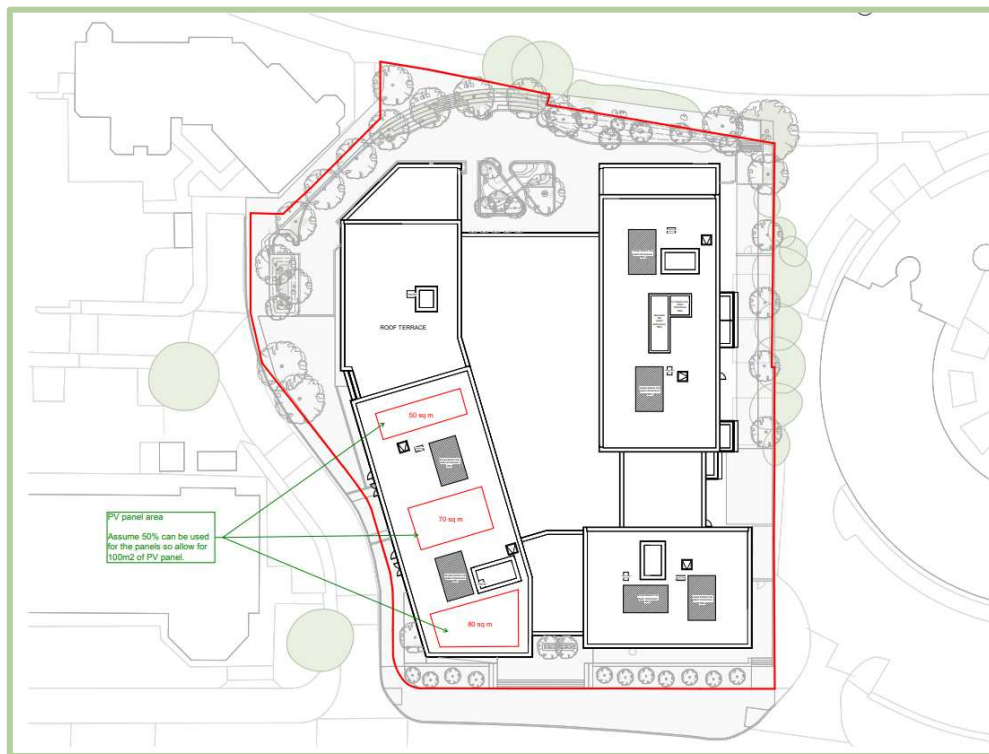
- Changes to the carbon factor of grid electricity have meant that previously favoured systems such as Combined Heat and Power (CHP) are becoming much less carbon efficient. Due to the decarbonisation of the electricity grid, alongside air quality concerns, CHP is not proposed.
- The apartments will be specified with electric panel heaters and mechanical ventilation heat recovery (MVHR) units. Meaning the scheme will efficiently utilise grid electricity.

Be Green

- The site will be fossil fuel free;
- PV will be provided at roof level; and,
- Exhaust Air Heat Pump (EAHP) will be used for water heating.

Figure 4.1 below sets out where the provisional location of the PV arrays, demonstrating that there is adequate roof space to accommodate the arrays.



Figure 4.1 - Proposed Roof Plan

Whilst this does not achieve net zero regulated operational carbon, the results do show a significant 70.23% reduction against Part L 2021 of the building regulations. Plus, this is an all-electric scheme meaning that, as the grid continue to decarbonise, the proposal represents a route to net zero operational carbon.

In response to the requirements set out within **Local Plan Policy CC4: Decentralised Energy**, there are currently no District Heat Networks (DHNs) in close proximity to the Proposed Development, therefore at present a connection is not possible.

4.2 Water Efficiency

Efficient internal water systems provide luxurious comfort whilst minimising the impact upon the environment in terms of managed potable water and energy demand as well as the water treatment cycle that aligns with recognised sustainable outcome criteria.

Therefore, the proposed dwellings will be designed to reduce mains / potable water consumption and will include the following water efficient designs and equipment to address Local Plan Policy H5: Standards for New Housing.

- In order to reduce water demand, the sanitary fixtures will be specified to **achieve a calculated daily consumption of <105 litres/person/day in accordance with the Sustainable Design Brief;**
- A water efficiency strategy will be determined for the site and will include for the provision of 'A' rated appliances as a minimum; and,



- A water meter on the mains water supply to the buildings will be specified to monitor and manage consumption, and each apartment will be sub-metered to allow water consumption to be further monitored and managed accordingly.

Efficient water fixtures will be specified throughout the apartments, such as low flow taps and dual flush WCs, in order to reduce water consumption and allow resources to be used efficiently in accordance with Local Plan Policy STP2.

4.3 Materials Usage

Packaged Living have aspirational targets for both operational and embodied carbon in order to limit the carbon emissions associated with the upfront construction and in use stages of the proposed development. These are aligned with the UKGBC NZC framework and look at the **whole life cycle of the structural materials to inform decisions surrounding reductions in embodied carbon where feasible**. In addition to this, **measures to design out waste will be implemented in order to support the target of zero waste to landfill, with an overarching aspiration to achieve Net Zero Carbon for the scheme at Practical Completion in accordance with the Sustainable Design Brief**. The following measures will therefore be considered as part of the proposed development:

- A Whole Life Cycle Assessment (WLCA) has been produced in order to assess the embodied carbon impact of the scheme and design recommendations have been made to limit the carbon emissions associated with the scheme;
- Materials with a low environmental impact throughout their life cycle will therefore be prioritised for the main building elements. Plus, materials with associated Environmental Performance Declarations (EPDs) will be favoured;
- Materials will be sourced in accordance with a Sustainable Procurement Plan (SPP). A SPP includes sustainability aims, objectives and strategic targets to guide procurement activities;
- Responsibly sourced materials from suppliers operating an Environmental Management System and procuring timber verified by either the Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification standard (PEFC) will be prioritised;
- Material selection will be carefully considered to avoid the use of toxic materials, such as Volatile Organic Compounds (VOCs) and contribute towards creating a healthy indoor environment;
- Demolition and excavation material (such as soil and substructural elements) from construction works will be used, where practical, for landscaping purposes.

Local sourcing of construction materials where feasible and viable will minimise the impact of carbon dioxide emissions associated with the transportation of materials. In addition to this, the building design is to be **resource and energy efficient** and **utilise low carbon materials in accordance with Local Plan Policy UD5**.

This will also support the delivery of the upfront embodied carbon target set out in the Packaged Living Sustainable Design Brief.



4.4 Flood Risk Management

A Flood Risk Assessment has been produced by Stantec UK Limited and a Drainage Strategy has been prepared by Hexa Consulting Limited, in order to demonstrate the potential flood risk onsite and to show how surface water will be managed. Data obtained from the Environment Agency was used to determine which flood zone the site is located within and the potential flood risk to the proposed development.

Figure 4.2 below presents the latest Environment Agency (EA) Flood Zone Map data which demonstrates that the site is located wholly within Flood Zone 1, demonstrating a low probability of flooding from rivers.

Figure 4.2 – Environment Agency Flood Risk Zone Map

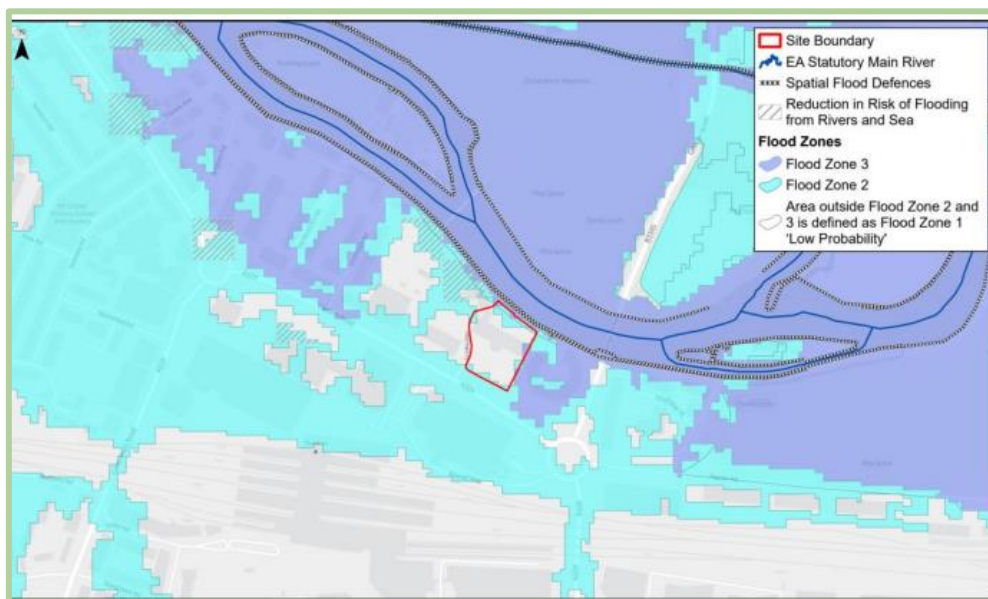


Figure 4.3 – Extent of Flooding: Flood Risk from Surface Water

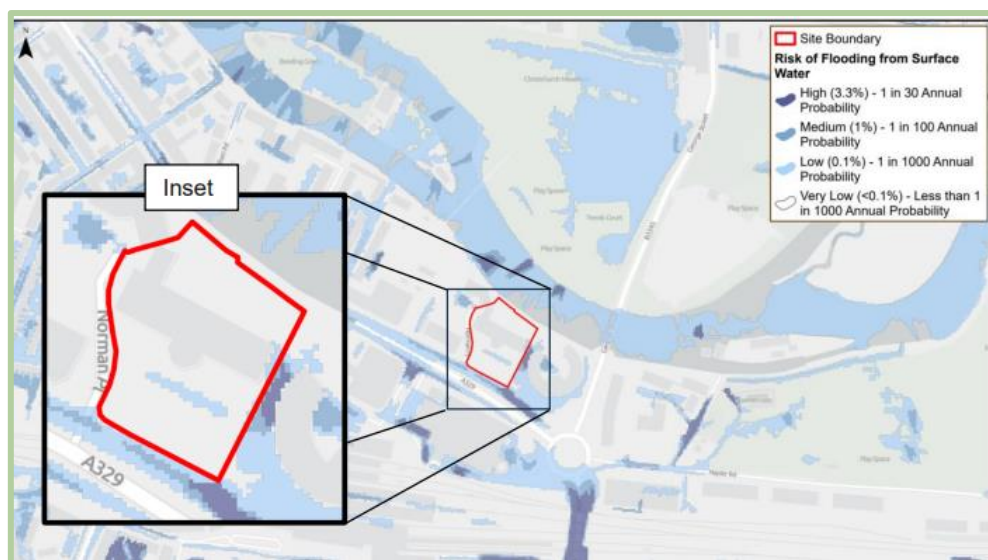


Figure 4.3 demonstrates that the development area also has a very low risk from surface water flooding, with a chance of flooding of less than 0.1% each year.

Surface Water Management

The proposed surface water drainage system will be controlled using an efficient vortex flow control device. This will require approximately 200m³ of attenuation volume, which is proposed to be provided within cellular storage, rain gardens, permeable paving sub-base and the piped surface water drainage network.

Sustainable Drainage Systems (SuDS) are proposed for the management of surface water runoff in accordance with local and national guidance. Surface water discharge is proposed to be restricted to achieve at least 50% betterment compared to the existing conditions and to discharge to the culverted watercourse along the southern boundary of the site.

SUDs which are to be implemented include:

- Blue Green Roofs
- Bioretention rain gardens

The proposed development will **incorporate Sustainable Drainage Systems (SUDs)** to manage surface water run-off **in accordance with Local Plan policy EN18: Flooding and Sustainable Drainage Systems**. These are also a **key component in addressing a sustainable water cycle** as defined in Packaged Living's Sustainable Design Brief.

4.5 Waste Management

4.5.1 Construction Waste

Best practice techniques to prevent and minimise waste during the design and construction phase of the development will be adopted, as follows:

- Prior to commencement of the above ground construction phase, a site waste management plan (SWMP) will be produced by the developer to limit the on and off-site environmental impacts of construction:
- The SWMP will detail:
 - Recycled and secondary materials;
 - Waste reduction;
 - Waste segregation;
 - Waste recovery; and,
 - Waste disposal.
- This development will promote the minimisation of waste arising and seek to maximise the use of recycled materials in construction.

The **principal contractor will implement sound environmental management practices** and consideration for neighbouring sites during their activities on-site.



4.5.2 Operational Waste

The operational waste strategy for the scheme focuses on the segregation of waste at source, in order to maximise the potential for the residents to recycle. All residents will be informed on collection frequency, as well as guidance on local recycling facilities to assist with the management and storage of waste.

The proposed waste management strategy has been developed in compliance with the policies of the councils policies:

- The proposed layouts and designs will provide adequate, well-designed space to facilitate waste storage, reuse, recycling and composting in accordance with policy CC5 – Waste minimisation and storage
- Waste will be segregated at source with the help of split bins to receive multiple streams of waste – general, recyclables and compost; and,
- Residents will be required to take their waste to the designated refuse area on the ground floor, to be collected by refuse operators on the designated collection day.

The proposed development will seek to **minimise waste and promote recycling**, during both construction and occupation.

4.6 Pollution

To reduce the dwelling's impact on the surrounding communities and environments, the proposals will include the following:

- Appropriate measures will be incorporated to avoid pollution to air, water and soil;
- Measures will be put in place to reduce noise pollution during construction and occupation;
- The external lighting strategy will be designed to reduce unnecessary light pollution through effective design, energy consumption and nuisance to neighbouring properties;
- Good acoustic design will be targeted during the early design stages of the development management process, to reduce noise pollution during occupation;
- In accordance with EN16: Pollution and Water Resources, the proposed development will not be damaging to the environment and sensitive receptors through land, noise or light pollution; and adequate water resources, sewerage and wastewater treatment infrastructure will be in place to support the proposed development prior to occupation.

The principal contractor will put measures in place to ensure that the surrounding area will not be **polluted** as a direct result of the activities on site during the construction phase.



4.7 Health, Wellbeing and Social Value

The proposed scheme will be optimised to enhance residents' health and wellbeing through the following measures:

- Appropriate thermal comfort levels are achieved throughout the design, and controls are selected to maintain a thermally comfortable environment. **Packaged Living will aspire to achieve an operative temperature that does not exceed 26 °C for more than 3% of the time;**
- Accessible open spaces for residents and access to a podium garden;
- The proposed development makes good use of available daylight, and will create good levels of natural daylighting within habitable areas, creating a healthy living environment;
- Optimised views out from each apartment; and,
- The scheme will create spaces which support and uplift local communities and labour during the construction and operation phase of the scheme

The proposed scheme will **therefore contribute to the creation, improvement and maintenance of healthy, safe, sociable and inclusive residential complex.**

4.8 Management

To optimise the building design and to manage the environmental impacts of the site, the following measures will be implemented:

- Recognising and encouraging an integrated design process and robust stakeholder engagement;
- The principal contractor will implement sound environmental management practices and consideration for neighbouring sites during their activities on-site.

4.9 Ecology and Biodiversity

An Ecological Impact Assessment and a Biodiversity Net Gain (BNG) Report have been produced by The Environment Partnership Ltd to assess the potential ecological effects upon habitats and species present or adjacent to the site, and to provide a detailed assessment on the BNG benefits for the proposed development. Measures to secure biodiversity gains on site will be sought via the following measures:

- New trees, ground level planters and hedgerows throughout the public realm will be introduced in line with Local Plan Policy EN12: Biodiversity and the Green Network, thereby enhancing the green infrastructure links on site;
- The use of trees and other planting as part of a landscape scheme, will provide shading of amenity areas in accordance with Local Plan Policy CC3- Adaption to Climate Change
- The green roof system will assist in increasing the ecological value of the site;



- The plant specification and design will contribute to rainwater management by minimising surface run off and maximising surface infiltration;
 - This will be achieved through the use of rainwater gardens.

The proposed scheme is expected to achieve a net gain of 12.28%, which equates to 0.12 Biodiversity Units (BU) for area-based habitats. Thereby exceeding the 10% required by Schedule 7A of the Town and Country Planning Act (TCPA) 1990 (as inserted by Schedule 14 of the Environment Act 2021)

4.10 Transport

A review of the most appropriate and sustainable modes of transport has been conducted to assess the feasibility of each transport option available to the future occupiers of the proposed development. The conclusions that can be drawn from this appraisal are as follows:

4.10.1 Public transport

- The closest bus stop is located approximately opposite the site along Vastern Road;
- The nearest station to the proposed development is Reading Station, which is approximately one hundred and sixty metre walk from the site, which can be accessed within a five minute walk.

4.10.2 Connectivity

- Integrated high quality, digital systems will be integrated throughout the scheme to avoid unnecessary travel, whilst enabling inclusive social connectivity and versatile working for all residents. To accommodate this, the proposed development will seek to install a high-speed broadband connection to all apartments.
- The minimum **broadband speed Packaged Living will target is 'superfast', which is equal to or better than thirty megabytes per second.** This will also support LCC's **Policy TP1** that addresses improving **accessibility and managing demand for travel.**

4.10.3 Cycling and Walking

- The proposed development will include 136 secure cycle parking spaces will be provided plus a further 14 cycle spaces will be provided within the public realm for visitors.
- The site benefits from an excellent pedestrian infrastructure within the vicinity of the site. There are lit footways and crossing points linking the site to the surrounding area.
- The general topography of area is reasonably flat, which should assist in encouraging visitors of the proposed development to travel by bike.
- There is also a vast array of local amenities within both suitable walking and cycling distances.



Cycle storage and secure managed access, supports take up of this sustainable transport option, linking residents directly to highly accessible connections and amenities in the city.

4.10.4 EV chargers

The scheme will implement electric vehicle charging points in line with Building Regulations Part S.

Due to the site's proximity to local amenities and the presence of public transport services within easy walking distance, **the site is considered to be well located to encourage trips to be made on foot, bicycle or via public transport in accordance with Local Plan policies TR4 – Cycle Routes and Facilities and TR5 – Car and Cycle Parking and EV Charging.**



5. BREEAM

Reading Local Plan Policy CC2: Sustainable Design and Construction requests that new development, including the construction of new buildings will be acceptable where the design of buildings and site layouts use energy, water, minerals, materials and other natural resources appropriately, efficiently and with care and take account of the effects of climate change. In order to meet these requirements, the council outlines that all non-residential developments are required to complete a BREEAM Assessment.

Therefore, a BREEAM Pre Assessment has been produced to identify the strategy for achieving an 'Excellent' rating (which can be viewed within Appendix B of this report).

BREEAM (Building Research Establishment's Environmental Assessment Method) is the world's leading and most widely used environmental assessment method for buildings.

BREEAM UK New Construction scheme is a performance-based assessment method and certification scheme for new non-domestic buildings. The primary aim of BREEAM UK New Construction is to mitigate the life cycle impact of new buildings on the environment in a robust and cost-effective manner. This is achieved through integration and the use of the scheme by clients and their project team at key stages in the design and construction process.

The building's performance is assessed under a number of categories, including:

- Energy;
- Water;
- Transport;
- Materials;
- Land Use;
- Pollution;
- Health and Wellbeing;
- Management;

The BREEAM rating benchmarks for BREEAM UK new construction projects assessed using the 2018 version of BREEAM are presented in Table 6.1 below.

Table 6.1 – BREEAM Rating Benchmarks

BREEAM Rating	% Score Required
Outstanding	≥ 85
Excellent	≥ 70
Very Good	≥ 55
Good	≥ 45
Pass	≥ 30

Very Good reflects the Top 10% of UK new non-domestic buildings and is considered best practice.



There are minimum standards associated with the BREEAM 'Excellent' standard in terms of the building's energy and emission performance. However, to ensure that performance against fundamental environmental issues is not over-looked in pursuit of a particular rating, BREEAM sets minimum standards of performance in key areas e.g. energy, water and materials.

A BREEAM 'Excellent' rating requires the following minimum performance standards to be achieved, see Table 6.2.

Table 6.2 – Mandatory 'Excellent' Standards

BREEAM NC 2018 Credits	Minimum Standards
MAN 03: Responsible Construction Practices	One credit (responsible construction management)
MAN 04: Commissioning and Handover	One credit (commissioning-test schedule and responsibilities)
MAN 04: Commissioning and Handover	Criterion 11 (Building User Guide)
MAN 05: Aftercare	One credit (commissioning - implementation)
ENE 01- Reduction of Energy Use and Carbon Emissions	Four credits (Energy performance or Prediction of operational energy consumption*)
ENE 02: Energy Monitoring	One credit (First sub metering credit)
WAT 01: Water Consumption	One credit
WAT 02: Water Monitoring	Criterion 1 only
MAT 03: Responsible Sourcing of Materials	Criterion 1 only
WST 03: Operational Waste	One credit

BREEAM Rating

The BREEAM Pre-Assessment has been prepared for the proposed office element of the development by a qualified, licensed BREEAM Assessor. This determines the feasible credits and potential BREEAM rating for the scheme and demonstrates a commitment to the principles of good construction, design and sustainability.

Indicative BREEAM rating: **'Excellent'**
Indicative BREEAM Score: 77.42%



All credits allocated within this BREEAM Pre-Assessment will require further technical verification and additional feasibility assessment during the formal Design Stage and Post Construction BREEAM assessment.

The BREEAM Pre-Assessment shows that the development is expected to perform as follows:

- Indicative building BREEAM score = **77.42%** (*minimum required for BREEAM 'Excellent' = 70%*)
- Indicative BREEAM rating = Potential for **BREEAM 'Excellent' rating**.

Note that a number of assumptions have been made within this initial appraisal which will require confirmation by means of further technical input during the formal assessment, once the design and specifications are finalised. The approach to achieving the target BREEAM rating may, therefore, be subject to change further into the development cycle.

The proposed development will thereby **comply with Reading Local Plan Policy CC2: Sustainable Design and Construction** by achieving the **predicted BREEAM 'Excellent' Rating**



6. CLIMATE CHANGE EMERGENCY

The council declared a 'climate emergency' in February 2019 and is taking action on climate change through a Borough-wide approach. Following the declaration of a climate emergency, the Partnership developed a new Reading Climate Emergency Strategy 2020-25, setting out the pathway to achieving the goal of 'a net zero carbon, resilient Reading' by 2030.

In support of this, the developer wishes to highlight the following measures that will form part of the specification of this development:

- All apartments are predicted to achieve a B rated EPC.
- An energy strategy that aligns with the council's planning policies and Part L of the Building Regulations, in relation to carbon emissions and minimising energy consumption;
- The proposed fossil fuel energy strategy will benefit from the decarbonisation of the national grid during the operational phase of the development. Thereby further reducing the carbon emissions associated with the scheme.
- In exceeding compliance with the current, Building Regulation Part L targets, a commitment is made to minimise demand side energy loads – in accordance with the principles of the Energy Hierarchy;
- SUDs will be installed to limit the impact of the scheme upon the water catchment and entrench climate resilience within the building design.
- A 12.28%, % enhancement in BNG will be achieved on site through the planting scheme within the public realm and garden area, plus the inclusion of a green roof.
- A site waste management plan (SWMP) will be produced by the developer to limit the on and off-site environmental impacts of construction.
- This scheme will promote the minimisation of waste arising and seek to maximise the use of recycled materials in construction.
- The dwellings will be designed to incorporate features that will serve to reduce energy demand, deliver good levels of natural daylighting and thermal comfort to deliver a healthy living environment.
- The internal specification of the dwelling will seek to minimise water demand. Water efficiency measures (such as dual flush toilets) will limit potable water demand. This will reduce water heating energy loads and cut the energy required to supply clean drinking water.
- The site is located in a highly sustainable location and will encourage trips to be made on foot or via public transport. This is facilitated by:
 - Easy access to the Thames Pathway
 - Bus stop being accessible along Vastern Road;
 - Reading Station can be accessed within a five-minute walk.



These commitments, in combination, seek to work towards the carbon reduction target of no more than 1.5°C global temperature increase and assist the council in meeting their Climate Change Emergency objectives.



7. CONCLUSION

This statement has reviewed the sustainability performance of the proposed Waterfront Square residential scheme against national, local planning policies and the Packaged Living Sustainable Design Brief.

The conclusions that may be drawn from the review are as per the following:

Sustainability Performance –

- The commercial unit is targeting to achieve a **BREEAM Excellent rating**, thereby exceeding **Local Plan Policy CC2: Sustainable Design and Construction**
- The scheme will be **designed in accordance with Packaged Living Homes Sustainable Design Brief**, which outlines specific minimum requirements and targets that the client aims to achieve as part of the development.
- The proposed development will **incorporate Sustainable Drainage Systems (SUDs)** to manage surface water run-off **in accordance with Local Plan Policy EN18: Flooding and Sustainable Drainage Systems** and Packaged Living's Sustainable Design Brief.
- The proposed design will exceed the **10% enhancement in biodiversity net gain in accordance with the SDB. This will be achieved through the proposed green roof system, new tree planting, wildlife friendly landscaping and ecological enhancements wherever practicable in line with Local Plan Policy EN12: Biodiversity and the Green Network.**
- The dwellings will be specified with **efficient water fixtures and controls**. This will achieve a calculated daily consumption of **<105 litres/person/day** in accordance with **Packaged Living's Sustainable Design Brief**.
- This proposed development is situated within a highly sustainable area and **promotes access to sustainable modes of transport; with access to regular bus and trains services within close proximity to the site**, which will contribute towards creating a highly connected and sustainable development. In addition to this, the scheme will receive superfast broadband to support in reducing the demand for travel in accordance.
- In accordance with **TR4: Cycle Routes and Facilities** the proposed development will provide safe access and storage facilities for cyclists to, from and within the development. Cyclists will also be access the Thames Pathway from the site.
- Waste arising during construction will be minimised through the **implementation of a Site Waste Management Plan (SWMP)**. The SWMP will be used to ensure that there is adequate management, and that storage of construction waste takes place in line with the Council's policies. Opportunities for the possible recycling of construction from excavation works will also be considered.
- **A Refuse Management Strategy** has been developed to manage waste and recyclables from the operational phase of the development. Source segregation will encourage the individuals to recycle and **divert waste away from landfills**.



- This **fossil fuel free scheme** will be designed to be **resource and energy efficient** and include features such as a photovoltaic array which will integrate with the green roof system and highly efficient Air Source Heat Pump systems.
- **Appropriate thermal comfort levels** will be achieved throughout the design, and controls are selected to maintain a thermally comfortable environment. **Packaged Living will aspire to achieve an operative temperature that does not exceed 26 °C for more than 3% of the time.**
- 55% of applicable areas where daylight is between 300-2000lux for 80% occupied time will be targeted in accordance with the Packaged Living SDB, this will create **good levels of natural daylighting within habitable areas** and create a healthy living environment.

Furthermore, the proposals accord with the aims of the National Planning Policy Framework, as follows:

- The **re-use of land** will provide a development that inherently supports **sustainable residential space with access to local amenities and sustainable modes of transport**. The reuse of the site is also an efficient use of land and resources;
- **Construction practices that minimise adverse impacts on the environment** will be adhered to including a waste management strategy to reduce the quantity of waste generated, and to increase re-use and recycling, a commitment will be made to minimise waste and pollution; and,
- **Improving upon the regulatory Part L compliance criteria** will assist in lessening the impact of this development on the environment by way of reducing carbon emissions.

In conclusion, the proposed scheme will deliver a quality community that accords with the guidance provided within Council's Local Plan as well as national planning and regulatory standards and seeks to provide a sustainable development at the site.



Appendix A – BREEAM Pre Assessment





**ELEMENT
SUSTAINABILITY**

WATERFRONT SQUARE, READING BREEAM PRE ASSESSMENT

JULY 2024

REF: 2023.195



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Executive Summary

Element Sustainability has been appointed by Packaged Living to complete an assessment of the proposed development under the Building Research Establishment Environmental Assessment Methodology (BREEAM). This pre-assessment review report gives an indication of the expected BREEAM score and rating for the development that may be achieved when the final assessment is submitted to the Building Research Establishment (BRE), based on the information provided at this pre-assessment stage.

The proposed scheme comprises the demolition of existing buildings on the site and the introduction of a BTR residentially led scheme, providing 254 new homes (up to eleven storeys) along with enhanced public realm and a commercial unit (365msq.) at ground floor.

This BREEAM Pre-Assessment report specifically relates to the 365m² ground floor commercial retail unit on the north side of the building.

BREEAM Methodology

The BREEAM UK New Construction V6 scheme can be used to assess the environmental life cycle impacts of new non-domestic buildings at the design and construction stages. 'New Construction' is defined as development that results in a new standalone structure, or new extension to an existing structure, which will come into operation or use for the first time upon completion of the works.

A BREEAM pre-assessment report has been prepared by a qualified and licensed BREEAM Accredited Professional to demonstrate the feasibility of achieving the desired BREEAM ratings for the new build scheme. The initial pre-assessment report details the possible strategies to be employed to achieve a desired score of BREEAM Excellent.

The BREEAM assessment methodology applicable to this development is as follows:

- BREEAM UK V6 Non-Domestic New Construction (Retail – Shops and Shopping Centre) – Shell and Core.

BREEAM Rating

A review of the current development proposals has been carried out against the BREEAM UK V6 New Construction assessment methodology. It is anticipated that the scheme's design has the potential to score **77.42%** (the minimum score level for BREEAM 'Excellent' rating is 70%), see Table 1.2 below. To ensure this strategy, a workshop should take place to review the targeted credits to ensure feasibility.

Minimum Standards

The minimum standards for the BREEAM 'Excellent' rating are provided in Table 1.1 of this report and highlighted in Table 1.2. To achieve a particular level of performance the majority of BREEAM credits can be traded, i.e. non-compliance in one area can be offset through compliance in another to achieve the target BREEAM rating.



To ensure that performance against fundamental environmental issues is not overlooked in pursuit of a particular rating, BREEAM sets minimum standards of performance in key areas as detailed below.

Table 1.1 - Minimum Standards

BREEAM NC V6 Issues	Minimum Standards for BREEAM for 'Excellent' rating
MAN 3: Responsible construction practices	One credit (responsible construction management)
MAN 4: Commissioning and handover	One credit (commissioning & test schedule and responsibilities)
MAN 4: Commissioning and handover	Criterion 11 (Building User Guide)
MAN 5 Aftercare	One credit (commissioning-implementation)
ENE 1: Reduction of energy use and carbon emissions	Four credits (Energy performance or Prediction of operational energy consumption)
ENE 2: Energy Monitoring	One credit (First sub-metering credit)
WAT 1 Water consumption	One Credit
WAT 2: Water Monitoring	Criterion 1 only
MAT 3: Responsible Sourcing of Materials	Criterion 1 only
WST 3: Operational Waste	One credit

RIBA Sensitive Credits

There are several BREEAM credits that need to be addressed at particular RIBA stages. These credits have been highlighted in blue in Table 1.2 below.



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Table 1.2 – Pre-Assessment Review

Issue		Available Credits	Targeted Credits	Responsibility	BREEAM Criteria
Management					
Man 1 – Project Brief and Design					
Man 1a	Stakeholder Consultation (Project Delivery)	1	1	Design Team	BREEAM Criteria Prior to completion of the Concept Design, the project delivery stakeholders meet to identify and define for each key phase of project delivery: 1.a Roles 1.b Responsibilities 1.c Contributions. Consider each one of the following items when defining roles, responsibilities and contributions for each key phase of the project: 2.a End user requirements 2.b Aims of the design and design strategy 2.c Particular installation and construction requirements or limitations 2.d Occupiers' budget and technical expertise in maintaining any proposed systems 2.e Maintainability and adaptability of the proposals 2.f Operational energy 2.g Requirements for the production of project and end user documentation 2.h Requirements for commissioning, training and aftercare support. The project team demonstrates how the project delivery stakeholders' contributions and the consultation process outcomes influence the following: 3.a Initial Project Brief 3.b Project Execution Plan 3.c Communication Strategy 3.d Concept Design.



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Issue		Available Credits	Targeted Credits	Responsibility	BREEAM Criteria
					Design Stage Evidence: Please provide a copy of the Consultation Plan setting out the scope of the consultation. Please provide copies of meeting minutes / construction programme / responsibilities schedule, relevant sections/clauses of the building contract. Please provide evidence demonstrating how the project delivery stakeholder contributions and the outcomes of the consultation process have influenced or changed the Initial Project Brief, Project Execution Plan, Communication Strategy, and Concept Design. Post Construction Stage Evidence: As per Design Stage.
Man 1b	Stakeholder Consultation (Third Party)	1	1	Design Team	BREEAM Criteria Prior to completion of the Concept Design, the design team consult with all interested parties on matters that cover the minimum consultation content. Demonstrate how the stakeholder contributions and consultation exercise outcomes influence the Initial Project Brief and Concept Design. Prior to completion of the detailed design (RIBA Stage 4, Technical Design or equivalent), all interested parties give and receive consultation feedback. Design Stage Evidence: Consultation plan setting out the process and scope of the consultation. Copy of stakeholder consultation documents (meeting minutes / letters / emails etc) Copy of update given to interested parties during Technical Design. Post Construction Stage Evidence: As per Design Stage.
	Pre-requisite	-	-	Design Team	BREEAM Criteria: The project team, including the client, formally agree strategic performance targets early in the design process, (with the support of the BREEAM AP).
Man 1c	BREEAM AP (Concept Design)	1	1	BREEAM AP	BREEAM Criteria:



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Issue		Available Credits	Targeted Credits	Responsibility	BREEAM Criteria
					Involve a BREEAM AP in the project at an appropriate time and level to: a. Work with the project team, including the client, to consider the links between BREEAM issues and assist them in maximising the project's overall performance against BREEAM, from their appointment and throughout Concept Design. b. Monitor progress against the performance targets agreed throughout all stages after their appointment, where decisions critically impact BREEAM performance. c. Proactively identify risks and opportunities related to the achievement of the targets agreed. d. Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. e. Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team. Design Stage Evidence: Letter of instruction to BREEAM AP. Meeting minutes / communication records / formal notes of conversations and other statements reporting on discussions related to performance targets and maximising performance. Risks and opportunities documentation. Post Construction Stage Evidence: As per Design Stage.
Man 1d	BREEAM AP (Developed Design)	1	1	BREEAM AP	BREEAM Criteria: Involve the BREEAM AP in the project at an appropriate time and level to: a. Work with the project team, including the client, to consider the links between BREEAM issues and to assist them in maximising the project's overall performance against BREEAM throughout Developed Design. b. Monitor progress against the performance targets agreed throughout all stages where decisions critically impact the specification and tendering process and the BREEAM performance. c. Proactively identify risks and opportunities related to the achievement of the targets agreed.



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Issue		Available Credits	Targeted Credits	Responsibility	BREEAM Criteria
					d. Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. e. Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team. Design Stage Evidence: Letter of instruction to BREEAM AP. Meeting minutes / communication records / formal notes of conversations and other statements reporting on discussions related to performance targets and maximising performance. Risks and opportunities documentation. Post Construction Stage Evidence: As per Design Stage.
Man 2 - Life Cycle Cost and Service Life Planning					
Man 2a	Elemental LCC	2	2	Cost Consultant	BREEAM Criteria: A competent person (see Definitions on the facing page) carries out an outline, entire asset LCC plan at Process Stage 2 (equivalent to Concept Design - RIBA Stage 2) together with any design options appraisals in line with 'Standardised method of life cycle costing for construction procurement' PD 156865: 2008. The elemental LCC plan: a. Provides an indication of future replacement costs over a period of analysis as required by the client (e.g. 20, 30, 50 or 60 years); b. Includes service life, maintenance and operation cost estimates. The study period should ideally be agreed by the client, in line with the design life expectancy of the building. However, where the life expectancy of the building is not yet formally agreed (due to being at very early design stages), the default design life of 60 years should be used for modelling purposes (in line with the UK default). Demonstrate, using appropriate examples provided by the design team, how the elemental LCC plan has been used to influence building and systems design and specification to minimise life cycle costs and maximise critical value.



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Issue		Available Credits	Targeted Credits	Responsibility	BREEAM Criteria
					Design Stage Evidence: Elemental LCC Plan Letter confirming how the Elemental LCC plan has influenced the building and system design and specification. Post Construction Stage Evidence: As per Design Stage.
Man 2b	Component LCC	1	1	Cost Consultant	BREEAM Criteria: A competent person develops a component level LCC options appraisal by the end of Process Stage 4 (equivalent to Technical Design – RIBA Stage 4) in line with PD 156865: 2008. The component level LCC includes (where present): a. Envelope, e.g. cladding, windows, or roofing b. Services, e.g. heat source, cooling source, or controls c. Finishes, e.g. walls, floors or ceilings d. External spaces, e.g. alternative hard landscaping, boundary protection. The Component level LCC option appraisal should review all of the above component types (where present). However, you do not need to consider every single example cited under each component; only a selection of those most likely to draw valued comparisons. This is to ensure that a wide range of options are considered and help focus the analysis on components which would benefit the most from appraisal. Demonstrate, using appropriate examples provided by the design team, how the component level LCC options appraisal has been used to influence building and systems design and specification to minimise life cycle costs and maximise critical value. Design Stage Evidence: Component LCC Plan Letter confirming how the Component LCC plan has influenced the building and system design and specification. Post Construction Stage Evidence: As per Design Stage.



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Issue		Available Credits	Targeted Credits	Responsibility	BREEAM Criteria
Man 2c	Capital Cost Reporting	1	1	Client or Project Manager	BREEAM Criteria: The capital cost to be reported for the refurbishment project £/m². Design Stage Evidence: Letter of Commitment confirming predicted Capital Costs. Post Construction Stage Evidence: Letter of Confirmation confirming final Capital Costs.
Man 3 - Responsible Construction Practices					
Man 3	Timber Procurement (M)	Pre-Req	Pre-Req	Main Contractor	BREEAM Criteria: Main contractor to ensure that all timber is legally harvested and trade timber. Design Stage Evidence: Letter of Commitment confirming all timber will be legally harvested and traded timber. Post Construction Stage Evidence: Copies of all relevant certificates or chain of custody evidence.
Man 3a	Environmental Management	1	1	Main Contractor	BREEAM Criteria: All parties who at any stage manage the construction site (e.g. the principal contractor, the demolition contractor) operate an EMS covering their main operations. The EMS must be third party certified, to ISO14001:2015(10) , EMAS (EU Eco-Management and Audit Scheme) or equivalent standard, or be in compliance with BS8555:2016.



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Issue		Available Credits	Targeted Credits	Responsibility	BREEAM Criteria
					All parties who at any point manage the construction site (e.g. the principal contractor, the demolition contractor) implement best practice pollution prevention policies and procedures on site in accordance with Working at construction and demolition sites: PPG6, Pollution Prevention Guidelines. Design Stage Evidence: Letter of Commitment. Post Construction Stage Evidence: A copy of the principal contractors EMS/EMAS certificate or for BS 8555, evidence of their status, e.g. a copy of their phase 4 audit.
Man 3b	BREEAM AP (Construction)	1	1	Sustainability Champion	BREEAM Criteria: Involve a BREEAM AP in the project at an appropriate time and level to: - Work with the project team, including the client, to consider the links between BREEAM issues and assist them in achieving and if possible, going beyond the design intent, to maximise the project's performance against the agreed performance targets throughout the Construction, Handover and Close Out stages. - Monitor construction progress against the performance targets agreed under criterion 5 above throughout all stages where decisions critically impact BREEAM performance. - Proactively identify risks and opportunities related to the procurement and construction process and the achievement of the targets agreed under criterion 5 above. - Provide feedback to the constructors and the project team as appropriate to support them in taking corrective actions and achieving their agreed performance targets. - Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team and the provision to the assessor. Design Stage Evidence: Letter of instruction to BREEAM AP.



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Issue		Available Credits	Targeted Credits	Responsibility	BREEAM Criteria
					Meeting minutes / communication records / formal notes of conversations and other statements reporting on discussions related to performance targets and maximising performance. Risks and opportunities documentation. Post Construction Stage Evidence: As per Design Stage.
Man 3c (MINIMUM STANDARD)	Responsible Construction Management	2	2	Main Contractor	BREEAM Criteria: The Main Contractor to register with CCS and achieve a score of beyond compliance and achieve the remaining items listed on Table 4.1 of the NC V6 Technical Manual. Design Stage Evidence: Letter of Commitment Letter of Registration to CCS Scheme Post Construction Stage Evidence: Final CCS Report
	Pre-requisite	-	-	Design Team	BREEAM Criteria: Assign responsibility to an individual for monitoring, recording and reporting energy use, water consumption and transportation data (where measured) resulting from all on-site construction processes (and dedicated off-site manufacturing) throughout the build programme. To ensure the robust collection of information, this individual must have the appropriate authority and responsibility to request and access the data required. Where appointed, the BREEAM AP could perform this role. Design Stage Evidence: Letter of Commitment Post Construction Stage Evidence: As per Design Stage.



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BREEAM V6 New Construction Criteria (NC)

Issue	Available Credits	Targeted Credits	Responsibility	BREEAM Criteria
Man 3d	Monitoring of Construction site impacts (Energy and Water)	1	1	Responsibility Main Contractor BREEAM Criteria: <u>Energy Consumption</u> Main Contractor sets targets for the site energy consumption in kWh (and where relevant, litres of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation. Monitor and record data for the energy consumption described. Report the total carbon dioxide emissions (total kg CO₂/project value) from the construction process via BREEAM Projects. <u>Water Consumption</u> Set targets for the potable water consumption (m³) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation. Monitor and record data for the potable water consumption. Use the collated data to report the total net water consumption (m³), i.e. consumption minus any recycled water use from the construction process via BREEAM Projects. Design Stage Evidence: Letter of Commitment Post Construction Stage Evidence: Final monitoring and recording data



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BREEAM V6 New Construction Criteria (NC)

Issue		Available Credits	Targeted Credits	Responsibility	BREEAM Criteria
Man 3e	Monitoring of Construction Site Impacts (Transport)	1	1	Main Contractor	BREEAM Criteria: Main Contractor sets targets for transportation movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site. As a minimum cover: a. transportation of materials from the point of supply to the building site, including any transport, intermediate storage and point of supply (see Definitions on page 56). Monitor as a minimum: - a.i. Materials used in major building elements (i.e. those defined in BREEAM issue Mat 01 Environmental impacts from construction products - Building life cycle assessment (LCA) on page 223). - a.i. Ground works and landscaping materials. b. transportation of construction waste from the construction gate to waste disposal processing or recovery centre gate. This monitoring must cover the construction waste groups outlined in the project's resource management plan. Monitor and record data for the transportation movements as described above. Using the collated data, report separately for materials and waste, the total transport-related carbon dioxide emissions (kgCO₂-eq), plus total distance travelled (km) via BREEAM Projects (for the purposes of potential future BREEAM performance benchmarking). Design Stage Evidence: Letter of Commitment Post Construction Stage Evidence: Final monitoring and recording data
Man 4 - Commissioning and Handover					



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BREEAM V6 New Construction Criteria (NC)

Issue		Available Credits	Targeted Credits	Responsibility	BREEAM Criteria
Man 4c	Testing and inspecting building fabric	1	1	Main Contractor	BREEAM Criteria: Complete post-construction testing and inspection to quality-assure the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths (this is through airtightness testing and a thermographic survey). A suitably qualified professional undertakes the survey and testing in accordance with the appropriate standard. Rectify any defects identified during post-construction testing and inspection prior to building handover and close out. Any remedial work must meet the required performance characteristics for the building or element as defined at the design stage. Design Stage Evidence: Letter of Commitment confirming the appointment of a suitably qualified professional to complete post-construction testing and inspection (thermography surveys and airtightness testing) in accordance with the appropriate standard. Formal letter confirming that any defects identified during post-construction testing and inspection will be rectified, prior to building handover, to the required performance characteristics for the building or element as defined at the design stage. Post Construction Stage Evidence: Copy of the thermographic survey results and air tightness testing results and, where applicable, a formal letter to confirm the measures taken to rectify any defects.
Health and Wellbeing					
Hea 1 - Visual Comfort					
Hea 1b	Daylighting	2	2	Daylight Consultant	BREEAM Criteria: Daylighting criteria have been met using either of the following options: a. The relevant building areas meet good practice daylight factors and other criteria as outlined in Table 5.1 of the NC V6 Technical Manual. and Table 5.2 of NC V6 Technical Manual OR b. The relevant building areas meet good practice average and minimum point daylight illuminance criteria as outlined in Table 5.3 of NC V6 Technical Manual.



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				Definition: Daylighting - relevant building areas <i>For the purpose of BREEAM, this is defined as areas within the building where good daylighting is considered to be of benefit to the building users (typically those areas occupied continuously for 30 minutes or more). This includes the following (where occupied continuously for 30 minutes or more) specifically stated because they are often omitted:</i> 1. Sports hall exercise spaces 4. Kitchen and catering areas 5. General communal areas 6. Small offices (including those within multi-residential buildings) 7. Meeting rooms (including those within multi-residential buildings) 8. Leisure areas 9. Any area that may involve close up work. <i>However, this <u>excludes</u> the following (where present):</i> <i>Media, arts production, SEN sensory spaces, and other areas requiring strictly controlled acoustic or lighting conditions.</i> Design Stage Evidence: - Daylighting Calculations Post Construction Stage Evidence: - Formal letter confirming that the building has been constructed according to measures identified in the Daylighting assessment.



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Issue		Available Credits	Targeted Credits	Responsibility	BREEAM Criteria
Hea 1c	View Out	1	1	Architect	BREEAM Criteria: 95% of the floor area in 95% of spaces for each relevant building area provides an adequate view out. Definition/Applicable Rooms: BREEAM defines relevant building areas requiring a view out to include areas of the building where: 1. There are or will be workstations or benches or desks for building users. 2. Close work will be undertaken or visual aids will be used. Design Stage Evidence: - View Out Calculations Post Construction Stage Evidence: Formal letter confirming that the building has been constructed according to measures identified in the View Out calculations.
Hea 1d	Internal and External Lighting	1	1	M&E	BREEAM Criteria: External Lighting – All external lighting located within the refurbishment or fit-out zone is designed in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas³ and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places. Design Stage Evidence: Relevant sections/clauses of the building specification/contract and/or formal letter confirming that all external lighting is in accordance with BS 5489-1: 2013 Code for the practice for the design of road lighting - Lighting of roads and public amenity areas and BS EN 12464-2: 2014 Light and lighting - Lighting of workplaces - Part 2: Outdoor workplaces. Design drawings demonstrating the external lighting. Post Construction Stage Evidence: Formal letter confirming that there have been no changes to the external lighting design. 'As built' drawings showing the external lighting.



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					BREEAM assessor's site inspection.
Hea 5 - Acoustic Performance					
Hea 5a	Performance Standard	1	1	Acoustician	BREEAM Criteria: During the design stages the building meets the appropriate acoustic performance standards and testing requirements for the acoustic principles of: a. Indoor ambient noise level RETAIL SPECIFIC REQUIREMENTS: Indoor ambient noise levels – Achieve indoor ambient noise levels that comply with the design ranges given in Section 7 of BS8233:2014. Design Stage Evidence: Formal letter of appointment or other confirmation demonstrating when the acoustician was appointed. Evidence to confirm that the acoustician is 'suitably qualified' in line with the BREEAM criteria. Acousticians report demonstrating compliance with appropriate acoustic performance standards and testing requirements for indoor ambient noise levels. Relevant sections/clauses of the building specification/contract and/or a formal letter confirming that a programme of pre-completion testing will be carried out by a compliant test body in accordance with the relevant acoustic testing and measurement procedures. Post Construction Stage Evidence:



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					Acousticians' pre-completion testing report confirming that the requirements for indoor ambient noise levels have been met. Evidence to confirm that the acoustician is 'suitably qualified' in line with the BREEAM criteria. Formal letter, where relevant, to confirm that all required remedial works have been carried out in accordance with the acousticians' recommendations.
Hea 6 - Safety and Security					
Hea 6a	Security of Site and Building	1	0	Architect/ALO	Credit Not Targeted: BREEAM Criteria: A Suitably Qualified Security Specialist (SQSS) conducts an evidence-based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent). The purpose of the SNA will be to identify attributes of the proposal, site and surroundings which may influence the approach to security for the development. The SQSS develops a set of security controls and recommendations for incorporation into the proposals. Those controls and recommendations shall directly relate to the threats and assets identified in the preceding SNA. The controls and recommendations shall be incorporated into proposals and implemented in the as-built development. Any deviation from those controls and recommendations shall be justified and agreed with the SQSS. Design Stage Evidence: Security Needs Assessment in line with BREEAM requirements. Post Construction Stage Evidence: Formal letter confirming that the recommendations contained within the SNA have been incorporated within the building design (with examples).
Hea 07 – Safe and Healthy Surroundings					



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Hea 7a	Safe Access	1	1	Architect/Landscape Architect	Where external site areas form part of the assessed development the following apply: Dedicated and safe cycle paths are provided from the site entrance to any cycle storage and connect to offsite cycle paths where applicable. Dedicated and safe footpaths are provided on and around the site providing suitable links for the following: - The site entrance to the building entrance. - Car parks (where present) to the building entrance. - The building to outdoor space. - Connecting to off-site paths where applicable. Pedestrian drop-off areas are designed off, or adjoining to, the access road and should provide direct access to other footpaths. Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply: Delivery areas are not accessed through general parking areas and do not cross or share the following: - Pedestrian and cyclist paths. - Outside amenity areas accessible to building users and general public. There is a dedicated parking or waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking. 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.
Hea 7b	Outside Space	1	1	Architect/Landscape Architect	There is an outside space providing building users with an external amenity area. The outside space must:



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				- be an outdoor landscaped area, for example a garden, balcony or terrace; the majority of the space should be open to the sky. - have appropriate seating areas and be non-smoking. - 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.).
Energy				
Ene 1 - Reduction of CO2 Emissions				
Ene 1a (MINIMUM STANDARD)	Reduction of CO ₂ Emissions	9	4	Energy Assessor
BREEAM Criteria: Calculate an Energy Performance Ratio for New Construction (EPR NC). Compare the EPR NC achieved with the benchmarks in Table 6.1 and award the corresponding number of BREEAM credits. The methodology for the EPR NC calculation considers three metrics of modelled building performance when determining the number of credits achieved for this issue. The three metrics are: - The building's heating and cooling energy demand - The building's primary energy consumption - The total resulting CO₂-eq emissions. Design Stage Evidence: A copy of the building regulations output document from the approved software. Post Construction Stage Evidence: As per interim design stage., but with the output documents from the approved software reflecting performance at the as-built stage of analysis. This must account for any changes to the specification during construction and the measured air leakage rate, ductwork leakage and fan performances (as required by building regulations).				
Ene 3 - External Lighting				
Ene 3	External Lighting	1	1	M&E
BREEAM Criteria:				



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Issue		Available Credits	Targeted Credits	Responsibility	BREEAM Criteria
					The average initial luminous efficacy of the external light fittings within the construction zone is not less than 70 luminaire lumens per circuit Watt. External light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic. Design Stage Evidence: Relevant sections/clauses of the building specification/contract and design drawings demonstrating the proposed external lighting strategy, confirming that all external lighting is automatically controlled to prevent operation during daylight hours, with presence detection in areas of intermittent pedestrian traffic. Manufacturer's datasheets confirming the lamp lumens and circuit Watt for each fitting, confirming an average luminous efficacy of not less than 70 lumens per circuit Watt. Post Construction Stage Evidence: 'As built' drawings showing the number and type of installed external light fittings, photocell and time clock, in line with the design stage specification. Where changes have occurred since the design stage specification, please provide manufacturer's datasheets for the installed fittings confirming the lamp lumens and circuit Watt of each fitting. BREEAM assessor's site inspection.
Ene 4 - Low Carbon Design					
Ene 4a	Passive Design Analysis	1	1	M&E / Energy Assessor	BREEAM Criteria: Achieve the first credit Hea 04 Thermal comfort: One credit - Thermal modelling to demonstrate that the building design delivers appropriate thermal comfort levels in occupied spaces. The project team analyses the proposed building design and development during Concept Design to identify opportunities for the implementation of passive design measures Implement passive design measures to reduce the total heating, cooling, mechanical ventilation, lighting loads and energy consumption in line with the passive design analysis findings. Quantify the reduced total energy demand and carbon dioxide (CO₂-eq) emissions resulting from the passive design measures.



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					Design Stage Evidence: Passive Design Analysis Report. Results from a dynamic simulation model demonstrating the reduced energy demand and CO₂-eq emissions from the specified passive design measures. Post Construction Stage Evidence: As per interim design stage.
Ene 4b	Free Cooling	1	0	M&E / Energy Assessor	Credit Not Currently Sought: Achieve the passive design analysis credit. Include a free cooling analysis in the passive design analysis. Identify opportunities for the implementation of free cooling solutions. The building is naturally ventilated or uses any combination of the free cooling strategies listed below: ○ Night-time cooling (which could include the use of a high exposed thermal mass) ○ Ground coupled air cooling ○ Displacement ventilation (not linked to any active cooling system) ○ Ground water cooling ○ Surface water cooling ○ Evaporative cooling, direct or indirect ○ Desiccant dehumidification and evaporative cooling, using waste heat ○ Absorption cooling, using waste heat.
Ene 4c	LZC Technologies	1	1	M&E / Energy Assessor	BREEAM Criteria: An energy specialist completes a feasibility study (see Low and zero carbon feasibility study on the next page) by the end of Concept Design. Establish the most appropriate recognised local (on-site or near-site) low and zero carbon (LZC) energy sources for the building or development based on the feasibility study.



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					Specify local LZC technologies for the building or development in line with the feasibility study recommendations. Quantify the reduced regulated carbon dioxide (CO₂-eq) emissions resulting from the feasibility study. Design Stage Evidence: LZV Feasibility Report Results from a dynamic simulation model demonstrating reductions in CO₂-eq emissions from the specified low and zero carbon technology. Post Construction Stage Evidence: As per interim design stage.
Transport					
Tra 1 - Transport assessment and travel plan					
Tra 1	Transport assessment and travel plan	2	2	BREEAM Assessor	BREEAM Criteria: No later than Concept Design stage, undertake a site-specific transport assessment (or develop a travel statement) and draft travel plan, which can demonstrably be used to influence the site layout and built form; The site-specific travel assessment (or statement) shall cover as a minimum: - a: If relevant, travel patterns and attitudes of existing building or site users towards cycling, walking and public transport, to identify relevant constraints and opportunities. - b: Predicted travel patterns and transport impact of future building or site users. - c: Current local environment for pedestrians and cyclists, accounting for any age-related requirements of occupants and visitors. - d: Reporting of the number and type of existing accessible amenities, within 500m of the site. - e: Disabled access accounting for varying levels and types of disability, including visual impairment. - f: Calculation of the existing public transport Accessibility Index (AI),



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					g: Current facilities for cyclists. Following a transport assessment, a site-specific travel plan that provides a long-term management strategy which encourages more sustainable travel will be produced. The travel plan includes measures to increase or improve more sustainable modes of transport and movement of people and goods during the building's operation. Design Stage Evidence: Copy of the travel plan based on a site-specific travel survey/assessment, which covers the minimum BREEAM content and proposals to increase or improve sustainable modes of transport and movement of people and goods during the building's operation and use. Design drawings demonstrating examples of measures specified in support of the travel plan. Formal letter to confirm that the recommendations of the travel plan will be implemented post construction and supported by the building's management in operation. Post Construction Stage Evidence: Formal letter confirming that the travel plan will be implemented and supported by the building's management in operation. BREEAM assessor's site inspection.
Tra 2 – Sustainable Transport Measures					
Tra 2	Sustainable Transport Measures	10	4	BREEAM Assessor	BREEAM Criteria: Identify the sustainable transport measures. Award credits according to the existing Accessible Index (AI) of the project, and the total number of points achieved for the options implemented. 1. The existing AI calculated in Tra 01 achieves ≥ 8. 2-4. Demonstrate an increase over existing accessibility / dedicated service. 5. 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.



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					6. Provide electric recharging stations of a minimum of 3kW for at least 10% of the total car parking capacity for the development. 7-10. Set up a car sharing group or facility. 11-12. Consult with local Authority, agree and implement one proposition. 13. Install compliant cycle storage spaces to meet the minimum levels. 14-15. Provide at least two compliant cyclists' facilities for the building users: Showers, Changing facilities, Lockers or Drying spaces. 16. At least three existing accessible amenities are present. 17. Ensure a minimum of one new accessible amenity is provided. Design Stage Evidence: Provide evidence demonstrating the sustainable transport measures being implemented on site. Design Stage drawings Post Construction Stage Evidence: Post Construction Stage drawings BREEAM assessor's site inspection.
Water					
Wat 2 - Water Consumption					
Wat 1	Water Consumption	5	3	M&E	BREEAM Criteria: 1) Use the BREEAM Wat 01 calculator to assess the efficiency of the domestic water-consuming components. 2) Use the standard Wat 01 method to compare the water consumption (litres/person/day) for the assessed building against a baseline performance. 3) Award BREEAM credits based upon the percentage improvement over baseline building water consumption. The efficiency of the following 'domestic scale' water-consuming components must be included in the assessment: WCs



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Issue		Available Credits	Targeted Credits	Responsibility	BREEAM Criteria														
					Urinals Taps (wash hand basins and where specified kitchen taps and waste disposal unit) Showers Baths Dishwashers (domestic and commercial sized) and Washing machine (domestic and commercial or industrial sized) <table><tr><td>No. of BREEAM credits</td><td>% improvement</td></tr><tr><td>1</td><td>12.5%</td></tr><tr><td>2</td><td>25%</td></tr><tr><td>3</td><td>40%</td></tr><tr><td>4</td><td>50%</td></tr><tr><td>5</td><td>55%</td></tr><tr><td>1 exemplary performance credit</td><td>65%</td></tr></table> Design Stage Evidence: A completed copy of the BREEAM Wat 01 calculator. Product data sheets supporting the data used to complete the calculator tool. Post Construction Stage Evidence: As per Design Stage.	No. of BREEAM credits	% improvement	1	12.5%	2	25%	3	40%	4	50%	5	55%	1 exemplary performance credit	65%
No. of BREEAM credits	% improvement																		
1	12.5%																		
2	25%																		
3	40%																		
4	50%																		
5	55%																		
1 exemplary performance credit	65%																		
Wat 2 – Water Monitoring																			
Wat 2 (MINIMUM STANDARD)	Water Monitoring	1	1	M&E	BREEAM Criteria: Specify a water meter on the mains water supply to each building. This includes instances where water is supplied via a borehole or other private source. For water-consuming plant or building areas consuming 10% or more of the building’s total water demand: a. Fit easily accessible sub-meters OR b. Install water monitoring equipment integral to the plant or area. For each meter (main and sub): a. Install a pulsed or other open protocol communication output AND b. Connect it to an appropriate utility monitoring and management														



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					system, e.g. a building management system (BMS), for the monitoring of water consumption. If there is no BMS system in operation at Post Construction stage, award credits provided that the system used enables connection when the BMS becomes operational. In buildings with swimming pools, or large water tanks and aquariums, fit separate sub-meters on the water supply of the above and any associated changing facilities (toilets, showers etc.) irrespective of their water consumption levels. In buildings containing laboratories, fit a separate water meter on the water supply to any process or cooling loop for 'plumbed-in' laboratory process equipment, irrespective of their water consumption levels. Design Stage Evidence: Relevant sections/clauses of the building specification/contract and design drawings confirming the specification of a water meter on the mains water supply to the building, and where any water consuming plant or building areas consume 10% or more of the building's total water demand. Relevant sections/clauses of the building specification/contract and/or a formal letter confirming that the water meter and sub-meters will be pulsed output and connected to a BMS. Post Construction Stage Evidence: 'As built' drawings confirming the installation of a water meter on the mains water supply to the building. Formal letter confirming that the water meter and sub-meters will be connected to the BMS. BREEAM assessor's site inspection.
Wat 3 - Water Leak Detection and Prevention					
Wat 3a	Leak detection system	1	1	M&E	BREEAM Criteria:



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					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 installed. The leak detection system must be: a. A permanent automated water leak detection system that alerts the building occupants to the leak OR an inbuilt automated diagnostic procedure for detecting leaks is installed. b. Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time. c. Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods. d. Programmable to suit the owner/occupiers' water consumption criteria. e. Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers. Design Stage Evidence: Relevant sections/clauses of the building specification/contract and design drawings confirming the specification of a water leak detection system which is capable of detecting a major leak on the mains water supply within the building and between the building and the site boundary. Manufacturer's product details demonstrating the scope of the leak detection system, in line with the BREEAM criteria. Post Construction Stage Evidence: 'As built' drawings showing the installation of a BREEAM compliant water leak detection system. BREEAM assessor's site inspection.
Materials					
Mat 1 Environmental impacts from construction products - Building life cycle assessment (LCA)					



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Mat 1	Environmental impacts from construction products - Building life cycle assessment (LCA)	7	6	Architect/Structural Engineer	BREEAM Criteria: During the Concept Design, demonstrate the environmental performance of the building as follows: - Carry out a building LCA on of the superstructure design using either the BREEAM Simplified Building LCA tool or an IMPACT Compliant LCA tool according to the methodology. - Submit the Mat 01/02 Results Submission Tool to BRE at the end of Concept Design, and before planning permission is applied for (that includes external material or product specifications). During Technical Design, demonstrate the environmental performance of the building as follows: - Carry out a building LCA on of the superstructure design using either the BREEAM Simplified Building LCA tool or an IMPACT Compliant LCA tool according to the methodology. - Submit the Mat 01/02 Results Submission Tool to BRE at the end of Technical Design. Design Stage Evidence: - LCA options appraisal summary document. - Evidence that the LCA options appraisal summary document has been received by the design team and client (meeting minutes, letter of acknowledgement) - Evidence of how the LCA design options have informed the design decision-making process (e.g. meeting minutes, documented design development showing how the LCA options have affected the design). Post Construction Stage Evidence: - As per Design Stage.
Mat 02 - Environmental impacts from construction products – Environmental Product Declarations (EPD)					



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Mat 2	Environmental impacts from construction products – (EPD)	1	1	Architect/Structural Engineer	BREEAM Criteria: Specify construction products with EPD that achieve a total EPD points score of at least 20, according to the Methodology in the BREEAM Technical Manual. Design Stage Evidence: The Mat 01/02 Results Submission tool. Copies of EPD certificates. Post Construction Stage Evidence: As per interim design stage.
Mat 3 - Responsible Sourcing of Materials					
Mat 3a (MINIMUM STANDARD)	Timber Procurement	Pre-Req.	Pre-req.	Main Contractor	BREEAM Criteria: All timber used on site will be sourced in accordance with the UK Government's Timber Procurement Policy. Design Stage Evidence: Letter of Commitment confirming all timber will be legally harvested and traded timber. Post Construction Stage Evidence: Copies of all relevant certificates or chain of custody evidence.
Mat 3b	Sustainable Procurement Plan	1	1	Main Contractor	BREEAM Criteria: A sustainable procurement plan must be used by the design team to guide specification towards sustainable construction products. The plan must: a. Be in place before Concept Design. b. Include sustainability aims, objectives and strategic targets to guide procurement activities. Note: targets do not need to be achieved for the credit to be awarded but justification must be provided for targets that are not achieved. c. Include a requirement for assessing the potential to procure construction products locally. There must be a policy to procure construction products locally where



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					possible. d. Include details of procedures in place to check and verify the effective implementation of the sustainable procurement plan. Design Stage Evidence: Copy of the sustainable procurement plan, which has been produced during Concept Design (RIBA Stage 2), and includes sustainability aims, objectives and strategic targets to guide specification towards sustainable construction products. Post Construction Stage Evidence: As per Design Stage.
Mat 3c	Major Building Elements	3	2	Main Contractor	BREEAM Criteria: Key building materials are responsibly sourced to reduce environmental and socio-economic impacts, as demonstrated through the specification of products with compliant Responsible Sourcing Certification (BES 6001, ISO 14001, FSC, PEFC). Design Stage Evidence: Relevant sections/clauses of the building specification/contract and design drawings confirming: a. The applicable building elements b. Details of the material specification for each applicable element. Relevant sections/clauses of the building specification/contract and/or a formal letter of commitment confirming the requirement to procure all relevant materials from responsible sources. Post Construction Stage Evidence: 'As built' drawings confirming the installation of materials for the applicable location and use categories as per the design stage. Responsible sourcing certificates (i.e. ISO 14001, BES 6001 etc.) for each material comprising the applicable building elements.
Mat 5 - Designing for Robustness					



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Mat 5	Designing for Robustness	1	1	Architect	BREEAM Criteria: Protecting vulnerable parts of the building from damage 1. The building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the internal and external building and landscaping elements. This must include, but is not necessarily limited to: a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares (corridors, lifts, stairs, doors etc.). b. Protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas. Protecting exposed parts of the building from material degradation Environmental factors have been identified that are relevant to the site location. Existing applicable building elements that are exposed to any relevant environmental factors have been identified. Existing applicable building elements have been surveyed have been assessed to identify impacts of material degradation effects including an assessment to grade the severity of any degradation effects. Design and specification measures have to be developed to repair and protect existing elements according to the severity of any degradation affects, to limit degradation. Where it is not feasible to implement measures to limit material degradation for existing elements, justification should be provided. Newly specified materials or newly constructed elements (e.g. a new external wall) within the scope of refurbishment or fit-out works incorporate appropriate design and specification measures to limit material degradation due to environmental factors. Design Stage Evidence: Design drawings illustrating the vulnerable areas/parts of the building and the durability measures specified to reduce damage to the building's fabric or materials in case of accidental or malicious damage. Evidence confirming the applicable building elements appropriate to the building and the environmental factors likely to cause material degradation effects in the identified applicable materials. Relevant sections/clauses of the building specification/contract and/or design drawings confirming the elements/products achieving an appropriate quality or durability standard or design guide, as outlined in Table 9.14 of the BREEAM NC V6 scheme guidance, or a copy of a detailed assessment of the element's resilience when exposed to the applicable material degradation and environmental factors.
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					Relevant sections/clauses of the building specification/contract and/or design drawings demonstrating that convenient access to the roof and façade for cost-effective cleaning, replacement and repair has been included in the design, and that the roof and façade has been designed to prevent water damage, ingress and detrimental ponding. Post Construction Stage Evidence: 'As built' drawings confirming the installation of protection measures in order to protect vulnerable areas in line with the design stage specification. BREEAM assessor's site inspection.
Mat 6 – Material Efficiency					
Mat 6	Material Efficiency	1	1	Design Team	BREEAM Criteria: 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. - Preparation and Brief - Concept Design - Developed Design - Technical Design - Construction. Develop and record the implementation of material efficiency, during: - Developed Design - Technical Design - Construction. Report the targets and actual material efficiencies achieved. Design Stage Evidence: Details of targets, opportunities and methods reported during each RIBA Stage (1-5) to optimise the use of materials, following the material efficiency strategy outlined in Table 9.15 of the BREEAM NC V6 scheme guidance. Post Construction Stage Evidence:



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					Details of material efficiency measures implemented during the Developed Design (RIBA Stage 3), Technical Design (RIBA Stage 4) and Construction (RIBA Stage 5). Please provide details of the targets and actual material efficiencies achieved.
Waste					
Wst 1 - Construction Waste Management					
Wst 1a	Pre-Demolition Audit	0	1	Developer	BREEAM Criteria: 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 on page 262 and: a. Be carried out at Concept Design stage by a competent person prior to strip-out or demolition works b. Guide the design, consider materials for reuse and set targets for waste management c. Engage all contractors in the process of maximising high grade reuse and recycling opportunities Make reference to the audit in the resource management plan (RMP). Compare actual waste arisings and waste management routes used with those forecast and investigate significant deviations from planned targets. Design Stage Evidence: Provide a copy of the pre-demolition audit, carried out at Concept Design (RIBA Stage 2), which covers any existing buildings, structures or hard surfaces being considered for demolition and considers materials for reuse. Post Construction Stage Evidence: As per Design Stage



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Wst 1b	Construction Resource Efficiency	3	2	Main Contractor	BREEAM Criteria: Prepare a compliant Resource Management Plan (RMP) covering: a. Non-hazardous waste materials (from on-site construction and dedicated off-site manufacture or fabrication, see Definitions on page 262), including demolition and excavation waste. b. Accurate data records on waste arisings and waste management routes. Meet or improve upon the benchmarks below for non-hazardous construction waste, excluding demolition and excavation waste. <table><tr><th><u>No. of BREEAM credits</u></th><th><u>Amount of waste generated per 100m² (GIFA)</u></th></tr><tr><td>1</td><td>≤13.3 m³ or ≤11.1 tonnes</td></tr><tr><td>2</td><td>≤7.5 m³ or ≤6.5 tonnes</td></tr><tr><td>3</td><td>≤3.4 m³ or ≤3.2 tonnes</td></tr><tr><td>1 exemplary performance credit</td><td>≤1.6 m³ or ≤1.9 tonnes</td></tr></table> Design Stage Evidence: Relevant sections/clauses of the building specification/contract and/or a formal letter confirming the requirement for the principal contractor to develop a Resource Management Plan (RMP) covering non-hazardous waste materials (from on-site construction and dedicated off-site manufacture or fabrication), including demolition and excavation waste, and accurate data records on waste arisings and waste management routes, meeting the construction resource efficiency benchmarks in Table 10.1 of the BREEAM NC V6 scheme guidance. Post Construction Stage Evidence: Please provide a copy of the final compliant Resource Management Plan confirming the waste types (per waste group) generated on site relating to on site construction and dedicated off site manufacture/fabrication (excluding demolition and excavation waste).	<u>No. of BREEAM credits</u>	<u>Amount of waste generated per 100m² (GIFA)</u>	1	≤13.3 m ³ or ≤11.1 tonnes	2	≤7.5 m³ or ≤6.5 tonnes	3	≤3.4 m ³ or ≤3.2 tonnes	1 exemplary performance credit	≤1.6 m ³ or ≤1.9 tonnes
<u>No. of BREEAM credits</u>	<u>Amount of waste generated per 100m² (GIFA)</u>														
1	≤13.3 m ³ or ≤11.1 tonnes														
2	≤7.5 m³ or ≤6.5 tonnes														
3	≤3.4 m ³ or ≤3.2 tonnes														
1 exemplary performance credit	≤1.6 m ³ or ≤1.9 tonnes														
Wst 1c	Diversion of waste from Landfill	1	1	Main Contractor	BREEAM Criteria:										



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					Meet, where applicable, the diversion from landfill benchmarks in Table 10.2 for non-hazardous construction waste and demolition and excavation waste generated. Sort waste materials into separate key waste groups as per Table 10.3 on page 265, either on-site or through a licensed contractor for recovery. <u>One Credit</u> Non-Demolition – 70% by Volume or 80% by tonnage Demolition – 80% by Volume or 90% by tonnage Excavation – N/A <u>Exemplary</u> Non-Demolition – 85% by Volume or 90% by tonnage Demolition – 85% by Volume or 95% by tonnage Excavation – 95% by Volume or 95% by tonnage Design Stage Evidence: Relevant sections/clauses of the building specification/contract and/or a formal letter confirming the requirement for the principal contractor to meet the diversion from landfill benchmarks in Table 10.2 of the BREEAM NC V6 scheme guidance for non-hazardous construction waste, demolition and excavation waste generated, and to sort waste materials into separate key waste groups as per Table 10.3 of the BREEAM NC V6 scheme guidance, either on-site or through a licensed contractor for recovery. Post Construction Stage Evidence: Copy of the final compliant Resource Management Plan confirming the waste types (per waste group) generated on site relating to on site construction and dedicated off site manufacture/fabrication, and the amount of waste that has been diverted from landfill. Note that at least 80% (by weight) or 70% (by volume) of non-hazardous construction waste (on-site and off-site manufacture/fabrication in a dedicated facility) must be diverted from landfill.
Wst 2 -Use of recycled and sustainably sourced aggregates					



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Wst 2	Recycled Aggregates	1	0	Main Contractor/Structural Engineer	Credit Not Currently Sought - Identify all aggregate uses and types on the project - Determine the quantity in tonnes for each identified use and aggregate type. - Identify the region in which the aggregate source is located. - Calculate the distance in kilometres travelled by all aggregates by transport type Enter the information into the BREEAM Wst 02 calculator to calculate the Project Sustainable Aggregate points.
Wst 3 - Recyclable Waste Storage					
Wst 3 (MINIMUM STANDARD)	Recyclable Waste Storage	1	1	Architect/ building Owner	BREEAM Criteria: Dedicated space(s) is provided for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities. This space must be: a. Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams b. Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors c. 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. For consistent and large amounts of operational waste generated, provide: a. Static waste compactors or balers; situated in a service area or dedicated waste management space. b. Vessels for composting suitable organic waste OR adequate spaces for storing segregated food waste and compostable organic material for collection and delivery to an alternative composting facility c. A water outlet provided adjacent to or within the facility for cleaning and hygiene purposes where organic waste is to be stored or composted on site. Design Stage Evidence:



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					Project team meeting minutes or a formal letter confirming the likely waste streams and indicative volumes. Relevant sections/clauses of the building specification/contract and design drawings confirming the provision and scope of dedicated facilities (i.e. storage of recyclable waste streams, access arrangements, and capacity). Relevant sections/clauses of the building specification/contract and design drawings confirming the provision of a compactor/baler, where there is a consistent generation in volume of packaging waste, and a vessel(s) for composting or adequate space for storing segregated food waste and compostable organic material, along with a bib tap near to or within the waste/composting storage facility (where applicable). Post Construction Stage Evidence: 'As built' drawings showing the installed areas provided for the storage and segregation of recyclable waste and general waste, in line with the design stage specification. BREEAM assessors site inspection.
Wst 5 – Adaptability to Climate Change					
Wst 5	Adaptability to Climate Change	1	1	Architect / Structural Engineer	BREEAM Criteria: Conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of Concept Design (RIBA Stage 2 or equivalent), in accordance with the following approach: Carry out a systematic (structural and fabric resilience specific) risk assessment to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change and, where feasible, mitigate against these impacts. The assessment should cover the following stages: • Hazard identification • Hazard assessment • Risk estimation • Risk evaluation • Risk management. Develop recommendations or solutions based on the climate change adaptation strategy appraisal, before or during Concept Design, that aim to mitigate the identified impact.



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					Provide an update during Technical Design demonstrating how the recommendations or solutions proposed at Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing by the assessor Design Stage Evidence: Copy of the climate change adaptation strategy appraisal, developed during Concept Design (RIBA Stage 2), which identifies the impact of expected extreme weather conditions arising from climate change on the building over its projected life cycle, and covers the installation of building services and renewable systems, as well as structural and fabric resilience aspects in line with the BREEAM methodology. Provide an updated appraisal during Technical Design (RIBA Stage 4) demonstrating how the recommendations or solutions proposed at Concept Design have been implemented where practical and cost effective, with any omissions justified in writing. Post Construction Stage Evidence: As per Design Stage.
Wst 6 – Design for disassembly and adaptability					
Wst 6	Functional Adaptability	2	2	Architect / Structural Engineer	BREEAM Criteria: <u>Design for Disassembly and Functional Adaptability – Recommendations</u> Conduct a study to explore the ease of disassembly and the functional adaptation potential of different design scenarios by the end of Concept Design. Develop recommendations or solutions based on the study during or prior to Concept Design, that aim to enable and facilitate disassembly and functional adaptation. <u>Disassembly and Functional Adaptability – Implementation</u> Provide an update, during Technical Design, on: - 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. - Changes to the recommendations and solutions during the development of the Technical Design. Produce a building adaptability and disassembly guide to communicate the characteristics allowing functional adaptability and disassembly to prospective tenants.



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					Design Stage Evidence: Disassembly and functional adaptability study, implementation plan report, building adaptability and disassembly guide. Post Construction Stage Evidence: As per Design Stage.
Land Use and Ecology					
Le 1 – Site Selection					
Le 1a	Site Selection	1	1	Architect	BREEAM Criteria: Proposed development on a pre-developed site - At least 75% of the proposed development’s footprint is on an area of land which has previously been occupied. Design Stage Evidence: Design drawings, report and site photographs confirming: a. Type and duration of previous land use b. Area (m2) of previous land use c. Location and footprint (m2) of proposed development and temporary works. Post Construction Stage Evidence: 'As Built' drawings confirming that there have been no changes to the site layout building orientation.

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Le1b	Contaminated Land	1	0	Contaminated Land Specialist	Credit Not Currently Sought A contaminated land professional's site investigation, risk assessment and appraisal has deemed land within the site to be affected by contamination. The site investigation, risk assessment and appraisal have identified: - The degree of contamination - The contaminant sources or types - The options for remediating sources of contamination which present an unacceptable risk. The client or principal contractor confirms that remediation of the site will be carried out in accordance with the remediation strategy and its implementation plan as recommended by the contaminated land professional.
LE 2 – Ecological Risks and Opportunities					
Le 2	Pre-Requisite	Pre-Req	Pre-REq	Ecologist / Design Team	BREEAM Criteria: The client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site. Design Stage Evidence: Ecologist Report Completed BREEAM GN13 Document Post Construction Stage Evidence: As per Design Stage.
Le 2a	Survey and Evaluation	1	1	Ecologist / Design Team	BREEAM Criteria: A Suitably Qualified Ecologist (SQE) carries out a survey and evaluation for the site early enough to influence site preparation works, layout and, where necessary, strategic planning decisions (typically Preparation and Brief or Concept Design stage). The SQE's survey and evaluation determines the site's ecological baseline, including: a. Current and potential ecological value and condition of the site and related areas within the Zone of Influence.



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					b. Direct and indirect risks to current ecological value from the project. c. Capacity and feasibility for enhancement of the site's ecological value and, where relevant, areas within the Zone of Influence. Recommendations and data collected from the survey and evaluation are shared with appropriate project team members to influence decisions made for activities during site preparation, design and construction works, which can support ecological features. Design Stage Evidence: Ecologist Report Completed BREEAM GN13 Document Post Construction Stage Evidence: As per Design Stage.
Le 2b	Determining Ecological Outcomes	1	1	Ecologist / Design Team	BREEAM Criteria: Achieve the 'Survey and Evaluation' credit. The project team liaise and collaborate with representative stakeholders early enough to influence key planning decisions (typically Concept Design stage), to: - Identify the optimal ecological outcomes for the site. - Identify, appraise and select measures to meet the optimal ecological outcomes for the site, in line with the mitigation hierarchy of action: - Avoidance - Protection - Reduction or limitation of negative impacts - On site compensation and - Enhancement, considering the capacity and feasibility within the site, or where viable, offsite. Design Stage Evidence: Ecologist Report Completed BREEAM GN13 Document Post Construction Stage Evidence: As per Design Stage.



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LE 3 - Managing negative impacts on ecology					
Le 3	Pre-Requisite	Pre-Req	Pre-Req	Ecologist / Design Team / Contractor	BREEAM Criteria: Le 02's 'Survey and evaluation and Determining ecological outcomes' criteria have been achieved. Design Stage Evidence: Ecologist Report Completed BREEAM GN13 Document Post Construction Stage Evidence: As per Design Stage.
Le 3a	Planning and Measures on Site	1	1	Ecologist / Design Team / Contractor	BREEAM Criteria: Further planning to avoid and manage negative ecological impacts on-site is carried out early enough to influence the concept design and design brief as well as site preparation planning (typically Concept Design stage). On-site measures for managing negative ecological impacts during site preparation and construction are implemented in-practice (e.g. mitigation measures to protect existing ecological features). Measures are based on input from the project team in collaboration with representative stakeholders and data collated as part of the 'Determining ecological outcomes' in LE02 Ecological risks and opportunities. Design Stage Evidence: Ecologist Report Completed BREEAM GN13 Document



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					Post Construction Stage Evidence: As per Design Stage.
Le 3b	Managing Negative Impacts	2	2	Ecologist / Design Team / Contractor	BREEAM Criteria: Negative impacts from site preparation and construction works have been managed according to the mitigation hierarchy, in line with the SQE's recommendations and, either: a. No overall loss of ecological value has occurred (two credits). b. The loss of ecological value has been minimised (Minimising Loss) (one credit). Design Stage Evidence: Ecologist Report Completed BREEAM GN13 Document Post Construction Stage Evidence: As per Design Stage.
LE 4 – Ecological Change and Enhancement					
Le 4	Pre-Requisite	Pre-Req	Pre-Req	Ecologist / Design Team / Main Contractor	BREEAM Criteria: Achieve the 'Managing Negative Impacts' credit. The client or contractor confirms compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site. Design Stage Evidence: Ecologist Report Completed BREEAM GN13 Document Post Construction Stage Evidence: As per Design Stage.



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Le 4a	Ecological Enhancement	1	1	Ecologist / Design Team / Main Contractor	BREEAM Criteria: Measures have been implemented that enhance ecological value, which are based on input from the project team and SQE in collaboration with representative stakeholders and data collated as part of the 'Determining ecological outcomes' in Le 02. Measures are implemented in the following order: - On site, and where this is not feasible, - Off site within the Zone of Influence. Data collated are analysed and where potentially valuable, provided to the local environmental records centres nearest to, or relevant for, the site. Design Stage Evidence: Ecologist Report Completed BREEAM GN13 Document Post Construction Stage Evidence: As per Design Stage.
Le 4b	Change and Enhancement of Ecology	3	2	Ecologist / Design Team / Main Contractor	BREEAM Criteria: Up to three credits are awarded based on the change in ecological value occurring as a result of the project. This must be calculated in accordance with the process set out in GN36 - BREEAM, CEEQUAL and HQM Ecology Calculation Methodology – Route 2. Credits are awarded in line with the Reward Scale table in GN36 where there are no residual impacts on protected sites or irreplaceable habitats. Design Stage Evidence: Ecologist Report Completed BREEAM GN13 Document Post Construction Stage Evidence: As per Design Stage.
LE 5 - Long term ecology Management and Maintenance					



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Le 5	Pre-Requisite	Pre-Req	Pre-Req	Ecologist/ Main Contractor	BREEAM Criteria: 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. Achieve the ‘Managing Negative Impacts’ credit. Design Stage Evidence: Ecologist Report Completed BREEAM GN13 Document Post Construction Stage Evidence: As per Design Stage.
Le 5a	Management and Maintenance Throughout the Project	1	1	Ecologist/ Main Contractor	BREEAM Criteria: Measures have been implemented to manage and maintain ecology throughout the project. These measures are based on input from the project team in collaboration with representative stakeholders and data collated as part of the ‘Determining ecological outcomes’ in Le 02. To ensure the optimal ecological outcomes agreed in Le 02 are met in practice, these measures must monitor and review the effectiveness of the mitigation and enhancement measures in place for Le 03 & Le 04 to ensure they are implemented. A section on Ecology and Biodiversity has been included as part of the tenant or building owner information supplied, to inform the owner or occupant of local ecological features, value and biodiversity on or near the site. This should include detailed management and maintenance plans as required by landscape and asset managers as well as relevant parts of the handover information for occupiers written in a format that encourages understanding and supportive behaviours. Design Stage Evidence: Ecologist Report Completed BREEAM GN13 Document Post Construction Stage Evidence: As per Design Stage. As-built evidence showing measures have been carried out in practice.



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Le 5b	Landscape and Ecology Management Plan	1	1	Ecologist/ Main Contractor	BREEAM Criteria: A Landscape and Ecology Management Plan, or equivalent, has been developed in accordance with BS 42020:2013 Section 11.1(213) covering at least the first five years after project completion as a minimum and including: a. Actions and responsibilities of relevant individuals prior to handover Technical Manual: Version: SD5078 - Issue: 3.0 - Issue Date: 31/07/2019 Page 319 of 392 LE 05 Long term ecological management and maintenance BREEAM UK New Construction V6 b. The ecological value and condition of the site at handover and how this is expected to develop and change over time c. Identification of opportunities for ongoing alignment with activities beyond the development project, which support the aims of BREEAM's Strategic Ecology Framework. d. Identification and guidance to trigger appropriate remedial actions to address previously unforeseen impacts e. Clearly defined and allocated roles and responsibilities for delivering the plan. The landscape and management plan or similar will be updated to support maintenance of the ecological value of the site. Design Stage Evidence: Ecologist Report Completed BREEAM GN13 Document Post Construction Stage Evidence: As per Design Stage. Copy of the Landscape and Ecology Management Plan.



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Pollution					
Pol 3 Surface Water Run-Off					
Pol 3	Pre-Requisite	Pre-Req	Pre-Req	Drainage / Flood Risk Consultant	BREEAM Criteria: An appropriate consultant is appointed to carry out and demonstrate the development's compliance with all criteria. Design Stage Evidence: Completed BREEAM GN13 Document Post Construction Stage Evidence: As per Design Stage.
Pol 3a	Flood Risk	2	2	Flood Risk Specialist	BREEAM Criteria: <u>Low Flood Risk – 2 Credits</u> 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. <u>Medium or High Flood Risk – 1 Credit</u> A site-specific FRA confirms the development is in a flood zone that is defined as having a medium or high annual probability of flooding and is not in a functional floodplain. The FRA must take all current and future sources of flooding into consideration. For smaller sites refer to Level of detail required in the FRA for smaller sites on page 340, which overrides criterion 2 above. To increase the resilience and resistance of the development to flooding, one of the following must be achieved: The ground level of the building and access to both the building and the site, are designed (or zoned) so they are at least 600 mm above the design flood level of the



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					site's flood zone (see 600mm threshold on page 340). b. 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 BS8533:2017 (222). Design Stage Evidence: Flood Risk Assessment Post Construction Stage Evidence: Formal letter confirming that there have been no changes to the flood risk associated with the development site.
Pol 3	Surface Water Run-Off	Pre-Req	Pre-Req	Drainage Consultant	BREEAM Criteria: 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. Design Stage Evidence: Completed BREEAM GN13 Document Post Construction Stage Evidence: As per Design Stage.
Pol 3b	Surface Water Run-off (Rate)	1	1	Drainage Consultant	BREEAM Criteria: For brownfield sites, 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 predeveloped site. This should comply at the 1-year and 100-year return period events. For Greenfield sites, drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) is no greater for the developed site than it was for the pre-development site. This should comply at the 1-year and 100-year return period events.



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					Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified Sustainable Drainage Systems (SuDS) are in place. Calculations include an allowance for climate change. This should be made in accordance with current best practice planning guidance. Design Stage Evidence: Calculation results for the pre and post-development peak rate of run-off. Completed BREEAM GN13 Document Post Construction Stage Evidence: Formal letter confirming that the drainage solutions assessed at the design stage have been implemented. 'As built' drawings showing the impermeable areas pre and post development.
Pol 3c	Surface Water Run-off (Volume)	1	1	Drainage Consultant	BREEAM Criteria: Flooding of property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance); AND EITHER Drainage design measures are specified so that 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. This must be for the 100-year 6-hour event, including an allowance for climate change. Any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other SuDS techniques. OR 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.



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					Drainage design measures are specified so that the post-development peak rate of run-off is reduced to the limiting discharge. The limiting discharge is defined as the highest flowrate from the following options: a. The pre-development one-year peak flowrate b. The mean annual flowrate (Qbar) c. 2L/s/ha. For the one-year peak flowrate, the one-year return period event criterion applies. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place For either option, above calculations must include an allowance for climate change; this should be made in accordance with current best practice planning guidance. Design Stage Evidence: Information showing the proposed drainage solution, system failure flood flow routes, potential flood ponding levels and ground floor levels. Calculation results for the pre- and post-development volume of run-off. Calculation results for the limiting discharge. Completed BREEAM GN13 Document. Post Construction Stage Evidence: Formal letter confirming that the drainage solutions assessed at the design stage have been implemented. 'As built' drawings showing the impermeable areas pre and post development.
Pol 3d	Minimising Watercourse Pollution	1	0	Drainage Consultant	Credit Not Targeted: BREEAM Criteria: There is no discharge from the developed site for rainfall up to 5 mm (confirmed by the appropriate consultant). Areas with a low risk source of watercourse pollution, an appropriate level of pollution prevention treatment is provided, using appropriate SuDS techniques. Areas with a high risk of contamination or spillage of substances, such as petrol and oil, have separators (or an equivalent system) are installed in surface water drainage systems.



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					Chemical or liquid gas storage areas have a means of containment fitted to the site drainage system (i.e. shut-off valves). This is to prevent the escape of chemicals to natural watercourses in the event of a spillage or bunding failure. 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. A comprehensive and up to date drainage plan of the site will be made available for the building or site occupiers. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place. All external storage and delivery areas are designed and detailed in accordance with the current best practice planning guidance. Design Stage Evidence: Consultant's report confirming that there is no discharge from the developed site for rainfall up to 5mm. Relevant sections/clauses of the building specification/contract and/or design drawings indicating: - High and low risk areas of the site - Specification of SUDs, source control systems, oil/petrol separators and shut-off valves as appropriate. Relevant sections/clauses of the building specification/contract and/or a formal letter confirming that 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. Formal letter confirming that a comprehensive and up to date drainage plan of the site will be made available for the building or site occupiers. Completed BREEAM GN13 Document. Post Construction Stage Evidence: Formal letter confirming that the drainage solutions assessed at the design stage have been implemented. 'As Built' drawings showing the impermeable areas pre and post development.
Pol 4 – Reduction of Night-time Light Pollution					



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Pol 4	Reduction of Night-time Light Pollution	1	1	M&E	BREEAM Criteria: External lighting pollution has been eliminated through effective design that removes the need for external lighting. This does not adversely affect the safety and security of the site and its users. OR; The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the Institution of Lighting Professionals (ILP) Guidance notes for the reduction of obtrusive light, 2011. All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00. If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP guidance notes. Where specified, illuminated advertisements are designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisements. Design Stage Evidence: Relevant sections/clauses of the building specification/contract and/or a formal letter confirming that all external lighting has been designed out of the development, or has been designed in compliance with Table 2 of the ILP Guidance notes for the reduction of obtrusive light, 2011 and all external lighting is automatically switched off between 23.00 and 07.00, except where safety and security lighting is provided and will be used between 23.00 and 07.00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP Guidance notes (or provides these lower levels at all times). Formal written confirmation that there are no illuminated advertisements specified as part of the development. Post Construction Stage Evidence:
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					Formal letter confirming that the external lighting has been designed out of the development, or has been designed and installed in accordance with Table 2 of the ILP Guidance notes for the reduction of obtrusive light, 2011 and that all external lighting will automatically be switched off during 07.00hr and 23.00hr, excepting safety and security lighting that will switch to the lower levels of lighting recommended during these hours. Formal letter confirming that there are no illuminated advertisements installed. 'As built' drawing showing the installed external light fittings, photocell and time clock, in line with the design stage specification. BREEAM assessor's site inspection.
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