156 West End Lane

Revised Sustainability Statement

June 2016

Silver Energy Management Solutions Limited
80 Cannon Street
London EC4N 6HL
T: +44(0)20 7232 0465
F: +44(0)20 7231 4271

A2Dominion Developments Limited

West End Lane

Sustainability Statement

Author:	Yannis Papadopoulos	SIGNED
Checker:	Mark Hutchison	SIGNED
Approver:	Mark Hutchison	SIGNED
Report Number:	EMS067 - 01	

Rev No	Comments	Author	Checker	Date
1	Draft 1 for comments	SB	MH	10/09/15
2	Draft 2 for comments	SB	MH	03/11/15
3	For planning application	SB	MH	12/11/15
4	Draft for comments after GLA, council's comments	YP	MH	20/05/16
5	Final for Planning Application	YP	MH	27/05/16

Disclaimer

Contents

Executive Summary

This revised Sustainability Statement reflects the design revisions made as a result of the feedback received and further information requested by the London Borough of Camden officers and Greater London Authority (GLA) officers, following the November 2015 planning application submission. The revised scheme has been reassessed to consider the changes and suggestions to the proposals together with their potential environmental impacts.

This Sustainability Statement has been prepared in response to the relevant local, regional and national policies to support a planning application for the proposed redevelopment of 156 West End Lane, West Hampstead in the London Borough of Camden. This report details how the design team has considered the potential environmental impacts of the proposals and how those impacts can be managed and mitigated in line with the relevant planning policies and the BREEAM environmental assessment methods.

The proposed development has targeted sustainability throughout the lifetime of the building. In particular energy and water efficiency measures will be integral to the building's design.

The proposed energy solution for the development follows and responds to the Be Lean, Be Clean, Be Green principles (London Plan, 2015) and includes various energy efficiency measures as well as low-carbon and renewable energy technologies.

The development has been designed to prevent overheating and avoid excessive requirements for heating and cooling.

The proposed energy strategy can achieve CO_2 savings of 79.3 tCO_2 which is equivalent to circa 37.2% CO_2 reduction over the Part L 2013 Building Regulations Target Emissions Rate (TER). This means that the entire development can exceed the London Plan 35% CO_2 reduction target.

All dwellings within the proposed development will be provided with water efficient fixtures and fittings to reduce water consumption to comply with regulatory maximum requirements of 105 litres per person per day (plus an additional 5 litres for external water use). Prior to occupation, evidence demonstrating that this has been achieved will be submitted and approved by the Local Planning Authority.

Environmental friendly and responsibly sourced materials will be specified, where possible, in line with the BRE Green Guide to Specification.

According to the Flood Risk assessment, the site lies in an area at low risk from flooding. The proposed development is anticipated to have at least a neutral impact on surface water run-off, with an increase in the permeable area on site.

Appropriate recycling facilities will be provided and the reuse and disposal of demolition and construction waste will be guided by a Site Waste Management Plan.

The scheme will include good practice design standards in regard to air, light and noise pollution.

The Air Quality Assessment concluded that the development of this site should not be constrained in any way by air quality.

The Noise Impact Assessment has identified that the development would require noise mitigation to be installed on site to ensure that noise does not result in any constraints.

The health and wellbeing of the occupants will be improved by providing good daylight levels, sufficient private space and indoor comfort. It is proposed to provide comfort cooling to private dwellings to enable residents to achieve a more controlled and pleasant internal environment in summer which will help the residents who are intolerant to high temperatures and/or vulnerable residents. In addition, the residential units will be built to Lifetime Homes standards.

The site will be registered with the Considerate Constructors Scheme with the aim of achieving Best Practice standards, which will ensure that the site's impacts on the environment, the workforce and the general public are minimised. The scheme is designed in accordance with Secured by Design standards.

The ecology of the site will be protected and will be improved by providing green areas and green roofs and introducing new ecological features.

A Transport Assessment and Travel Plan have prepared for the proposed development. The proposed development will provide 310 secure, easily accessible, cycle parking spaces and 12 on-site car parking bays for blue badge holders only.

Implementing the proposed sustainable transport measures will enable the majority of the development generated trips to be made by sustainable modes of transport (public transport, walking and cycling). In addition, the proposals are expected to generate fewer vehicle trips than the current uses on the site. In any event, the trips generated by the proposed development are expected to have no detectable impact on any travel mode. The Transport Assessment demonstrates there is no reason to refuse planning permission for the proposed development on transport grounds.

The proposed redevelopment accords with the high standards of sustainability as prescribed by the London Plan (2015) and London Borough of Camden planning policies. The BREEAM pre-assessment demonstrates that the proposed development can achieve a Very Good rating with a score of 61.8%, improved from the previous submission.

1. Introduction

This revised Sustainability Statement reflects the design revisions made as a result of the feedback received and further information requested by the London Borough of Camden officers and Greater London Authority (GLA) officers, following the November 2015 planning application submission. The revised scheme has been reassessed to consider the changes and suggestions to the proposals together with their potential environmental impacts.

1.1 Background

Silver has been instructed by A2Dominion Developments Limited (A2Dominion) to prepare a Sustainability Statement focusing on the proposed sustainability strategy for the proposed development of 156 West End Lane, Camden. The Sustainability Statement is prepared to support the planning application in response to the local, regional and national legislation and should be read alongside the Energy Strategy, the Design and Access Statement and other supplemental environmental reports submitted with the planning application.

The main aim of this report is to provide an assessment of the sustainability credentials for the proposed development and to describe how the applicable sustainability policies and standards can be met by the proposed design.

The information provided in this report should be treated as indicative at this stage of the development process and should be used to inform the planning application for the proposed development with respect to relevant national, regional and local planning policies.

1.2 Description of the Development

The proposals are for demolition of all existing buildings and redevelopment of the site to provide 163 mixed-tenure homes (Use Class C3), new floor space for town centre uses (Use Classes A1, A2, A3, D1 or D2), new employment floor space (including four dedicated units for start-up businesses) (Use Class B1), a community meeting room and new and improved public open spaces, together with associated new landscaping, on-site access, servicing and disabled car parking.

The residential element proposes 163 mixed tenure units, with 50% of the residential floor area allocated for affordable housing, with a mix of affordable rent and shared ownership. The affordable rented element includes a high proportion of family units.

2. Planning Requirements

2.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and was published on 27th March 2012.

The NPPF is designed to consolidate circulars and guidance documents into a single document, making the planning system more user-friendly and transparent. The primary objective of the NPPF is sustainable development, therefore focussing on the 3 pillars of sustainability. The NPPF is split into three sections; planning for prosperity (Economic), planning for people (Social) and planning for places (Environmental), each of which outline guidance to tackle issues such as housing, transport infrastructure, business and economic development, climate change, etc.

In regard to climate change, the NPPF supports reduction in greenhouse gas emissions and the delivery of renewable and low carbon energy. Climate change is covered in section 10 'Meeting the challenge of climate change, flooding and coastal change'. In summary the key objectives of the NPPF for developments require that they should:

- Be sustainable, durable and adaptable (including taking account of natural hazards such as flooding) and make efficient and prudent use of resources;
- Optimise the potential of the site to accommodate development, create and sustain an appropriate mix of uses (including the incorporation of green and other public spaces as part of developments) and support local facilities and transport networks;
- Respond to their local context and create or reinforce local distinctiveness;
- Create safe and accessible environments where crime and disorder or fear of crime does not undermine quality of life or community cohesion;
- Address the needs of all in society and ensure they are accessible, usable and easy to understand by them; and
- Be visually attractive as a result of good architecture and appropriate landscaping.

2.2 The London Plan (2015)

As a major development in London, the planning application will be governed by the London Plan (2015). The London Plan contains six key objectives that underlie all the policies within it. These include:

- To accommodate the cities growth within its boundaries, without encroaching on open spaces;
- To make London a better city for people to live in;
- To make it a more prosperous city with strong and diverse economic growth;
- To uphold social inclusion and tackle deprivation and discrimination;
- To improve access to this city; and
- To make it a more attractive, well designed and a green place.

The London Plan requires all developments to actively tackle climate change through their design as an integral part of sustainable development. Chapter 5 (London's Response to Climate Change)

contains the following relevant crosscutting policies supporting London as an exemplar city in adapting to climate change.

1. Policy 5.2 - Minimising carbon dioxide emissions
2. Policy 5.3 – Sustainable design and construction
3. Policy 5.5 - Decentralised energy networks
4. Policy 5.6 - Decentralised energy in development proposals
5. Policy 5.7 - Renewable energy
6. Policy 5.8 - Innovative energy technologies
7. Policy 5.9 - Overheating and cooling
8. Policy 5.10 - Urban greening
9. Policy 5.11 – Green roofs and development site environs
10. Policy 5.12 – Flood risk management
11. Policy 5.13 – Sustainable drainage
12. Policy 5.15 – Water use and supplies

These cross-cutting policies of the London Plan aim to ensure sustainable development, which minimises impact on and is adaptive to climate change.

The following outlines key policies set out in the London Plan which must be addressed by new developments and which are relevant to this development:

Policy 5.2 requires all developments to achieve a 35% improvement on 2013 Building Regulations between 2013 and 2016.

Policy 5.2 of the London Plan requires carbon dioxide emissions to be minimised in accordance with the following energy hierarchy:

1. Be lean: use less energy
2. Be clean: supply energy efficiently
3. Be green: use renewable energy

Policy 5.3 of the London plan requires the sustainable design and construction of all new developments.

Policy 5.3 also requires that the top standards of sustainable design and construction should be implemented to improve the environmental effects of new developments. Major developments should meet the basic standards outlined in the London Plan Supplementary Planning Guidance. The following sustainable design principles are included in the standards:

- Minimisation of CO_2 emissions;
- Stopping the internal overheating of buildings and the contribution to the urban heat island effect;
- Efficient use of natural resources;
- Minimisation of all pollution:
- Minimise the creation of waste and augment reuse and recycling;
- Avoid the impacts from natural hazards;

- Ensuring developments are comfortable and secure for users;
- Securing sustainable attainment of materials using local suppliers where feasible;
- The promotion and protection of biodiversity and green infrastructure.

Policy 5.5 states that the Mayor expects 25% of the heat and power used in London to be generated through the use of localised decentralised energy systems by 2025. The Mayor will prioritise the development of decentralised heating and cooling networks at the development and area wide levels; including larger scale heat transmission networks.

Policy 5.6 requires that all new developments should look in to the feasibility of CHP systems and the possibility of extending past the boundaries of the development to local sites.

Policy 5.7 affirms that major developments should provide a certain level of reduced CO_2 emissions through the use of on-site renewable energy generation such as photovoltaic panels.

Policy 5.8 incites the use of innovative technologies in order to reduce the use of fossil fuels and further emissions.

Policy 5.9 aims to reduce the reliance of buildings on air conditioning systems, reduce the urban heat island effect and potential overheating.

Policy 5.10 supports urban greening and green infrastructure as methods of mitigating and adaptation to the effects of climate change.

Policy 5.11 requires the use of green roofs, walls and site planning where feasible.

Policy 5.12 implements that new developments must comply with the regulations on flood risk assessment and management. The development must also pass the exceptions test addressing flood resilient design and emergency planning requirements.

Policy 5.13 requires that unless impractical or impossible, developments should use sustainable urban drainage systems (SUDS). They should also aim to achieve green field run-off rates and ensure run-off is managed as close to source as possible.

Policy 5.15 requires that the building should not use more than 105 litres of water per day per person. This is to be through the minimisation of mains water usage in construction and incorporating water saving methods in to the development.

2.3 Local Policy - Camden Local Plan

The site falls within the London Borough of Camden therefore the development should also comply with the local planning policies. These are set out in the Camden Core Strategy 2010 and Development Plan Policies 2010. In addition, Camden Planning guidance should also be followed.

2.3.1 Core Strategy

The energy related requirements of the Core Strategy Policy CS13 - Tackling climate change through promoting higher environmental standards are as follows:

Reducing the effects of and adapting to climate change

The Council will require all development to take measures to minimise the effects of, and adapt to, climate change and encourage all development to meet the highest feasible environmental standards that are financially viable during construction and occupation by:

- ensuring patterns of land use that minimise the need to travel by car and help support local energy networks;
- promoting the efficient use of land and buildings;
- minimising carbon emissions from the redevelopment, construction and occupation of buildings by implementing, in order, all of the elements of the following energy hierarchy:
  - ensuring developments use less energy,
  - making use of energy from efficient sources, such as the King's Cross, Gower Street, Bloomsbury and proposed Euston Road decentralised energy networks;
  - generating renewable energy on-site; and
- ensuring buildings and spaces are designed to cope with, and minimise the effects of, climate change.

The Council will have regard to the cost of installing measures to tackle climate change as well as the cumulative future costs of delaying reductions in carbon dioxide emissions

Local energy generation

The Council will promote local energy generation and networks by:

- working with our partners and developers to implement local energy networks in the parts of Camden most likely to support them, i.e. in the vicinity of:
  - housing estates with community heating or the potential for community heating and other uses with large heating loads;
  - the growth areas of King's Cross, Euston; Tottenham Court Road; West Hampstead Interchange and Holborn;
  - schools to be redeveloped as part of Building Schools for the Future programme;
  - existing or approved combined heat and power/local energy networks.
- protecting existing local energy networks where possible (e.g. at Gower Street and Bloomsbury) and safeguarding potential network routes (e.g. Euston Road).

Water and surface water flooding

- protecting our existing drinking water and foul water infrastructure, including Barrow Hill Reservoir, Hampstead Heath Reservoir, Highgate Reservoir and Kidderpore Reservoir;
- making sure the development incorporates efficient water and foul water infrastructure;
- requiring the development to avoid harm to the water environment, water quality or drainage systems and prevents or mitigates local surface water and down-stream flooding, especially in areas up-hill from, and in, areas known to be at risk from surface water flooding such as South and West Hampstead, Gospel Oak and King's Cross.

2.3.2 Development Plan

Development Plan Policy DP22 - Promoting sustainable design and construction

The Council will require developments to incorporate sustainable design and construction measures. Schemes must:

- demonstrate how sustainable development principles have been incorporated into the design and proposed implementation; and
- incorporate green or brown roofs and green walls wherever suitable.

The Council will promote and measure sustainable design and construction by:

- expecting new build housing to meet Code for Sustainable Homes Level 3 by 2010 and Code Level 4 by 2013 and encouraging Code Level 6 (zero carbon) by 2016;
- expecting non-domestic developments of 500sqm of floor space or above to achieve “very good” in BREEAM assessments and “excellent” from 2016 and encouraging zero carbon from 2019.

The Council will require developments to be resilient to climate change by ensuring schemes include appropriate climate change adaptation measures, such as:

- summer shading and planting;
- limiting run-off;
- reducing water consumption;
- reducing air pollution; and
- not locating vulnerable uses in basements in flood-prone areas.

Development Plan Policy DP23 – Water

The Council will require developments to reduce their water consumption, the pressure on the combined sewer network and the risk of flooding by:

- incorporating water efficient features and equipment and capturing, retaining and re-using surface water and grey water on-site;
- limiting the amount and rate of run-off and waste water entering the combined storm water and sewer network through the methods outlined in part a) and other sustainable urban drainage methods to reduce the risk of flooding;
- reducing the pressure placed on the combined storm water and sewer network from foul water and surface water run-off and ensuring developments in the areas identified by the North London Strategic Flood Risk Assessment as being at risk of surface water flooding are designed to cope with the potential flooding;
- ensuring that developments are assessed for upstream and downstream groundwater flood risks in areas where historic underground streams are known to have been present; and
- encouraging the provision of attractive and efficient water features.

Development Plan Policy DP24 – Securing high quality design

The Council will require all developments, including alterations and extensions to existing buildings, to be of the highest standard of design and will expect developments to consider:

- character, setting, context and the form and scale of neighbouring buildings;
- the character and proportions of the existing building, where alterations and extensions are proposed;
- the quality of materials to be used;
- the provision of visually interesting frontages at street level;
- the appropriate location for building services equipment;
- existing natural features, such as topography and trees;
- the provision of appropriate hard and soft landscaping including boundary treatments;
- the provision of appropriate amenity space; and
- accessibility.

Development Plan Policy DP28 – Noise and vibration

The Council will seek to ensure that noise and vibration is controlled and managed and will not grant planning permission for:

- developments likely to generate noise pollution; or
- developments sensitive to noise in locations with noise pollution, unless appropriate attenuation measures are provided.

Development that exceeds Camden's Noise and Vibration Thresholds will not be permitted.

The Council will only grant permission for plant or machinery if it can be operated without causing harm to amenities and does not exceed our noise thresholds.

The Council will seek to minimise the impact on local amenities from the demolition and construction phases of development. Where these phases are likely to cause harm, conditions and planning obligations may be used to minimise the impact.

Development Plan Policy DP31 – Provision of, and improvements to, open space and outdoor sport and recreation facilities

To ensure the quantity and quality of open space and outdoor sport and recreation facilities in Camden are increased and deficiencies and under provision are not made worse, the Council will only grant planning permission for developments that are likely to lead to an increased use of public open space where an appropriate contribution to the supply of open space is made. Priority will be given to the provision of publicly accessible open space.

Development Plan Policy DP32 – Air quality and Camden's Clear Zone

The Council will require air quality assessments where developments could potentially cause significant harm to air quality. Mitigation measures will be expected in developments that are located in areas of poor air quality.

The Council will also only grant planning permission for developments in the Clear Zone region that significantly increase travel demand, where it considers that appropriate measures to minimise the transport impact of developments are incorporated. We will use planning conditions and legal agreements to secure Clear Zone measures to avoid, remedy or mitigate the impacts of development schemes in the Central London Area.

2.3.3 Camden Planning Guidance 3 - Sustainability

Camden Council prepared the Camden Planning Guidance 3 to support the energy and sustainability policies in the Local Development Framework (LDF). This guidance forms a Supplementary Planning Document (SPD) which is an additional "material consideration" in planning decisions.

The Camden Planning Guidance covers a range of topics as well as sustainability (such as design, housing, amenity and planning obligations). This guidance provides information on ways to achieve carbon reductions and more sustainable developments. It also highlights the Council's requirements and guidelines which support the relevant Local Development Framework (LDF) policies:

- CS13 - Tackling climate change through promoting higher environmental standards
- DP22 - Promoting sustainable design and construction
- DP23 – Water

The Camden Planning Guidance 3 also suggests some minimum requirements standards for three BREEAM categories which are;

- Energy 60%
- Water 60%
- Materials 40%

2.4 Sustainability Assessment Methods

2.4.1 Code for Sustainable Homes

In line with the Deregulation Act 2015, which received Royal Assent on the 26th March 2015, new residential developments are no longer required to comply with the Code for Sustainable Homes and the Code itself has been withdrawn by the Government.

Camden Council has confirmed that it will not be required to comply with the Code requirements or provide a Code pre-assessment.

2.4.2 BREEAM

BREEAM (Building Research Establishment's Environmental Assessment Method) is a standard assessment method established by the Building Research Establishment (BRE) and used to assess the environmental impact of non-domestic buildings.

Overall BREEAM covers a range of issues and credits which are awarded where a building achieves a benchmark performance. BREEAM is a voluntary standard although central government and some planning authorities require compliance.

The Development Plan Policy DP22 requires all new development to meet BREEAM "Very Good" as minimum. The Deregulation Act 2015 does not have an impact on the BREEAM requirements.

The Camden Council has confirmed that a BREEAM assessment will be required for each non-residential unit.

3. Sustainability Assessment Method and Objectives

Following the Deregulation Act 2015 residential units are no longer required to demonstrate compliance under the Code for Sustainable Homes. The non-residential units are required to achieve BREEAM 'Very Good' rating.

3.1 BREEAM Assessment Method

The design objective for the non-residential units is to achieve BREEAM Very Good and fulfil other relevant sustainability policy requirements. The non-residential floor space will be developed as non-fitted flexible floor space for a range of uses and therefore, will be assessed as Shell and Core project.

BREEAM assesses the sustainability rating of new non-residential developments against 10 categories/sections of sustainable design. The 10 sustainability categories under the BREEAM include:

- Management
- Health and Wellbeing
- Energy
- Transport
- Water
- Materials
- Waste
- Land Use and Ecology
- Pollution
- Innovation

Each section includes a number of environmental issues (51 in total) which are assessed against performance targets and awarded one or more credits accordingly. The total number of percentage points establishes the level or rating for the building.

The BREEAM uses a scale of 'Pass', 'Good', 'Very Good', 'Excellent' and 'Outstanding' to assess the overall level of the environmental performance of new non-residential developments.

BREEAM Level	% Points Required
Outstanding	≥ 85
Excellent	≥ 70
Very Good	≥ 55
Good	≥ 45
Pass	≥ 30

BREEAM Level	% Points Required
Unclassified	< 30

At least 55 BREEAM points will need to be achieved through sustainable design to achieve BREEAM Very Good rating. The BREEAM points will need to be achieved by accomplishing mandatory standards (credits) and tradable credits.

The mandatory standards for the following categories need to be achieved for BREEAM Very Good:

- Energy Monitoring
- Water Consumption
- Water Monitoring
- Responsible Sourcing of Materials
- Minimising Impact on Existing Site Ecology

Further credits are available on a tradable basis from other categories so that the developer may choose how to add performance credits to achieve the rating for which they are aiming.

A sample BREEAM pre-assessment has been carried out for the largest non-residential unit to show how many credits and points can be achieved for each category. A copy of the sample BREEAM pre-assessment is provided in Appendix A.

The proposed sustainability strategies and measures for the development which form the basis of the BREEAM pre-assessment are summarised in the following sections of this document.

4. Proposed Sustainability Strategies

The proposed sustainability solutions have been arranged and presented in nine sustainability categories in accordance with BREEAM and are presented in the following sections.

4.1 Energy

An energy statement for this development has been produced which describes the design and technology options appraised, and proposes the preferred energy strategy option in line with the London Plan and Camden energy policies and the mandatory requirements of the Code and BREEAM.

In general, the proposed energy solution for the development follows and responds to the “Be Lean, Be Clean, Be Green” principles and includes various energy efficiency measures as well as low-carbon and renewable energy technologies as required in Policy 5.2 of the London Plan.

Policy 5.3 of the London Plan requires the development proposals to demonstrate that passive design and energy efficiency are considered at the beginning of the design process.

Through adopting best practice in design, and in response to these policies, the development will use sustainable design and construction standards to reduce potential overheating and reliance on air conditioning systems. The design of the building has been optimised in order to provide optimum thermal conditions both from within and outside of the building. The development will incorporate the following passive solar design measures.

The development will incorporate a number of passive solar design measures, presented below. The layout of the building (S, U shape and different roof height) allows for self-shading between its parts. Furthermore, balconies and external corridors provide shading to the development. The proposed windows aim to maximise daylight and again minimise overheating. The glazing specification will be selected to provide a balance of solar control and access to passive solar gain.

The inclusion of green roofs in the development will enhance biodiversity, absorb rainfall, improve the performance of the building, reduce the urban heat island effect and improve the appearance of a development. All the above, contribute to the greening of the infrastructure and have similar cooling effects on the air surrounding the buildings they are installed on. They also add an additional insulation value on the building elements they are applied to, although this will depend on the construction and the level of moisture content in the living element.

Taking into consideration building fabric and low carbon energy proposals, it is assumed that an appropriate mechanical ventilation strategy with heat recovery (MVHR) will likely be provided as continuous background ventilation to ensure compliance with Part F Building Regulations. Natural ventilation in order to provide the desired Indoor Air Quality (IAQ) to the dwelling has been considered but due to the high energy efficiency requirements and CO_2 reduction targets as well as noise sources arising from the surroundings, it may be difficult to implement this strategy throughout the year. While, on the other hand, natural ventilation is proposed as a purge ventilation during the summer period to deal with the warm spells.

The majority of the units are dual aspect which will maximise daylight. Openable windows are proposed despite the fact that they will not be essential to provide the essential fresh air supply to the rooms. They will, however, provide some further allowance to residents and occupiers to control their environment during spring and summer and thus, increase their adaptive approach to comfort.

The openable windows will also be used for purge natural ventilation to reduce the risk of overheating.

The development follows the cooling hierarchy as set out in London Plan Policy 5.9 and has been reviewed against the performance criteria of this policy from an early stage. Details of the overheating assessment dynamic thermal modelling can be found in the separately submitted Overheating Assessment report.

The results of the modelling showed that if the proposed strategies and assumptions are adopted the building can meet the TM52 Adaptive Overheating criteria without the use of active cooling and as a result can comply with the Cooling hierarchy of London Plan Policy 5.9.

The implementation of all passive design and energy efficiency measures can reduce the regulated CO_2 emissions by approximately 3.7% as well the future energy costs for the residents.

The London Plan Policy 5.5, 5.6 and Policy CS13 of the Core Strategy encourage development of decentralised energy networks. In response to the London Plan Policy 5.6 hierarchy, an investigation using the London Heat Map was carried out to identify existing and planned district heating networks in the vicinity of the site. The London Heat Map indicates that there are no existing or planned district heating networks around the site. However, the London Heat Map indicates that the site is located within a district heating opportunity area.

Given the lack of nearby district heating or community heating infrastructure to connect to at present or in the near future, an on-site energy supply option will be implemented.

Once the energy demand has been reduced the strategy proposes the implementation of a decentralised heating network powered by of a gas-fired Combined Heat and Power (CHP) engine and efficient gas-fired boilers connected to a site-wide district heating network (DHN). The DHN will supply hot water and space heating to the entire development. As no energy demand for cooling is expected for the development, a CCHP system is not considered applicable.

It is anticipated that the use of the CHP engine and DHN would help to reduce CO_2 emissions by approximately 27.3%.

Policy 5.7 of the London Plan and Policy CS13 of the Core Strategy require a reduction in expected CO_2 emissions through the use of on-site renewable energy generation, where feasible. It is therefore proposed to provide a PV system. As calculated, the increased amount of PV panels reduces the regulated CO_2 emissions of the site by circa 6.2%, which consists an improvement over the November scheme.

The proposed energy strategy will help the entire development to accomplish regulated CO_2 savings of 79.3 tCO_2 which is equivalent to circa 37.2% CO_2 reduction over the Part L 2013 baseline. This means that the entire development will exceed the London Plan target of 35% CO_2 reduction, as required by the London Plan.

In summary, it is proposed to achieve the London Plan CO_2 reduction target of 35% on site through implementation of passive design and energy efficiency measures, use of on-site district heating system with the CHP engine and incorporation of PVs into the design.

4.2 Water

In response to the London Plan Policy 5.15 as well as Policy CS13 of the Core Strategy, all residential and non-residential units of the proposed development will be provided with water efficient fixtures and fittings to reduce water consumption. The dwellings will be designed to reduce their

water consumption to the minimum council requirement of 105 litres per person per day (plus an additional 5 litres for external water use). Prior to occupation, evidence demonstrating that this has been achieved will be submitted and approved by the Local Planning Authority.

Water consumption will be metered through individual meters installed on all domestic and non-domestic units. In particular for the non-residential units, the water consuming plant or areas consuming more than 10% of the unit's total demand will be sub-metered and all specified meters will have pulsed output and will be connected to the BMS if provided.

In addition, a water leak detection system is proposed on the building's mains water supply and flow control devices will be provided in each WC area to minimise water leaks and wastage from sanitary fittings.

In addition, a rainwater harvesting system will be provided for irrigation purposes to reduce the amount of mains portable water used for external water use.

4.3 Materials

The energy that has been used during manufacture, processing and transportation of the materials to site, contributes to embodied carbon emissions. These emissions shall be minimised by selection of materials for walls, floors and windows that are characterised by reduced environmental impact.

The BRE's Green Guide to Specification will be used to inform the selection of materials and preference will be made for materials and components with a higher overall summary rating where possible. The Green Guide to Specification will also be used to inform the selection of materials for the non-residential units.

It is anticipated that 100% of the timber used for the proposed development will be from FSC or PEFC-certified sources. It is also anticipated that all site timber used within the construction process would be recycled.

Preference will be given to the use of local materials and suppliers, where viable, to reduce the transport distances and to support the local economy. The selection of suppliers will be undertaken during the next stages of project.

Any opportunities to re-use and/or recycle demolition materials will be identified and pursued, where feasible.

Where space requirements allow, aggregate from the demolition of the current hard landscaping on site will be crushed and used for the substrate materials for the building base, pavement and other surfaces. On-site reuse is preferable to off-site recycling due to the lower transport emissions expected.

In addition, the insulation will be specified with a global warming potential (GWP) of less than 5.

Meeting BREEAM minimum credit requirement:

Following requests from Camden Council officer's in relation to clarifying actions to meet credit requirements which has been replicated below for reference, clarification of energy, water and material credits are summarised below;

Policy: For Non-residential buildings - achieve a BREEAM Very Good (minimum) rating, aspiring to 'Excellent' and minimum credit requirements under Energy (60%), Materials (40%) and Water (60%).

Comment: On the whole, the sustainability strategy is good. A BREEAM Very Good rating is proposed, but the minimum credit requirements will not be met under the current strategy.
Action for applicant: Submit a revised BREEAM assessment indicating additional actions that will be implemented to achieve the minimum credit requirements under Energy, Materials and Water.

Response:
Calculation of available and achieved credits by category:

Energy credits (achieved / available):
(6/12) + (2/2) + (1/1) + (2/3) = 11/18
Credits achieved = 61.1% (supplementary credits were sought as requested by Camden Council)

Water credits (achieved / available):
(2/5) + (1/1) + (2/2) = 5/8
Credits achieved = 62.5%

Material credits (achieved / available):
(2/5) + (1/1) + (2/4) + (1/1) + (1/1) + (0/1) = 7/13
Credits achieved = 53.8%

Thus, the CPG3 requirement is fulfilled.

4.4 Flood Risk and Surface Water Management

Policy 5.12 and Policy 5.13 of the London Plan, Policy CS13 of the Core Strategy and Policy DP23 of Development Plan require minimisation of flood risk and reduction of surface water flow from the site. In response to these policies, a flood risk assessment was carried out and a drainage strategy developed by Iesis Special Structures in accordance with the Environmental Agency's requirements.

A Flood Risk Assessment (FRA) was prepared for the development by Iesis Special Structures. The FRA concluded to the below findings.

The flood map for the development site indicates that all of the site is located within flood zone 1, which is defined as land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any one year.

As the FRA suggests that the site has a low risk of flooding from fluvial sources, overland flow to site, rising groundwater levels, local sewerage network and reservoir, canals or other artificial sources.

Increases in both the peak runoff rate (usually measured in litres per second l/s) and runoff volume (cubic metres m^3) can result. Hence, the development is expected to utilise sustainable drainage systems (SuDS) to manage surface water runoff. The SuDS will aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible.

Focus will be given to lowering the surface water flows from the development site down to lower rate of 46l/s to offer significant 50% benefit in reduced flows into the receiving sewer networks.

A review of the initial site proposals suggest that storage can be provided in cellular storage within the landscaped areas.

If required, permeable paving and other sustainable urban drainage systems will be also considered for the proposed development.

Water attenuation will be achieved through the green areas. As such, the requirements for surface water flow reduction will be met.

The development is not expected to introduce potential pollutants which may affect the local groundwater quality.

The exception to this is in car parking areas, where the provision of petrol interceptors will mitigate the risk of potential pollution of the groundwater. With respect to minimising impacts on water quality during the construction phase, beyond best practice site management principles will be adopted in line with the Considerate Constructors Scheme, or another nationally recognised scheme.

4.5 Sustainable Construction and Waste Management

4.5.1 Sustainable Construction Waste

Careful consideration will be given to the sustainability of construction materials and the minimisation of waste during construction phase of the project.

A Site Waste Management Plan (SWMP) will be prepared for the construction phase of the development which will provide guidance on the sustainable approach to waste management. The SWMP will provide guidance which will facilitate achieving the goal of diverting the majority of the construction waste from landfill. Reused and recycled demolition waste will be implemented to a viable and feasible extent.

Furthermore, the contractor will be required to register under the Considerate Constructor's Scheme (CCS) and achieve best practice score under the Code of Considerate Practise. This equates to a score of 25-34 in accordance with the requirements of BREEAM.

In addition, the contractor will be required to commit to monitoring construction site impacts in line with the BREEAM requirements. Reusing or recycling construction materials will further enhance the environmental performance of the scheme by reducing construction traffic moving to and from the site and to landfill sites.

4.5.2 Waste Storage and Recycling Facilities

Adequate internal waste and recycling spaces will be allocated within each dwelling. In addition, communal bin storage areas will be provided in line with the Camden Council requirements.

The non-residential units will be provided with a separate waste storage area in accordance with the BREEAM waste storage criteria.

4.6 Pollution

4.6.1 Air Quality

In response to Policy 7.14 of the London Plan and Policy DP32 of the Development Plan, an Air Quality Assessment has been carried out by ACCON UK which investigated impacts on the local air quality associated with the construction and operation of the proposed development.

To minimise air quality impacts during construction, a number of best practice mitigation measures will be implemented by the contractors. These measures are summarised in the Air Quality Assessment report. If Best Practice mitigation techniques are implemented, it is considered that the potentially significant impact from the construction phase would be negligible.

In terms of the operation phase, BREEZE Roads calculations have predicted that annual mean concentrations of NO_2, PM_{10} and $PM_{2.5}$ will not exceed the NAQO's. As a result, the development of this site should not be constrained in any way by air quality.

The worst case impact of the CHP and boilers on two local sensitive receptors to the north of the site will be "slight", and there will be no exceedances of the AQAL and therefore the impact is not considered to be significant.

Additionally, as there will not be any significant vehicle movements associated with the development, traffic generation onto the local traffic network will have an insignificant impact on air quality for occupiers of existing local residential property. Furthermore, sustainable travel measures such as cycle storage, encouraging walking and cycling and other measures described in more detail in the Transport section will help to further reduce the air quality impacts from traffic movements.

4.6.2 Noise

It is proposed that both the residential and non-residential units will meet the appropriate acoustic performance standards and testing requirements for sound insulation, indoor ambient noise level and reverberation times. The noise impact assessment report has been produced by ACCON UK which proposes noise mitigation measures in the form of a glazing configuration to allow even the worst affected properties to achieve the relevant internal noise criteria.

The study has identified that the development would require noise mitigation to be installed on site to protect future residents against noise from road traffic and railway noise. It has been shown that, through the specification of building envelope sound insulation as described in the noise impact assessment, a good internal noise environment can be achieved within the residential units of the proposed development. This can be implemented with appropriately specified sound insulating windows, wall construction and consideration of ventilation measures. On this basis the development will achieve compliance with the noise level criteria given in BS 8233 and the WHO guidelines for the daytime and night-time periods

The energy centre and associated flues are expected to introduce some noise to the site. In order to reduce noise to acceptable levels, the following measures are proposed for the development:

- selection of quieter items of plant,
- acoustic treatment of the building envelope to increase the sound reduction afforded by the building, and
- fitting the stack with attenuators.

High quality sound insulation is also expected to be provided on all separating walls between habitable spaces.

Furthermore, the non-residential units will be designed to be compliant with the indoor ambient noise levels given in BS 8233:2014 and will be achieving reverberation compliant with Section 2 of APS.

Construction noise is temporary in nature, lasting for the duration of construction works. Noise reduction measures will be incorporated into the Construction Code of Practice (CoCP) to ensure that this is kept to a minimum.

4.6.3 Lighting

High efficiency internal and external lighting should be used throughout the development in conjunction with a lighting control system incorporating daylight and presence detection as appropriate. This will ensure that lights are switched off when not required and would minimise light pollution. In addition, the lighting design associated with the non-residential units will be developed in accordance with guidance produced by the Institute of Lighting Engineers and Building Research Establishment to provide adequate protection from glare and light spill to sensitive receptors.

4.6.4 Global Warming Potential of Insulants

The development will use insulation materials that have a Global Warning Potential of less than 5.

4.7 Health and Well Being

The London Plan outlines the need for comfortable and secure developments for users. As such, comfort and security have been a major component of the proposed building's design.

4.7.1 Daylighting

To promote sustainable design, the mass and form of the principal building elements have been designed to optimise the amount of direct sunlight, which will help to minimise the use of energy-intensive artificial lighting.

4.7.2 Internal Environment

At this stage, it is assumed that a mechanical ventilation strategy with heat recovery (MVHR) will likely be provided. This will help to address the noise issues and create a better internal environment.

The proposed passive design will minimise the risk of overheating. However, it is proposed to provide comfort cooling to private dwellings to enable residents to achieve a more controlled and pleasant internal environment during hot days in summer. The ability to create a more controlled and pleasant internal environment in the flats will particularly benefit the residents who are intolerant to high temperatures and vulnerable residents with health issues.

It is anticipated that the affordable block dwellings will have better cross ventilation than the dwellings within the private blocks, due to the proposed architectural design. Therefore it is not proposed to provide comfort cooling to the affordable block dwellings.

4.7.3 Open Space

The provision of secure open spaces is required in Policy DP31 of the Development Plan. The provision of open space for residents is provided by communal garden space, private terraces, and adequately sized private balconies. This provides residents with valuable external space which has been shown to have significant effect on quality of life.

4.7.4 Noise

Sound insulation is designed to reduce the amount of noise created by day to day occurrences in a dwelling and therefore improving health and wellbeing.

The non-residential units will be designed to be compliant with the indoor ambient noise levels given in BS 8233:2014 and will be achieving reverberation compliant with Section 2 of APS.

4.7.5 Lifetime Homes

All dwellings will be designed and built to achieve full compliance with the Lifetime Homes criteria, which provides a future proof and adaptable development, and allows the dwellings to be suitable for a wider audience of age and for people with disability.

4.8 Management

The site is expected to be registered under the Considerate Constructors Scheme prior to the commencement of construction. It is anticipated that the development will target Best Practice standards.

To minimise construction site impacts, constructors will be required to monitor, report and set targets for water consumption from site activities and in addition adopt best practice policies in respect to air, dust and water pollution resulting from site activities.

Significant importance has been given to the security of the prospective occupants of the building. An Architectural Liaison Officer has been consulted at the design stage and the proposed development is designed to comply with Secured by Design standards.

The development will also provide a Home User Guide or Building User Guide to all building users ensuring that operational instructions for the building as well as maintenance information is clearly available; and a guide to the surrounding area and amenities will be made available to ensure all building users are familiar with the area.

4.9 Ecology and Biodiversity

A suitably qualified ecologist from the Ecology Consultancy was appointed to carry out an ecological appraisal report of the site. The site has a low ecological value due to the existence of hard standing.

The site had negligible potential to support bats, and was unsuitable to support any other protected species, Species of Principal Importance or other noteworthy species.

The site did not contain any habitats of principal importance, however the site is an important habitat under ‘built structures’ in the London BAP. It is encouraged through the planning policies outlined in Camden’s LDF that features are installed within the built environment that are beneficial to wildlife.

The existence of any protected species will be protected on site before construction works commence. The ecological features of the site will be protected and enhanced, taking into account the recommendations provided in the ecological appraisal report.

4.10 Transport

In line with the London Plan the primary objectives of the proposed development include:

- Supporting parking restraints in an area with good public transport links in an effort to encourage more sustainable transport and travel patterns;
- Encouraging a modal switch away from private car-use to more energy efficient, less polluting modes of transport;
- Reducing traffic congestion and improving local quality of life;
- Protecting human health;

- Reducing environmental impacts associated with traffic;

In response to these requirements, a Transport Assessment has been prepared by TPP in support of the proposed new development. The Transport Assessment report also includes a Travel Plan for the site. Both documents have been subsequently updated to reflect the design changes and requests for further information from Camden Council and the Greater London Authority.

In order to encourage non-car modes and to encourage residents to consider the use of bicycles as a convenient form of transport, the proposed development would provide 310 secure, easily accessible, cycle parking spaces, which is in line GLA's cycle parking standards, and 12 on-site car parking bays for blue badge holders only.

The applicant will also provide improvements to Potteries Path including improved lighting, building frontages instead of walls, soft and hard landscaping, which will increase activity and natural surveillance within the site boundary.

The proposals are expected to generate fewer vehicle trips than the existing uses at the site. In any event, the trips generated by the proposed development are expected to have no perceptible impact on any travel mode.

A Framework Travel Plan will be submitted as part of the planning application. The aim of the Travel Plan is to create a sustainable, community driven environment for residents living within the development, which promotes a range of lifestyle and travel choices and reduces reliance on the private car.

A range of Travel Plan measures will be implemented to bring together a co-ordinated approach to encourage residents to use sustainable modes of transport.

A Travel Plan Co-ordinator (TPC) will be appointed who will be responsible for implementing, managing and promoting the Travel Plan to residents. It is expected that all residents moving into new properties will be provided with an Information Pack including details of public transport services and initiatives in the local area. The Travel Plan will be finalised within six months of the occupation of the site.

Implementing the aforementioned proposed sustainable transport measures will enable the majority of the development generated trips to be made by sustainable modes of transport (public transport, walking and cycling). Thus, the Transport Assessment demonstrates there is no reason to refuse planning permission for the proposed development on transport grounds.

5. Summary and Conclusions

The proposed sustainability approach is developed to meet the targets and standards set by the relevant planning policies. The proposed development has incorporated a number of key sustainability measures and features which are summarised in the table below:

Issue	Proposed Sustainability Measures
Energy	• Energy High quality construction standards and high quality windows, along with high levels of insulation, a Combined Heat and Power (CHP) backed up by high efficiency gas boilers and roof mounted PVs result in significant CO_2 savings compared to the current Part L Building Regulations which exceed the 35% CO_2 emissions target reduction the London Plan requires • Energy efficient white goods and BREEAM compliant external lighting will be specified.
Water	• Low flow water use fittings and fixtures will be specified to ensure that the estimated water consumption will comply the regulatory maximum requirements of 105 litres per person per day (plus an additional 5 litres for external water use). • In order to reduce external water consumption, a compliant rainwater harvesting system will be provided for irrigation and landscaping purposes.
Materials	• The proposed development will specify new materials with high ratings in the BRE Green Guide to Specification. • Reused and recycled materials, including aggregates, will be used to the extent feasible.
Surface Water Run-off	• According to the FRA the proposed development is anticipated to have at least a neutral impact on surface water run-off. • The building is located in a low flood risk. • Attenuation from roof water run-off will be provided by the use of rainwater harvesting systems and green spaces. • If required, permeable paving and other sustainable urban drainage systems will be also considered for the proposed development.
Waste	• Prior to construction, a Site Waste Management Plan will be produced with benchmarks to divert the majority of non-hazardous construction waste from landfill. • The proposed development will incorporate compliant, appropriately sized and located external waste and recycling storage facilities. • Dedicated refuse and recycling storage facilities are proposed to accommodate the waste streams associated with the use of residential and non-residential units.

Issue	Proposed Sustainability Measures
Pollution	• To minimise air quality impacts during construction, a number of best practice mitigation measures will be implemented by the contractors • In terms of the operation phase, BREEZE Roads calculations have predicted that annual mean concentrations of NO2, PM10 and PM2.5 will not exceed the NAQO's. As a result, the development of this site should not be constrained in any way by air quality. • Sustainable travel measures such as cycle storage, encouraging walking and cycling help to reduce the air quality impacts from traffic movements. • The Noise Impact Assessment has identified that the development would require noise mitigation to be installed on site to ensure that noise does not result in any constraints. • High standard acoustic insulating materials are suggested for the proposed development. • Decentralised energy plant will be selected to have low NOx emissions to minimise impact on air quality. • High quality sound insulation is expected to be provided on all separating walls between habitable spaces to improve indoor comfort by reducing the likelihood of nuisance due to noise transmission. • External lighting and noise nuisance will be minimised.
Health and Wellbeing	• It is anticipated that all key rooms in the apartments will be receiving adequate daylight to ensure health and well-being of residents. • Mechanical Ventilation with Heat Recovery (MVHR) to improve the indoor air quality. • Energy efficient cooling system for the private residential units and large non-residential units to ensure thermal comfort. • Sound insulation for separating walls and floors will be improved beyond Building Regulations requirements. • The proposed dwellings will be provided with private and/or semi-private open space terraces and gardens. • All the apartments will be designed in line with the Lifetime Homes criteria.
Management	• The applicant will register the site with the Considerate Constructors Scheme and will aim to meet beyond practice standards. • The construction site impacts of the proposed development will be monitored in line with the BREEAM requirements. • An Architectural Liaison Officer has been consulted. It is anticipated that the proposed building will comply with the principles of Secured by Design standards.
Ecology	• The existing land can be deemed as 'land of low ecological value'. • The ecological features of the site will be protected and enhanced where possible. • Green areas and green roof are incorporated into the design.

Issue	Proposed Sustainability Measures
Transport	• The Transport Assessment demonstrates there is no reason to refuse planning permission for the proposed development on transport grounds. • The design encourages sustainable modes of transport. • 310 secure, easily accessible, cycle parking spaces together with 13 on-site car parking bays for blue badge holders only will be provided for the development. • A full Travel Plan has been provided. • The development is in close proximity to excellent transport links and to a wide range of amenities, therefore reducing the need to use car for travelling.

This Sustainability Statement demonstrates that the proposed development is targeting high standards of design and build-quality. Much attention has been given to reducing the environmental impact throughout the lifetime of the development.

This Sustainability Statement demonstrates that the proposed development is targeting high standards of design and built-quality. Much attention has been given to reducing the environmental impact throughout the lifetime of the development and not just during occupation.

The BREEAM pre-assessment demonstrates that the proposed development can achieve a “Very Good” rating with a 61.8% score. It should be noted that this pre-assessment has been undertaken early in the design process and is therefore subject to changes. It is also important to note that the threshold for BREEAM “Very Good” can be achieved by attaining alternative equal credits within the BREEAM scheme, and not achieving exactly the ones allocated in the pre-assessment, subject to future non-residential occupant preference.

In conclusion, this report demonstrates that the proposed development can meet the sustainability planning policy requirements. The design team has carefully considered the site’s potential environmental impacts, which will be managed and mitigated in line with the relevant planning policies.

Appendix A – Sample BREEAM Pre-Assessment

BREEAM UK New Construction 2014 Pre-Assessment Estimator

General information

BRE Assessment reference no.	TBC
Client name	A2Dominion Developments Limited
Building end user/occupier	Shell and Core
Assessor name	Yannis Papadopoulos
Assessor organisation	Silver EMS Ltd.

Building details

Building name	West End Lane
Country	England
Building type (main description)	Retail
Building type (sub-group)	Retail - Shop
Building floor area (GIA) m^2	805
Building floor area (NIFA) m^2	805
BREEAM scheme	New Construction
BREEAM version	2014 (SD5076)
BREEAM UK 2014 technical manual issue number	SD5076 Issue 3.0
Project type	New Construction (shell and core)
Assessment stage	Pre-Assessment
Location type	London Borough
If applicable, does this industrial building have a heated or cooled operational area?	Option not applicable to building type
Does water heating contribute less than 10% of the buildings total energy consumption?	No
Commercial/industrial refrigeration and storage systems	No
Building user transportation systems (lifts and/or escalators)	No
Laboratory function/area and size category	No laboratory
Laboratory containment level	No laboratory
Fume cupboard(s) and/or other containment devices	No
Unregulated water uses present? (e.g. vehicle wash system, irrigation)	No
If applicable, will this healthcare building house inpatients?	Option not applicable to building type
If applicable, does this industrial building have an office area?	Option not applicable to building type
If applicable, does this building contain areas requiring SAP assessment?	Option not applicable to building type
If SAP used, what proportion of the building's total floor area (GIA) does it apply to?	Option not applicable to building type

BREEAM UK New Construction 2014 Pre-Assessment Estimator: Assessment Issue Scoring

BREEAM® UK

Building name	West End Lane
Building score (%)	61.85%
Building rating	Very Good
Minimum standards level achieved	Excellent level

MANAGEMENT

Man 01 Project brief and design

No. of BREEAM credits available	4	Available contribution to overall score	2.44%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will stakeholder consultation (project delivery) take place?	Yes	1	1
Will stakeholder consultation (third party) take place?	Yes	1	1
Will a sustainability champion (design) be assigned?	No	1	0
Will a sustainability champion (monitoring progress) be assigned?	No	1	0

Total BREEAM credits achieved	2
Total contribution to overall building score	1.22%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

Man 02 Life cycle cost and service life planning

No. of BREEAM credits available	4	Available contribution to overall score	2.44%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will an elemental life cycle cost (LCC)analyses be carried out?	No	2	0
Will a component level LCC plan be developed?	No	1	0
Will the predicted capital cost be reported?	Yes	1	1
Expected capital cost of the project (if available)		£/m^2	

Total BREEAM credits achieved	1
Total contribution to overall building score	0.61%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Man 03 Responsible construction practices

No. of BREEAM credits available	6	Available contribution to overall score	3.67%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Is all site timber used in the project 'legally harvested and traded timber'?	Yes		
Will/does the principal contractor operate a compliant Environmental Management System?	Yes	1	1
Will a construction stage sustainability champion be assigned?	Yes	1	1
Will a considerate construction scheme be used by the principal contractor? (One credit where 'compliance' has been achieved. Two credits where 'compliance' is significantly exceeded.)	1	2	1
Will construction site impacts be metered/monitored?	Yes		
Will site utility consumption be metered/monitored?	Yes	1	1
Will transport of construction materials and waste be metered/monitored?	Yes	1	1
Will exemplary level criteria be met?			

Key Performance Indicators: Construction site energy use

Energy consumption (total) - site processes		Information not available at design stage
Energy consumption (intensity) - site processes		Information not available at design stage
Distance (total) - materials transport to site		Information not available at design stage
Distance (total) -waste transport from site		Information not available at design stage
Energy consumption (total) - materials transport to site		Information not available at design stage
Energy consumption (total) - waste transport from site		Information not available at design stage
Energy consumption (intensity) - materials transport to site		Information not available at design stage
Energy consumption (intensity) - waste transport from site		Information not available at design stage

Key Performance Indicators: Construction site greenhouse gas emissions

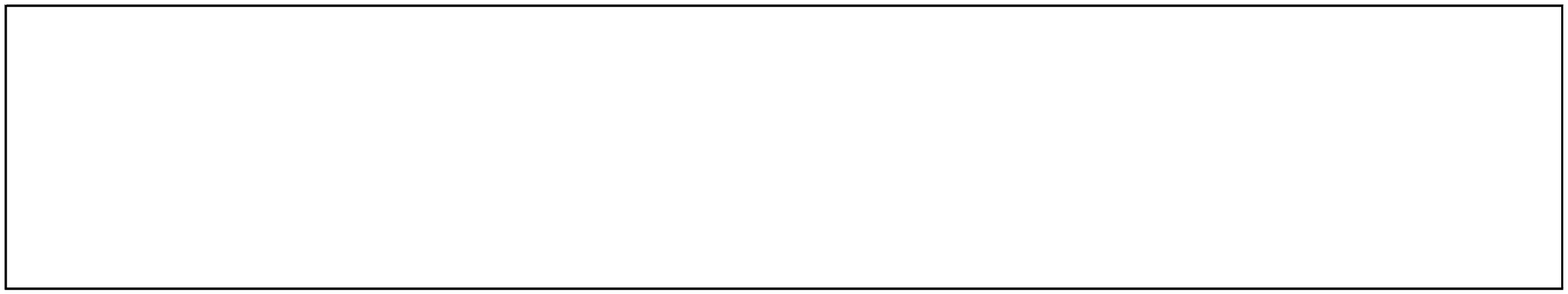
Process greenhouse gas emissions (total) - site processes		Information not available at design stage
Greenhouse gas emissions (intensity) - site processes		Information not available at design stage
Greenhouse gas emissions (total) - materials transport to site		Information not available at design stage
Greenhouse gas emissions (total) - waste transport from site		Information not available at design stage
Greenhouse gas emissions (intensity) - materials transport to site		Information not available at design stage
Greenhouse gas emissions (intensity) - waste transport from site		Information not available at design stage

Key Performance Indicators: Construction site use of freshwater resources

Use of freshwater resource (total) - site processes		Information not available at design stage
Use of freshwater resource (intensity) - site processes		Information not available at design stage

Total BREEAM credits achieved	5
Total contribution to overall building score	3.06%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Excellent level

Comments/notes:



Man 04 Commisioning and handover

No. of BREEAM credits available	4	Available contribution to overall score	2.44%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will commissioning schedule and responsibilities be developed & accounted for?	Yes	1	1
Will a commissioning manager be appointed?	Yes	1	1
Will the building fabric be commissioned?	Yes	1	1
Will a training schedule for building occupiers/managers at Handover?		1	1
Will a building user guide be developed prior to handover?	Yes		

Total BREEAM credits achieved	4
Total contribution to overall building score	2.44%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

Man 05 Aftercare

Assessment issue not applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will aftercare support be provided to building occupiers?			
Will seasonal commissioning occur over 12months once substantially occupied?			
Will a post occupancy evaluation be carried out 1 year after occupation?			
Will exemplary level criteria be met?			

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A

Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

HEALTH & WELLBEING

Hea 01 Visual Comfort

No. of BREEAM credits available	5	Available contribution to overall score	4.38%
No. of BREEAM innovation credits available	1	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will the design provide adequate glare control for building users?	No	1	0
Will relevant building areas be designed to achieve appropriate daylight factor(s)?	0	2	0
Will the design provide adequate view out for building users?	No	1	0
Will internal/external lighting levels, zoning and controls be specified in accordance with the relevant CIBSE Guides/British Standards?	Yes	1	1
Will exemplary level criteria be met?	No	1	0

Total BREEAM credits achieved	1
Total contribution to overall building score	0.88%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

Hea 02 Indoor Air Quality

No. of BREEAM credits available	2	Available contribution to overall score	1.75%
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will an air quality plan be produced and building designed to minimise air pollution?			
Will building be designed to minimise the concentration and recirculation of pollutants in the building?	Yes	1	1

Will the relevant products be specified to meet the VOC testing and emission levels required?			
Will formaldehyde and total VOC levels be measured post construction?			
Will the building be designed to, or have the potential to provide, natural ventilation?	No	1	0
Will exemplary level VOCs (products)criteria be met?			

Key Performance Indicators: Indoor air quality

Concentration levels of formaldehyde		Information not available at design stage
Total volatile organic compound (TVOC) concentration		Information not available at design stage

Total BREEAM credits achieved	1
Total contribution to overall building score	0.88%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

Hea 03 Safe containment in laboratories

Assessment issue not applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will an objective risk assessment of proposed laboratory facilities' design be completed?			
Will the manufacture & installation of fume cupboards and containment devices meet best practice standards?			
Will containment level 2 & 3 labs meet best practice safety & performance criteria?			

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Hea 04 Thermal comfort

No. of BREEAM credits available	2	Available contribution to overall score	1.75%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will thermal modelling of the design be carried out?	Yes	1	1
Will the building design be adapted for a projected climate change scenario?	No	1	0

Key Performance Indicators: Thermal comfort

Predicted Mean Vote (PMV)	INA
Predicted Percentage Dissatisfied (PPD)	INA

Total BREEAM credits achieved	1
Total contribution to overall building score	0.88%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Hea 05 Acoustic Performance

No. of BREEAM credits available	1	Available contribution to overall score	0.88%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Credits	Credits available	Credits achieved
Will the building meet the appropriate acoustic performance standards and testing requirements for: a. Sound insulation b. Indoor ambient noise level c. Reverberation times?	1	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.88%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Hea 06 Safety and Security

No. of BREEAM credits available	2	Available contribution to overall score	1.75%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Where external site areas are present, will safe access be designed for pedestrians and cyclists?	Yes	1	1
Will a suitably qualified security consultant be appointed and security considerations accounted for?	Yes	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	1.75%
Total BREEAM innovation credits achieved	N/A

Minimum standard(s) level	N/A

Comments/notes:

ENERGY

Ene 01 Reduction of energy use and carbon emissions

No. of BREEAM credits available	12	Available contribution to overall score	10.00%
No. of BREEAM innovation credits available	5	Minimum standards applicable	Yes

How do you wish to assess the number of BREEAM credits achieved for this issue?	Define a target number of BREEAM credits achieved
Select the target number of BREEAM credits for the Ene01 issue:	6

Ene 01 Calculator

Country of the UK where the building is located		Confirm building regulation and version to be used:	

New Construction (shell and core)

Building floor area		m2
Notional building heating and cooling energy demand		MJ/m2yr
Actual building heating and cooling energy demand		MJ/m2yr
Notional building primary energy consumption		kWh/m2yr
Actual building primary energy consumption		kWh/m2yr
Target emission rate (TER)		kgCO2/m2yr
Building emission rate (BER)		kgCO2/m2yr
Building emission rate improvement over TER		
Heating & cooling demand energy performance ratio (EPR_{ED})		
Primary consumption energy performance ratio (EPR_{PC})		
CO_2 Energy performance ratio (EPR_{CO2})		
Overall building energy performance ratio (EPR_{NC})		

Where specified, please confirm the energy production from onsite or near site energy generation technologies	
Equivalent % of the building's 'regulated' energy consumption generated by carbon neutral sources and used to meet energy demand from 'unregulated' building systems or processes?	
Is the building designed to be 'carbon negative' ?	
If the building is defined as 'carbon negative' what is the total (modelled) renewable/carbon neutral energy generated and exported?	

Total BREEAM credits achieved	6
Total contribution to overall building score	5.00%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Excellent level

Comments/notes:

Ene 02 Energy monitoring

No. of BREEAM credits available	2	Available contribution to overall score	1.67%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment criteria	Compliant?	Credits available	Credits achieved
Will a BMS or sub-meters be specified to monitor energy use from major building services systems?	Yes	1	1
Will a BMS or sub-meters be specified to monitor energy use by tenant/building function areas?	Yes	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	1.67%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

Ene 03 External lighting

No. of BREEAM credits available	1	Available contribution to overall score	0.83%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment criteria	Compliant?	Credits available	Credits achieved
Will external light fittings and controls be specified in accordance with the BREEAM criteria?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.83%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Ene 04 Low carbon design

No. of BREEAM credits available	3	Available contribution to overall score	2.50%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment criteria	Compliant?	Credits available	Credits achieved
Will passive design measures be used in line with an analysis be carried out during concept design stage (RIBA stage 2 or equivalent)?	Yes	1	1
Will free cooling measures be implemented in the whole building in line with the passive design analysis?	No	1	0
Will a LZC technology be specified in line with a feasibility study carried out by the completion of the Concept Design stage (RIBA Stage 2 or equivalent)?	Yes	1	1

KPI - Low and/or zero carbon energy generation

Total on-site and/or near-site LZC energy generation	INA	kWh/yr

Total BREEAM credits achieved	2
Total contribution to overall building score	1.67%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Ene 05 Energy efficient cold storage

Assessment issue not applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment criteria	Compliant?	Credits available	Credits achieved

Will the refrigeration system be designed, installed & commissioned in accrodance with BREEAM criteria?		N/A	N/A
Will the refrigeration system demonstrate a saving in indirect greenhouse gas emissions?		N/A	N/A

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Ene 06 Energy efficient transportation systems

Assessment issue not applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment criteria	Compliant?	Credits available	Credits achieved
Will a transportation system analysis be carried out to determine and specify the optimum number, size and type of lifts that is most energy efficient?			
Will the relevant energy-efficient features criteria be met?			

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Ene 07 Energy efficient laboratory systems

Assessment issue not applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment criteria	Compliant?	Credits available	Credits achieved
Pre-requisite: Criterion 1 of Hea 03 - risk assessment of laboratory facilities			
Have the occupants' laboratory requirements & performance criteria been confirmed during the preparation of the initial project brief to minimise energy demand?			
Best Practice Energy Practices in Laboratories (table 27)			
Will the laboratory meet criteria item b) Fan power?			
Will the laboratory criteria item c) Fume cupboard volume flow rates?			
Will the lab meet item d) Grouping / isolation of high filtration/ventilation activities?			
Will the laboratory meet criteria item e) Energy recovery - heat?			
Will the laboratory meet criteria item f) Energy recovery - cooling?			

Will the laboratory meet criteria item g) Grouping of cooling loads?	
Will the laboratory meet criteria item h) Free cooling?	
Will the laboratory meet criteria item i) Load responsiveness?	
Will the laboratory meet criteria item j) Cleanrooms?	
Will the laboratory meet criteria item k) Diversity?	
Will the laboratory meet criteria item l) Room air-change rates?	

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Ene 08 Energy efficient equipment

Assessment issue not applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment criteria

Which of the following will be present and likely to be a/the major contributor to 'unregulated' energy use?	Present	Major impact
Ref A Small power and plug in equipment?		
Ref B Swimming pool?		
Ref C Communal laundry?		
Ref D Data centre?		
Ref E IT-intensive operation areas?		
Ref F Residential areas?		
Ref G Healthcare?		
Ref H Kitchen and catering facilities?		

	Compliant	Credits available	Credits achieved
Will the significant majority contributor(s) to 'unregulated' energy use above meet the BREEAM criteria?			

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Ene 09 Drying space

Assessment issue not applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment criteria	Compliant?	Credits available	Credits achieved
Will internal/external drying space and fixings be provided?			

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

TRANSPORT

Tra 01 Public Transport Accessibility

No. of BREEAM credits available	5	Available contribution to overall score	5.56%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Building type category (for purpose of Tra01 issue assessment)	Retail

Assessment Criteria	Compliant	Credits available	Credits achieved
Indicative public transport accessibility index (AI):	18.00	5	5
Will the building have a dedicated bus service?			N/A

AI	Indicative Accessibility Index for pre-assessment
0	Poor or no public transport provision
1	A single BREEAM compliant public transport node available
2	Some BREEAM compliant public transport nodes/services available
4	A selection of BREEAM compliant public transport nodes/services available
8	Good provision of public transport i.e. small urban centre / suburban area
10	Very Good provision of public transport i.e. small/medium urban centre
12	Excellent provision of public transport, i.e. medium urban centre
18	Excellent provision of public transport, i.e. large urban/metropolitan city centre

Total BREEAM credits achieved	5
Total contribution to overall building score	5.56%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Tra 02 Proximity to Amenities

No. of BREEAM credits available	1	Available contribution to overall score	1.11%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will the building be in close proximity of and accessible to applicable amenities?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	1.11%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Tra 03 Cyclist facilities

No. of BREEAM credits available	2	Available contribution to overall score	2.22%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Building type category (for purpose of Tra03 issue assessment)	Retail – Individual retail unit
How many compliant cycle storage spaces will be provided?	10
What cyclist facilities will be provided?	No compliant facilities

Assessment Criteria	Compliant?	Credits available	Credits achieved
Cycle storage spaces	Yes	2	1
Cyclist facilities	No		

Total BREEAM credits achieved	1
Total contribution to overall building score	1.11%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Tra 04 Maximum Car Parking Capacity

Assessment issue not applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Building type category (for purpose of Tra04 issue)	
Building's indicative Accessibility Index (sourced from issue Tra01)	

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will BREEAM's maximum parking capacity criteria for the building type/Accessibility Index be met?			

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Tra 05 Travel Plan

No. of BREEAM credits available	1	Available contribution to overall score	1.11%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a transport plan based on site specific travel survey/assessment be developed?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	1.11%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

WATER

Wat 01 Water Consumption

No. of BREEAM credits available	5	Available contribution to overall score	4.69%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

How do you wish to assess the number of BREEAM credits to be achieved for this issue?	Define a target % improvement over baseline sanitary fittings
What is the target for % reduction in potable water consumption for sanitary use in the building?	25% - two credits
Please select the calculation procedure used	

Standard approach data

Water Consumption from building micro-components		L/person/day
Water demand met via greywater/rainwater sources		L/person/day
Total net water consumption		L/person/day

Improvement on baseline performance		%

Key Performance Indicator - use of freshwater resource

Total net Water Consumption		m3/person/yr
Default building occupancy		

Alternative approach data

Overall microcomponent performance level achieved	

Total BREEAM credits achieved	2
Total contribution to overall building score	1.88%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

Wat 02 Water Monitoring

No. of BREEAM credits available	1	Available contribution to overall score	0.94%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will there be a water meter on the mains water supply to the building(s)?	Yes	1	1
Will metering/monitoring equipment be specified on the water supply to any relevant plant/building areas?	Yes		
Will all specified water meters have a pulsed output?	Yes		
If the site/building has an existing BMS connection, will all pulsed meters be connected to the BMS?	Yes		

Total BREEAM credits achieved	1
Total contribution to overall building score	0.94%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

Wat 03 Water Leak Detection and Prevention

No. of BREEAM credits available	2	Available contribution to overall score	1.88%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a mains water leak detection system be installed on the building's mains water supply?	Yes	1	1
Will flow control devices be installed in each sanitary area/facility?	Yes	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	1.88%
Total BREEAM innovation credits achieved	N/A

Minimum standard(s) level	N/A

Comments/notes:

Wat 04 Water Efficient Equipment

Assessment issue not applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved
Has a meaningful reduction in unregulated water demand been achieved?			

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

MATERIALS

Mat 01 Life Cycle Impacts

No. of BREEAM credits available	5	Available contribution to overall score	5.58%
No. of BREEAM innovation credits available	3	Minimum standards applicable	No

How do you wish to assess the number of BREEAM credits to be achieved for this issue?	Define the number of Mat 01 credits achieved

Assessment Criteria

Predicted total Mat01 credits achieved	2
Predicted total Mat01 points achieved	
Number of building elements assessed	
Green Guide exemplary level compliant?	No
Has IMPACT compliant software been used?	No

Key Performance Indicator - embodied green house gas emissions by element	Total area of element m^2	Total impact $kgCO_2$ eq.	Area of element impact data relevant to m^2
External walls			

Windows			
Roof			
Upper floor construction			
Internal wall			
Floor finishes/coverings			

Key Performance Indicator - embodied green house gas emissions for building (assessed elements only)

Total embodied green house gas emissions for building (by assessed elements)	Missing data	$kgCO_2$ eq.		$kgCO_2$ eq./m^2
Proportion of applicable building elements that data reported covers				

Total BREEAM credits achieved	2
Total contribution to overall building score	2.23%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

Mat 02 Hard Landscaping and Boundary Protection

No. of BREEAM credits available	1	Available contribution to overall score	1.12%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will ≥80% of all external hard landscaping and boundary protection achieve a Green Guide A or A+ rating?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	1.12%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Mat 03 Responsible Sourcing

No. of BREEAM credits available	4	Available contribution to overall score	4.46%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Assessment Criteria	Compliant	Credits available	Credits achieved
All timber and timber based products are 'Legally harvested and trader timber'	Yes		
Is there a documented sustainable procurement plan?	Yes	1	1
Percentage of available responsible sourcing of materials points achieved	18.00%	3	1

Please confirm the route used to assess Mat03	Route 1: Lowest RSCS point score

Total BREEAM credits achieved	2
Total contribution to overall building score	2.23%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

Mat 04 Insulation

No. of BREEAM credits available	1	Available contribution to overall score	1.12%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria		Credits available	Credits achieved	
What is the building's targeted insulating index?	2.50	1	1	Note: An insulatio

Total BREEAM credits achieved	1
Total contribution to overall building score	1.12%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Mat 05 Designing for durability and resilience

No. of BREEAM credits available	1	Available contribution to overall score	1.12%
No. of BREEAM innovation credits available	0	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will suitable durability/protection measures be specified and installed to vulnerable areas of the building?	Yes	1	1
Will suitable durability/protection measures be specified and installed to exposed parts of the building?	Yes		

Total BREEAM credits achieved	1
Total contribution to overall building score	1.12%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Mat 06 Material efficiency

No. of BREEAM credits available	1	Available contribution to overall score	1.12%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will material efficiency measures be identified & implemented during all RIBA stages?	No	1	0

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

WASTE

Wst 01 Construction Waste Management

No. of BREEAM credits available	4	Available contribution to overall score	4.75%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

How do you wish to assess the number of BREEAM credits to be achieved for this issue?	Define a target number of BREEAM credits		
Select the number of BREEAM credits being targeted for issue Wst 01:	2	BREEAM Wst01 Innovation credits:	0

Assessment Criteria	Compliant?
Construction resource management plan	
Compliant Pre-demolition audit	
Does the excavation waste meet the exemplary level requirements?	

Key Performance Indicators - Construction Waste

Measure/units for the data being reported		
Non-hazardous construction waste (excluding demolition/excavation)		
Total non-hazardous construction waste generated		Note: At the pre-assessment stage this
Non-hazardous non-demolition const. waste diverted from landfill		Note: At this stage this will be a target b
Total non-hazardous non-demolition const. waste diverted from landfill		Note: At the pre-assessment stage this
Total non-hazardous demolition waste generated		Note: At this stage this will be a target b
Non-hazardous demolition waste diverted from landfill		Note: At this stage this will be a target b
Total non-hazardous demolition waste to disposal		Note: At the pre-assessment stage this
Material for reuse		Note: At this stage this will be a target b
Material for recycling		Note: At this stage this will be a target b
Material for energy recovery		Note: At this stage this will be a target b
Hazardous waste to disposal		Note: At this stage this will be a target b

Total BREEAM credits achieved	2
Total contribution to overall building score	2.38%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

Wst 02 Recycled Aggregates

No. of BREEAM credits available	1	Available contribution to overall score	1.19%
No. of BREEAM innovation credits available	1	Minimum standards applicable	No

Assessment Criteria	Total
What is the target total % of high-grade aggregate that will be recycled/secondary aggregate?	25%

% of high-grade aggregate that is recycled/secondary aggregate - by application

Structural frame	15%
Bitumen/hydraulically bound base, binder and surface courses	30%
Building foundations	20%
Concrete road surfaces	15%
Pipe bedding	100%
Granular fill and capping	100%

Total BREEAM credits achieved	1
Total contribution to overall building score	1.19%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

Wst 03 Operational Waste

No. of BREEAM credits available	1	Available contribution to overall score	1.19%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will operational recyclable waste volumes be segregated and stored?	Yes	1	1
Will static waste compactor(s) or baler(s) be specified where appropriate?	N/A		
Will vessel(s) for composting suitable organic waste where appropriate?	N/A		

Total BREEAM credits achieved	1
Total contribution to overall building score	1.19%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

Wst 04 Speculative Floor and Ceiling Finishes

Assessment issue not applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Wst 05 Adaption to climate change

No. of BREEAM credits available	1	Available contribution to overall score	1.19%
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a climate change adaptation strategy appraisal for structural and fabric resilience be conducted by the end of Concept Design (RIBA Stage 2 or equivalent)?	No	1	0
Will emexplary level criteria – Responding to adaptation to climate change be met?			

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

Wst 06 Functional adaptability

No. of BREEAM credits available	1	Available contribution to overall score	1.19%
No. of BREEAM innovation credits available	0	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a building specific functional adaptation strategy appraisal be conducted by Concept Design (RIBA Stage 2 or equivalent) and will functional adaptation measures be implemented?	No	1	0

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

LAND USE & ECOLOGY

LE 01 Site Selection

No. of BREEAM credits available	2	Available contribution to overall score	2.20%

No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will at least 75% of the proposed development's footprint be located on previously occupied land?	Yes	1	1
Is the site deemed to be significantly contaminated?	No	1	0

Total BREEAM credits achieved	1
Total contribution to overall building score	1.10%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

LE 02 Ecological Value of Site and Protection of Ecological Features

No. of BREEAM credits available	2	Available contribution to overall score	2.20%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Ecological value of the land defined using	The BREEAM checklist

Assessment Criteria	Compliant?	Credits available	Credits achieved
Can the land within the construction zone be defined as 'land of low ecological value'?	Yes	1	1
Will all features of ecological value surrounding the construction zone/site boundary be protected?	Yes	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	2.20%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

LE 03 Mitigating Ecological Impact

No. of BREEAM credits available	2	Available contribution to overall score	2.20%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Data sourced for calculating the change in ecological value from	Assessor's classification of broad habitat type(s) using BREEAM LE03/LE04 Calculator

Assessment Criteria

What is the likely change in ecological value as a result of the sites development?	≥0 species (i.e. no negative change)	Plant species richn

Total BREEAM credits achieved	2
Total contribution to overall building score	2.20%

Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

LE 04 Enhancing Site Ecology

No. of BREEAM credits available	2	Available contribution to overall score	2.20%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a suitably qualified ecologist be appointed to report on enhancing and protecting site ecology?	No	2	0
Will the suitably qualified ecologist's general recommendations be implemented?			
What is the targeted/intended improvement in ecological value as a result of enhancement actions?			

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

LE 05 Long Term Impact on Biodiversity

No. of BREEAM credits available	2	Available contribution to overall score	2.20%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a Suitably Qualified Ecologist be appointed to monitor/minimise impacts of site activities on biodiversity?	No	2	0
Will a landscape and habitat management plan be produced covering at least the first five years after project completion in accordance with British Standards?			
Number of applicable measures to improve biodiversity confirmed by SQE:			
Number of applicable measures implemented:			

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%

Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

POLLUTION

Pol 01 Impact of Refrigerants

No. of BREEAM credits available	3	Available contribution to overall score	2.54%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria		Credits available	Credits achieved
Refrigerant containing systems installed in the assessed building?	Yes	2	0
Do all systems (with electric compressors) comply with the requirements of BS EN 378:2008 (parts 2 & 3) & where refrigeration systems containing ammonia are installed, the IoR Ammonia Refrigeration Systems Code of Practice?	Yes		
Global Warming Potential of the specified refrigerant(s) 10 or less?	No		
What is the target range Direct Effect Life Cycle CO2eq. emissions for the system?		kgCO2eq/kW coolth capacity	
Cooling/Heating capacity of the system		kW	
Will a refrigerant leak detection and containment system be specified/installed?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.85%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Pol 02 NO_x Emissions

No. of BREEAM credits available	3	Available contribution to overall score	2.54%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

NO_x emission level - space heating	40.00	mg/kWh
NO_x emission level - cooling		mg/kWh

NOx emission level - water heating	40.00	mg/kWh
Does this building meet BREEAM's definition of a highly insulated building?		
Energy consumption: heating and hot water		kWh/m2 yr

Total BREEAM credits achieved	3
Total contribution to overall building score	2.54%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Pol 03 Surface Water Run off

No. of BREEAM credits available	5	Available contribution to overall score	4.23%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
What is the actual/likely annual probability of flooding for the assessed site?	Low	2	2
Will a Flood Risk Assessment be undertaken?	Yes		
Will the site meet the BREEAM criteria for peak rate surface water run off?	Yes	1	1
Will the site meet the criteria for surface water run off volume, attenuation and/or limiting discharge?	Yes	1	1
Will the site be designed to minimise watercourse pollution in accordance with the BREEAM criteria?	No	1	0

Total BREEAM credits achieved	4
Total contribution to overall building score	3.38%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Pol 04 Reduction of Night Time Light Pollution

No. of BREEAM credits available	1	Available contribution to overall score	0.85%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will the external lighting specification be designed to reduce light pollution?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.85%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Pol 05 Noise Attenuation

No. of BREEAM credits available	1	Available contribution to overall score	0.85%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant	Credits available	Credits achieved
Will there be noise-sensitive areas/buildings within 800m radius of the development?	Yes	1	1
Will a noise impact assessment be carried out and, if applicable, noise attenuation measures specified?	Yes		

Total BREEAM credits achieved	1
Total contribution to overall building score	0.85%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

INNOVATION

Inn 01 Innovation

No. of BREEAM innovation credits available	10	Available contribution to overall score	10.00%
		Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Man 03 Responsible construction practices	No	1	0
Man 05 Aftercare	N/A	N/A	0
Hea 01 Visual Comfort	No	1	0
Hea 02 Indoor Air Quality	N/A	N/A	0
Ene 01 Reduction of energy use and carbon emissions	No	5	0
Wat 01 Water Consumption	No	1	0
Mat01 Life Cycle Impacts	No	3	0
Mat03 Responsible Sourcing of Materials	No	1	0

Wst01 Construction Waste Management	No	1	0
Wst02 Recycled Aggregates	No	1	0
Wst 05 Adaption to climate change	N/A	N/A	0

Number of 'approved' innovation credits achieved?	

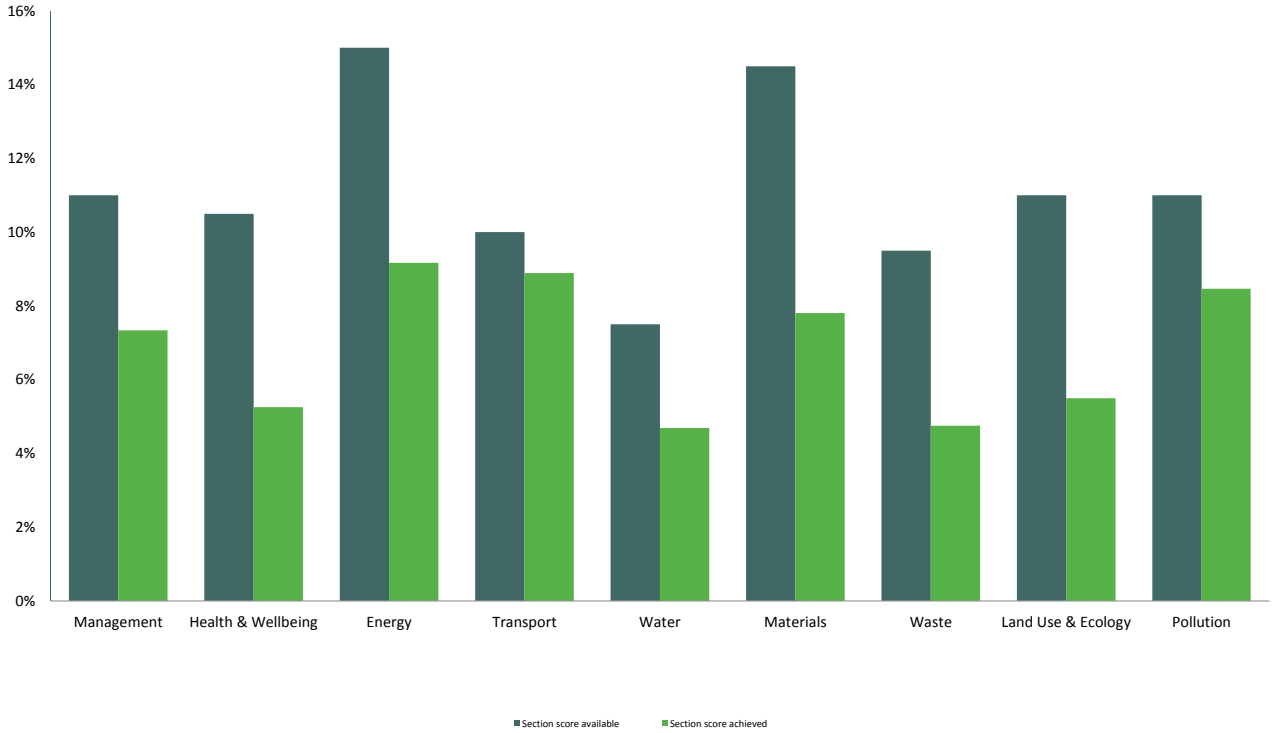
Total BREEAM innovation credits achieved	0
Total contribution to overall building score	0.00%
Minimum standard(s) level	N/A

Comments/notes:

Overall Building Performance

Building name	West End Lane
Indicative BREEAM rating	Very Good
Indicative Total Score	61.8%
Min. standards level achieved	Excellent level

Building Performance by Environment Section



Environmental Section	No. credits available	Indicative no. credits Achieved	% credits achieved	Section Weighting	Indicative Section Score
Management	18	12	66.7%	11.0%	7.3%
Health & Wellbeing	12	6	50.0%	10.5%	5.3%
Energy	18	11	61.1%	15.0%	9.2%
Transport	9	8	88.9%	10.0%	8.9%
Water	8	5	62.5%	7.5%	4.7%
Materials	13	7	53.8%	14.5%	7.8%
Waste	8	4	50.0%	9.5%	4.8%
Land Use & Ecology	10	5	50.0%	11.0%	5.5%
Pollution	13	10	76.9%	11.0%	8.5%
Innovation	10	0	0.0%	N/A	0