HOARE LEA

Stag Brewery, Mortlake

Sustainability Statement

For Reselton Properties

March 2022

HOARE LEA

Stag Brewery.
London.
Reselton Properties Limited.

SUSTAINABILITY
SUSTAINABILITY STATEMENT

REVISION 02 – 09 MARCH 2022

Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
01	10/02/2022	Issue for legal review	J. Young	E. Jolly	G. Jones
02	09/03/2022	For submission	J. Young	E. Jolly	G. Jones

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Contents.

Executive summary.

This Sustainability Statement has been prepared by Hoare Lea on behalf of Reselton Properties Limited ("the Applicant") in support of two linked planning applications ("the Applications") for the comprehensive redevelopment of the former Stag Brewery Site in Mortlake ("the Site") within the London Borough of Richmond upon Thames (LBRuT).

The proposed new scheme.

This 3rd iteration of the scheme seeks to respond directly to the Mayors' reasons for refusal and in doing so also addresses a number of the concerns raised by the LBRuT.

The amendments can be summarised as follows:

- A revised energy strategy is proposed in order to address the London Plan (2021) requirements.
- Several residential blocks have been reduced in height to better respond to the listed buildings along the Thames riverfront and to respect the setting of the Maltings building, identified as a Building of Townscape Merit (BTM) by the LBRuT;
- Reconfiguration of layout of Buildings 20 and 21 has been undertaken to provide lower rise buildings to better respond to the listed buildings along the Thames riverfront; and
- Chalkers Corner light highways mitigation works.

The school proposals (submitted under 'Application B') are unchanged. The Applicant acknowledges LBRuT's identified need for a secondary school at the Site and the Applications continue to support the delivery of a school. It is expected that the principles to be agreed under the draft Community Use Agreement (CUA) will be the same as those associated with the refused school application (LBRuT ref: 18/0548/FUL, GLA ref: GLA/4172a/07).

Overall, it is considered that together, the Applications respond successfully to the concerns raised by the GLA which also reflect some of the concerns raised by stakeholders in respect of the previous schemes and during pre-application discussions on the revised Proposed Development. As a result, it is considered that the scheme now represents a balanced development that delivers the principle LBRuT objectives from the Site.

Environmental Assessment

The office, retail, leisure and school elements of the Proposed Development, will target a BREEAM 'Excellent' rating as a minimum under BREEAM New Construction, and the residential refurbishment at The Maltings will aim to achieve an 'Excellent' rating under BREEAM Domestic Refurbishment. Please refer to Appendix A and B for pre-assessment summaries.

Inclusive Design

The principles of Secured by Design will be adopted for the redevelopment to ensure the safety and security of all users. Flexible use space is being proposed which will provide opportunity for a variety of spaces including retail, community, restaurants, and bars, which can be utilised and enjoyed by all.

Energy & CO_2 Emission Reduction Strategy

The Energy Strategy has demonstrated that through implementation of passive design and energy efficiency measures and the installation of a ASHP for all thermal and cooling demand and on-site PV array, that the Proposed Development is anticipated to achieve a **~73%** reduction in regulated CO_2 emissions beyond the requirements of the Part L (SAP10) gas boiler 'baseline' for the areas in Application A. The application for the School (Application B) achieves an overall **~66%** reduction in regulated CO_2 emissions.

Table 1: Summary of energy strategy – Application A & B

Whole site (Application A & B)	Carbon Dioxide Emissions (tonnes CO_2 per annum)	
	(Regulated)	(Unregulated)
Part L Gas Boiler Baseline	1694	528
Reduction from Be Lean	1520	528
Reduction from Be Clean	1520	528
Reduction from Be Green	459	528
	Regulated Carbon Dioxide Emission Savings	
	(tonnes/yr)	(%)
Reduction from Be Lean	174	10%
Reduction from Be Clean	0	0%
Reduction from Be Green	1061	63%
Total Reduction	1235	73%
Dwelling Reduction	979	77%
Non-Dwelling Reduction	256	61%

Development Area 1 in Application A achieves an overall 71% reduction in regulated CO_2 emissions with the connection to the site wide heat network supplied by a ASHP and PV array.

Development Area 2 in Application A targets an overall 79% reduction in regulated CO_2 emissions with the connection to the site wide heat network supplied by a ASHP and PV array.

Water

Application B (School) and Application A (Development Area 1) of the Proposed Development will be provided with water efficient fixtures, fittings and appliances. The residential spaces within Development Area 1 of Application A will aim to achieve a water consumption rate of 105 litres per person per day.

For the non-domestic elements in Application A Development Area 1, two credits are currently being targeted under Wat 01 in BREEAM 2014 New Construction. 2.5 credits are also targeted under Wat 01 in BREEAM 2014 Domestic refurbishment for The Maltings. These principles would also be considered for Development Area 2 of Application A.

Materials

Building elements will be selected in accordance with the BRE Green Guide to Specification, with the aim of selecting elements in the range A+ to C to minimise environmental impact.

A Resource Management Plan (RMP) will be produced that will outline how recycling of construction, demolition and excavation material can be maximised and reused on site. Please refer to the submitted Circular Economy Statement for further detail.

All timber used at the Proposed Development will be FSC certified and where possible and practicable materials will be locally sourced.

The Maltings building (Building 4) is being retained in its entirety, with works proposed to the windows and internal layouts. New floors would be inserted, and the upper floors would be partitioned to create apartments. The proposals for the existing former Bottling and hotel building (building 5) aims to convert this into a hotel and office building. It is proposed that the South and West facades of the building will be retained in their entirety and that the North and East facades will be largely demolished and rebuilt to an extended footprint. Where new materials are introduced, they will be specified, where possible and practicable, to be sustainably sourced, recycled or re-used building materials.

Waste
The contractor will be required to produce and adhere to a RMP which clearly sets out requirements to maximise diversion of demolition and construction waste from landfill.

All spaces at the Proposed Development will be provided with suitable internal and communal waste storage facilities for the segregation of recyclable materials, designed to meet the requirements of BS5096 (Waste Management in Buildings), LBRuT policies and guidance and BREEAM.

Transport
For Application A (Development Area 1) and Application B (School), secure cycle storage, changing and showering facilities will be provided for residents and occupants. The aim of such facilities is to encourage the use of sustainable transport to and from the Proposed Development. Cycle parking will also be provided for visitors. These measures would also be considered for Development Area 2.

Biodiversity
Native species or species of benefit to wildlife will be incorporated throughout the development, and it is expected that the construction of the Proposed Development will lead to ecological enhancements to the site.

The Proposed Development (Application A) will include park/recreation areas which will include the planting of new evergreen and deciduous trees. With Application A and B it is proposed that there will be a net increase in trees on the site.

Pollution
The Proposed Development, Application A and B, will be serviced through the provision of ASHP to ensure no combustion plant is present on site to minimise the generation of air pollution, and cycling will be encouraged through the provision of cyclist facilities in order to reduce the use of cars. Dedicated car parking spaces with electric car charging points will also be provided. These measures are consistent with those identified by LBRuT within their Air Quality Action Plan. Details provided in the Environmental Impact Assessment and associated addendums.

Luminaires will be selected with suitable output to direct lighting appropriately to minimise light pollution and loss of light to the sky.

The main contractor will operate to minimise the risk of pollution from the Proposed Development and will be required to register with the Considerate Constructors Scheme.

1. Introduction.

This Sustainability Statement has been prepared by Hoare Lea on behalf of Reselton Properties Limited ("the Applicant") in support of two linked planning applications ("the Applications") for the comprehensive redevelopment of the former Stag Brewery Site in Mortlake ("the Site") within the London Borough of Richmond upon Thames (LBRuT).

The Applications seek planning permission for:

Application A:
"Hybrid application to include the demolition of existing buildings to allow for comprehensive phased redevelopment of the site:

- Planning permission is sought in detail for works to the east side of Ship Lane which comprise:
  - Demolition of existing buildings (except the Maltings and the façade of the Bottling Plant and former Hotel), walls, associated structures, site clearance and groundworks
  - Alterations and extensions to existing buildings and erection of buildings varying in height from 3 to 9 storeys plus a basement of one to two storeys below ground
  - Residential apartments
  - Flexible use floorspace for:
    - Retail, financial and professional services, café/restaurant and drinking establishment uses
    - Offices
    - Non-residential institutions and community use
    - Boathouse
  - Hotel / public house with accommodation
  - Cinema
  - Offices
  - New pedestrian, vehicle and cycle accesses and internal routes, and associated highway works
  - Provision of on-site cycle, vehicle and servicing parking at surface and basement level
  - Provision of public open space, amenity and play space and landscaping
  - Flood defence and towpath works
  - Installation of plant and energy equipment
- Planning permission is also sought in outline with all matters reserved for works to the west of Ship Lane which comprise:
  - The erection of a single storey basement and buildings varying in height from 3 to 8 storeys
  - Residential development
  - Provision of on-site cycle, vehicle and servicing parking
  - Provision of public open space, amenity and play space and landscaping
  - New pedestrian, vehicle and cycle accesses and internal routes, and associated highways works"

Application B:
"Detailed planning permission for the erection of a three-storey building to provide a new secondary school with sixth form; sports pitch with floodlighting, external MUGA and play space; and associated external works including landscaping, car and cycle parking, new access routes and other associated works"

Together, Applications A and B described above comprise the 'Proposed Development'.

Background to Submission.
The Applications follow earlier planning applications which were refused by the Greater London Authority. The refused applications were for:

- a) Application A – hybrid planning application for comprehensive mixed use redevelopment of the former Stag Brewery site consisting of:
  - i. Land to the east of Ship Lane applied for in detail (referred to as 'Development Area 1' throughout); and
  - ii. Land to the west of Ship Lane (excluding the school) applied for in outline (referred to as 'Development Area 2' throughout).
    - Application B – detailed planning application for the school (on land to the west of Ship Lane).
    - Application C – detailed planning application for highways and landscape works at Chalkers Corner.

The LBRuT (the Council) originally resolved to grant planning permission for Applications A and B but refuse Application C.

Following the LBRuT's resolution to approve the applications A and B, the Mayor called-in the applications and became the determining authority. The Mayor's reasons for calling in the applications were set out in his Stage II letter (dated 4 May 2020) but specifically related to concerns regarding what he considered was a low percentage of affordable housing being proposed for the Site and the need to secure a highways solution for the scheme following the LBRuT's refusal of Application C.

Working with the Mayor's team, the Applicant sought to meaningfully respond to the Mayor's concerns on the applications. A summary of the revisions to the scheme made and submitted to the GLA in July 2020 is as follows:

- Increase in residential unit provision from up to 813 units to up to 1,250 units;
- Increase in affordable housing provision from (up to) 17%, to 30%;
- Increase in height for some buildings of up to three storeys;
- Change to the layout of Blocks 18 and 19, conversion of Block 20 from a terrace row of housing to two four storey buildings;
- Reduction in the size of the western basement, resulting in an overall car parking spaces reduction of 186 spaces and introduction of an additional basement storey under Block 1;
- Internal layout changes and removal of the nursing home and assisted living in Development Area 2;
- Landscaping amendments, including canopy removal of four trees on the north west corner of the Site; and
- Alternative options to Chalkers Corner in order to mitigate traffic impacts through works to highway land only and allow the withdrawal of Application C.

Application A was amended to reflect these changes.

Notwithstanding this, and despite GLA officers recommending approval, the Mayor refused the applications in August 2021.

The Mayor's reasons for refusal in respect of Application A were:

- height, bulk and mass, which would result in an unduly obtrusive and discordant form of development in this 'arcadian' setting which would be harmful to the townscape, character and appearance of the surrounding area;

- heritage impact. The proposals, by reason of its height, scale, bulk and massing would result in less than substantial harm to the significance of several listed buildings and conservation areas in the vicinity. The Mayor considered that the less than substantial harm was not clearly and convincingly outweighed by the public benefits, including Affordable Housing, that the proposals would deliver;
- neighbouring amenity issues. The proposal, by reason of the excessive bulk, scale and siting of Building 20 and 21 in close proximity to the rear of neighbouring residential properties in Parliament Mews and the rear gardens of properties on Thames Bank, would result in an unacceptable overbearing and unneighbourly impact, including direct overlooking of private amenity spaces. The measures in the Design Code would not sufficiently mitigate these impacts; and
- no section 106 agreement in place.

Application B was also refused because it is intrinsically linked with Application A and therefore could not be bought forward in isolation.

The proposed new scheme.
This 3rd iteration of the scheme seeks to respond directly to the Mayors' reasons for refusal and in doing so also addresses a number of the concerns raised by the LBRuT.

The amendments can be summarised as follows:

- A revised energy strategy is proposed in order to address the London Plan (2021) requirements.
- Several residential blocks have been reduced in height to better respond to the listed buildings along the Thames riverfront and to respect the setting of the Maltings building, identified as a Building of Townscape Merit (BTM) by the LBRuT;
- Reconfiguration of layout of Buildings 20 and 21 has been undertaken to provide lower rise buildings to better respond to the listed buildings along the Thames riverfront; and
- Chalkers Corner light highways mitigation works.

The school proposals (submitted under 'Application B') are unchanged. The Applicant acknowledges LBRuT's identified need for a secondary school at the Site and the Applications continue to support the delivery of a school. It is expected that the principles to be agreed under the draft Community Use Agreement (CUA) will be the same as those associated with the refused school application (LBRuT ref: 18/0548/FUL, GLA ref: GLA/4172a/07).

Overall, it is considered that together, the Applications respond successfully to the concerns raised by the GLA which also reflect some of the concerns raised by stakeholders in respect of the previous schemes and during pre-application discussions on the revised Proposed Development. As a result, it is considered that the scheme now represents a balanced development that delivers the principle LBRuT objectives from the Site..

Aim
This report presents the sustainability strategy for the redevelopment and responds to relevant policies contained within the Greater London Authority (GLA) London Plan (2021) and the policies of the London Borough of Richmond upon Thames (LBRuT) Local Plan (2018) document.

Summary of Policy Framework
A policy review has been undertaken and is detailed in Appendix C. Planning policy documents applicable to the proposed development include:

- National Planning Policy Framework (NPPF)
- Building Regulations Part L (2013)
- The London Plan (2021)
- London Borough of Richmond upon Thames Local Plan (2018).

2. Sustainability statement.

The following statement is written in reference to the applicable 'priorities' and 'best practice' as outlined in the relevant policies from the adopted London Plan (2021). Although it is considered that the draft policies should not be applied to the application.

Table 2: Sustainability statement.

<table>
<tr><th colspan="2">GLA Sustainable Design & Construction</th><th rowspan="2">Proposed Development Response</th></tr>
<tr><th>Priority</th><th>Best Practice</th></tr>
<tr><td colspan="3">Resource management – Optimising the use of land.</td></tr>
<tr><td>Through both their Local Plans and planning decisions, boroughs should aim for 100% of development to be delivered on previously developed land.</td><td>-</td><td>The Proposed Development is a mix of new buildings and refurbishment, situated on the former Stag Brewery site. The Proposed Development has sought to maximise the use of previously developed land.</td></tr>
<tr><td>Developers should optimise the scale and density of their development, considering the local context, to make efficient use of London's limited land.</td><td>-</td><td>The Site's density will be optimised through providing a suitable mix of uses in buildings and spaces which efficiently use land, at the same time as responding to local context and delivering architectural and planning benefits.

The Proposed Development is approximately 137,757 sqm in Gross Internal Area (GIA).

The useful floor space is split (in GIA) by use as follows:

<table>
<tr><th colspan="2" rowspan="2">Space use</th><th colspan="3">GIA (m²)</th></tr>
<tr><th>Application A Development Area 1</th><th>Application A Development Area 2</th><th>Application B</th></tr>
<tr><td rowspan="2">Domestic</td><td>Private residential</td><td>55,877</td><td>34,439</td><td>-</td></tr>
<tr><td>Affordable</td><td>4,841</td><td>20,523</td><td>-</td></tr>
<tr><td rowspan="5">Non-domestic</td><td>Flexible Use</td><td>4,840</td><td>-</td><td>-</td></tr>
<tr><td>Office</td><td>4,547</td><td>-</td><td>-</td></tr>
<tr><td>Cinema</td><td>1,606</td><td>-</td><td>-</td></tr>
<tr><td>Hotel</td><td>1,765</td><td>-</td><td>-</td></tr>
<tr><td>School</td><td>-</td><td>-</td><td>9,319</td></tr>
</table>
Flexible Use spaces will consist of restaurant/ bar/ retail/ office/ community/ leisure and boat house (sui generis). The development also includes a basement car park that will be within the basement of Development Area 1 and Development Area 2.</td></tr>
<tr><td colspan="3">Resource management – Basements and lightwells.</td></tr>
<tr><td>When planning a basement development, developers should consider the geological and hydrological conditions of the Site and surrounding area, proportionate to the local conditions, the size of the basement and lightwell and the sensitivity of adjoining buildings and uses, including green infrastructure.</td><td>-</td><td>The structural engineers have considered all applicable geological and hydrological conditions in accordance with relevant design guidance and standards. Wherever possible, the basements will be constructed to avoid any adverse impact on the roots of retained trees.</td></tr>
<tr><td>When planning and constructing a basement development, developers should consider the amenity of neighbours.</td><td>-</td><td>It is anticipated that there will be limited impact to the amenity of neighbours as the contractor will be targeting a high score in the Considerate Constructors Scheme (CCS) in accordance with BREEAM.</td></tr>
<tr><td colspan="3">Resource management – Local food growing.</td></tr>
</table>

GLA Sustainable Design & Construction		Proposed Development Response
Priority	Best Practice	
To protect existing established food growing spaces.	-	The Site does not contain any existing established spaces for growing food.
-	To provide space for individual or communal food growing, where possible and appropriate.	Dwellings in Application A (Development Area 1) at the Proposed Development will be provided with rooftop gardens, terraces and balconies which will enable residents to plant a variety of species for food growth, should this be desired. How amenity areas in Development Area 2 could be utilised for communal food growing will also be considered. To the southwest of Application B (School) there is a community park, which could have space dedicated for food growing, if desired.
-	To take advantage of existing spaces to grow food, including adapting temporary spaces for food growing.	
Resource management – Site layout and building design.		
-	Any existing buildings that can be practically refurbished, retrofitted, altered, or extended should be retained and reused.	The proposal for the former Maltings building (building 4) incorporates several sensitive amendments to the existing building facades. The building is being retained in its entirety, with works proposed to the windows and internal layouts. New floors would be inserted, and the upper floors would be partitioned to create apartments. The proposals for the existing former Bottling and hotel building (building 5) aims to convert this into a hotel and office. It is proposed that the South and West facades of the building will be retained in their entirety and that the North and East facades will be largely demolished and rebuilt to an extended footprint. All other existing buildings are brewery buildings which would not be suitable to retain. These would be difficult to refurbish and would not deliver a high-quality scheme, from a practical, aesthetic and energy efficiency perspective.
-	A mix of uses, where suitable should be included to provide a range of services commensurate to the public transport accessibility.	The Proposed Development will contain a combination of retail, community, leisure, office and residential space, as well as a school. Generally, the whole Site falls within the PTAL 2 category. A PTAL rating of 2 represents a 'poor' level of accessibility to public transport services. In reality though, as demonstrated in the Travel Plan, the public transport accessibility can be considered to be much better. The rail services from Mortlake provide for easy access to a very extensive area through interchange at Clapham Junction, Richmond, Victoria or Waterloo whilst the various bus services that serve the area provide links to a very extensive area of London and again provide access to a number of important strategic interchanges, including Hammersmith.
The design of the Site and building layout, footprint, scale and height of buildings as well as the location of land users should consider:	-	The Proposed Development is a mix of new buildings and refurbishment, located on the former Stag Brewery site. The Proposed Development has sought to maximise the use of previously developed land.
– The possible retention and reuse of existing buildings and structures; – The retention of existing green infrastructure, including trees and other ecological features, and potential for its improvement and extension; and		The proposal for the former Maltings building (building 4) incorporates several sensitive amendments to the existing building facades. The building is being retained in its entirety, with works proposed to the windows and internal layouts. New floors would be inserted, and the upper floors would be partitioned to create apartments. The proposals for the existing former Bottling and hotel building (building 5) aims to convert this into a hotel and office. It is proposed that the South and West facades of the building will be retained in their entirety and that the North and East facades will be largely demolished and rebuilt to an extended footprint. All other existing buildings are brewery buildings which would not be suitable to retain. These would be difficult to refurbish and would not deliver a high-quality scheme, from a practical, aesthetic and energy efficiency perspective.

GLA Sustainable Design & Construction		Proposed Development Response
Priority	Best Practice	
– Access routes to public transport and other facilities that minimise the use of private transport. – The existing landform – The potential to take advantage of natural systems such as wind, sun and shading.		There are areas of the Proposed Development that would be suitable for ecological features to be included, and this has been considered as part of the design process. Proposals include improvements to bus services and infrastructure as well as routes towards Mortlake Rail Station to increase the attractiveness of the public transport network. The overall pedestrian and cycle access strategy is described in further detail within Chapter 8 of the Travel Plan which also shows how the on-site proposals link into the wider networks serving the area. <u>Detailed Elements (Application A (Development Area 1) and Application B (School):</u> The Proposed Development has been designed to benefit from natural sunlight, in particular the upper storeys, for light and warmth in winter. Measures such as internal blinds will be used to control excessive solar gain in summer months. It is considered that the Proposed Development will: – Improve access to green infrastructure by providing green space throughout the Proposed Development. – Enable people to live healthy and active lifestyles due to the provision of suitable cycle parking to encourage commuting by bike which is a low-carbon mode of transport; – Allow staff/occupiers and visitors of all ages and stages of life to access the Proposed Development's non-residential areas by ensuring suitable access provisions. It is considered that the Proposed Development is of high architectural quality and is of a proportion, composition, scale and orientation that enhances, activates and defines the public realm. The Proposed Development will comprise details and materials that complement the local character through the re-use of the façade on The Maltings, existing former Bottling and hotel building (building 5) and the materials used in construction of the new buildings. The buildings will incorporate best practice in terms of resource management. The following measures will be targeted for the Proposed Development: – Secured by design principles will be incorporated; and – The buildings will contribute to the adaption and mitigation of the effects of climate change, designed to enable sunlight access, and to minimise overshadowing and adverse wind conditions. – Implementation of acoustic measures to ensure high levels of noise are not transferred into the spaces. – Mechanical ventilation will be designed with air intake louvres away from sources of air pollution. – A reduced level of limited car parking will be provided for Application A through a reduction in the Western basement area. A School Travel Plan will be utilised to promote access and use of low carbon transport. – Application B (School) will include a playing pitch and Multi Use Games Area. The playing pitch will incorporate flood lighting to ensure use is possible throughout all times of the year. – Proposals in Application A also include a community park and green roofs with links to wider green infrastructure. The landscape plan is proposed to deliver a mix of types of open areas throughout the site, supplemented by extensive tree planting and soft landscaping. A range of character areas will be provided within a number of green areas across the site, each of which will contribute to green infrastructure provision. Landscape elements include play facilities, paths and seating areas as well as soft landscape and pedestrian and cycle circulation <u>Outline element (Application A Development Area 2):</u> The measures detailed above would also be considered for Development Area 2 of the Proposed Development.

<table>
<tr><th colspan="2">GLA Sustainable Design & Construction</th><th>Proposed Development Response</th></tr>
<tr><th>Priority</th><th>Best Practice</th><th></th></tr>
<tr><td></td><td></td><td>Policy D2 and policy D4 principles have been included in the application with an assessment against these policies included within the supporting information. Housing quality and good design have been emphasised in the consultation and therefore are anticipated to have been included in the application.

Policy D8 on tall buildings has been assessed within the supporting information. The principles of sustainability for these buildings will be the same as the other buildings on the site and therefore it is expected that the are in accordance with the current policy.

An assessment of the play areas provided in the scheme will be undertaken in line with the Policy S4 and included in the supporting information for the application.

An assessment of the transport standards set out in policies T5, T6 and T6.1 to T6.5 is provided in the applications supporting documents.</td></tr>
<tr><td colspan="3">Resource management – Energy and carbon dioxide emissions.</td></tr>
<tr><td>The overall carbon dioxide emissions from a development should be minimised through the implementation of the energy hierarchy.

Developments should be designed to meet the regulated carbon dioxide standards, in line with London Plan Policy SI2.</td><td>-</td><td>A summary of the anticipated CO_2 emissions and reduction at each step of the energy hierarchy is given in the tables below.

<u>Application A - Development Area 1</u>

A summary of the targeted CO_2 emissions and reductions at each step of the energy hierarchy is given in the table below. Development Area 1 of Application A achieves an overall 71% reduction in regulated CO_2 emissions when considering the overall area of the Full application.

<table>
<tr><th>Application A – DA1</th><th colspan="2">Carbon Dioxide Emissions (tonnes CO_2 per annum)</th></tr>
<tr><th></th><th>(Regulated)</th><th>(Unregulated)</th></tr>
<tr><td>Part L Gas Boiler Baseline</td><td>1,119</td><td>244</td></tr>
<tr><td>Reduction from Be Lean</td><td>984</td><td>244</td></tr>
<tr><td>Reduction from Be Clean</td><td>984</td><td>244</td></tr>
<tr><td>Reduction from Be Green</td><td>325</td><td>244</td></tr>
<tr><th></th><th colspan="2">Regulated Carbon Dioxide Emission Savings</th></tr>
<tr><th></th><th>(tonnes/yr)</th><th>(%)</th></tr>
<tr><td>Reduction from Be Lean</td><td>135</td><td>12%</td></tr>
<tr><td>Reduction from Be Clean</td><td>-</td><td>0%</td></tr>
<tr><td>Reduction from Be Green</td><td>659</td><td>59%</td></tr>
<tr><td>Total Reduction</td><td>794</td><td>71%</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th colspan="2">GLA Sustainable Design & Construction</th><th>Proposed Development Response</th></tr>
<tr><th>Priority</th><th>Best Practice</th><th></th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Dwelling Reduction</td><td>607</td><td>75%</td></tr>
<tr><td>Non-Dwelling Reduction</td><td>187</td><td>60%</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Total Target Reduction</td><td>1,119</td><td>100%</td></tr>
<tr><td>Annual Surplus / Shortfall</td><td>-325</td><td>-29%</td></tr>
</table>
<u>Application A - Development Area 2</u>
A summary of the targeted CO_2 emissions and reductions at each step of the energy hierarchy is given in the table below. Development Area 2 of Application A achieves an overall 79% reduction in regulated CO_2 emissions when considering the overall area of the Full application.
<table>
<tr><td>Application A – DA2</td><td colspan="2">Carbon Dioxide Emissions (tonnes CO_2 per annum)</td></tr>
<tr><td></td><td>(Regulated)</td><td>(Unregulated)</td></tr>
<tr><td>Part L Gas Boiler Baseline</td><td>472</td><td>241</td></tr>
<tr><td>Reduction from Be Lean</td><td>448</td><td>241</td></tr>
<tr><td>Reduction from Be Clean</td><td>448</td><td>241</td></tr>
<tr><td>Reduction from Be Green</td><td>99</td><td>241</td></tr>
<tr><td></td><td colspan="2">Regulated Carbon Dioxide Emission Savings</td></tr>
<tr><td></td><td>(tonnes/yr)</td><td>(%)</td></tr>
<tr><td>Reduction from Be Lean</td><td>24</td><td>5%</td></tr>
<tr><td>Reduction from Be Clean</td><td>-</td><td>0%</td></tr>
<tr><td>Reduction from Be Green</td><td>349</td><td>74%</td></tr>
<tr><td>Total Reduction</td><td>372</td><td>79%</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Dwelling Reduction</td><td>372</td><td>79%</td></tr>
<tr><td>Non-Dwelling Reduction</td><td>0</td><td>0.0%</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Total Target Reduction</td><td>472</td><td>100%</td></tr>
<tr><td>Annual Surplus / Shortfall</td><td>99</td><td>21%</td></tr>
</table>
</td></tr>
</table>

GLA Sustainable Design & Construction		Proposed Development Response
Priority	Best Practice	

Application B (School)
A summary of the anticipated CO_2 emissions and reduction at each step of the energy hierarchy is given in the table below. The application for Application B (School) achieves an overall 66% reduction in regulated CO_2 emissions when considering Application B (School).

Application B – School	Carbon Dioxide Emissions (tonnes CO_2 per annum)	
	(Regulated)	(Unregulated)
Part L Gas Boiler Baseline	104	43
Reduction from Be Lean	88	43
Reduction from Be Clean	88	43
Reduction from Be Green	35	43
	Regulated Carbon Dioxide Emission Savings	
	(tonnes/yr)	(%)
Reduction from Be Lean	16	15%
Reduction from Be Clean	0	0%
Reduction from Be Green	53	51%
Total Reduction	**69**	**66%**
Total Target Reduction	**104**	**100%**
Annual Surplus / Shortfall	**-35**	**-34%**

Table 4: Carbon Offset

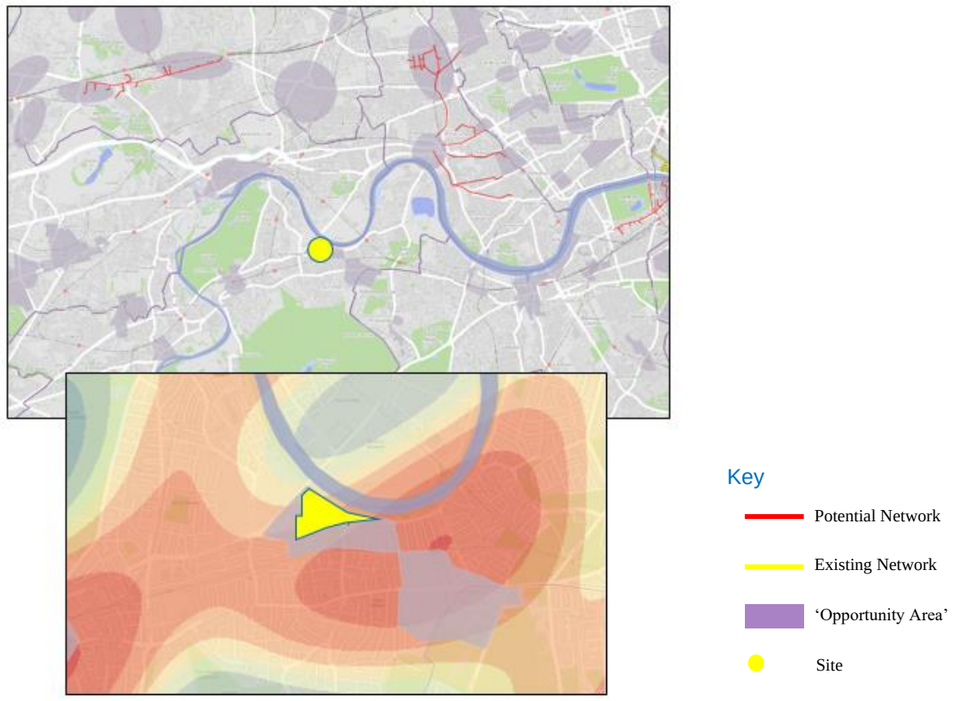
Whole Site (Application A and B) Total		Carbon Offset (tonnes)	Cost (£)
Development Area 1	Annual Offset (Residential Areas)	199	£568,244
	Annual Offset (Non-residential Areas)	125	£357,596
Development Area 2	Annual Offset (Residential Areas)	99	£282,443
	Annual Offset (Non-residential Areas)	0	£0
Application B - School	Annual Offset (School)	35	£99,573

GLA Sustainable Design & Construction		Proposed Development Response
Priority	Best Practice	
		Total carbon offset 462 £1,307,856
-	Developments should contribute to ensuring resilient energy infrastructure and a reliable energy supply, including from local low and zero carbon sources.	The Proposed Development is proposing a staggered approach across the two Development Areas of Application A. The overall emissions are calculated using the SAP 10 carbon factors (as per October 2020 GLA guidance). These are the carbon factors used in the submitted energy strategy. The previous application sought to install an Energy Centre to house CHP and gas boilers to serve the thermal demand of the Proposed Development. However, following the discussions with the GLA, LBRuT and with consideration of the changing energy landscape, it is recognised that this strategy is no longer appropriate to minimise climate change impact and create neutral or positive impact on local air quality. As such, the energy strategy produced to support this application seeks to utilise an all-electric strategy in the form of Air Source Heat Pumps, to meet thermal demand. **Whole site – Application A** It is anticipated that a PV array would be provided on the roof area of the Proposed Development. Suitable roof space has been identified for Development area 1 (see following section for full detail). Roof allocation for Development Area 2 will be determined during Reserved Matters Application. However, for the purpose of this submission, it is assumed that at least a similar area will be allocated. Therefore, the total assumed area for Application A ~2,370m^2. Based on the solar irradiance data for London, an array of this size could generate approximately 556,500kWh of electricity per annum, reducing CO_2 emissions by **~128 tonnes** per annum. This is equivalent to a reduction in regulated CO_2 emissions of ~**10%** beyond the SAP10 gas boiler 'baseline' for the anticipated emissions of the Proposed Development (Application A). Further opportunities to increase the area of the PV array will be provided in the reserved matters submission(s). PV is therefore anticipated to be a suitable addition to the Proposed Development in pursuit of further reductions in regulated CO_2 emissions. In response to the previous application, comments received from the GLA and LBRuT and the changing energy landscape, this energy strategy proposes the installation of community Air Source Heat Pumps (ASHP) to supply all thermal demand on site. At this stage of design, a target coefficient of performance (COP) for the heat pump of 3.0 has been used. The use of ASHP for the Proposed Development demonstrates a potential saving of **~882 tonnes** of regulated carbon emissions per annum, equating to **~53%** compared to the Part L(SAP10) gas boiler baseline. **Application A – Development area 1** Considering the available roof space of Development Area 1, and allowing for access and maintenance requirements, a total solar PV system size in the region of 1,855m^2 array area will be included in the Proposed Development as shown in Appendix D. Based on the solar irradiance data for London, an array of this size would reduce CO_2 emissions by ~**65tonnes** per annum. This is equivalent to a reduction in regulated CO_2 emissions of **~6%** beyond the Building Regulations Part L (SAP10) 'baseline' on the CO_2 emissions of Development Area 1. PV is therefore deemed to be a suitable addition to the Proposed Development in pursuit of further reductions in regulated CO_2 emissions. The use of ASHP for the Proposed Development demonstrates a potential saving of **~594 tonnes** of regulated carbon emissions per annum, equating to **~53%** compared to the Part L(SAP10) gas boiler baseline for the Development Area 1. **Application A – Development area 2**

GLA Sustainable Design & Construction		Proposed Development Response
Priority	Best Practice	
		At the reserved matters submission, the available roof space of Development Area 2, for the installation of a solar PV system size will be considered. This has been agreed in a draft condition as agreed by LBRuT and the GLA on the Original Scheme, prior to the scheme's resolution at the LBRuT Planning Committee on 29 January 2020. Using benchmark Part L data, the use of ASHP for the Proposed Development estimates a potential saving of ~285 tonnes of regulated carbon emissions per annum, equating to ~60% compared to the Part L(SAP10) gas boiler baseline for Development Area 2. **Application B – School** PV is not proposed to be located on the school building as the roof area is being used to provide a play area and is also allocated for plant. The use of ASHP for the Proposed Development demonstrates a potential saving of ~52 tonnes of regulated carbon emissions per annum, equating to ~50% compared to the Part L(SAP10) gas boiler baseline for the School.
Development applications are to be accompanied by an energy demand assessment	-	The results summarised in the Be Lean section of the submitted energy strategy demonstrate that prior to the implementation of any 'be clean' or 'be green' measures, on a site wide (Application A and B) basis the annual regulated energy requirement of the Proposed Development is anticipated to be approximately 7,116 MWh with associated regulated CO_2 emissions of 1,525 tonnes. The majority of the regulated energy requirement, approximately 81%, is as a result of thermal energy requirements (domestic hot water and space heating), of which hot water is the most significant contributor. It is anticipated that the cooling requirement would be minimised through the implementation of passive design and energy efficiency measures and represent approximately 1% of the total regulated annual energy requirement. It is anticipated that based on the calculations undertaken on a site wide (Application A and B) basis, ~10% reduction in annual regulated CO_2 emissions would be made beyond the requirements of the Building Regulations Part L (SAP10) with a Part L gas boiler baseline, through passive design and energy efficiency measures. Therefore, the Proposed Development achieves Part L 2013 compliance via Be Lean measures, i.e. prior to the consideration of any LZC technologies. When considering the domestic uses in isolation, an anticipated annual regulated energy requirement of 5,434 MWh with associated CO_2 emissions of 1,156 tonnes has been calculated. The majority of the regulated energy requirement (~88%) for the residential uses is associated with thermal energy requirements (domestic hot water and space heating). Consequently, thermal loads contribute most to regulated CO_2 emissions from the domestic uses (~71%). It is anticipated that the domestic uses would achieve ~10% reduction in annual regulated CO_2 emissions beyond the requirements of the Building Regulations Part L (SAP10) through passive design and energy efficiency measures alone. It would be demonstrated that on an area weighted basis, the dwellings fabric energy efficiency levels calculated alongside the CO_2 emissions calculation would improve upon the requirements of the Building Regulations Part L 2013. When considering the non-domestic elements (excluding the school) in isolation, these spaces have been calculated to have an annual regulated energy requirement of 1,272 MWh with associated CO_2 emission of 280tonnes. The majority of the regulated energy requirement (~63%) for the non-domestic uses is associated with thermal energy, i.e. space heating and hot water. However, non-thermal energy use contributes the greatest proportion of CO_2 emissions (~51%) due to the higher carbon intensity of electricity compared to mains gas (Part L SAP10 figures). When considering the school in isolation, it has been calculated to have an annual regulated energy requirement of 409MWh with associated CO_2 emission of 88 tonnes. The majority of the regulated energy requirement (~58%) for the school is associated with heating and hot water requirements. Heating and hot water also contribute the greatest proportion of CO_2 emissions (~66%).

<table>
<tr><th colspan="2">GLA Sustainable Design & Construction</th><th>Proposed Development Response</th></tr>
<tr><th>Priority</th><th>Best Practice</th><th></th></tr>
<tr><td>The design of developments should prioritise passive measures.</td><td>Developers should aim to achieve Part L 2013 Building Regulations requirements through design and energy efficiency alone, as far as is practical.</td><td>The technical parameters targeted for the Proposed Development are detailed in Appendix B of the submitted Energy Strategy. Furthermore, it is demonstrated that a reduction of regulated emissions can be anticipated at the Be Lean stage of the hierarchy, against the SAP10 baseline.</td></tr>
<tr><td>Developers should assess the potential for their developments to:
– Connect to an existing district heating or cooling network;
– Expand an existing district heating or cooling network, and connect to it; or
– Establish a Site wide network, and enable the connection of existing buildings in the vicinity of the developers.</td><td>-</td><td>By reference to the London Heat Map (http://www.londonheatmap.org.uk), the proposed development is not in close proximity to an existing energy network, the closest being some 5.4miles away in Westminster. This is an unavailable connection, with no known plans to develop or extend as far as Richmond. There are opportunities for potential networks in the Hammersmith area although this remains at a distance that is beyond what could be considered reasonable to connect to at 2.3miles.
Fabric parameters
The fabric performance parameters used to model the Proposed Development are as follows.
Table 3: Target building fabric performance parameters.
<table>
<tr><th>Parameter</th><th>Dwellings</th><th>Non-dwellings</th></tr>
<tr><td>Exposed Floor U-value (W/m²K)</td><td>0.15</td><td>0.20</td></tr>
<tr><td>External Wall U-value (W/m²K)</td><td>0.12</td><td>0.18 – 0.20</td></tr>
<tr><td>Roof U-value (W/m²K)</td><td>0.15</td><td>0.15 - 0.20</td></tr>
<tr><td>Glazing U-value (W/m²K)</td><td>1.20 (g value: 0.29)</td><td>1.30 – 1.60</td></tr>
<tr><td>Roof Light Glazing U-value (W/m²K)</td><td>N/A</td><td>0.40</td></tr>
<tr><td>Air Permeability (m³/h.m²) @ 50Pa</td><td>3.00</td><td>5.00</td></tr>
</table>
System parameters
The systems performance parameters used to model the Proposed Development are as follows.
<table>
<tr><td>Space Heating & Cooling</td><td>Centralised Air Source Heat Pump (ASHP) (300% efficiency) with Heat Interface Units (HIU) per dwelling coupled to hot water systems and fan coil units / underfloor heating.</td><td rowspan="2">Centralised Air Source Heat Pump (ASHP) (300% efficiency) with heat exchangers and Fan Coil Units.</td></tr>
<tr><td>Domestic Hot Water</td><td>Water efficient fixtures and fittings to minimise water demand. HIU with minimal heat loss</td></tr>
<tr><td>Cooling</td><td>No cooling.</td><td>High-efficiency chillers with an SEER of 5.0.</td></tr>
<tr><td>Ventilation</td><td>MVHR with specific fan power 0.4-0.53 with Heat Recovery of 91-94%</td><td>Target SFP of 1.6W/l/s and HR of 75%</td></tr>
</table></td></tr>
</table>

<table>
<tr><th colspan="2">GLA Sustainable Design & Construction</th><th>Proposed Development Response</th></tr>
<tr><th>Priority</th><th>Best Practice</th><th></th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Lighting</td><td>High efficiency lighting. Daylight and presence detection in common areas / roof terraces.</td><td>Target efficacy of >70 luminaire lumens per circuit Watt.</td></tr>
</table>
Table 4: System parameters per space type.



From viewing the current London Heat Map data for the area, we understand that there are no current plans to create new or extend existing networks to the proximity of the site. Consideration has therefore be given for the Proposed Development to develop a heat network on the site with an energy centre housing Air Source Heat Pumps (ASHP) and ambient loop to enable energy sharing from waste heat from cooling for serviced commercial areas.</td></tr>
<tr><td>Major developments should incorporate renewable energy technologies to minimise overall carbon dioxide emissions, where feasible.</td><td>-</td><td>Photovoltaic panels
An appraisal of the available roof space at the Proposed Development has been undertaken. The roof layouts have been designed in response to the need to balance many factors such as:
– area required for plant
– area required for access</td></tr>
</table>

<table>
<tr><th colspan="2">GLA Sustainable Design & Construction</th><th>Proposed Development Response</th></tr>
<tr><th>Priority</th><th>Best Practice</th><th></th></tr>
<tr><td></td><td></td><td>– building heights in respect of the parameter plan thresholds
– potential area for PV arrays
– location of green and brown roofs

Considering the available roof space, and allowing for access and maintenance requirements, a total solar PV system size in the region of 1,185m^2 array area could be included on Development Area 1 at the Proposed Development. At reserved matters stage for the outline element of Application A consideration would be given to include a further area of PV to reduce CO_2 emissions for Development Area 2.

Assuming an equivalent area of PV could be identified for Development Area 2, based on the solar irradiance data for London, an array of this size would generate approximately ~564,000kWh of electricity per annum, reducing CO_2 emissions by ~131 tonnes per annum. This is equivalent to a reduction in regulated CO_2 emissions of ~8% beyond the Building Regulations Part L (SAP10) ‘baseline’.

PV is therefore anticipated to be a suitable addition to the Proposed Development in pursuit of further reductions in regulated CO_2 emissions.

The school has limited roof space available for the installation of a PV array due to the location of plant, roof lights and the location of the play area on the roof. Therefore, PV is not currently proposed for the school application.

Air Source Heat Pumps (ASHP)
When assuming an ASHP could operate at Seasonal Energy Efficiency Ratio (SEER) of 4.0 (i.e. four units of useful heat for every unit of electricity consumed), to deliver 100% of space heating and hot water, and 100% of space cooling, it is estimated that a reduction in CO_2 emissions of ~931 tonnes per annum could be achieved.

This is equivalent to a reduction in regulated CO_2 emissions of ~55% beyond the Part L SAP10 gas boiler ‘baseline’.

A suitable location has been identified within Development Area 1 that can house the ASHP plant to supply both Application A & B to ensure low carbon energy for heating and cooling demand can be met from day 1 of operation. This approach has enabled a centralised system to safeguard roof space for PV technology and biodiverse roof across the site. In addition, the connection to cooled areas via an ambient loop will allow energy sharing across the mixes of uses to further reduce energy demand in summer months.

Therefore, for the justification provided and additional benefit of ensuring and all electric strategy to enable ongoing decarbonisation of operational emissions, ASHP has been incorporated into the energy strategy at this stage.</td></tr>
<tr><td>Where developments do not achieve the Mayor’s carbon dioxide reduction targets set out in London Plan Policy 5.2, the developer should make a contribution to the local borough carbon dioxide off-setting fund.</td><td>-</td><td>The Proposed Development is anticipated to yield a reduction in regulated CO_2 emissions of 1,238 tonnes beyond the Part L ‘baseline’. In this case it would be necessary to offset the remaining 459 tonnes for 30 years. The GLA has set the price for Carbon Offset at £95 per tonne per year.

The calculation of the Carbon Offset payment needs to be dealt with on a bespoke basis for a mixed-use scheme of this scale.

<table>
<tr><th colspan="2">Whole Site (Application A and B) Total</th><th>Carbon Offset (tonnes)</th><th>Cost (£)</th></tr>
<tr><td rowspan="2">Development Area 1</td><td>Annual Offset (Residential Areas)</td><td>199 tCO_2</td><td>£567,869</td></tr>
<tr><td>Annual Offset (Non-residential Areas)</td><td>125 tCO_2</td><td>£357,596</td></tr>
<tr><td rowspan="2">Development Area 2</td><td>Annual Offset (Residential Areas)</td><td>99 tCO_2</td><td>£282,443</td></tr>
<tr><td>Annual Offset (Non-residential Areas)</td><td>n/a</td><td>£0</td></tr>
<tr><td>Application B - School</td><td>Annual Offset (School)</td><td>35 tCO_2</td><td>£99,573</td></tr>
<tr><td colspan="2">Total carbon offset</td><td>459</td><td>£1,307,856</td></tr>
</table></td></tr>
</table>

GLA Sustainable Design & Construction		Proposed Development Response
Priority	Best Practice	
Where works to existing developments are proposed developers should retrofit carbon dioxide and water saving measures.	-	The Maltings Building and the existing former Bottling and hotel building (building 5) will include the retrofitting of leak detection and presence detection and solenoid shut-off valves to WC fittings. Energy display devices will be provided to residential units in order to encourage the efficient use of water and energy.
	Developers are encouraged to incorporate monitoring equipment, and systems where appropriate to enable occupiers to monitor and reduce their energy use.	Sub metering of end energy using systems will be specified for Development Area 1 (Application A) and Application B (School). This will include sub-metering of space heating, cooling, ventilation, hot water, small power and lighting. The sub-meters will have pulsed outputs to enable connection to a Building Management System. In residential areas, energy display devices will be installed to enable tenants to monitor their energy consumption. These measures would also be considered for the reserved matters submission(s) for Development Area 2 (Application A).
Resource management – Water efficiency.		
Developers should maximise the opportunities for water saving measures and appliances in all developments, including the reuse and using alternative sources of water.	-	Application B (School) and non-domestic spaces in Development Area 1 of Application A will be provided with water efficient fixtures, fittings and appliances. For the non-domestic elements, two credits are currently being targeted under Wat 01 in BREEAM 2014 New Construction. This approximately equates to water use ratings of: – WC = 4.5 l/flush – Hand Basin Taps = 7.5 l/m – Showers = 8 l/m – Urinal = 3 l/Bowl/hour – Kitchenette tap = 7.5 l/m – Dishwashers = 13 l/cycle 2.5 credits are also targeted under Wat 01 in BREEAM 2014 Domestic refurb for The Maltings, and a water consumption level of <105 l/p/day will be targeted. It is also anticipated that Development Area 2, Application A would consider the provision of water efficient fixtures, fittings and appliances.
Developers should design residential schemes to meet a water consumption rate of 105 litres per person per day.	-	Water Efficiency The residential spaces for Development Area 1 of Application A will aim to achieve a water consumption rate of 105 litres per person per day. For The Maltings, 2.5 credits under BREEAM Domestic Refurbishment, Wat 01 is targeted, and a water consumption rate of 105 litres per person per day will also be targeted. The residential spaces within Development Area 2 of Application A would also consider the potential to incorporate this target.
New non-residential developments, including refurbishments, should aim to achieve the maximum number of water credits in a BREEAM assessment or the 'best practice' level of the AECB (Association of Environment Conscious Building) water standards.	-	Water efficient fixtures and fittings will be installed to the non-domestic spaces. The Proposed Development is targeting 2 credits for Water Consumption reductions in the BREEAM assessments for Application B (School) and The Maltings. Fitted out non-domestic spaces in Development Area 1 of Application A will be provided with water efficient fixtures, fittings and appliances. For the non-domestic elements, two credits are currently being targeted under Wat 01 in BREEAM 2014 New Construction. This approximately equates to water use ratings of:

GLA Sustainable Design & Construction		Proposed Development Response
Priority	Best Practice	
		– WC = 4.5 l/flush – Hand Basin Taps = 7.5 l/m – Showers = 8 l/m – Urinal = 3 l/Bowl/hour – Kitchenette tap = 7.5 l/m – Dishwashers = 13 l/cycle Tenants will be encouraged to fit-out their spaces appropriately to meet the requirements of the Building Regulations Part G (2013) as a minimum, with the aspiration to achieve a reduction beyond this level for BREEAM credits.
Where a building is to be retained, water efficiency measures should be retrofitted.	-	Refurbishment of The Maltings (Development Area 1 of Application A) will include the complete refit of all WCs fixtures and fittings. The target efficiencies of these new fixtures and fittings is to meet a reduction in the overall water consumption to achieve 2.5 BREEAM credits.
All developments should be designed to incorporate rainwater harvesting.	-	The potential for inclusion of rainwater harvesting would be further investigated at detailed design stage.
	All residential units, including individual flats / apartments and commercial units, and where practical, individual leases in large commercial properties should be metered.	All domestic uses within Development Area 1 (Application A), and the School in Application B, will include pulsed-output water meters, with sub-metering where feasible. Non-domestic units will be metered by tenancy, and tenants will be encouraged to fit sufficient sub-meters to identify different areas of use such as toilets, kitchens and showers. Sub-metering would also be considered for inclusion in Development Area 2, (Application A) where feasible.
Resource management – Materials and waste.		
The design of development should prioritise materials that: – Have a low embodied energy, including those that can be re-used intact or recycled; – At least three of the key elements of the building envelope (external walls, windows roof, upper floor slabs, internal walls, floor finishes / coverings) are to achieve a rating of A+ to D in the BRE's The Green Guide of specification; – Can be sustainably sourced; – At least 50% of timber and timber products should be sourced from	-	<u>Detailed elements (Application A (Development Area 1) and Application B (School):</u> 100% of the timber used at the Proposed Development will be FSC certified. Wherever feasible, selected materials will be in the range of A+ to D as confirmed by the BRE Green Guide to Specification. Where specified by the developer (e.g. low VOC paint), finishes and other materials will not contain or emit toxic substances. <u>Outline element (Application A, Development Area 2):</u> The measures outlined above for Development Area 1 (Application A) and Application B (School) would also be considered for Development Area 2 (Application A).

GLA Sustainable Design & Construction		Proposed Development Response
Priority	Best Practice	
accredited Forest Stewardship Council (FSC) or Programme for the Endorsement of forestry Certification (PEFC) source; – Are durable to cater for their level of use and exposure; and – Will not release toxins into the internal and external environment, including those that deplete stratospheric ozone.		
	The design of developments should maximise the potential to use pre-fabrication elements.	During detailed design stages, consideration will be given to the use of pre-fabricated elements such as bathroom pods or modular construction. Where practical and suitable, it is intended that these could be used to improve construction time and reduce on-site waste.
Developers should maximise the use of existing resources and materials and minimise waste generated during the demolition and construction process through the implementation of the waste hierarchy.	-	BREEAM credits are targeted that require the main contractor to produce a Resource Management Plan prior to commencement of any demolition or construction works on-site. One of the aims of the document will be to investigate how recycling of construction, demolition and excavation material can be maximised, and to highlight means to divert specific waste streams from landfill.
Developers should provide sufficient internal space for the storage of recyclable and compostable materials and waste in their schemes.	-	All spaces at the Proposed Development will be provided with suitable internal and communal waste storage facilities for the segregation of recyclable materials, designed to meet the requirements of BS5096 (Waste Management in Buildings), LBRuT and BREEAM.
The design of development should meet borough requirements for the size and location of recycling, composting and refuse storage, and its removal.	-	
Resource management – Nature conservation and biodiversity.		
There is no net loss in the quality and quantity of biodiversity.	-	The existing site for Application B (School) includes playing fields, however these contain little ecological value, and so with the addition of ecological enhancements as part of the proposals, it is anticipated that there will be ecological enhancements and accordingly enhanced quantity of biodiversity. Proposals in Application A also include a community park and green roofs with links to wider green infrastructure. The landscape plan is proposed to deliver a mix of types of open areas throughout the site, supplemented by extensive tree planting and soft landscaping. A range of character areas will be provided within a number of green areas across the site, each of which will contribute to green infrastructure provision. Landscape elements include play facilities, paths and seating areas as well as soft landscape and pedestrian and cycle circulation A number of the ecology credits in BREEAM are being targeted in order to achieve the target of BREEAM 'Excellent'. In order to achieve these credits a Suitably Qualified Ecologist is required to complete an assessment of biodiversity and suggest measures to improve the
Developers make a contribution to biodiversity on their development Site.	-	

<table>
<tr><th colspan="2">GLA Sustainable Design & Construction</th><th>Proposed Development Response</th></tr>
<tr><th>Priority</th><th>Best Practice</th><th></th></tr>
<tr><td></td><td></td><td>ecological value of the site. Implementing the recommendations of the ecologist will ensure that the proposed development will make a positive contribution to biodiversity and subsequently fulfil the policy requirements of the London Plan and LBRuT.

In Development Area 1 of Application A and Application B (School) it is proposed that 10 bat boxes will be provided and 10 bird nesting boxes.

Improvements and protection of ecology would be considered in the design of Development Area 2 of Application A.</td></tr>
<tr><td colspan="3">Climate change adaptation – Tackling increased temperature and drought.</td></tr>
<tr><td>Developers should include measures, in the design of their schemes, in line with the cooling hierarchy set out in London Plan Policy SI4 to prevent overheating over the scheme’s lifetime.</td><td>-</td><td>The typical floor for Block 08 has been used as a best representation of apartments on the site. An assessment has been carried out using weather scenarios Design Summer Year (DSY) 1, 2 and 3 have been used for the appropriate location for completeness.

A hybrid ventilation scenario (i.e. openable windows and mechanical ventilation with heat recovery (MVHR)), improved performance parameters and blinds has been included in the analysis.

The following scenarios were also tested but the overheating criteria were not met:
– Natural ventilation only with blinds
– Natural ventilation with improved performance parameters and blinds

Please refer to the Energy Strategy for key modelling input parameters. The results for each summer year are included below and also in the Energy Strategy.

Table 5 to Table 7 summarise the results of the overheating risk assessments. Results are presented in terms of the percentage of rooms that meet the adaptive comfort criteria.

Please refer to the Energy Strategy appendix for the results on a room-by-room basis.

Overheating Risk Criteria
The sample units have been assessed against the CIBSE TM59 adaptive comfort criteria to assess the risk associated with the dwellings with operable windows.

The following criteria have been applied (adaptive comfort):
– The operative temperature in living rooms, kitchens and bedrooms shall not exceed the adaptive threshold comfort temperature for more than 3% of occupied hours in summer months (May to September).
– The operative temperature in bedrooms shall not exceed 26°C for more than 1% of annual hours during the night (22:00 to 07:00).

DSY1
As shown, using DSY1, all spaces meet the overheating risk criteria when utilising the hybrid ventilation approach.
Table 5: Summary of adaptive criteria results based on various ventilation scenarios – DSY1.
<table>
<tr><th></th><th colspan="2">% meeting adaptive comfort criteria</th><th>Corridors</th></tr>
<tr><th></th><th>TM59 criterion 1
Kitchens, living rooms and bedrooms <3% occ. hours exceed comfort temp (May – Sept)</th><th>TM59 criterion 2
Bedrooms only <26°C for <1% occ. hours</th><th>28°C operative temperature target <3% of annual hours</th></tr>
<tr><td>Improved parameters with hybrid ventilation</td><td>100% (43/43)</td><td>100% (30/30)</td><td>100% (2/2)</td></tr>
</table>
DSY2</td></tr>
</table>

<table>
<tr><th colspan="2">GLA Sustainable Design & Construction</th><th>Proposed Development Response</th></tr>
<tr><th>Priority</th><th>Best Practice</th><th></th></tr>
<tr><td></td><td></td><td>As shown, using DSY2, the majority of spaces meet the overheating risk criteria.
Table 6: Summary of adaptive criteria results based on various ventilation scenarios – DSY2.
<table>
<tr><th></th><th colspan="2">% meeting adaptive comfort criteria</th><th>Corridors</th></tr>
<tr><th></th><th>TM59 criterion 1
Kitchens, living rooms and bedrooms <3% occ. hours exceed comfort temp (May – Sept)</th><th>TM59 criterion 2
Bedrooms only <26°C for <1% occ. hours</th><th>28°C operative temperature target <3% of annual hours</th></tr>
<tr><td>Improved parameters with hybrid ventilation</td><td>72% (31/43)</td><td>83% (25/30)</td><td>100% (2/2)</td></tr>
</table>
DSY3
As shown, using DSY3, there is anticipated to be a risk of overheating for the majority of spaces.
Table 7: Summary of adaptive criteria results based on various ventilation scenarios – DSY3.
<table>
<tr><th></th><th colspan="2">% meeting adaptive comfort criteria</th><th>Corridors</th></tr>
<tr><th></th><th>TM59 criterion 1
Kitchens, living rooms and bedrooms <3% occ. hours exceed comfort temp (May – Sept)</th><th>TM59 criterion 2
Bedrooms only <26°C for <1% occ. hours</th><th>28°C operative temperature target <3% of annual hours</th></tr>
<tr><td>Improved parameters with hybrid ventilation</td><td>7% (3/43)</td><td>3% (1/30)</td><td>0% (0/2)</td></tr>
</table>
The Proposed Development has been designed in accordance with the overheating checklist and the cooling hierarchy to minimise cooling demand and limit the likelihood of high internal temperatures. Mitigation measures such as suitable glazing ratio and g-value, appropriate ventilation levels and minimisation of internal heat gains will be implemented. Through these measures, relevant areas of the Proposed Development will achieve compliance with Criterion 3 of the Building Regulations Part L (2013).

It is not anticipated that active cooling will be provided for the residential areas of Development Area 1 (Application A).</td></tr>
<tr><td>-</td><td>The design of developments should prioritise landscape planting that is drought resistant and has a low water demand for supplementary watering.</td><td>The species selected for soft landscaping and green/brown roofs will aim to reduce supplementary watering while still being in keeping with the native ecological environment.

Drought resistant planting would also be considered for the landscaping and green roofs of the Outline submission (Development Area 2 of Application A).</td></tr>
<tr><td>-</td><td>Developers should consider any long term potential for extreme weather events to affect a building's foundations and to ensure they are robust.</td><td>The Structural Engineers have considered all applicable geological and hydrological conditions in accordance with relevant design guidance and standards.

The BREEAM credit for Wst 05 – Adaptation to Climate Change is targeted for all BREEAM assessments included in Development Area 1 of Application A and Application B (School). A report will identify the main hazards associated with extreme weather events and the predicted impact of climate change, and list of mitigations measures which could be included into the design produced.

The Outline submission (Development Area 2 of Application A) would also consider the long-term impact of climate change and appropriate mitigation measures would be considered and proposed at the reserved matters approval stage.</td></tr>
</table>

GLA Sustainable Design & Construction		Proposed Development Response
Priority	Best Practice	
Climate change adaptation – Increasing green cover.		
Developers should integrate green infrastructure into development schemes, including by creating links with wider green infrastructure network.	-	A mixture of soft and hard landscaping is proposed throughout the Development. A mix of evergreen and deciduous trees are proposed across the Site, which includes up to 343 new trees, with 62 ornamental trees bringing a total of 405 new trees and up to 99 individual and 3 tree groups retained. All residential courtyards on ground level would be enclosed with 1.5 m high hedge planting. The existing towpath along the northern boundary of the Site would be enhanced, including additional seating and pruning of understorey vegetation to open key views. At Bulls Alley, within the north east corner of the Site, it is proposed to provide new granite setts paving, with the existing granite setts cleaned and retained. The historic railway tracks along the towpath within this location would be rediscovered and form part of the landscaping. Steps would be provided to link the proposed river terrace walk behind the improved flood defence walls to the existing towpath. The Development would provide the following ecological enhancements: – a minimum of 10 bat boxes would be incorporated in the Development located east of Ship Lane (note, number of bat boxes within the outline component of the Site would be determined following the reserved matters application); – provision of 20 bird nesting boxes, including 5 bird boxes suitable for swifts and 15 for other bird types in the Development located east of Ship Lane in Development Area 1 (note, number of bird boxes within the outline component of the Site would be determined following the reserved matters application); – a peregrine falcon nest box would be incorporated into the proposed Development on the roof of the Maltings (Building 4); – use of native species, or species of benefit to wildlife throughout the Development. This would include littoral plant species in areas close to the river edge responding to existing riverside vegetation and native trees located in a grove in the community park south of the proposed school; – incorporation of deadwood features within landscape areas, to provide opportunities for a range of invertebrates; and – of biodiversity roofs, including a mix of green and brown roofs. Green roofs would include a wildflower and native grasses mix whilst brown roofs would incorporate photovoltaic (PV) panels in some areas and would be seeded with plant species collected from the Site or nearby, including log piles, slabs and twigs gathered from the local area. Where possible, the substrate depth would be varied to provide opportunities for small pools of water to collect on the roof.
Major developments in the Central London Activity Area (CAZ) should be designed to contribute to the Mayor's target to increase green cover by 5% in this zone by 2030.	-	The Proposed Development is not included in the Central Activities Zone (CAZ) and so the London Plan (2021) target for the CAZ does not apply.
Developments should contribute to the Mayor's target to increase tree cover across London.	-	The Proposed Development (Application A) will include park/recreation areas which will include the planting of new evergreen and deciduous trees. With Application A and B it is proposed that there will be a net increase in trees on the site.
Any loss of a trees resulting from development should be replaced with an appropriate tree or group of trees for the location, with the aim of providing the same canopy cover as that provided by the original trees.	-	In order to deliver a comprehensive mixed-use development on the Site, some trees will need to be removed. The majority of trees on Site will be retained and protected during construction. In order to mitigate against tree removal, up to 406 new trees are proposed to be planted across the Stag Brewery site (application A & B). The new trees will be a mix of species to respond to their locations and provide ecological and biodiversity benefits, and a number will be planted at semi-mature age.
Surface Water / Sustainable Drainage Developers should maximise all opportunities to achieve greenfield runoff rates in their developments.	-	The Drainage Strategy confirms that Application A and B will aim to restrict surface water runoff to 70% of the existing rate. This is set out in the Drainage Strategy for the site. Where applicable the surface water run-off will discharge directly to the Thames at an unrestricted rate. The Application A and Application B areas of the site are expected to require 2,669m^3 of attenuation to achieve the restricted run off rate and this would be considered for inclusion in Application A and B appropriately.

GLA Sustainable Design & Construction		Proposed Development Response
Priority	Best Practice	
Surface Water / Sustainable Drainage When designing their schemes developers should follow the drainage hierarchy set out in London Plan Policy SI13.	-	The Drainage Strategy confirms that in line with the drainage hierarchy, the Proposed Development in Application A will discharge surface water runoff from the northeast part of the Site into the adjacent River Thames. Due to the tidal nature of the Thames, LBRuT accept that surface water runoff can discharge to it unrestricted. Refer to the Drainage Strategy for details. The Drainage Strategy provided in support of the applications states: Appropriate treatment would be incorporated into the drainage system to ensure that the quality of water discharged is acceptable. This would be achieved through the incorporation of green roofs, and the potential inclusion of blue roofs, rainwater harvesting, permeable paving, and swales. If required, a biomat filtration system, downstream defender or other hard engineered solution could also be incorporated to ensure discharge is appropriately treated. This report sets out the principals of the SuDS scheme, however the final proposed SuDS would be confirmed at the detailed design stage.
Sustainable Drainage Developers should design Sustainable Drainage Systems (SuDS) into their schemes that incorporate attenuation for surface water runoff as well as habitat, water quality and amenity benefits.	-	The potential for SuDS was considered throughout the design process with workshops being held by the design team to discuss the various constraints and opportunities for each of the SuDS devices. In line with the London Plan Policy SI13 “Sustainable Drainage”, rainwater harvesting, and permeable paving would be incorporated along with a number of other SuDS features
Development in areas at risk from any form of flooding should include flood resistance and resilience measures in line with industry best practice.	-	By reference to the Environment Agency Flood Risk Map, it is understood that Application A and B of the Proposed Development is within Flood Zone 3, however it is within the area that benefits from the Thames flood defences.  Full details of Flood Risk Management Measures have been provided in the Flood Risk Assessment submitted as part of Application .
	-	

GLA Sustainable Design & Construction		Proposed Development Response
Priority	Best Practice	
Developments incorporate the recommendation of the TE2100 plan for the future tidal flood risk management in the Thames estuary.		The Proposed Development is located within the area protected by existing flood defences. In addition to this, the existing site boundary walls will be removed or modified as required and new flood defence walls will be provided. Additional Flood Risk Management measures will be considered for Development Area 1 of Application A and Application B (School), as appropriate.
Where development is permitted in a flood risk zone, appropriate residual risk management measures are to be incorporated into the design to ensure resilience and the safety of occupiers.	-	Appropriate Flood Risk Management measures would also be considered for Development Area 2 of Application A to be confirmed in the reserved matters submission(s). Full details of Flood Risk Management Measures have been provided in the Flood Risk Assessment submitted as part of Application A.
All sources of flooding need to be considered when designing and constructing developments.	-	All sources of flooding have been considered when designing and constructing developments. Please refer to the Flood Risk Assessment.
Pollution management – Land contamination.		
Developers should set out how existing land contamination will be addressed prior to the commencement of their development.	-	The Environmental Statement and associated addendums sets out the issues of existing ground contamination, the risks and remediation measures. Owing to the reduction in basement volume at the western side of the Site (West of Ship Lane), a smaller volume of potentially contaminated shallow soils would be excavated. However, mitigation measures to be undertaken as part of the Works, informed by findings of previous and proposed ground investigation, would prevent any contamination in residual soils impacting any identified receptors (as set out in the replacement Preliminary Environmental Risk Assessment). Minor expansion of the proposed basement to the east of Ship Lane with a sub-basement level under Building 01 would excavate some additional natural material, however there would be no additional impact to ground conditions or contamination risks. Below ground Development infrastructure would be inherently suitably designed and specified for the ground conditions at the Site and to withstand the potential adverse effects from any residual contamination which could give rise to chemical attack. The likely effect is therefore considered to be insignificant
Potentially polluting uses are to incorporate suitable mitigation measures.	-	The Proposed Development is not proposing to include uses that would lead to land contamination.
Pollution management – Air quality.		
Developers are to design their schemes so that they are at least 'air quality neutral'.	-	There will be no combustion plant installed within the Proposed Development. Cycling will be encouraged through the provision of cyclist facilities in order to reduce the use of cars. Electric car charging points will also be provided. These measures are consistent with those identified by LBRuT within their Air Quality Action Plan. Policy SI 1 has been assessed in the Environmental Impact Assessment and associated addendums. It is maintained that this is not required as part of the application, but an assessment has been included as the Applicant is aware that air quality is a key area of concern.
Developments should be designed to minimise the generation of air pollution.	-	
Developments should be designed to minimise and mitigate against increased exposure to poor air quality.	-	There will be no combustion plant installed within the Proposed Development. The Environmental Impact Assessment and associated addendums will review and assess mitigation techniques that will be incorporated into the Proposed Development, with the aim of minimising the generation of air pollution and mitigating against increased exposure to poor air quality.
	-	

GLA Sustainable Design & Construction		Proposed Development Response
Priority	Best Practice	
Developers should select plant that meets the standards for emissions from combined heat and power and biomass plants.		There will be no combustion plant installed within the Proposed Development.
Developers and contractors should follow the guidance set out in the emerging The Control of Dust and Emissions during Construction and Demolition SPG when constructing their development.	-	It is intended that contractors for Application B (School) and Development Area 1 of Application A will comply with The Control of Dust and Emissions during Construction and Demolition SPG, and will also be required to identify potential sources of dust and other air pollution and ensure appropriate dust control measures are implemented. It is also intended that the main contractors will register under the Considerate Constructors Scheme and achieve a best practice score, in order to achieve the associated BREEAM credits. These measures would also be considered for inclusion in the contractor's requirements for Development Area 2 of Application A.
Pollution management – Noise.		
Areas identified as having positive sound features or as being tranquil should be protected from noise.	-	The Site does not include areas identified as having positive sound features or as being tranquil.
Noise should be reduced at source, and then designed out of a scheme to reduce the need for mitigation measures.	-	<u>Detailed elements (Application A (Development Area 1), and Application B (School)):</u> Noise attenuation measures will be incorporated on-site where required, to ensure that any noise generated by equipment or services will not generate a source of noise pollution or negatively impact the surrounding area. Acoustic fencing is specified for the school sports field to reduce noise breakout from these areas to the surrounding residential streets. The Site is located in an area with a high level of background noise. High efficiency mechanical ventilation will be available to provide ventilation to the spaces in addition to the option to use natural ventilation. This will aid noise attenuation as occupants will not be reliant on opening windows to maintain good indoor air quality and control internal temperatures. <u>Outline element (Application A, Development Area 2)</u> The strategy detailed above would also be considered for Development Area 2 of the Proposed Development.
Pollution management – Light pollution.		
Developments and lighting schemes should be designed to minimise light pollution.	-	All external lighting provided as part of the Proposed Development will be energy efficient. It is anticipated that suitable controls such as daylight detection and time-switches will be provided to minimise inappropriate use. Luminaires will be selected with suitable light output ratio and polar curve to ensure light is distributed appropriately. This will minimise light lost to the night sky.
Pollution management – Water pollution.		
In their aim to achieve a greenfield runoff rate developers should incorporate sustainable urban drainage systems (SuDS) into their schemes which also provide benefits for water quality.	-	A number of SuDS have been assessed for their suitability for the Proposed Development as part of the Drainage Strategy. Green/Brown roofs, Blue roofs, Rainwater harvesting and underground attenuation have been considered for the Proposed Development. For Application A the Drainage Strategy submitted in support of the applications states: Surface water runoff from the northeast of the Application A site (Stag Brewery component of the Site) would discharge by gravity to the River Thames (adjacent to the northern boundary of the Site) via three outfalls. As the River Thames is tidal in this location, direct

GLA Sustainable Design & Construction		Proposed Development Response
Priority	Best Practice	
		discharge to the river would be unrestricted. The area to discharge into the River Thames has been maximised using shallow geocellular conveyance channels, in order to relieve the Thames Water network of flows. Surface water runoff from the remainder of the Stag Brewery component of the Site would discharge via gravity to the Thames Water sewer network in the surrounding highways, maximising the attenuation volume within each drainage catchment to restrict surface water flows as much as possible. Based on an area of 5.89ha currently draining into the Thames Water network, the existing discharge rate was calculated to be 841 l/s. The incorporation of permeable paving, rain gardens, and underground attenuation tanks achieves a reduction of surface water flows to 249 l/s, equal to a 70% reduction compared to the existing rate. This approach has been agreed with the Greater London Authority. Appropriate treatment would be incorporated into the drainage system to ensure that the quality of water discharged is acceptable. This would be achieved through the incorporation of green roofs, permeable paving aggregate sub-base, rain gardens, and rainwater harvesting. The on-Site drainage networks and Sustainable Drainage Systems would be privately managed and maintained for the lifetime of the Stag Brewery development (Applications A and B), ensuring they remain fit for purpose and function appropriately. The management company / operator would be appointed post-planning. The school drainage system (Application B) would be delivered and maintained separately from the Application A site. This report confirms that surface water runoff from the Site (Applications A and B) can be managed sustainably to ensure that flood risk is not increased elsewhere. It is considered that the information provided within this report satisfies the requirements of the National Planning Policy Framework (NPPF) and the London Plan.
-	Encourage good environmental practice to help reduce the risk from business activities on the London water environment.	It is intended that commercial tenants will be advised of good environmental practice to reduce risk on the London water environment.
-	Encourage those working on demolition and construction sites to prevent pollution by incorporating prevention measures and following best practice.	The main contractor will be required to operate in an environmentally conscious manner to prevent pollution. It is also intended that the main contractor shall register under the Considerate Constructors Scheme and achieve a best practice score.
Pollution management – Wastewater treatment.		
Commercial developments discharging trade effluent should connect to the public foul sewer or combined sewer network where it is reasonable to do so subject to a trade effluent consent from the relevant sewerage undertaker.	-	All spaces at the Proposed Development will be provided with suitable connections to the public foul sewer or combined sewer network, as appropriate.
Developments should be properly connected and post construction checks should be made by developers to ensure that misconnections do not occur.	-	

3. Conclusion.

This statement demonstrates that high standards of environmental sustainability have been considered in the design of the Proposed Development. This is demonstrated by the commitment to energy efficiency, water efficiency, waste management and cyclist facilities.

The strategy highlights how the Proposed Development achieves the sustainability objectives. The features of the Development include:

a. The non-domestic areas of Application A at the Proposed Development seek to target BREEAM 'Excellent' as a minimum as is required by LBRuT policy. This includes the office, and cinema areas.

b. The School (application B) would aspire to achieve a BREEAM 'Excellent' rating. An education provider will deliver the school.

c. The energy strategy is designed to achieve regulated CO_2 emissions reductions, with the following targets for CO_2 emissions reductions beyond Part L 2013 baseline:

Be Lean	**~10% sitewide betterment achieved against GLA gas boiler baseline.** Highly energy efficient building fabric and building services have been utilised to reduce carbon emissions and energy demand through good practice passive measures.
Be Clean	**No additional savings at the Be Clean stage** An centralised approach to energy supply will be available via an ambient loop using heat pump technology. As no connection to an existing DHN or installation of CHP is proposed, no additional savings can be demonstrated at this stage.
Be Green	**A further ~63% sitewide betterment achieved through LZC technologies.** Thermal and cooling demand supplied via on site centralised ASHP and the incorporation of a photovoltaic array further reduces and offsets the proposed development's carbon emissions respectively .

d. Water efficient devices will be installed to target a reduced water consumption in the non-domestic areas sufficient to achieve two credits for the New Construction elements and 2.5 credits for the domestic refurbishment element.

e. The Proposed Development (Application A) will include park/recreation areas which will include the planting of new evergreen and deciduous trees. With Application A and B it is proposed that there will be a net increase in trees on the site.

f. A number of SuDS have been assessed for their suitability for the Proposed Development as part of the Drainage Strategy. Green/Brown roofs, Blue roofs, Rainwater harvesting and underground attenuation have been considered for the Proposed Development of Application A. Application B will include attenuation to limit run off rate to the required limit.

g. The Maltings building (Building 4) is being retained in its entirety, with works proposed to the windows and internal layouts. New floors would be inserted, and the upper floors would be partitioned to create apartments. The proposals for the existing former Bottling and hotel building (building 5) aims to convert to a hotel and office. It is proposed that the South and West facades of the building will be retained in their entirety and that the North and East facades will be largely demolished and rebuilt to an extended footprint. Where new materials are introduced, they will be specified, where possible and practicable, to be sustainably sourced, recycled or re-used building materials.

h. A Resource Management Plan will be produced by the Principal Contractors to monitor, sort and recycle construction waste on or off site.

i. Recyclable waste storage will be provided for the occupants to manage their operational waste. Waste storage areas are provided throughout Application A to enable the management of waste.

j. Secure cycle storage and facilities will be provided to encourage the use of bicycles.

k. Contractors will be required to sign up to the Considerate Constructors Scheme (CCS) and target a beyond best practice score.

l. The Proposed Development, Application A and B, will be serviced through the provision of ASHP to minimise the generation of air pollution, and cycling will be encouraged through the provision of cyclist facilities in order to reduce the use of cars. Electric car charging points will also be provided. These measures are consistent with those identified by LBRuT within their Air Quality Action Plan. Details provided in the Environmental Impact Assessment.

m. It is also anticipated that all occupied spaces of the Proposed Development of Application A and B will achieve compliance with the Building Regulations Part L 2013 criterion three requirements and that the risk of overheating is mitigated by the inclusion of features such as internal blinds, g-value of the glazing, an appropriate glazing ratio and mechanical ventilation rates in excess of the minimum requirements of building regulations. The overheating risk assessment for the development demonstrates that with DSY1 weather file and the hybrid ventilation strategy, the CIBSE TM59 overheating criteria are met.

Appendix A: BREEAM new construction pre-assessment summary.

This report provides an indicative BREEAM 2014 New Construction pre-assessment for the Proposed Development.

The development falls under multiple assessment type categories as set out in table 1 and a Shell and Core assessment has been assumed for the Office and Cinema. A 'Fully Fitted' assessment has been assumed for Application B (School). The proposed development is targeting a BREEAM 'Excellent' rating for each of the assessment types outlined below.

The Proposed Development is a mixed-use scheme of apartments, retail premises, office, cinema, a school, a and a basement with car park. However, this report focuses solely on the non-residential elements of Application A, Development Area 1 and Application B, The School; that is, the office, cinema, retail, and school spaces as shown in Table 8 below:

Table 8: BREEAM assessment types.

Assessment Type	Assessed Accommodation	Floor Area (sqm)
BREEAM Offices	Office Units	2,650
BREEAM Other	Cinema	1,606
BREEAM School	School	9,319

The current anticipated baseline score is as per Table 9.

Table 9: Anticipated BREEAM 2014 performance summary.

	BREEAM Target Score	Rating
Office Units	74.0%	'Excellent'
Cinema	71.4%	'Excellent'
School	72.3%	'Excellent'

A margin of at least 3% – 5% is recommended above the minimum required score at this stage to secure the target rating against design changes and potential constraints identified during the construction stage.

The summary table below highlights the list of targeted credits for the current BREEAM 2014 pre-assessment. Mandatory credits to achieve a 'Very Good' rating and above are highlighted by **(M).** Additional mandatory credits for an 'Excellent' or 'Outstanding' rating are highlighted by **(M_e) and (M_o)** respectively. Exemplary (innovation) credits are written in brackets; e.g. (+1).

The different assessment types have differing available credits. These are noted where applicable in Table 10.

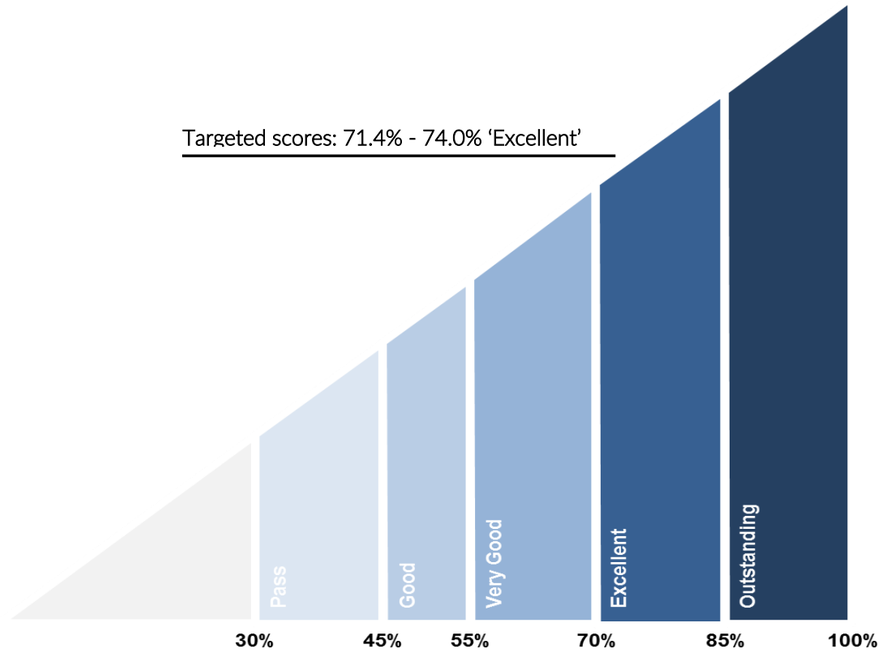


Figure 1: BREEAM 2014 scale and anticipated performance scores.

Table 10: Summary of credits targeted.

Category	Issue	Available	Targeted Credits		
			Office	Cinema	School
Management	Man 01: Project Brief and design	4	4	4	4
	Man 02: Lifecycle Cost and Service Life Planning	4	4	4	4
	Man 03: Responsible Construction Practices **(M_e), (M_o)**	6	6	6	6
	Man 04: Commissioning and Handover **(M_e), (M_o)**	4	4	4	4
	Man 05: Aftercare	3	-	-	3
Health & Wellbeing	Hea 01: Visual Comfort	3 5 - School	2	1	3
	Hea 02: Indoor Air Quality	2 5 - School	1	1	3
	Hea 04: Thermal Comfort	2 3 - School	2	2	3
	Hea 05: Acoustic Performance	1 3 - School	1	1	3
	Hea 06: Safety and Security	2	2	2	2
Energy	Ene 01: Reduction of CO_2 Emissions **(M_e)**	12	6	6	6
	Ene 02: Energy Monitoring **(M)**	2	2	2	2
	Ene 03: External Lighting	1	1	1	1
	Ene 04: Low Carbon Design	3	1	1	1
	Ene 05: Energy Efficient Cold Storage	2	-	-	-
	Ene 06: Energy Efficient Transportation Systems	3	3	3	3
	Ene 08: Energy Efficient Equipment	2	-	-	0
Transport	Tra 01: Public Transport Accessibility	5 – Cinema 3 – School & Office	2	2	2
	Tra 02: Proximity to Amenities	1	1	1	1
	Tra 03: Cyclist Facilities	2	2	2	2
	Tra 04: Maximum Car Parking Capacity	2	2	2	-
	Tra 05: Travel Plan	1	1	1	1
Water	Wat 01: Water Consumption **(M)**	5	2	2	2
	Wat 02: Water Monitoring **(M)**	1	1	1	1
	Wat 03: Water Leak Detection and Prevention	2	2	2	2
	Wat 04: Water Efficient Equipment	1	1	1	1
Materials	Mat 01: Life Cycle Impacts	5 - Office 6 – School, & Cinema	3	3	3
	Mat 02: Hard Landscaping and Boundary Protection	1	1	1	1
	Mat 03: Responsible Sourcing of Materials **(M)**	4	2	2	2
	Mat 04: Insulation	1	1	1	1
	Mat 05: Designing for Durability and Resilience	1	1	1	1
	Mat 06: Material Efficiency	1	1	1	1
Waste	Wst 01: Construction Waste Management **(M_o)**	4	3	3	3
	Wst 02: Recycled Aggregates	1	0	0	0
	Wst 03: Operational Waste **(M_e), (M_o)**	1	1	1	1
	Wst 04: Speculative Floor and Ceiling Finishes	1	1	-	-
	Wst 05: Adaptation to Climate Change	1	1	1	1
	Wst 06: Functional Adaptability	1	0	1	0
Land Use and Ecology	LE 01: Site Selection	2	1	1	1
	LE 02: Ecological Value of Site and Protection of Ecological Features	2	2	2	2
	LE 03: Minimising Impact on Existing Site Ecology **(M)**	2	2	2	2
	LE 04: Enhancing Site Ecology	2	2	2	2
	LE 05: Long Term Impact on Biodiversity	2	2	2	2
Pollution	Pol 01: Impact of Refrigerants	3	0	0	0
	Pol 02: NO_x Emissions	3	0	0	0
	Pol 03: Surface Water Run-off	5	3	3	3
	Pol 04: Reduction of Night-time Light Pollution	1	1	1	1
	Pol 05: Noise Attenuation	1	1	1	1
Innovation	Inn 01: Approved Innovation and Exemplary Level Credits	10	1	1	1
	Targeted weighted score & rating:		74.0%	71.4%	72.3%
			'Excellent' rating		

Appendix B: BREEAM domestic refurbishment pre-assessment summary.

This report relates the areas of the Proposed Development that will be refurbished into dwellings. It is recommended the building should be registered under the BREEAM 2014 Domestic Refurbishment (DR) scheme and assessed under the BREEAM 2014 New Domestic Refurbishment (DR) Scheme.

This report is relevant to the refurbishment of Block 4 – The Maltings and Block 5. The assessment is targeting a BREEAM 'Excellent' rating. The building contains non-domestic areas on the ground floor and residential areas on the upper floors.

This draft pre-assessment has been carried out independently by a qualified BREEAM assessor prior to a review by the project design team. This report sets out a route to achieving the target rating and highlights the design team members responsible for each credit issue.

– Baseline score / rating: 73.41% equivalent to an 'Excellent' rating.

Note: All mandatory and minimum standards for the 'Excellent' rating have been targeted within the baseline score.

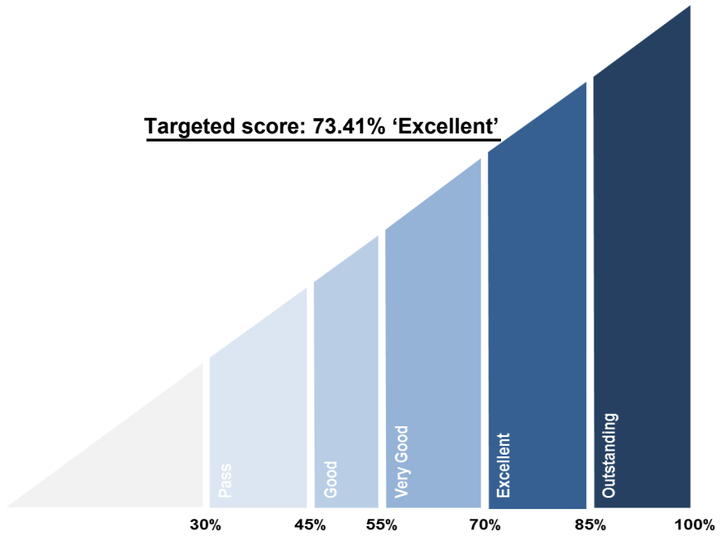


Figure 2: BREEAM 2014 scale and anticipated performance score.

Table 11 highlights the list of targeted credits for the current BREEAM Domestic Refurbishment 2014 pre-assessment. Mandatory credits to achieve a "Very Good' rating and above are highlighted by (M).

Table 11: Summary of credits targeted.

Category	Issue	Credits	
		Available	Targeted
Management	Man01: Home User Guide	3	3
	Man02 Responsible Construction Practices	2	2
	Man03 Construction Site Impacts	1	1
	Man04 Security	2	2
	Man05 Protection and Enhancement of Ecological Features	1	1
	Man06 Project Management	2	2
Health & Wellbeing	Hea01 Daylighting	2	0
	Hea02 Sound Insulation	4	4
	Hea03 Volatile Organic Compounds	1	1
	Hea04 Inclusive Design	2	1
	Hea05 Ventilation (M)	2	2
	Hea06 Safety (M)	1	1
Energy	Ene01 Improvement in Energy Efficiency Rating	6	3.5
	Ene02 Energy Efficiency Rating Post Refurbishment (M)	4	2.5
	Ene03 Primary Energy Demand	7	4.5
	Ene04 Renewable Technologies	2	0
	Ene05 Energy Labelled White Goods	2	2
	Ene06 Drying Space	1	1
	Ene07 Lighting	2	2
	Ene08 Energy Display Devices	2	2
	Ene09 Cycle Storage	2	2
	Ene10 Home Office	1	1
Water	Wat01 Internal Water Consumption (M)	3	2
	Wat02 External Water Use	1	0
	Wat03 Water Meter	1	1
Materials	Mat01 Life Cycle Impacts (M)	25	15
	Mat02 Responsible Sourcing of Materials	15	9
	Mat03 Insulation (M)	8	4
Waste	Was01 Household Waste	2	2
	Was02 Refurbishment Site Waste Management	3	3
Pollution	Pol01 Impact of Refrigerants	3	2
	Pol02 Surface Water Runoff	3	0
	Pol03 Flooding	2	2
Innovation	Man02 Responsible Construction Practices	1	0
	Man05 Protection and Enhancement of Ecological Value	1	0
	Man06 Project Management	2	0
	Hea04 Inclusive Design	1	0
	Ene02 Energy Efficiency Rating	1	0
	Ene08 Display Energy Devices	1	1
	Wat01 Internal Water Use	1	0
	Was02 Refurbishment Site Waste Management	1	0
	Pol02 Surface Water Run-off	1	0
Total			**73.41% 'Excellent' rating**

Appendix C: Policy framework.

Building regulation Part L2013.

Criterion one of the Building Regulations Part L 2013 requires that the building as designed is not anticipated to generate CO_2 emissions in excess of that set by a Target Emission Rate (TER) calculated in accordance with the approved Standard Assessment Procedure (SAP) v9.92 2012 for dwellings and the National Calculation Methodology (NCM) 2013 for non-dwellings.

On aggregate, Part L 2013 requires the following CO_2 emissions reductions:

- 6% beyond the requirements of Part L 2010 for dwellings
- 9% beyond the requirements of Part L 2010 for non-domestic buildings

Criterion two places upper limits on the efficiency of controlled fittings and services for example, an upper limit to an external wall U-value of 0.30W/m^2.K (dwellings).

Part L 2013 requires the following performance targets to be met:

Target Fabric Energy Efficiency (TFEE). The TFEE is calculated independently for each dwelling, based upon an elemental recipe of efficiency parameters, applied to the geometry of the dwelling in question. This will generate a notional value which will then be relaxed by 15% to generate the TFEE.

Criterion three requires that dwellings are not at 'high' risk of overheating in summer months (June, July & August) and that zones in commercial buildings are not subject to excessive solar gains. This is demonstrated using the procedure given in SAP 2012 Appendix P for dwellings and the National Calculation Methodology (NCM) 2013 for non-dwellings.

GLA planning policy.

The London Plan

Policy GG2 Making the Best Use of Land
- Creating high density development in order to "make the best use of land", whilst protecting London's open spaces.
- Promote urban greening.
- Encourage development that can encourage sustainable transport connections.

Policy GG3 Creating a healthy city
- Improve overall health and reduce health inequality.
- Promote a more active and healthy lifestyle, encouraging healthy choice (empowering healthy choice).
- Healthy streets approach, prioritise health in planning.
- Consider health and wellbeing on communities in planning applications - both health and health inequality (use Health Impact Assessments)
- Include access to green spaces and provision of green infrastructure.
- Ensure high quality, well insulated ventilated to avoid issues associated with damp, heat and cold.
- Create healthy food environments. Restrict unhealthy options.

Policy GG5 Growing a Good Economy
- Promote strength and potential of the wider city region
- Encourage diversified economy, with the benefits being shared more equitably across London.
- Plan for sufficient employment and industrial space in the right locations - supporting development/regeneration.
- Provide high quality housing and infrastructure to support growth
- Continue to provide innovation. Be an incubator and centre for learning
- Develop/enhance future transport network.

Policy GG6 Increasing Efficiency and resilience
- Improve energy efficiency, movement toward low carbon, circular economy. Target of zero carbon city by 2050.
- Buildings/infrastructure resilient against a changing climate, efficient use of water, reduction of impact from natural hazards such as flooding and heatwaves
- Avoid contribution to the heat island effect.
- Safe and secure environments, resilient against impacts such as fire/terrorism etc.
- Stakeholder contributions taken from all relevant public, private, community sectors.

Policy D1 London's form and characteristics
- Developments should optimise density and connectivity, be inclusive and use street spaces that have well defined public and private realm, provide outlook, privacy and amenity, be safe and secure, provide spaces for social interaction, play relaxation and physical activity.
- Provide and facilitate active travel with convenient and inclusive pedestrian and cycling routes.
- Mitigate or prevent the impacts of noise and poor air quality.
- Development design should respond to local context by delivering developments of appropriate scale, appearance and shape that responds successfully to the character of the local area.
- Be of high quality architecture that includes flexibility and appropriate building lifespan, delivering attractive robust materials that will mature well.
- Respect/enhance the heritage assets
- Maximise opportunities for urban greening to create attractive resilient places that effectively manage surface water.
- Achieve comfortable indoor and outdoor environments.

Policy D2 Delivering good design
- Boroughs should determine Development Plans and Strategies that include a wide range of physical and socio economic factors.
- Development should inform the type and scale of development projects taking account of:
  - Design analysis and visualisation
  - Design quality and development certainty
  - Design scrutiny
  - Managing design quality

Policy D3 Inclusive design
Deliver an inclusive environment and meet the needs of all Londoners: Proposals to be accessible and inclusive to allow development that can be entered and used safely (and with dignity by all), are convenient and welcoming with no disabling barriers. That can provide independent access without undue effort separation or special treatment including safe and dignified emergency evacuation to all users.

Policy D7 Public realm

- Development plans should ensure they are of good design, including being safe attractive spaces, landscaping, planting etc. The spaces should maximise the contributions public realm can make to active travel, discouraging travel by car and excessive on street parking, traffic noise etc.
- Public realm should develop sense of place and enhance relationships between the realm and its surrounding buildings.
- Incorporate Green Infrastructure to support rainwater/surface water management, exposure to air pollution, urban heat island and nature corridors
- Create spaces that are attractive and encouraging for community events.

Policy D8 Tall buildings
Tall building locations should be considered as part of development plans, identifying where tall buildings would be appropriate and their potential heights. Visual, Functional and Environmental Impact should be fully considered and include Wind, daylight, sunlight penetration and temperature conditions. The buildings must not compromise comfort or enjoyment of open spaces including around the building, air movement around the building and the building itself should not reduce the quality of surrounding spaces in terms of noise and air pollution.

Cumulative impacts from consented buildings should be fully included.

Policy D12 Agent of Change
Particularly in reference to the noise environment, the Agent of Change aims to encourage mitigation of existing impacts through the design of the Proposed Development (particularly in the case of residential development).

Policy D13 Noise
- Reduce manage and mitigate noise levels. The policy aims to encourage the use of the Agent of Change principle to ensure measures do not unduly impact on existing noise levels. Where levels unduly impact on the development, mitigation of the existing noise levels is considered.
- Noise levels of the development itself are limited. Quiet areas and spaces of Tranquillity are protected, and if possible improved and enhanced. Separation of new noise sensitive development from major noise sources, through the use of distance, screening or internal layout in preference to using sound insulation is encouraged. If standards are not achieved, acoustic design principles and insulation are then encouraged.

Policy D1 London's form and characteristics
- Developments should optimise density and connectivity, be inclusive and use street spaces that have well defined public and private realm, provide outlook, privacy and amenity, be safe and secure, provide spaces for social interaction, play relaxation and physical activity.
- Provide and facilitate active travel with convenient and inclusive pedestrian and cycling routes.
- Mitigate or prevent the impacts of noise and poor air quality.
- Development design should respond to local context by delivering developments of appropriate scale, appearance and shape that responds successfully to the character of the local area.
- Be of high quality architecture that includes flexibility and appropriate building lifespan, delivering attractive robust materials that will mature well.
- Respect/enhance the heritage assets
- Maximise opportunities for urban greening to create attractive resilient places that effectively manage surface water.
- Achieve comfortable indoor and outdoor environments.

Policy E1 Offices
- New office developments of varying sizes in new, refurbished and mixed us development types to be supported. This should be based on the anticipated demand for office floorspace to 2041 (100% increase by 2041).
- Spatial development areas should be supported by development works for offices.

Policy G1 Green infrastructure
Green network of infrastructure to be protected and managed as integrated features across the city. Boroughs to prepare green infrastructure strategies that integrate open space provision, biodiversity, flood management, health and wellbeing and sports and recreation.

Policy G5 Urban greening
Major development should contribute to greening as a fundamental part of the design. Boroughs to develop urban greening factor to identify appropriate level for new development proposals.

Policy G6 Biodiversity and access to nature
- Site of importance should be fully protected, including identifying all relevant areas within the proximity of any development proposals. Any locations or linkages that may be impacted upon by development proposals should be assessed and mitigated.
- Proposals should seek to create or enhance habitats of relevance in an urban context.
- Where harm is identified to be unavoidable, a hierarchy approach should be taken to limit the proposed damage as much as possible.

Policy G7 Trees and woodlands
- Trees should be protected wherever possible with new trees provided wherever possible to increase the urban forest proportion.
- Boroughs to identify locations for strategic tree planting.

Policy SI2 Minimising Greenhouse Gas Emissions
A. Major development should be net zero-carbon. This means reducing carbon dioxide emissions from construction and operation, and minimising both annual and peak energy demand in accordance with the following energy hierarchy:

- Be lean: use less energy and manage demand during construction and operation.
- Be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly. Development in Heat Network Priority Areas should follow the heating hierarchy in Policy SI3 Energy infrastructure.
- Be green: generate, store and use renewable energy on-site.

As a minimum, energy strategies should contain the following information:

- A calculation of the energy demand and carbon dioxide emissions covered by Building Regulations and, separately, the energy demand and carbon dioxide emissions from any other part of the development, including plant or equipment, that are not covered by the Building Regulations (i.e. the unregulated emissions), at each stage of the energy hierarchy.
- Proposals to reduce carbon dioxide emissions beyond Building Regulations through the energy efficient design of the site, buildings and services, whether it is categorised as a new build, a major refurbishment or a consequential improvement.
- Proposals to further reduce carbon dioxide emissions through the use of zero or low-emission decentralised energy where feasible, prioritising connection to district heating and cooling networks and utilising local secondary heat sources. (Development in Heat Network Priority Areas should follow the heating hierarchy in Policy SI3 Energy infrastructure).
- Proposals to further reduce carbon dioxide emissions through the generation and use of on-site renewable energy, utilising storage technologies where appropriate.

- Proposals to address air quality risks (see Policy SI1 Improving air quality). Where an air quality assessment has been undertaken, this could be referenced instead.
- The results of dynamic overheating modelling which should be undertaken in line with relevant Chartered Institution of Building Services Engineers (CIBSE) guidance, along with any mitigating actions (see Policy SI4 Managing heat risk).
- Proposals for demand-side response, specifically through installation of smart meters, minimising peak energy demand and promoting short-term energy storage, as well as consideration of smart grids and local micro grids where feasible.
- Proposals for how energy demand and carbon dioxide emissions post-construction will be monitored annually (for at least five years).
- Proposals explaining how the site has been future-proofed to achieve zero-carbon on-site emissions by 2050.
- Confirmation of offsetting arrangements, if required.
- Proposals to minimise the embodied carbon in construction.
- Analysis of the expected cost to occupants associated with the proposed energy strategy.

B. Major development should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy and will be expected to monitor and report on energy performance.

C. In meeting the zero-carbon target a minimum on-site reduction of at least 35 per cent beyond Building Regulations is expected. Residential development should aim to achieve 10 per cent, and non-residential development should aim to achieve 15 per cent through energy efficiency measures. Where it is clearly demonstrated that the zero-carbon target cannot be fully achieved on-site, any shortfall should be provided:

- Through a cash in lieu contribution to the relevant borough's carbon offset fund, and/or
- Off-site provided that an alternative proposal is identified and delivery is certain.

D. Boroughs must establish and administer a carbon offset fund. Offset fund payments must be ring-fenced to implement projects that deliver greenhouse gas reductions. The operation of offset funds should be monitored and reported on annually.

Policy SI3 Energy Infrastructure

A. Boroughs and developers should engage at an early stage with relevant energy companies and bodies to establish the future energy requirements and infrastructure arising from large-scale development proposals such as Opportunity Areas, Town Centres, other growth areas or clusters of significant new development.

B. Energy masterplans should be developed for large-scale development locations which establish the most effective energy supply options. Energy masterplans should identify:

- major heat loads (including anchor heat loads, with particular reference to sites such as universities, hospitals and social housing)
- heat loads from existing buildings that can be connected to future phases of a heat network
- major heat supply plant
- possible opportunities to utilise energy from waste
- secondary heat sources
- opportunities for low temperature heat networks
- possible land for energy centres and/or energy storage
- possible heating and cooling network routes
- opportunities for futureproofing utility infrastructure networks to minimise the impact from road works
- Infrastructure and land requirements for electricity and gas supplies
- Implementation options for delivering feasible projects, considering issues of procurement, funding and risk, and the role of the public sector.

C. Development Plans should:

- Identify the need for, and suitable sites for, any necessary energy infrastructure requirements including upgrades to existing infrastructure
- Identify existing heating and cooling networks and opportunities for expanding existing networks and establishing new networks.

D. Major development proposals within Heat Network Priority Areas should have a communal heating system

- The heat source for the communal heating system should be selected in accordance with the following heating hierarchy:
  - n. connect to local existing or planned heat networks
  - o. use available local secondary heat sources (in conjunction with heat pump, if required, and a lower temperature heating system)
  - p. generate clean heat and/or power from zero-emission sources
  - q. use fuel cells (if using natural gas in areas where legal air quality limits are exceeded all development proposals must provide evidence to show that any emissions related to energy generation will be equivalent or lower than those of an ultra-low NOx gas boiler)
  - r. use low emission combined heat and power (CHP) (in areas where legal air quality limits are exceeded all development proposals must provide evidence to show that any emissions related to energy generation will be equivalent or lower than those of an ultra-low NOx gas boiler)
  - s. use ultra-low NOx gas boilers.
- CHP and ultra-low NOx gas boiler communal or district heating systems should be designed to ensure that there is no significant impact on local air quality.
- Where a heat network is planned but not yet in existence the development should be designed for connection at a later date.

Policy SI4 Managing heat risk

A. Development proposals should minimise internal heat gain and the impacts of the urban heat island through design, layout, orientation and materials.

B. Major development proposals should demonstrate through an energy strategy how they will reduce the potential for overheating and reliance on air conditioning systems in accordance with the following cooling hierarchy:

- minimise internal heat generation through energy efficient design
- reduce the amount of heat entering a building through orientation, shading, albedo, fenestration, insulation and the provision of green roofs and walls
- manage the heat within the building through exposed internal thermal mass and high ceilings
- provide passive ventilation
- provide mechanical ventilation
- provide active cooling systems.

Policy SI5 Water infrastructure

- Development plans to be produced to identify areas of specific water stress. Development proposals should minimise the use of water in residential developments in line with Building Regulations. Commercial developments should achieve at least the BREEAM Excellent standard.
- Smart metering encouraged including in retrofit situations.
- Development proposals to take account of local wastewater infrastructure, reduce instanced of shared sewerage connections.

Policy SI6 Digital connectivity infrastructure

Provide sufficient digital infrastructure to allow for current and future connections of digital infrastructure. Use public realm features, such as street furniture to camouflage mobile digital infrastructure

Policy SI7 Reducing waste and supporting the circular economy
Waste reduction, improved recycling rates and improved reuse rates are targeted by:

- Promotion of a circular economy, improving resource efficiency and innovation, encourages waste minimisation waste avoidance through reuse of materials and through using fewer resources in the production and distribution of products.
- Target of zero biodegradable or recyclable waste to landfill by 2026.
- Recycling targets for London in line with the below:
  - Municipal waste: 65% by 2030.
  - Construction, demolition and excavation waste: 95% by 2020
- Applications where relevant to include a circular economy statement identifying how above aims will be achieved.

London Borough of Richmond upon Thames.

The policies of the London Borough of Richmond upon Thames (LBRuT) applicable to the Proposed Development are contained in the development plan. The following documents have been reviewed:

- London Borough of Richmond upon Thames (LBRuT) Local Plan (2018)

Local Plan Policy (LP)10: Local Environmental Impacts, Pollution and Land Contamination
The Council will seek to ensure that local environmental impacts of all development proposals do not lead to detrimental effects on the health, safety and the amenity of existing and new users or occupiers of the development site, or the surrounding land. These potential impacts can include, but are not limited to, air pollution, noise and vibration, light pollution, odours and fumes, solar glare and solar dazzle as well as land contamination.

Developers should follow any guidance provided by the Council on local environmental impacts and pollution as well as on noise generating and noise sensitive development. Where necessary, the Council will set planning conditions to reduce local environmental impacts on adjacent land uses to acceptable levels.

Air Quality

The Council promotes good air quality design and new technologies. Developers should secure at least 'Emissions Neutral' development. To consider the impact of introducing new developments in areas already subject to poor air quality, the following will be required:

1. an air quality impact assessment, including where necessary, modelled data;
2. mitigation measures to reduce the development's impact upon air quality, including the type of equipment installed, thermal insulation and ducting abatement technology;
3. measures to protect the occupiers of new developments from existing sources;
4. strict mitigation for developments to be used by sensitive receptors such as schools, hospitals and care homes in areas of existing poor air quality; this also applies to proposals close to developments used by sensitive receptors.

Noise and Vibration

The Council encourages good acoustic design to ensure occupiers of new and existing noise sensitive buildings are protected. The following will be required, where necessary:

1. a noise assessment of any new plant and equipment and its impact upon both receptors and the general background noise levels;
2. mitigation measures where noise needs to be controlled and managed;
3. time limits and restrictions for activities where noise cannot be sufficiently mitigated;
4. promotion of good acoustic design and use of new technologies;
5. measures to protect the occupiers of new developments from existing sources.

Light Pollution

The Council will seek to ensure that artificial lighting in new developments does not lead to unacceptable impacts by requiring the following, where necessary:

1. an assessment of any new lighting and its impact upon any receptors;
2. mitigation measures, including the type and positioning of light sources;
3. promotion of good lighting design and use of new technologies.

Odours and Fume Control

The Council will seek to ensure that any potential impacts relating to odour and fumes from commercial activities are adequately mitigated by requiring the following:

1. an impact assessment where necessary;
2. the type and nature of filtration to be used;
3. the height and position of any chimney or outlet;
4. promotion and use of new abatement technologies;

Land Contamination

The Council promotes, where necessary, the remediation of contaminated land where development comes forward. Potential contamination risks will need to be properly considered and adequately mitigated before development proceeds.

Construction and demolition

The Council will seek to manage and limit environmental disturbances during construction and demolition as well as during excavations and construction of basements and subterranean developments. To deliver this the Council requires the submission of Construction Management Statements (CMS) for the following types of developments:

1. all major developments;
2. any basement and subterranean developments;
3. developments of sites in confined locations or near sensitive receptors; or
4. if substantial demolition/excavation works are proposed.

Where applicable and considered necessary, the Council may seek a bespoke charge specific to the proposal to cover the cost of monitoring the CMS.

Local Plan Policy (LP)12: Green Infrastructure
Green infrastructure is a network of multi-functional green spaces and green features, which provides multiple benefits for people, nature and the economy.

To ensure all development proposals protect, and where opportunities arise enhance, green infrastructure, the following will be taken into account when assessing development proposals:

1. the need to protect the integrity of the green spaces and features that are part of the wider green infrastructure network; improvements and enhancements to the green infrastructure network are supported;

2. its contribution to the wider green infrastructure network by delivering landscape enhancement, restoration or re-creation;
3. incorporating green infrastructure features, which make a positive contribution to the wider green infrastructure network.

The hierarchy of open spaces, as set out in the table within the local plan, will be protected and used in accordance with the functions shown.

Local Plan Policy (LP)15: Biodiversity

The Council will protect and enhance the borough's biodiversity, in particular, but not exclusively, the sites designated for their biodiversity and nature conservation value, including the connectivity between habitats. Weighted priority in terms of their importance will be afforded to protected species and priority species and habitats including National Nature Reserves, Sites of Special Scientific Interest (SSSI) and Other Sites of Nature Importance as set out in the Biodiversity Strategy for England, and the London and Richmond upon Thames Biodiversity Action Plans. This will be achieved by:

1. protecting biodiversity in, and adjacent to, the borough's designated sites for biodiversity and nature conservation importance (including buffer zones), as well as other existing habitats and features of biodiversity value;
2. supporting enhancements to biodiversity;
3. incorporating and creating new habitats or biodiversity features, including trees, into development sites and into the design of buildings themselves where appropriate; major developments are required to deliver net gain for biodiversity, through incorporation of ecological enhancements, wherever possible;
4. ensuring new biodiversity features or habitats connect to the wider ecological and green infrastructure networks and complement surrounding habitats;
5. enhancing wildlife corridors for the movement of species, including river corridors, where opportunities arise; and
6. maximising the provision of soft landscaping, including trees, shrubs and other vegetation that support the borough-wide Biodiversity Action Plan.

Where development would impact on species or a habitat, especially where identified in the relevant Biodiversity Action Plan at London or local level, or the Biodiversity Strategy for England, the potential harm should:

1. firstly be avoided (the applicant has to demonstrate that there is no alternative site with less harmful impacts),
2. secondly be adequately mitigated; or
3. as a last resort, appropriately compensated for.

Local Plan Policy (LP)16: Trees, Woodlands and Landscape

The Council will require the protection of existing trees and the provision of new trees, shrubs and other vegetation of landscape significance that complement existing, or create new, high quality green areas, which deliver amenity and biodiversity benefits.

To ensure development protects, respects, contributes to and enhances trees and landscapes, the Council, when assessing development proposals, will:

Trees and Woodlands

1. 1. resist the loss of trees, including aged or veteran trees, unless the tree is dead, dying or dangerous; or the tree is causing significant damage to adjacent structures; or the tree has little or no amenity value; or felling is for reasons of good arboricultural practice; resist development that would result in the loss or deterioration of irreplaceable habitat such as ancient woodland;
2. resist development which results in the damage or loss of trees that are considered to be of townscape or amenity value; the Council will require that site design or layout ensures a harmonious relationship between trees and their surroundings and will resist development which will be likely to result in pressure to significantly prune or remove trees;
3. require, where practicable, an appropriate replacement for any tree that is felled; a financial contribution to the provision for an off-site tree in line with the monetary value of the existing tree to be felled will be required in line with the 'Capital Asset Value for Amenity Trees' (CAVAT);
4. require new trees to be of a suitable species for the location in terms of height and root spread, taking account of space required for trees to mature; the use of native species is encouraged where appropriate;
5. require that trees are adequately protected throughout the course of development, in accordance with British Standard 5837 (Trees in relation to design, demolition and construction – Recommendations).

The Council may serve Tree Preservation Orders or attach planning conditions to protect trees considered to be of value to the townscape and amenity and which are threatened by development.

Landscape

1. require the retention of important existing landscape features where practicable;
2. require landscape design and materials to be of high quality and compatible with the surrounding landscape and character; and
3. encourage planting, including new trees, shrubs and other significant vegetation where appropriate.

Local Plan Policy (LP)17: Green roofs and walls

Green roofs and/or brown roofs should be incorporated into new major developments with roof plate areas of 100sqm or more where technically feasible and subject to considerations of visual impact. The aim should be to use at least 70% of any potential roof plate area as a green / brown roof.

The onus is on an applicant to provide evidence and justification if a green roof cannot be incorporated. The Council will expect a green wall to be incorporated, where appropriate, if it has been demonstrated that a green / brown roof is not feasible.

The use of green / brown roofs and green walls is encouraged and supported in smaller developments, renovations, conversions and extensions.

Local Plan Policy (LP)20: Climate Change Adaption

The Council will promote and encourage development to be fully resilient to the future impacts of climate change in order to minimise vulnerability of people and property.

New development, in their layout, design, construction, materials, landscaping and operation, should minimise the effects of overheating as well as minimise energy consumption in accordance with the following cooling hierarchy:

1. minimise internal heat generation through energy efficient design
2. reduce the amount of heat entering a building in summer through shading, reducing solar reflectance, fenestration, insulation and green roofs and walls
3. manage the heat within the building through exposed internal thermal mass and high ceilings
4. passive ventilation
5. mechanical ventilation
6. active cooling systems (ensuring they are the lowest carbon options).

Opportunities to adapt existing buildings, places and spaces to the likely effects of climate change should be maximised and will be supported.

Local Plan Policy (LP)21: Flood Risk and Sustainable Drainage

All developments should avoid, or minimise, contributing to all sources of flooding, including fluvial, tidal, surface water, groundwater and flooding from sewers, taking account of climate change and without increasing flood risk elsewhere. Development will be guided to areas of lower risk by applying the 'Sequential Test' as set out in national policy guidance, and where necessary, the 'Exception Test' will be applied.

Unacceptable developments and land uses will be refused in line with national policy and guidance, the Council's Strategic Flood Risk Assessment (SFRA) and as outlined in the table within the policy.

In Flood Zones 2 and 3, all proposals on sites of 10 dwellings or more or 1000sqm of non-residential development or more, or on any other proposal where safe access/egress cannot be achieved, a Flood Emergency Plan must be submitted.

Where a Flood Risk Assessment is required, on-site attenuation to alleviate fluvial and/or surface water flooding over and above the Environment Agency's floodplain compensation is required where feasible.

Local Plan Policy (LP)22: Sustainable Design and Construction

Developments will be required to achieve the highest standards of sustainable design and construction to mitigate the likely effects of climate change. Applicants will be required to complete the following:

1. Development of 1 dwelling unit or more, or 100sqm or more of non-residential floor space (including extensions) will be required to complete the Sustainable Construction Checklist SPD. A completed Checklist has to be submitted as part of the planning application.
2. Development that results in a new residential dwelling, including conversions, change of use, and extensions that result in a new dwelling unit, will be required to incorporate water conservation measures to achieve maximum water consumption of 110 litres per person per day for homes (including an allowance of 5 litres or less per person per day for external water consumption).
3. New non-residential buildings over 100sqm will be required to meet BREEAM ‘Excellent’ standard.
4. Proposals for change of use to residential will be required to meet BREEAM Domestic Refurbishment 'Excellent' standard (where feasible).

Reducing Carbon Dioxide Emissions

Developers are required to incorporate measures to improve energy conservation and efficiency as well as contributions to renewable and low carbon energy generation. Proposed developments are required to meet the following minimum reductions in carbon dioxide emissions:

1. All new major residential developments (10 units or more) should achieve zero carbon standards in line with London Plan policy.
2. All other new residential buildings should achieve a 35% reduction.
3. All non-residential buildings over 100sqm should achieve a 35% reduction. From 2019 all major non-residential buildings should achieve zero carbon standards in line with London Plan policy.

Targets are expressed as a percentage improvement over the target emission rate (TER) based on Part L of the 2013 Building Regulations.

This should be achieved by following the Energy Hierarchy:

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

Decentralised Energy Networks

The Council requires developments to contribute towards the Mayor of London target of 25% of heat and power to be generated through localised decentralised energy (DE) systems by 2025. The following will be required:

1. All new development will be required to connect to existing DE networks where feasible. This also applies where a DE network is planned and expected to be operational within 5 years of the development being completed.
2. Development proposals of 50 units or more, or new non-residential development of 1000sqm or more, will need to provide an assessment of the provision of on-site decentralised energy (DE) networks and combined heat and power (CHP).
3. Where feasible, new development of 50 units or more, or new non-residential development of 1000sqm or more, as well as schemes for the Proposal Sites identified in this Plan, will need to provide on-site DE and CHP; this is particularly necessary within the clusters identified for DE opportunities in the borough-wide Heat Mapping Study. Where on-site provision is not feasible, provision should be made for future connection to a local DE network should one become available.

Applicants are required to consider the installation of low, or preferably ultra-low, NOx boilers to reduce the amount of NOx emitted in the borough.

Local opportunities to contribute towards decentralised energy supply from renewable and low-carbon technologies will be encouraged where appropriate.

Local Plan Policy (LP)23: Water Resources and Infrastructure

The borough’s water resources and supplies will be protected by resisting development proposals that would pose an unacceptable threat to the borough's rivers, surface water and groundwater quantity and quality. This includes pollution caused by water run-off from developments into nearby waterways.

Water Quality

The Council encourages proposals that seek to increase water availability or protect and improve the quality of rivers or groundwater.

The development or expansion of water supply or waste water facilities will normally be permitted, either where needed to serve existing or proposed new development, or in the interests of long term water supply and waste water management, provided that the need for such facilities outweighs any adverse land use or environmental impact.

Where rivers have been classified by the Environment Agency as having ‘poor’ status, any development affecting such rivers is encouraged to improve the water quality in these areas.

Water and sewerage provision

New major residential or major non-residential development will need to ensure that there is adequate water supply, surface water, foul drainage and sewerage treatment capacity to serve the development. Planning permission will only be granted for developments which increase the demand for off-site service infrastructure where:

- sufficient capacity already exists, or
- extra capacity can be provided in time to serve the development, which will ensure that the environment and the amenities of local residents are not adversely affected.

Applicants for major developments will be required to provide evidence in the form of written confirmation as part of the planning application that capacity exists in the public sewerage and water supply network to serve their development.

Any new water supply, sewerage or waste water treatment infrastructure must be in place prior to occupation of the development. Financial contributions may be required for new developments towards the provision of, or improvements to, such infrastructure.

Local Plan Policy (LP)24: Waste Management

The Council will ensure that waste is managed in accordance with the waste hierarchy, which is to reduce, reuse or recycle waste as close as possible to where it is produced. The Council will require the following:

- All developments, including conversions and changes of use are required to provide adequate refuse and recycling storage space and facilities, which allows for ease of collection and which residents and occupiers can easily access, in line with the guidance and advice set out in the Council's SPD on Refuse and Recycling Storage Requirements.
- All developments need to ensure that the management of waste, including the location and design of refuse and recycling facilities, is sensitively integrated within the overall design of the scheme, in accordance with policies on Local Character and Design.
- Development proposals, where appropriate, should make use of the rail and the waterway network for the transportation of construction, demolition and other waste. Development proposals in close proximity to the river should utilise the river for the transport of construction materials and waste where practicable.
- All major developments, and where appropriate developments that are likely to generate large amounts of waste, are required to produce site waste management plans to arrange for the efficient handling of construction, excavation and demolition waste and materials.

Proposals affecting existing waste management sites, as well as proposals for new or additional waste management facilities, will be assessed against the policies of the West London Waste Plan (2015).

Local Plan Policy (LP)28: Social and Community Infrastructure

The Council will work with service providers and developers to ensure the adequate provision of community services and facilities, especially in areas where there is an identified need or shortage.

New social and community infrastructure

Proposals for new or extensions to existing social and community infrastructure will be supported where:

- it provides for an identified need;
- is of a high quality and inclusive design providing access for all; and
- where practicable is provided in multi-use, flexible and adaptable buildings or co-located with other social infrastructure uses which increases public access.

Loss of social or community infrastructure

Loss of social or community infrastructure will be resisted. Proposals involving the loss of such infrastructure will need to demonstrate clearly:

- that there is no longer an identified community need for the facilities or they no longer meet the needs of users and cannot be adapted; or
- that the existing facilities are being adequately re-provided in a different way or elsewhere in a convenient alternative location accessible to the current community it supports, or that there are sufficient suitable alternative facilities in the locality; and
- the potential of re-using or redeveloping the existing site for the same or an alternative social infrastructure use for which there is a local need has been fully assessed. This should include evidence of completion of a full and proper marketing exercise of the site for a period of at least two consecutive years in line with the requirements set out in Appendix 5.

Where the Council is satisfied that the above evidence has been provided and the change of use away from social and community infrastructure use has been justified, redevelopment for other employment generating uses or affordable housing should be considered.

Impacts on existing social infrastructure

Development proposals for 10 or more residential units should assess the potential impacts on existing social and community infrastructure in order to demonstrate to the Council that there is sufficient capacity within the existing infrastructure to accommodate the needs arising from the new development.

Local Plan Policy (LP)29: Education and Training

The Council will work with partners to encourage the provision of facilities and services for education and training of all age groups to help reduce inequalities and support the local economy, by the following means:

- supporting the provision of facilities to meet the needs for primary and secondary school places as well as pre-school and other education and training facilities;
- safeguarding land and buildings in educational use;
- identifying new sites for educational uses as part of this Plan; the Council will work with landowners and developers to secure sites for pre-schools, primary and secondary schools as well as sixth forms to ensure sufficient spaces can be provided for children aged 2-18;
- encouraging the potential to maximise existing educational sites through extensions, redevelopment or refurbishment to meet identified educational needs;
- encouraging flexible and adaptable buildings, multi-use and co-location with other social infrastructure.

The Council will promote local employment opportunities and training programmes. Where the employment opportunities generated by construction as well as the end use of the development create more than 20 (Full Time Equivalent) jobs, a Local Employment Agreement, secured through a Section 106 agreement, will be required.

Local Plan Policy (LP)30: Health and Wellbeing

Planning, at all levels, can play a crucial role in creating environments that enhance people's health and wellbeing. The Council promotes and supports healthy and active lifestyles and measures to reduce health inequalities.

The Council will support development that results in a pattern of land uses and facilities that encourage:

- Sustainable modes of travel such as safe cycling routes, attractive walking routes and easy access to public transport to reduce car dependency.
- Access to green infrastructure, including river corridors, local open spaces as well as leisure, recreation and play facilities to encourage physical activity.
- Access to local community facilities, services and shops which encourage opportunities for social interaction and active living, as well as contributing to dementia-friendly environments.
- Access to local healthy food, for example, allotments and food growing spaces.
- Access to toilet facilities which are open to all in major developments where appropriate (linked to the Council's Community Toilet Scheme).
- An inclusive development layout and public realm that considers the needs of all, including the older population and disabled people.
- Active Design which encourages wellbeing and greater physical movement as part of everyday routines.

This policy will be delivered by requiring developments to comply with the following:

- A Health Impact Assessment must be submitted with all major development proposals.
- The Council will manage proposals for new fast food takeaways (A5 uses) located within 400 metres of the boundaries of a primary or secondary school in order to promote the availability of healthy foods.
- Existing health facilities will need to be retained where these continue to meet, or can be adapted to meet, residents' needs.
- Applications for new or improved facilities or loss of health and social care facilities will be assessed in line with the criteria set out in the Social and Community Infrastructure policy.

Local Plan Policy (LP)40: Employment and local economy

The Council will support a diverse and strong local economy in line with the following principles:

- Land in employment use should be retained in employment use for business, industrial or storage purposes.
- Major new employment development should be directed towards Richmond and Twickenham centres. Other employment floorspace of an appropriate scale may be located elsewhere.

- The provision of small units, affordable units and flexible workspace such as co-working space is encouraged.
- In exceptional circumstances, mixed use development proposals which come forward for specific employment sites should retain, and where possible enhance, the level of existing employment floorspace. The inclusion of residential use within mixed use schemes will not be appropriate where it would adversely impact on the continued operation of other established employment uses within that site or on neighbouring sites.

Local Plan Policy (LP)44: Sustainable Travel Choices

The Council will work in partnership to promote safe, sustainable and accessible transport solutions, which minimise the impacts of development including in relation to congestion, air pollution and carbon dioxide emissions, and maximise opportunities including for health benefits and providing access to services, facilities and employment. The Council will:

Location of development

Encourage high trip generating development to be located in areas with good public transport with sufficient capacity, or which are capable of supporting improvements to provide good public transport accessibility and capacity, taking account of local character and context.

Walking and cycling

Ensure that new development is designed to maximise permeability within and to the immediate vicinity of the development site through the provision of safe and convenient walking and cycling routes, and to provide opportunities for walking and cycling, including through the provision of links and enhancements to existing networks.

Public transport

Ensure that major new developments maximise opportunities to provide safe and convenient access to public transport services. Proposals will be expected to support improvements to existing services and infrastructure where no capacity currently exists or is planned to be provided.

Protect existing public transport interchange facilities unless suitable alternative facilities can be provided which ensure the maintenance of the existing public transport operations. Applications will need to include details setting out how such re-provision will be secured and provided in a timely manner.

The road network

Ensure that new development does not have a severe impact on the operation, safety or accessibility to the local or strategic highway networks. Any impacts on the local or strategic highway networks, arising from the development itself or the cumulative effects of development, including in relation to on-street parking, should be mitigated through the provision of, or contributions towards, necessary and relevant transport improvements.

In assessing planning applications the cumulative impacts of development on the transport network will be taken into account. Planning applications will need to be supported by the provision of a Transport Assessment if it is a major development, and a Transport Statement if it is a minor development.

Safeguarding of routes and facilities

Land required for proposed transport schemes as identified in the London Plan and the Council's Local Implementation Plan for Transport will be protected from developments which would prevent their proper implementation.

Local filling stations and supporting services such as car repair facilities will be protected from redevelopment for alternative uses unless exceptional circumstances can be demonstrated that warrant their loss.

Appendix D: LBRuT sustainability checklist.

LBRUT Sustainable Construction Checklist - June 2020

This document forms part of the Sustainable Construction Checklist SPD. This document **must** be filled out as part of the planning application for the following developments: all residential development providing **one or more new residential units (including conversions leading to one or more new units)** , and all other forms of development providing **100sqm or more of non-residential floor space**. Developments including new non-residential development of less than 100sqm floor space, extensions less than 100sqm, and other conversions are strongly encouraged to comply with this checklist. Where further information is requested, please either fill in the relevant section, or refer to the document where this information may be found in detail, e.g. Flood Risk Assessment or similar. **Further guidance** on completing the Checklist may be found in the Justification and Guidance section of this SPD.

Property Name (if relevant): Former Stag Brewery

Application No. (if known):

Address (include. postcode)

Completed by: Hoare Lea

For Non-Residential
Size of development (m2): 22077

For Residential
Number of dwellings: 571

1 MINIMUM COMPLIANCE (RESIDENTIAL AND NON-RESIDENTIAL)

Energy Assessment

Has an energy assessment been submitted that demonstrates the expected energy and carbon dioxide emissions saving from energy efficiency and renewable energy measures, including the feasibility of CHP/CCHP and community heating systems? If yes, please select TRUE. — TRUE

Carbon Dioxide emissions reduction

What is the on site carbon dioxide emissions reduction against a Building Regulations Part L (2013) baseline — 73 %
Policy LP 22 B. and Draft London Plan Policy 9.2.5 require a 35% onsite reduction in CO_2 emissions beyond Building Regulations 2013.

What is the percentage reduction from efficiency measures alone — 10 %
Policy LP 22 C. and Draft London Plan Policy 9.2.6 require a 10% onsite reduction in CO2 emissions beyond Building Regulations 2013 from efficiency measures for residential and 15% for non-residential.

Percentage of **total** site CO2 emissions saved through renewable energy installation? — 63 %

What is the total remaining carbon to be offset — 459 Tonne
Policy LP 22 B. and Draft London Plan Policy 9.2.4 require Major developments to achieve Zero Carbon after offsetting.

Are remaining emissions going to be offset through offset fund payment in accordance with current guidelines issued for the cost per tonne of CO2? — TRUE

What is the total predicted cost of offset? — 1307856 £
The London Plan sets this as £95/tonne per year over 30 years, this should be updated based on As Build calculations.

1A MINIMUM POLICY COMPLIANCE (NON-RESIDENTIAL AND DOMESTIC REFURBISHMENT)

Please check the Guidance Section of this SPD for the policy requirements

Environmental Rating of development:

Non-Residential new-build (100sqm or more)
BREEAM Level: **Excellent** — Have you attached a pre-assessment to support this?
Excellent required under Policy LP22 A 3

Extensions and conversions for residential dwellings
BREEAM Domestic Refurbishment: **Excellent** — Have you attached a pre-assessment to support this?
Excellent required under Policy LP22 A 4

Extensions and conversions for non-residential buildings
BREEAM Level: **Please Select** — Have you attached a pre-assessment to support this?
Excellent required under Policy LP 22

Score awarded for Environmental Rating:
BREEAM: Good = *0*, Very Good = 4, Excellent = *8*, Outstanding = *16*

Subtotal 16

1B MINIMUM POLICY COMPLIANCE (RESIDENTIAL)

Score

Water Usage

Internal water usage after gray/rainwater systems limited to 105 litres person per day. (Excluding an allowance 5 litres per person per day for external water consumption). Calculations using the water efficiency calculator for new dwellings have been submitted. — *1*
110l/p/d Required for new dwellings under Policy LP22 A 2 105l/p/d required under Draft London Plan Policy SI5

Subtotal 1

2. ENERGY USE AND POLLUTION

2.1 Need for Cooling

		Score
a.	How does the development incorporate cooling measures? Tick all that apply:	
	Energy efficient design incorporating specific heat demand to less than or equal to 15 kWh/sqm	*6*
	Reduce heat entering a building through providing/improving insulation and living roofs and walls	*2*
	Reduce heat entering a building through shading	*3*
	Exposed thermal mass and high ceilings	*4*
	Passive ventilation	*3*
	Mechanical ventilation with heat recovery	*1*
	Active cooling systems, i.e. Air Conditioning Unit	*0*
	See Draft London Plan SI4	

2.2 Heat Generation

		Score
b.	How have the heating and cooling systems, with preference to the heating system hierarchy, been selected (defined in London Plan policy **SI3)** Tick all heating and cooling systems that will be used in the development:	
	Connection to existing heating or cooling networks powered by renewable energy	*6*
	Connection to existing heating or cooling networks powered by gas or electricity	*5*
	Site wide CHP network powered by renewable energy	*4*
	Site wide CHP network powered by gas	*3*
	Communal heating and cooling powered by renewable energy	*2*
	Communal heating and cooling powered by gas or electricity	*1*
	Individual heating and cooling	*0*
	See Draft London Plan SI3	

2.3 Pollution: Air, Noise and Light

a.	Does the development plan to implement reduction strategies for dust emissions from construction sites?	*2*
b.	Does the development plan to include a biomass boiler?	
	If yes, please refer to the biomass guidelines for the Borough of Richmond, please see guidance for supplementary information. If the proposed boiler is of a qualifying size, you may need to complete the information request form found on the Richmond website.	
c.	Has an air quality impact assessment been provided	
	If yes, has 'Emissions Neutral' been achieved	*1*
	If yes, have occupants of new development been protected from existing pollution	*1*
	If no to any of the above are there any sensitive receptors as defined in Policy LP 10 present?	*-1*
	see Policy LP 10	
d.	Please tick only one option below	
	Has the development taken measures to reduce existing noise and enhance the existing soundscape of the site?	*3*
	Has the development taken care to not create any new noise generation/transmission issues in its intended operation?	*1*
	see Policy LP 10	
e.	Has the development taken measures to reduce light pollution impacts on character, residential amenity and biodiversity?	*3*
	see Policy LP 10	
f.	Have you attached a Lighting Pollution Report?	*-*

Subtotal **23**

Please give any additional relevant comments to the Energy Use and Pollution Section below

The Energy Strategy submitted in support of the applications provides more detail on the Energy Use of the Proposed Development. The Environmental Statement Chapter 10 proivdes more information on the air quality impacts of the Proposed Development. Chapter 9 provides additional information on the Noise and Vibration assessment. A Lighting Statement also provides further information on the impact of the Proposed Development.

3. TRANSPORT

3.1 Provision for the safe efficient and sustainable movement of people and goods

a. Does your development provide opportunities for occupants to use innovative travel technologies?

Please explain:

EV charging provision.

		Score
b.	Does your development provide for 100% active provision for electric vehicle charging point(s) and have you successfully demonstrated that it would be able to operate satisfactorily in the future expectation of all vehicles being electrically powered?	*2*
c.	**For major developments ONLY**: Has a Transport Assessment been produced for your development based on TfL's Best Practice Guidance?	
	If you have provided a Transport Assessment as part of your planning application, please tick here and move to Section 3 of this Checklist.	*5*
	See policy LP44	
d.	**For smaller developments ONLY**: Have you provided a Transport Statement?	*5*
e.	Does your development provide cycle storage? (Standard space requirements are set out in the Council's Parking Standards - Local Plan Appendix 3)	*2*
	If so, for how many bicycles?	**1565**
	Is this shown on the site plans?	
	See Local Plan Appendix 3	
f.	Will the development create or improve links with local and wider transport networks? If yes, please provide details.	*2*

Subtotal **9**

Please give any additional relevant comments to the Transport Section below

The Transport Strategy provides detaield information on the meausres employed to provide transport options for the occupants of the site.

4 BIODIVERSITY

4.1 Minimising the threat to biodiversity from new buildings, lighting, hard surfacing and people

a. Does your development involve the loss of an ecological feature or habitat, including a loss of garden or other green space? (Indicate if yes) -2

If so, please state how much in sqm? sqm

b. Does your development involve the removal of any tree(s)? (Indicate if yes)

If so, has a tree report been provided in support of your application? (Indicate if yes)

c. Does your development plan to add (and not remove) any tree(s) on site? (Indicate if yes)

d. Please indicate which features and/or habitats that your development will incorporate to improve on site biodiversity:

Pond, reedbed or extensive native planting	6	Area provided:	sqm
An extensive green roof	5	Area provided:	sqm
An intensive green roof	4	Area provided:	sqm
Garden space	4	Area provided:	sqm
Additional native and/or wildlife friendly planting to peripheral areas	3	Area provided:	sqm
Additional planting to peripheral areas	2	Area provided:	sqm
A living wall	2	Area provided:	sqm
Bat boxes	0.5		
Bird boxes	0.5		
Swift boxes	0.5		
Other	0.5		

e. Does your development use at least 70% of available roof plate as green/brown roof 1

Policy LP 17 requires 70%

Subtotal 15

Please give any additional relevant comments to the Biodiversity Section below

Chapter 13 of the Environmental Statement sets out the Ecology of the Proposed Development. Architects plans show the propsals for Green/Brown roofs on the Proposed Development.

5 FLOODING AND DRAINAGE

5.1 Mitigating the risks of flooding and other impacts of climate change in the borough

a. Is your site located in a high flood risk zone (Zone 3)? (Indicate if yes) -2

Have you submitted a Flood Risk Assessment? (Indicate if yes)

b. Which of the following measures of the drainage hierarchy are incorporated onto your site? (tick all that apply)

Store rainwater for later use	5
Use of infiltration techniques such as porous surfacing materials to allow drainage on-site	3
Attenuate rainwater in ponds or open water features	4
Store rainwater in tanks for gradual release to a watercourse	3
Discharge rainwater directly to watercourse	2
Discharge rainwater to surface water drain	1
Discharge rainwater to combined sewer	0

Have you submitted a Drainage Statement (Indicate if yes)

See Policy LP 21 and Draft London Plan SL 13

c. Please give the change in area of permeable surfacing which will result from your development proposal: 0 sqm

Please provide details of the permeable surfacing below *please represent a loss in permeable area as a negative number*

Subtotal 8

Please give any additional relevant comments to the Flooding and Drainage Section below

Chapter 12 of the Environmental Statement provides further detail on the Flooding and Drainage of the Site.

6 IMPROVING RESOURCE EFFICIENCY

6.1 Reduce waste generated and amount disposed of by landfill though increasing level of re-use and recycling

a. Will demolition be required on your site prior to construction? *[Points will only be awarded if 10% or greater of demolition waste is reused/recycled]* 1

If so, what percentage of demolition waste will be reused in the new development? 0 %

What percentage of demolition waste will be recycled? 95 %

b. Does your site have any contaminated land? 1

Have you submitted an assessment of the site contamination?	2
Are plans in place to remediate the contamination?	2
Have you submitted a remediation plan?	1
Are plans in place to include composting on site?	1

c. Will a waste management plan and facilities be in place in line with Policy LP24 Yes

6.2 Reducing levels of water waste

a. Will the following measures of water conservation be incorporated into the development? (Please tick all that apply):

Fitting of water efficient taps, shower heads etc	1
Use of water efficient A or B rated appliances	1
Rainwater harvesting for internal use	4
Greywater systems	4
Fit a water meter	1

Subtotal 8

Please give any additional relevant comments to the Improving Resource Efficiency Section below

Chapter 6 of the Environmental Statement provides information on the Construction, Demolition and Refurbishment of the buildings on the Proposed Development.

7	ACCESSIBILITY	
7.1	**Ensure flexible adaptable and long-term use of structures**	
a.	**If the development is residential,** will it meet the requirements of the nationally described space standard for internal space and layout?	*1*
	If the standards are not met, in the space below, please provide details of the functionality of the internal space and layout	
	GLA space standard	
AND		
b.	**If the development is residential**, will it meet Building Regulation Requirement M4 (2) 'accessible and adaptable dwellings'?	*2*
	If this is not met, in the space below, please provide details of any accessibility measures included in the development.	
	For major residential developments, are 10% or more of the units in the development to Building Regulation Requirement M4 (3) 'wheelchair user dwellings'?	*1*
OR		
c.	**If the development is non-residential,** does it comply with requirements included in Richmond's Local Plan LP1, LP28.B, LP30 & LP45	*2*
	Please provide details of the accessibility measures specified in the Local Plan that will be included in the development	
	The Design and Access Statement provides more information on the accessibility measures specified at the Proposed Development	
		Subtotal **6**

Please give any additional relevant comments to the Design Standards and Accessibility Section below

The Design and Access Statement provides more information on the design standards and accessibility of the Proposed Development.

LBRUT Sustainable Construction Checklist- Scoring Matrix for *New Construction* **(Non-Residential and domestic refurb)** ***TOTAL*** ***86***

Score	Rating	Significance
84 or more	*A+*	Project strives to achieve highest standard in energy efficient sustainable development
75-83	*A*	Makes a major contribution towards achieving sustainable development in Richmond
56-74	*B*	Helps to significantly improve the Borough's stock of sustainable developments
40-55	*C*	Minimal effort to increase sustainability beyond general compliance
39 or less	*FAIL*	Does not comply with SPD Policy

LBRUT Sustainable Construction Checklist- Scoring Matrix for New Construction **Residential new-build**

Score	Rating	Significance
85 or more	A++	Project strives to achieve highest standard in energy efficient sustainable development
68-84	*A+*	Project strives to achieve higher standard in energy efficient sustainable development
59-67	*A*	Makes a major contribution towards achieving sustainable development in Richmond
39-58	*B*	Helps to significantly improve the Borough's stock of sustainable developments
24-38	*C*	Minimal effort to increase sustainability beyond general compliance
23 or less	*FAIL*	Does not comply with SPD Policy

Authorisation:

I herewith declare that I have filled in this form to the best of my knowledge

Signature _____ **Date** _____

HOARE LEA

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