SUSTAINABILITY STATEMENT

330 Gray's Inn Road

Produced by XCO2 for 330 Gray's Inn Road Ltd

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EXECUTIVE SUMMARY

The sustainability strategy for the proposed development at 330 Gray's Inn Road has been developed with the design team to comply with the relevant environmental policies from the London Borough of Camden and the London Plan. Relevant energy policies have been addressed in the accompanying Energy Statement. The proposed development is targeting the achievement of BREEAM 'Excellent' and expected to reduce on-site regulated carbon emissions by 60.0% in the domestic areas and 18.0% in the non-domestic areas of the scheme, against a Part L 2021 compliant scheme with SAP 10 emission factors.

This report outlines the sustainability strategy for the proposed mixed-use development at 330 Gray's Inn Road, in line with the requirements set out by the London Plan and the London Borough of Camden.

This sustainability statement is divided into three parts:

- Planning Policies;
- Sustainability Measures; and
- BREEAM Pre-assessment.

The first part provides an overview of the site and planning policies applicable to this development in accordance with the London Plan and relevant Camden policies.

The second part then outlines the sustainability strategy that has been employed to address the relevant planning policies.

The third part of this report outlines the sustainability measures that have been adopted to achieve a BREEAM New Construction 'Excellent' rating for the commercial areas. A summary of the pre-assessment credits for the BREEAM assessment is provided at the end of this report.

The key sustainable design and construction measures incorporated in the proposals are summarised below:

- Efficient use of land via construction on a previously developed area.
- Retention and refurbishment of the original hospital building and reuse/recycling of materials from the demolition of other buildings at the site, as far as possible.
- Reconfiguration of the public realm through the creation of new pedestrian links through the site.
- Situation of the proposed building in close proximity to a range of amenities and provision of cycle storage to encourage building occupiers to walk or cycle, with the Health Impact Assessment demonstrating that the proposed development will have an overall positive impact on the occupants and surrounding community.
- Measures to reduce energy demand through a range of active and passive measures.
- Inclusion of Air Source Heat Pumps (ASHPs), electric boilers, and Photovoltaics (PV) to deliver CO_2 savings on site, compared to a building regulations compliant baseline.
- Incorporation of water saving fixtures and fittings.
- Use of 100% FSC certified timber or timber accredited by the Programme for the Endorsement of Forestry Certification (PEFC).
- Use of low embodied carbon materials as far as practically possible, whilst also focusing on design practices to reduce waste production.
- Improvement of the ecology on site via the introduction of landscaped areas within the proposed communal courtyard and planting on land that is currently covered with hard surfacing or existing buildings.
- Commitment to complete the surveys and implement the recommended measures outlined in the preliminary ecological survey.
- The adoption of both passive and active design measures to mitigate the potential risk of overheating.
- The incorporation of SuDS, to minimise surface water run-off and flood risk.

In summary, the proposed development at 330 Gray's Inn Road meets the targets set out by the Borough of Camden and the Greater London Authority (GLA). The commercial areas of the scheme could achieve a BREEAM score varying between 73.2% and 74.9% across the, hotel and office/laboratory areas, exceeding the BREEAM 'Excellent' target of 70%.

The number of credits obtained in the BREEAM pre-assessment reflects the client and design team's aspirations in integrating sustainability measures and demonstrates that the project is designed to exceed the planning policy sustainability requirements. This is further evidenced via the developer's commitment to LEED and WELL, and the high scores targeted within these pre-assessments, which goes above and beyond planning requirements.

SITE

The proposed scheme comprises the redevelopment of the former Royal National Throat, Nose and Ear hospital site in the London Borough of Camden.

A S73 amendment application is being submitted for the proposed scheme at 330 Gray's Inn Road to reflect amendments to the previously consented scheme. The development description is outlined below.

Variation of Condition 2, 18, 31, 41 and 54 of planning permission ref 202/553/P for the 'Redevelopment of the former Royal National Throat, Nose and Ear Hospital site, comprising: Retention of 330 Gray's Inn Road and a two storey extension above for use as hotel (5 above ground storeys in total), demolition of all other buildings, the erection of a part 13 part 9 storey building plus upper and lower ground floors (maximum height of 15 storeys) for use as a hotel (including a cafe and restaurant); covered courtyard; external terraces; erection of a 7 storey building plus upper and lower ground floors (maximum height of 9 storeys) for use as office together with terraces; erection of a 10 storey building plus upper and lower ground floors (maximum height of 12 storeys) for use as residential on Wicklow Street and office space at lower ground and basement floors; erection of a 5 storey building plus upper and lower ground floors (maximum height of 7 storeys) for use as residential on Swinton Street and associated residential amenity space; together with a gymnasium; new basement; rooftop and basement plant; servicing; cycle storage and facilities; refuse storage; landscaping and other ancillary and associated works.' NAMELY to enable amendments to the approved drawings list to enable an uplift in office/labs floorspace, a reduction in affordable workspace, amendments to the landscape design of the residential garden, a revised entrances on Wicklow Street, a revised arrangement to the loading bay on Wicklow Street, reconfiguration at basement level of the office/labs building, and increased cycle parking provision, and additional basement level, reconfiguration of the roof level plant and enclosures, the addition of flues in addition to other associated works.

The site is bound to the north in part by the UCL Ear Institute and in part by Wicklow Street and railway cuttings to the east; Swinton Street to the south and Gray's Inn Road runs along the site's western boundary. The site sits towards the centre of the growing Knowledge Quarter within the eastern section of the area. Within the immediate vicinity the prevailing development is characterised by a mix of commercial, residential and hotel uses.

The site is currently occupied a number of buildings which make up the Royal National Throat, Nose and Ear (RNTNE) Hospital. The hospital closed in October 2019 when services transferred to the new Royal National ENT and Eastman Dental Hospitals on Huntley Street, London, WC1E 6DG.

The approximate location and boundary of the application site is shown in the following figure.

Site Location

N

Figure 1: Approximate location of application site

PLANNING POLICY

The proposed development at 330 Gray's Inn Road has been designed in line with the requirements set out by the London Borough of Camden as well as the London Plan.

The relevant planning policy documents for sustainability are:

- The London Plan (2021);
- Housing Supplementary Planning Guidance (2016);
- London Borough of Camden Local Plan (2017).

THE LONDON PLAN (2021)

The London Plan (2021) published 2nd March 2021 sets out the Mayor's overarching strategic spatial development strategy for greater London and underpins the planning framework from 2019 up to 2041. This document replaced the London Plan 2016.

The new Plan has a strong sustainability focus with many new policies addressing the concern to deliver a sustainable and zero carbon London.

Policy GG6 Increasing Efficiency and Resilience is an overarching policy references London's target to become zero carbon by 2050 and the need to design buildings and infrastructure for a changing climate, addressing water, flood and urban heat island.

Sustainability is a trend through the whole Plan but is particularly addressed in chapter 9 Sustainable Infrastructure. The following sections outline the key principles of sustainable design and construction to be incorporated in major proposals.

Policy SI1 Improving air quality requires development proposals to be at least air quality neutral and submit an Air Quality Assessment.

"...
Development plans, through relevant strategic, site specific and area-based policies should seek opportunities to identify and deliver further improvements to air quality and should not reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality.
..."

Any mitigation required to meet the Air Quality Neutral target should be done on site preferably.

Policy SI2 Minimising greenhouse gas emissions sets the requirements for all major developments to follow the energy hierarchy and achieve net-zero-carbon for both residential and non-residential schemes (via on-site carbon reductions and offset payments) and introduces new targets at Lean stage:

"...
This means reducing greenhouse gas emissions in operation and minimising both annual and peak energy demand in accordance with the following energy hierarchy:
1) be lean: use less energy and manage demand during operation
2) be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly
3) be green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site
4) be seen: monitor, verify and report on energy performance.
..."

"...
A minimum on-site reduction of at least 35 per cent beyond Building Regulations is required for major development. Residential development should achieve 10 per cent, and non-residential development should 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, in agreement with the borough, either:
1) through a cash in lieu contribution to the borough's carbon offset fund, or
2) off-site provided that an alternative proposal is identified and delivery is certain.
..."

This policy also sets the requirements to consider whole-life carbon emissions, including embodied carbon and unregulated emissions:

"...
Major development proposals should calculate and minimise carbon emissions from any other part of the development, including plant or equipment, that are not covered by Building Regulations, i.e. unregulated emissions.

Development proposals referable to the Mayor should calculate whole lifecycle carbon emissions through a nationally recognised Whole Life-Cycle Carbon Assessment and demonstrate actions taken to reduce life-cycle carbon emissions.
..."

The policy supporting text provides additional clarifications on the requirements for major developments:

- Developments including major refurbishments should also aim to meet the net-zero carbon target.
- All developments should maximise opportunities for on-site electricity and heat production from solar technologies (photovoltaic and thermal), use innovative building materials and smart technologies.
- Recommendation to use SAP10 carbon factors as per GLA Energy Guidance.
- Recommended carbon offset price of £95 per tonne CO_2.
- Requirement for major developments to monitor and report operational energy performance to the GLA.

Policy SI 3 Energy Infrastructure requires all major developments within Heat Network Priority Areas will need to utilise a communal low-temperature heating system. Where developments are utilising CHP this policy also requires them to demonstrate that 'the emissions relating to energy generation will be equivalent or lower than those of an ultra-low NOx gas boiler'. Any combustion on site should meet the requirements of part B of Policy SI1.

Policy SI 4 Managing heat risk requires:

A Development proposals should minimise adverse impacts on the urban heat island through design, layout, orientation, materials and the incorporation of green infrastructure.

B Major development proposals should demonstrate through an energy strategy how they will reduce the potential for internal overheating and reliance on air conditioning systems in accordance with the following cooling hierarchy:
1) reduce the amount of heat entering a building through orientation, shading, high albedo materials, fenestration, insulation and the provision of green infrastructure
2) minimise internal heat generation through energy efficient design
3) manage the heat within the building through exposed internal thermal mass and high ceilings
4) provide passive ventilation
5) provide mechanical ventilation
6) provide active cooling systems.

Policy SI5 Water infrastructure sets the requirements to manage water resources efficiently:

"...
Development proposals should:
1) through the use of Planning Conditions minimise the use of mains water in line with the Optional Requirement of the Building Regulations (residential development), achieving mains water consumption of 105 litres or less per head per day (excluding allowance of up to five litres for external water consumption)
2) achieve at least the BREEAM excellent standard for the 'Wat 01' water category or equivalent (commercial development)
3) incorporate measures such as smart metering, water saving and recycling measures, including retrofitting, to help to achieve lower water consumption rates and to maximise future-proofing.
..."

Policy SI 7 Reducing waste and supporting the circular economy introduces the notion of circular economy whereby materials are retained in use at their highest value for as long as possible. For referable applications a Circular Economy Statement demonstrating how developments promote circular economy and aim to be net zero-waste must be submitted.

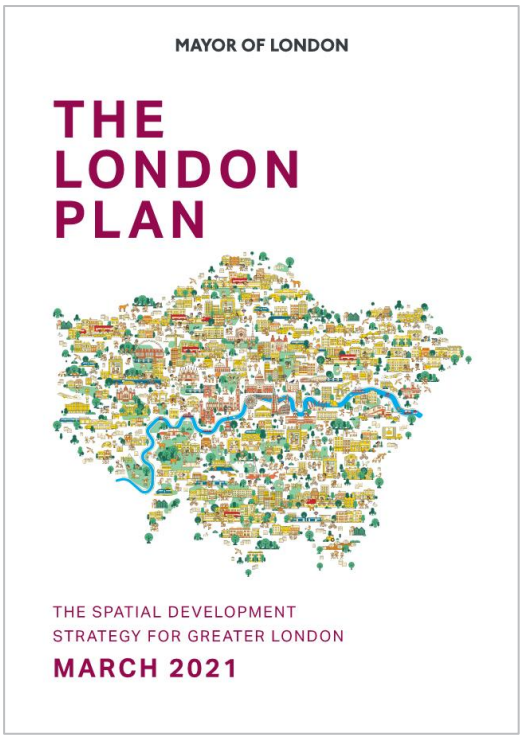
Policy SI12 Flood risk management and **Policy SI 13 Sustainable drainage** sets the requirements for development proposals to ensure that flood risk is minimised, and that sustainable drainage is incorporated. This should be pursued by integrating different strategies including natural flood management. Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible. For this green features should be employed, following the drainage hierarchy.

Policy D14 Noise requires that noise impacts are minimised and mitigated to avoid any adverse impacts on health and quality of life and to reflect the principles set in **Policy D13 Agent of Change** that "*places the responsibility for mitigating impacts from existing noise and other nuisance-generating activities or uses on the proposed new noise-sensitive development.*"

Policy G5 Urban greening requires major developments to contribute to greening of London assessed by an Urban Greening Factor (UGF).

Boroughs should develop their UGF but *"the Mayor recommends a target score of 0.4 for developments that are predominately residential, and a target score of 0.3 for predominately commercial development (excluding B2 and B8 uses)."*

Separate guidance on UGF is under consultation in Spring/Summer 2021.



Policy G6 Biodiversity and access to nature states:

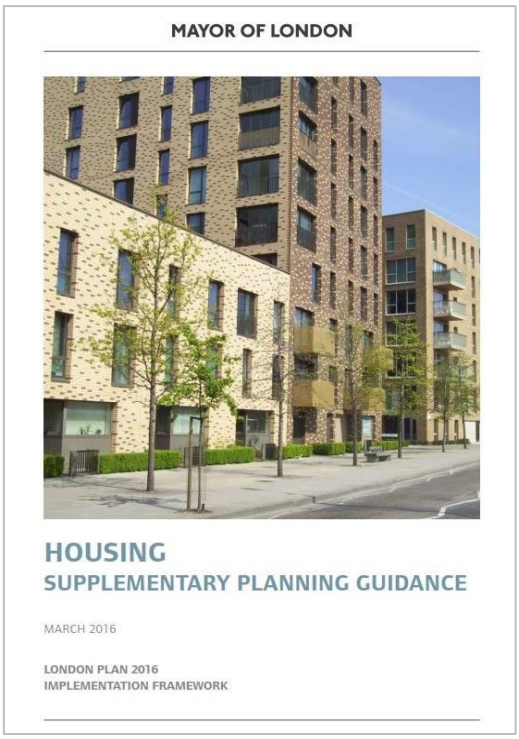
"…
Development proposals should manage impacts on biodiversity and aim to secure net biodiversity gain. This should be informed by the best available ecological information and addressed from the start of the development process.
…"

HOUSING SPG

This document provides guidance on the implementation of housing policies in the London Plan and it replaces the 2012 Housing SPG.

Part 2 covers housing quality and updates London housing standards to reflect the implementation of the government's new national technical standards through the Minor Alterations to the London Plan (2015-2016).

As design affects the quality of life, health & wellbeing, safety and security of users and neighbours, this guidance is integral to sustainable development and will be cross-referenced as relevant in the subsequent sections.



LOCAL BOROUGH POLICY

CAMDEN LOCAL PLAN (2017)

The Camden Local Plan, adopted in 2017, sets out the following policies for energy and sustainability:

Policy C1 Health and Wellbeing sets out how the council will "*improve and promote strong, vibrant and healthy communities through ensuring a high quality environment with local services to support health, social and cultural wellbeing and reduce inequalities.*" It is noted that measures to contribute to healthier communities and reduce health inequalities will need to be incorporated in a development where appropriate.

It is noted that the council will require the following:

"...
1) development to positively contribute to creating high quality, active, safe and accessible places; and
2) proposals for major development schemes to include a Health Impact Assessment (HIA).
..."

It is highlighted that that the council will:

"...
3) contribute towards the health priorities of the Health and Wellbeing Board and partners to help reduce health inequalities across the borough;
4) support the provision of new or improved health facilities, in line with Camden's Clinical Commissioning Group and NHS England requirements; and
5) protect existing health facilities in line with Policy C2 Community facilities.
..."

Policy A3 Biodiversity notes that "*the Council will protect and enhance sites of nature conservation and biodiversity*", through:

"...
1) designating and protecting nature conservation sites and safeguarding protected and priority habitats and species;
2) granting permission for development unless it would directly or indirectly result in the loss or harm to a designated nature conservation site or adversely affect the status or population of priority habitats and species;
3) seeking the protection of other features with nature conservation value, including gardens, wherever possible;
4) assessing developments against their ability to realise benefits for biodiversity through the layout, design and materials used in the built structure and landscaping elements of a proposed development, proportionate to the scale of development proposed;
5) securing improvements to green corridors, particularly where a development scheme is adjacent to an existing corridor;
6) seeking to improve opportunities to experience nature, in particular where such opportunities are lacking;
7) requiring the demolition and construction phase of development, including the movement of works vehicles, to be planned to avoid disturbance to habitats and species and ecologically sensitive areas, and the spread of invasive species;
8) securing management plans, where appropriate, to ensure that nature conservation objectives are met; and
9) working with The Royal Parks, The City of London Corporation, the London Wildlife Trust, friends of park groups and local nature conservation groups to protect and improve open spaces and nature conservation in Camden.
..."

In relation to trees and vegetation, it is noted that the Council will protect, and seek to secure additional trees and vegetation. It is noted that the Council will:

"...
1) resist the loss of trees and vegetation of significant amenity, historic, cultural or ecological value including proposals which may threaten the continued wellbeing of such trees and vegetation;
2) require trees and vegetation which are to be retained to be satisfactorily protected during the demolition and construction phase of development in line with BS5837:2012 'Trees in relation to Design, Demolition and Construction' and positively integrated as part of the site layout;
3) expect replacement trees or vegetation to be provided where the loss of significant trees or vegetation or harm to the wellbeing of these trees and vegetation has been justified in the context of the proposed development;
4) expect developments to incorporate additional trees and vegetation wherever possible.
..."

Policy A4 concerns **Noise and Vibration.** It is noted that "*the Council will seek to ensure that noise and vibration is controlled and managed".* It is noted that "*development should have regard to Camden's Noise and Vibration Thresholds".* It is added that *[the Council] will not grant planning permission for:*

"…
1) development likely to generate unacceptable noise and vibration impacts; or
2) development sensitive to noise in locations which experience high levels of noise, unless appropriate attenuation measures can be provided and will not harm the continued operation of existing uses
…"

Finally, it is noted that "*[the council] will only grant permission for noise generating development, including any plant and machinery, if it can be operated without causing harm to amenity. We will also seek to minimise the impact on local amenity from deliveries and from the demolition and construction phases of development."*

Policy CC1 is focused on **Climate Change Mitigation.** As part of this policy, the Council will require *"all development to minimise the effects of climate change and encourage all developments to meet the highest feasible environmental standards that are financially viable during construction and occupation."*

It is noted that the Council will:

"…
1) *promote zero carbon development and require all development to reduce carbon dioxide emissions through following the steps in the energy hierarchy;*
2) *require all major development to demonstrate how London Plan targets for carbon dioxide emissions have been met;*
3) *ensure that the location of development and mix of land uses minimise the need to travel by car and help to support decentralised energy networks;*
4) *support and encourage sensitive energy efficiency improvements to existing buildings;*
5) require all proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building;
6)*expect all developments to optimise resource efficiency.*
…"

In relation to decentralised energy networks, it is noted that the council will promote decentralised energy by:

"…
1) *working with local organisations and developers to implement decentralised energy networks in the parts of Camden most likely to support them;*
2) *protecting existing decentralised energy networks (e.g. at Gower Street, Bloomsbury, King's Cross, Gospel Oak and Somers Town) and safeguarding potential network routes; and*
3) *requiring all major developments to assess the feasibility of connecting to an existing decentralised energy network, or where this is not possible establishing a new network.*
…"

Finally, it is highlighted that "*to ensure that the Council can monitor the effectiveness of renewable and low carbon technologies, major developments will be required to install appropriate monitoring equipment."*

Policy CC2 is titled **Adapting to Climate Change.** It is noted that the "*Council will require development to be resilient to climate change* [and that] *all development should adopt appropriate climate change adaptation measures",* such as:

"…
1) *the protection of existing green spaces and promoting new appropriate green infrastructure;*
2) *not increasing, and wherever possible reducing, surface water runoff through increasing permeable surfaces and use of Sustainable Drainage Systems;*
3) *incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and*
4) *measures to reduce the impact of urban and dwelling overheating, including application of the cooling hierarchy.*
…"

It is highlighted that "*development involving 5 or more residential units or 500 sqm or more of any additional floorspace is required to demonstrate the above in a Sustainability Statement.*"

Sustainable Design and Construction Measures

It is noted that the Council will promote and measure sustainable design and construction by:

"…
1) *ensuring development schemes demonstrate how adaptation measures and sustainable development principles have been incorporated into the design and proposed implementation;*
2) *encourage new build residential development to use the Home Quality Mark and Passivhaus design standards;*
3) *encouraging conversions and extensions of 500 sqm of residential floorspace or above or five or more dwellings to achieve "excellent" in BREEAM domestic refurbishment; and*
4) *expecting non-domestic developments of 500 sqm of floorspace or above to achieve "excellent" in BREEAM assessments and encouraging zero carbon in new development from 2019.*
…"

Policy CC3 Water and Flooding highlights how the council will seek to ensure that development does not increase flood risk and reduces the risk of flooding where possible. It is noted that the council will require development to:

"…
1) *incorporate water efficiency measures;*
2) *avoid harm to the water environment and improve water quality;*
3) *consider the impact of development in areas at risk of flooding (including drainage);*
4) *incorporate flood resilient measures in areas prone to flooding;*
5) *utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible; and*
6) *not locate vulnerable development in flood-prone areas.*
.."

It is noted that *"where an assessment of flood risk is required, developments should consider surface water flooding in detail and groundwater flooding where applicable."* Finally, it is highlighted that the "*Council will protect the borough's existing drinking water and foul water infrastructure, including the reservoirs at Barrow Hill, Hampstead Heath, Highgate and Kidderpore."*

Policy CC4 Air Quality notes that the Council will ensure that the impact of development on air quality is mitigated and ensure that exposure to poor air quality is reduced in the borough.

It is highlighted that "*the Council will take into account the impact of air quality when assessing development proposals, through the consideration of both the exposure of occupants to air pollution and the effect of the development on air quality. Consideration must be taken to the actions identified in the Council's Air Quality Action Plan."*

Air Quality Assessments (AQAs) are required "*where development is likely to expose residents to high levels of air pollution. Where the AQA shows that a development would cause harm to air quality, the Council will not grant planning permission unless measures are adopted to mitigate the impact. Similarly, developments that introduce sensitive receptors (i.e. housing, schools) in locations of poor air quality will not be acceptable unless designed to mitigate the impact."*

Finally, for development that "*involves significant demolition, construction or earthworks will also be required to assess the risk of dust and emissions impacts in an AQA and include appropriate mitigation measures to be secured in a Construction Management Plan."*

Policy CC5 Waste highlights that the council will seek to make Camden a low waste borough, through:

"…
1) *aiming to reduce the amount of waste produced in the borough and increase recycling and the reuse of materials to meet the London Plan targets of 50% of household waste recycled/composted by 2020 and aspiring to achieve 60% by 2031;*
2) *deal with North London's waste by working with our partner boroughs in North London to produce a Waste Plan, which will ensure that sufficient land is allocated to manage the amount of waste apportioned to the area in the London Plan;*
3) *safeguard Camden's existing waste site at Regis Road unless a suitable compensatory waste site is provided that replaces the maximum throughput achievable at the existing site; and*
4) make sure that developments include facilities for the storage and collection of waste and recycling.
…"

Policy T1 is titled **Prioritising Walking, Cycling and Public Transport.** It is highlighted that "*the Council will promote sustainable transport by prioritising walking, cycling and public transport in the borough."*

Walking

In order to promote walking in the borough and improve the pedestrian environment, [the Council] will seek to ensure that developments:

"...
1) improve the pedestrian environment by supporting high quality public realm improvement works;
2) make improvements to the pedestrian environment including the provision of high quality safe road crossings where needed, seating, signage and landscaping;
3) are easy and safe to walk through ('permeable');
4) are adequately lit;
5) provide high quality footpaths and pavements that are wide enough for the number of people expected to use them. Features should also be included to assist vulnerable road users where appropriate; and
6) contribute towards bridges and water crossings where appropriate.
..."

Cycling

In order to promote cycling in the borough and ensure a safe and accessible environment for cyclists, [the Council] will seek to ensure that development:

"...
7) provides for and makes contributions towards connected, high quality, convenient and safe cycle routes, in line or exceeding London Cycle Design Standards, including the implementation of the Central London Grid, Quietways Network, Cycle Super Highways and;
8) provides for accessible, secure cycle parking facilities exceeding minimum standards outlined within the London Plan (Table 6.3) and design requirements outlined within our supplementary planning Camden Local Plan | Transport 301 document Camden Planning Guidance on transport. Higher levels of provision may also be required in areas well served by cycle route infrastructure, taking into account the size and location of the development;
9) makes provision for high quality facilities that promote cycle usage including changing rooms, showers, dryers and lockers;
10) is easy and safe to cycle through ('permeable'); and
11) contribute towards bridges and water crossings suitable for cycle use where appropriate.
..."

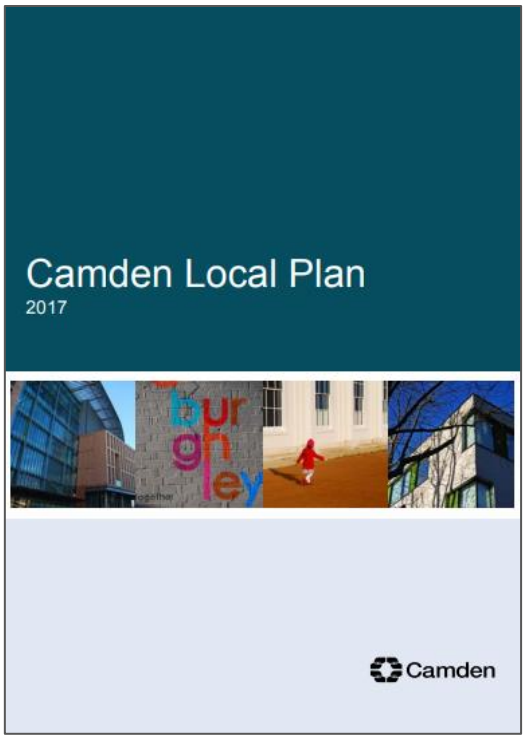
Public Transport

Finally, in relation to public transport, it is noted that *"in order to safeguard and promote the provision of public transport in the borough we will seek to ensure that development contributes towards improvements to bus network infrastructure including access to bus stops, shelters, passenger seating, waiting areas, signage and timetable information. Contributions will be sought where the demand for bus services generated by the development is likely to exceed existing capacity. Contributions may also be sought towards the improvement of other forms of public transport in major developments where appropriate. Where appropriate, development will also be required to provide for interchanging between different modes of transport including facilities to make interchange easy and convenient for all users and maintain passenger comfort."*

Policy T2 is titled **Parking and Car Free Development.** It is noted that *"the Council will limit the availability of parking and require all new developments in the borough to be car-free."*

It is noted that [the Council] will:

"...
A not issue on-street or on-site parking permits in connection with new developments and use legal agreements to ensure that future occupants are aware that they are not entitled to on-street parking permits;
B limit on-site parking to:
1) spaces designated for disabled people where necessary, and/or
2) essential operational or servicing needs;
C support the redevelopment of existing car parks for alternative uses; and
D resist the development of boundary treatments and gardens to provide vehicle crossovers and on-site parking.
..."



CAMDEN PLANNING GUIDANCE – ENERGY EFFICIENCY AND ADAPTION

The Camden Planning Guidance for Energy Efficiency and Adaption has been prepared to support the policies within the Camden Local Plan (2017). The guidance provides most specific information on the key energy and resource issues within the Borough. The document was adopted on 15 January 2021, following statutory consultation and replaces the Energy Efficiency and Adaptations CPG (March 2019), which replaced the CPG3 Sustainability (July 2015).

The sections of the current version of the document that will be covered by the following sections of this Sustainability Statement are listed below:

The Energy Hierarchy

- *All development in Camden is expected to reduce carbon dioxide emissions by following the energy hierarchy in accordance with Local Plan policy CC1.*
- *Energy strategies are to be designed following the steps set out in the energy hierarchy.*
    - *Be Lean*
    - *Be Clean*
    - *Be Green*

Making Buildings More Energy Efficient

- *Natural 'passive' measures should be prioritised over active measures to reduce energy.*
- *Major residential development to achieve 10%, and non-residential development to achieve 15% reduction (beyond part L Building regulations), in accordance with the new London Plan, through on-site energy efficient measures (Be lean stage).*

Decentralised Energy

- *All new major developments in Camden are expected to assess the feasibility of decentralised energy network growth (paragraph 8.25 Local Plan).*

Renewable Energy Technologies

- *There are a variety of renewable energy technologies that can be installed to supplement a development's energy needs.*
- *Developments are to target a 20% reduction in carbon dioxide emissions from on-site renewable energy technologies.*

Energy Statements

- *Energy statements are required for all developments involving 5 or more dwellings and/or more than 500sqm of any (gross internal) floorspace.*
- *Energy statements should demonstrate how a development has been designed following the steps in the energy hierarchy.*
- *The energy reductions should accord to those set out in the following chapter 'Energy Reduction'.*

Energy Reduction

- *All development in Camden is expected to reduce carbon dioxide emissions through the application of the energy hierarchy.*
- *All new build major development to demonstrate compliance with London Plan targets for carbon dioxide emissions.*
- *Deep refurbishments (i.e. refurbishments assessed under Building Regulations Part L)*

should also meet the London Plan carbon reduction targets for new buildings.
- *All new build residential development (of 1 – 9 dwellings) must meet 19% carbon dioxide reduction.*
- *Developments of five or more dwellings and/or more than 500sqm of any gross internal floorspace to achieve 20% reduction in carbon dioxide emissions from on-site renewable energy generation.*

Energy Efficiency in Existing Buildings

- *All developments should demonstrate how sustainable design principles have been considered and incorporated.*
- *Sensitive improvements can be made to historic buildings to reduce carbon dioxide emissions.*
- *Warm homes and buildings are key to good health and wellbeing. As a guide, at least 10% of the project cost should be spent on environmental improvements.*
- *The 20% carbon reduction target (using on-site renewable energy technologies) applies for developments of five or more dwellings and/or more than 500sqm of any gross internal floorspace.*

Reuse and Optimising Resource Efficiency

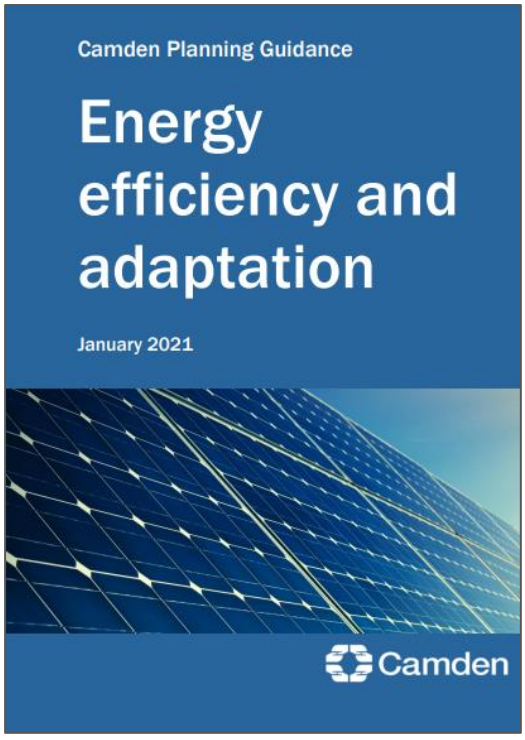
- *[The Council] will expect creative and innovative solutions to repurposing existing buildings, and avoiding demolition where feasible;*
- *All development should seek to optimise resource efficiency and use circular economy principles.*

Sustainable Design and Construction Measures

- *All developments involving 5 or more residential units or 500 sqm or more of any additional floorspace should address sustainable design and construction measures (proposed in design and implementation) in a Sustainability Statement (Local Plan policy CC2).*
- *Active cooling (air conditioning) will only be permitted where its need is demonstrated and the steps in the cooling hierarchy are followed (Local Plan policy CC2).*
- *Development is expected to reduce overheating risk through following the steps in the cooling hierarchy. All new development should submit a statement demonstrating how the cooling hierarchy has been followed (Local Plan policy CC2).*
- *All developments should seek opportunities to make a positive contribution to green space provision or greening.*

Sustainability Assessment Tools

- *BREEAM Excellent is required for all non-residential development of 500sqm or more floorspace.*
- *Other assessment tools such as Home Quality Mark and Passivhaus are encouraged, they can serve to demonstrate the incorporation of sustainable design principles.*



RESPONSE TO PLANNING POLICIES

This part of the report presents the key elements of the proposal that underpin environmental sustainability, demonstrates how the development complies with sustainable development policies and incorporates guidance on sustainable design and construction.

LAND AND SITE LAYOUT

Land use

The land for this proposal is efficiently used as the scheme will be constructed on previously developed land. The site comprises the former Royal National Throat, Nose and Ear Hospital, which has relocated to a new location.

Reuse of Existing Buildings

In line with Policy CC1 of the Camden Local Plan, relevant studies have been carried out to assess the reuse of existing buildings.

The hospital site was developed in an ad-hoc manner over the last 145 years. Consequently, many of the existing structures on site are not fit for purpose. However, it is proposed that the original hospital building on Gray's Inn Road will be retained and refurbished as part of the proposed works. The existing façade, ground floor, upper floors and structure will be retained and reused. The remaining buildings will be demolished. However, materials from the demolition of the existing site will be reused for the proposed development, where possible. For example, it is proposed that reused brick and stone setts from the demolition of the existing site will be reused in the landscape design, within the railway garden. Further opportunities for reuse of materials will be explored at detailed design stage. Further details can be found in the accompanying Circular Economy Statement and the Whole Life Carbon assessment.

Land Form and Site Layout

The proposed scheme comprises Retention of 330 Gray's Inn Road and a two storey extension above for use as hotel (5 above ground storeys in total), demolition of all other buildings, the erection of a part 13 part 9 storey building plus upper and lower ground floors (maximum height of 15 storeys) for use as a hotel (including a cafe and restaurant); covered courtyard; external terraces; erection of a 7 storey building plus upper and lower ground floors (maximum height of 9 storeys) for use as office together with terraces; erection of a 10 storey building plus upper and lower ground floors (maximum height of 12 storeys) for use as residential on Wicklow Street and office space at lower ground and basement floors; erection of a 5 storey building plus upper and lower ground floors (maximum height of 7 storeys) for use as residential on Swinton Street and associated residential amenity space; together with a gymnasium; new basement; rooftop and basement plant; servicing; cycle storage and facilities; refuse storage; landscaping and other ancillary and associated works.

Consideration has been given to the layout and scale of the surrounding buildings. The scale of the development follows a principle of densification but, at the same time, it considers the neighbouring buildings with regard to height and overall volume.

The scheme considers the surrounding urban connections and aims to reconfigure the public realm by creating new pedestrian links through the site.

Daylight & Sunlight Impacts

The proposed scheme has been thoughtfully designed with suitable levels of glazing to ensure that all habitable spaces have adequate levels of daylight and sunlight.

The site layout and buildings' massing has taken in consideration the amenity and open spaces in order to minimise overshadowing effects. Amenity areas for the residents of the flats are provided on roof terraces, where light and sunlight will be abundant. Appropriate levels of daylight and sunlight contributes to positive health and wellbeing of the residents and occupants of the scheme.

The scheme will have no significant adverse effects on access to daylight and sunlight of neighbouring properties.

Further details can be found in the Daylight and Sunlight documentation submitted by Point2, in support of this S73 application.

Micro-climate

A microclimate is the distinctive climate of a small-scale area and the variables within it, such as temperature, rainfall, wind or humidity may be subtly different to the conditions prevailing over the area as a whole. The main characteristics of microclimates within London are temperatures and wind.

The impact on local wind conditions in London is generally limited to the City where large developments can influence (and in some cases, exacerbate) wind speeds and direction without careful consideration. However, it is important to consider pedestrian comfort within developments of this scale and as such, a high-level assessment has been undertaken to both measure the potential impacts of the development and provide recommendations for any mitigation that may be required.

Further details can be found in the microclimate documentation prepared by RWDI, and submitted in support of this application.

Urban Greening

The proposed scheme will contribute to the increase of green spaces within London by providing landscaped areas, which contribute to increase in physical activity and relaxation of occupants, improvement of local air quality, and reduction of Urban Heat Island effect.

Although some planting locations are revised, the planting approach of the consented scheme is largely retained. The scheme aims to maximise the Urban Green Factor (UGF) through the combination of measures such as extensive green roofs, green walls, flower-rich perennial plants, and standard tree planting throughout the landscaped areas.

Further details and on the proposed planting strategy, including calculation of the UGF can be found in Appendix A and the Landscaping Design prepared for the proposed scheme.

Impacts on Neighbours from Demolition and Construction

The Considerate Constructors Scheme will be used to ensure that contractors carry out their operations in a safe and considerate manner.

Construction impacts (e.g. dust generation) shall be minimised through adoption of best practice construction measures, formalised through a Construction Management Plan.

Land Contamination

In the event of any discovery of potentially contaminated soils or materials, this discovery will be quarantined and reported to the most senior member of site staff or the designated responsible person at the site for action. The location, type and quantity will be recorded and the Local Authority, a competent and appropriate third-party Engineer/Environmental consultant notified immediately. An approval from the Local authority will be sought prior to implementing any proposed mitigation action.

Further details can be found in the Contaminated Land documentation prepared by WSP, and submitted in support of this S73 application.

HEALTH AND WELLBEING

Inclusive Design

The development aims to prioritise the future needs of user by ensuring the building is designed to comply with Part M of the Building Regulations.

Safety and Security

The design team have liaised with a Design Out Crime Officer from the Metropolitan Police, on the proposed development. The masterplan has been reviewed with the Design Out Crime Officer and the incorporation of specific design measures were recommended to further strengthen the safety and security of the scheme. The proposed development takes these measures into account and aims to comply with the principles of Secured by Design to provide safe and secure spaces to all building users.

Open Spaces/Amenity

Landscaped open space will be provided through the courtyard on the ground floor, connecting all buildings of the proposed scheme. This will allow building occupants to gather, socialise and connect to the natural environment, enhancing occupant wellbeing.

Daylight/Sunlight

By provision of large glazing areas to all spaces, the proposed development ensures that occupants enjoy satisfactory levels of visual comfort and beneficial effects from daylight exposure, whilst also reducing energy consumption by minimising the use of artificial lighting as far as feasible.

Physical activity

The presence of amenity providers (shops, pharmacies, public open space such as Argyle Square and St. George's Gardens) within walking distance to the development may encourage office users and staff of the proposed development to walk during the breaks in the workday. The provision of cycle storage spaces will also encourage the use of alternative means of transportation for the building users.

In line with Policy C1 of the Camden Local Plan, a Health Impact Assessment has been prepared for the proposed development. It was found that the proposed scheme will have an overall positive impact on the occupants and surrounding community.

Further details can be found in the Health Impact Assessment, produced by XCO2 and submitted in support of this application.

ENERGY & CARBON DIOXIDE EMISSIONS

The Energy Strategy for the proposed development has been designed in line with the London Plan's Policy 5.2, which states that every effort should be made to minimise carbon dioxide emissions in accordance with the following energy hierarchy:

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

Be Lean

The buildings have been thoughtfully designed to reduce energy demand through an enhanced building fabric, minimising heat loss through air infiltration, reducing reliance on artificial lighting, utilising low energy lighting and ensuring adequate levels of ventilation are maintained whilst reducing heat loss through the specification of MVHR.

For further details, please refer to the Energy Statement produced by XCO2 and submitted in support of this application.

Be Clean

As discussed in detail in the accompanying Energy Statement, this stage requires consideration of an energy efficient heating infrastructure. The application site is located in an area where district heating is not expected to be implemented in the future.

A site heat network is proposed; this will comprise a single energy centre supplied by air source heat pumps (ASHPs) and high efficiency electric boilers and will be connected to all uses on site.

Be Green

A range of renewable technologies were considered for generating on-site renewable energy. Photovoltaic panels and ASHP were considered suitable technologies for this development due to adequate flat roof space, easy installation process, and substantial CO_2 savings. The incorporation of these two technologies into this development contribute to a further reduction of regulated CO_2 emissions over the baseline emissions.

Further details about the photovoltaic and ASHP strategy, as well as the alternative renewable technology options with site-wide CO_2 emission reductions can be found in the accompanying Energy Statement.

Be Seen

The proposed development integrates a metering strategy to allow for the measure of energy consumption during the operation of the building. Metering will be split into lighting, small power and HVAC.

The office will have utility meters on each floor for each tenant. The residential dwellings will be provided with smart meters to monitor the heat and electricity consumption of each dwelling; the display board will demonstrate real-time and historical energy use data and will be installed at an accessible location within the dwellings.

Furthermore, the solar PV generation will be metered to enable the amount of renewable energy generated on-site to be monitored.

WATER

Water Efficiency

The proposed development aims to reduce internal water consumption to less than 105 litres per person per day, in line with the recommended target set out in Policy SI 5 of the London Plan, through the use of water efficient fittings, and these are listed below.

Table 1: Recommended specification for sanitary fittings

Fitting	Fitting specification
WC	6/3 litres dual flush
Kitchen sink tap	6 litres per min
Wash basin tap	4 litres per min
Shower	8 litres per min
Bath	180 litres
Washing machine	8.17 litres/kg
Dishwasher	1.25 litres/place setting

As part of the BREEAM pre-assessment, Wat 01 credits have been targeted for the commercial areas of the proposed scheme. Sanitary fittings within each commercial unit will be specified and installed by the prospective tenants. Where sanitary fittings are to be specified by the developer/landlord, water efficient fittings will be included.

Water Reuse

Whist the development aims to reduce water demand in the first instance, consumption will also be offset through the provision of rainwater collection for irrigation purposes.

MATERIALS AND WASTE

Responsible Sourcing

100% of the timber used during construction will be sourced from accredited Forest Stewardship Council (FSC) or Programme for the Endorsement of forestry Certification (PEFC) source.

The main contractor will be required to prioritise products holding responsible sourcing certification (EMS/ISO14001) for the key process as per minimum, to ensure economic, social and environmentally responsible practices are implemented throughout construction products supply chain.

Healthy Materials

To minimise potential sources of indoor air pollution, low VOC paints, finishes and other products will be prioritised as far as practically possible. Best practice design detailing and careful construction techniques will also be employed to reduce the risk of thermal bridging and condensation issues, limiting the potential for mould growth.

Embodied Carbon

To further reduce carbon emissions over the lifecycle of the building, low embodied carbon materials will be used as far as practically possible, whilst also focusing on design practices to reduce waste production. For example, cement will be replaced with low carbon cement replacements as far as possible, with ambition for up to 50% of traditional cement to be replaced with GGBS, on average per applicable building element.

A Whole Life Carbon Assessment, including detailed calculations of the embodied carbon associated with building materials, has been carried out for the proposed development. For further information, please refer to the Whole Life Carbon Assessment prepared by XCO2 and submitted in support of this application.

Circular Economy

Circular economy is based on three key principles: design out waste, keep products and materials in use, and regenerate natural systems. A Circular Economy Statement has been prepared in support of this application, where the proposed scheme addresses these three key circular economy principles:

- *Conserve Resources:* The proposed scheme seeks to ensure that material and resource use is minimised as far as possible. Focus has been given to minimising the quantities of materials and other resources used, as well as ensuring materials will be sourced responsibly during construction.
- *Eliminate Waste:* The proposed scheme seeks to ensure the design is flexible and adaptable, thereby increasing the building's lifespan. It seeks to minimise maintenance, and aims to reduce construction, demolition, and excavation waste.
- *Manage Waste Sustainably:* The proposed development will seek to carefully manage demolition, construction, and municipal waste and to maximise recycling, reuse and minimise the amount of waste sent to landfill.

Further details can be found in the Circular Economy Statement, developed by XCO2 and submitted in support of this application.

Construction and Operational Waste

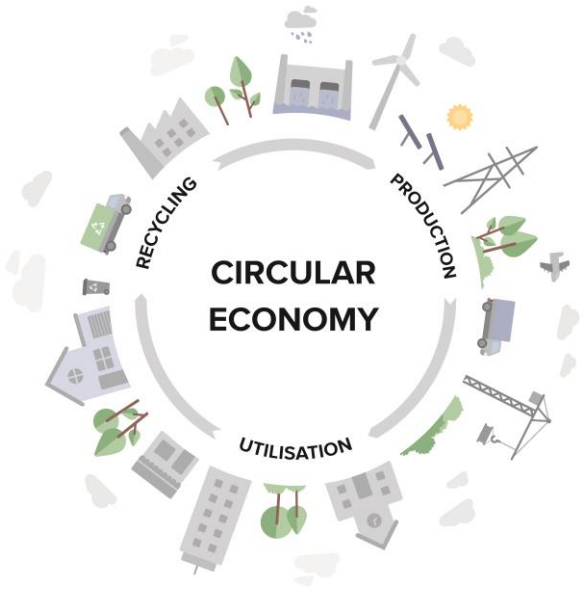
A site waste management plan (SWMP) for the proposed development will be prepared on appointment of the Principal Contractor and prior to commencement of construction works. This will outline the methodologies for estimating waste quantities and streams generated during the demolition, excavation and construction stages of the site works, and set out recommended measures required to be adopted to minimise these as far as practically possible.

In line with Policy SI 7 of the London Plan and Policy CC5 of the Camden Local Plan, the development aims to reduce the amount of waste produced, increase recycling and reuse of materials. The incorporation of an Operational Waste Management Plan will help to achieve the below targets:

- Target for 65% of municipal waste to be recycled by 2030;
- Target for commercial tenants to achieve the Mayor's target for 75% of non-household waste to be recycled by 2030;
- Target for at least 50% of household waste to be recycled/composted, while aspiring to achieve 60% by 2031.

Separate waste storage areas will be provided for each building use. Each bin store will include separate bins for the collection of dry mixed recyclables (paper, mixed plastics, metals, glass etc.) and general waste. The residential and hotel waste stores will include food bins to support the separate collection of food waste, prior to collection for composting.

Further details can be found in the Operational Waste Management Strategy produced by Steer and submitted in support of this application.



NATURE CONSERVATION & BIODIVERSITY

The ecology on site will be improved via the introduction of landscaped areas within the proposed communal courtyard and planting on land that is currently covered with hard surfacing or existing buildings. Native plant species will be introduced to these areas where possible. This will help to attract invertebrates, birds and other fauna to the area.

A preliminary ecological appraisal report for the proposed Gray's Inn Road development was undertaken. The report concluded that the development has the potential to impact on roosting bats that could be roosting within buildings and a tree on site, as well as nesting birds. A bat survey is therefore recommended. Dependent upon the results of the survey, further survey work/appropriate impact avoidance and mitigation measures may need to be incorporated into designs. The bat survey will be conducted post-submission as May – September is the optimal period for bat surveys. For further information, please refer to the Preliminary Ecological Appraisal, developed by XCO2 and submitted in support of this application.

Revisions to the consented building design have necessitated a revised scheme for the Railway Garden. Although some planting locations are revised, the planting approach and general tree strategy of the consented scheme is retained. The scheme aims to maximise green spaces across the site through a combination of measures such as extensive green roofs, green walls, flower-rich perennial plants, and tree planting throughout the landscaped areas.

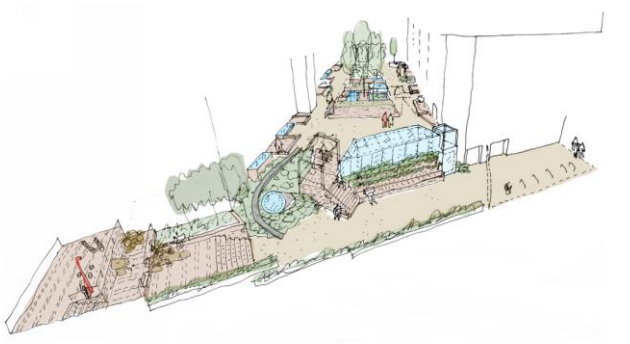


Figure 2: Overview of the Proposed Landscape Design Developed and Illustrated by East

CLIMATE CHANGE ADAPTION

Overheating

The potential risk of overheating will be mitigated by incorporating both passive and active design measures.

The space heating and hot water to both the domestic and non-domestic elements of the Gray's Inn Road development will be provided by a combination ASHPs and high efficiency electric boilers. All heat sources and pipe work will be sufficiently insulated to avoid excess heat loss into internal space.

Efficient lighting will be used to further minimise internal heat gains and reduce energy expenditure.

Appropriately sized windows have been designed to reduce solar heat gains. Internal blinds or external shading will be included in both the residential and commercial units to reduce the solar gains into occupied rooms where required. Glazing with low transmittance will be used to reduce solar gains.

Due to noise and air quality constraints, overheating risk in dwellings will be managed by the inclusion of air tempering in the MVHR system, ensuring thermal and acoustic comfort and protecting indoor air quality. The dwellings will have openable windows as a secondary strategy for providing fresh air and dissipating heat, providing a choice to residents.

Surface Water and Flooding

The application site is found to be located in an area with low risk to flooding. A Flood Risk Assessment has been carried out for the development proposal and in accordance with Policy CC3 of the Camden Local Plan, site specific Sustainable urban drainage systems (SUDS) have been incorporated.

Further details on the drainage hierarchy strategy and the incorporation of SUDS and flood resilience measures for this scheme can be found in the Flood Risk and Drainage Assessment developed by WSP and submitted in support of this application.

The following figure depicts a flood zone map of the site and surrounding areas.

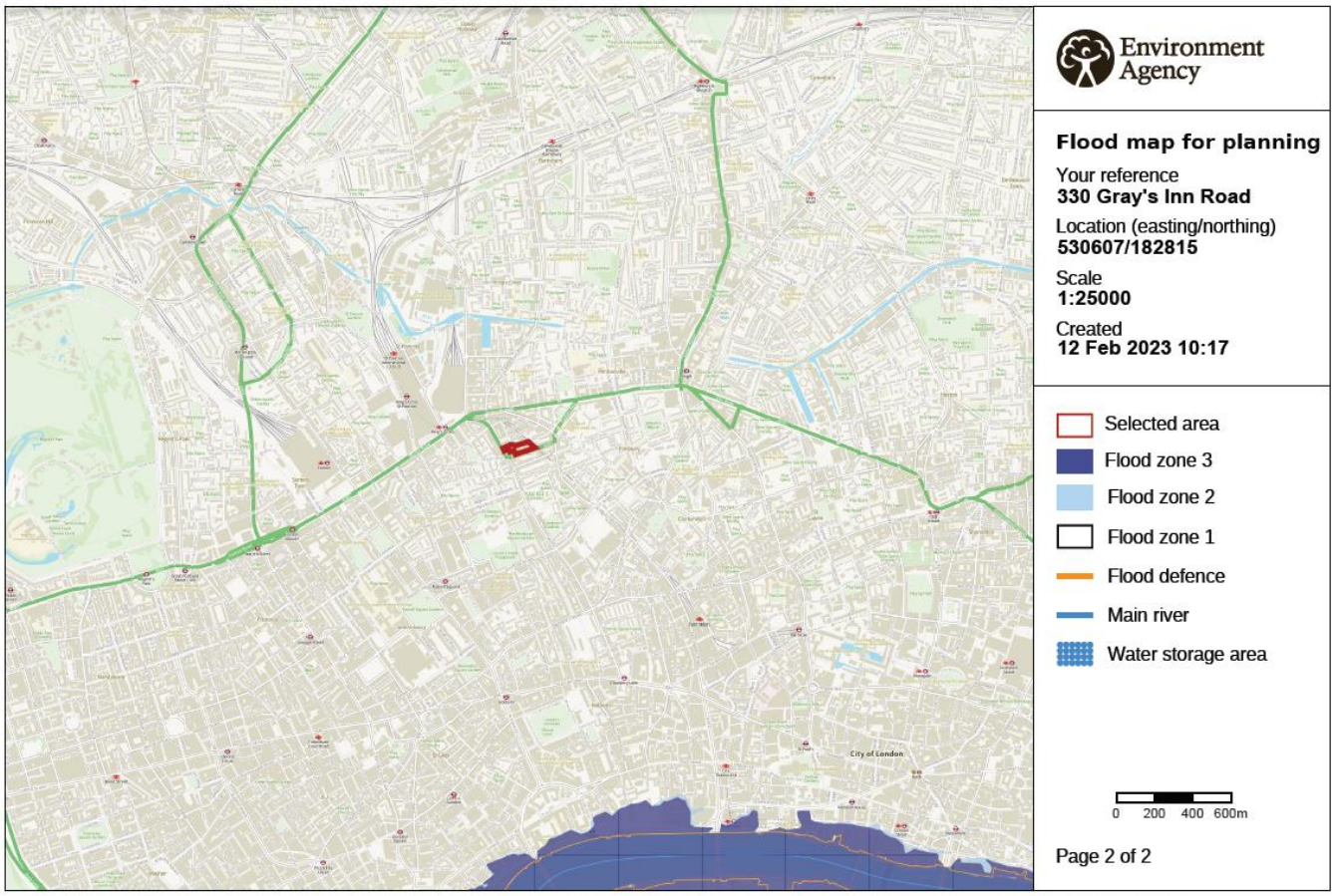


Figure 3: Location of application site within area of Low Flood Risk

AIR, NOISE AND LIGHT

Air Quality

An air quality assessment has been carried out determine the impacts from dust and stationary plant emissions during the construction period and the potential impact from traffic flows on the local road network on both on-site and off-site receptors, during and after construction.

The site has been identified as 'high risk' for the demolition, earthworks and construction stage and 'medium risk' for trackout. These risks will be minimised through a series of mitigation measures which have been developed by an air quality professional in line with the SPG and will be incorporated into the specification for the works.

During the operational phase of the development, the transport related emissions are expected to be below the relevant benchmark and there will be no on-site emissions associated with heat and power generation, due to the specification of ASHPs and electric boilers. The proposed development therefore complies with the requirement that all new developments in London should be at least air quality neutral.

Air quality conditions for the future residents have been shown to be acceptable with concentrations below the air quality objectives across the site, even when applying highly conservative modelling assumptions as required within the Camden CPG.

To protect internal air quality, 'healthy' materials will be specified for the buildings' fabric and internal finishes, where feasible; these will be non-toxic, and low emitters of VOCs and formaldehyde.

For further information, please refer to the Air Quality Assessment report prepared by Air Quality Consultants and submitted in support of this application.

Noise

The development will incorporate design and building fabric measures to mitigate potential noise levels from the proposed development and ensure the impact of any external sources on internal ambient noise levels are within acceptable limits.

An Acoustic Assessment of the proposed development was carried out by Hann Tucker Associates. The site was shown to be suitable for the mixed-use development, if appropriate noise mitigation measures are incorporated.

For further detailed information, please refer to the Environmental Noise Survey and Acoustic design Statement developed by Hann Tucker Associates and submitted in support of this application.

Light Pollution

The lighting design of the proposed development will follow the recommendations of the Institution of Lighting Engineers' Guidance Notes for the Reduction of Obtrusive Light (2005), to minimise light pollution.

Further mitigation measures will be implemented to ensure disturbance to wildlife is minimal, in line with the ecologist's recommendations.

Water Pollution

Water pollution to surrounding watercourses will be minimised by the increase in permeable ground, thereby reducing surface water runoff. In addition, contractors will adopt best practice policies to mitigate water pollution from construction activities on site.

The development will discharge domestic sewage via a connection to the public foul sewer or combined sewer network where it is reasonable to do so.

TRANSPORT

Alternative means of transportation

In order to underpin the reduction of emissions from transport, the development has been designed to encourage cycling by providing 420 long-stay cycle parking spaces and changing facilities. A further 21 short-stay cycle parking spaces are proposed. The provision of cycle parking is in accordance with guidelines set out in the London Plan.

Except for the provision of disabled car parking, the proposed development will be car-free. The scheme will uplift the existing disabled parking provision by one space.

The Transport Assessment produced by Steer and submitted in support of this application includes a Residential Travel Plan and Framework Travel Plan which have been developed for the proposed scheme, to help encourage occupants to use sustainable methods of transportation.

Public Transport Accessibility

The proposed development will be accessible by public transport, being served by London buses (including night-time services), and national and underground rail services. The PTAL rating on the site is 6b, and an associated Accessibility Index of 77.34.

The site is served by several bus routes (see below), with one bus stop within 100 m of the proposed development and one bus stop within 300 m of the proposed development.

- 259 - Edmonton Green to Kings Cross
- 46 – Paddington Station to St Bartholomew's Hospital
- 17 – Archway Station to London Bridge
- 63 – East Dulwich to Kings Cross
- 59 – Balham to Euston
- 91 – Crouch End to Trafalgar Square
- 390 – Archway to Victoria
- 30 – Portman Street to Hackney Wick
- 73 – Oxford Circus to Stoke Newington
- 476 – Northumberland Park to Kings Cross
- 205 – Paddington Station to Bow Church Station
- 214 – Highgate to Finsbury Square

The proposed development is 300 m from Kings Cross St Pancras Station which is served by national and international levels, as well as a London Underground station which is on the following lines:

- Circle, Hammersmith & City and Metropolitan
- Northern
- Piccadilly
- Victoria

Proximity to Amenities

There are various amenities close to the site. The following amenities are within 500 m of the proposed development site.

- Appropriate food outlet
- Access to an outdoor open space (public or private, provided suitably sized and accessible to building users)
- Access to a recreation or leisure facility for fitness or sports
- Child care facility or school

For further details please refer to the Transport Assessment by Steer.

SUSTAINABILITY STANDARDS

Within the Camden Local Plan, the BREEAM standard of Excellent is expected for all non-residential developments over 500m^2 of floorspace. The following Pre-Assessment demonstrates compliance with the Local Authority's policies in relation to BREEAM assessments.

BREEAM NEW CONSTRUCTION 2018

BREEAM New Construction 2018 is a performance based environmental assessment method and certification scheme for new buildings. The primary aim of BREEAM New Construction is to mitigate the impacts of new developments on the environment over the entire life-cycle of the building in a comprehensive and cost-effective manner. This is achieved through the integration of the BREEAM scheme at key stages of the design and procurement process.

A BREEAM New Construction 2018 Shell and Core Pre-Assessment was carried out for the non-domestic portion of the development. The proposed commercial units have been assessed under various BREEAM building types. The office and laboratory spaces (including supporting function areas) have been assessed under 'Office' and the Hotel has been assessed under 'Assembly and Leisure'.

The pre-assessment tool uses established benchmarks to evaluate a building's specification, design, construction and operation, over a broad range of categories and criteria:

- Management processes
- Health and wellbeing
- Energy use
- Transport
- Water use
- Materials
- Waste
- Land use and ecology
- Pollution
- Innovation

The outcome of the pre-assessment is expressed as a single certified BREEAM rating, ranging from Pass (30%) to Outstanding (85%).

Table 2: BREEAM Certification Thresholds

BREEAM 2018 Rating	Percentage of Credits Required
Outstanding	85%
Excellent	70%
Very Good	55%
Good	45%
Pass	30%

The following section discusses how the development addresses the BREEAM sustainability criteria required to meet BREEAM Excellent.

Each of the sustainability categories as set out in BREEAM are addressed; each sub-section highlights the sustainability measures that have been adopted to meet BREEAM Excellent.

MANAGEMENT

Man01 Project Brief and Design

Prior to completion of the Concept Design (RIBA Stage 2 or equivalent), a project delivery consultation meeting was held to identify and define their roles and responsibilities at each key stage of the project delivery.

In addition, relevant third-party stakeholders were consulted by the project team regarding various aspects of the design before the end of RIBA Stage 2 (Concept Design). The project team will demonstrate how these consultations have influenced the design and feedback will be given to the consultation groups before the end of RIBA Stage 4 (Technical Design).

A BREEAM AP is appointed to work with the project team throughout Concept and Design stage and at Developed Design stage.

Man02 Life Cycle Cost and Service Life Planning

At Stage 2 an Elemental LCC assessment is carried out in line with PD156865:2008. The elemental plan will provide an indication of future replacement, service life, maintenance and operation costs over a period of analysis determined by the client

The capital cost for the building will be reported via the BREEAM Assessment Scoring and Reporting Tool in pounds per square metre (£k/m^2).

Man03 Responsible Construction Practices

All timber used in the project will be 'legally harvested and traded' timber. This is a prerequisite for the following issues which will also be included for this project:

- The principal contractor will achieve compliance with the Considerate Constructors Scheme and go beyond best practice with a total CCS score of between 35-39 points, and a minimum score of 7 in each of the 5 sections.
- Energy use and water consumption from on-site construction processes will be monitored and recorded.
- The Principal Contractor will set targets, monitor and record the distance travelled by materials to and waste from the site.
- The Principal Contractor will be required to operate an Environmental Management System (EMS).
- The BREEAM AP will also assist throughout the Construction, Handover and Close Out stages.

Man04 Commissioning and Handover

Inspection of the building fabric via a thermographic survey and an airtightness test in accordance with the Building Regulations, BSRIA and CIBSE guidelines shall be undertaken.

A commissioning manager will be appointed to undertake design reviews, give advice and manage performance testing and handover/post-handover stages.

A schedule including a timescale for commissioning and testing of all building services and control systems in accordance the Building Regulations, BSRIA and CIBSE guidelines will be provided.

A Level 2 thermographic survey and an airtightness test will be completed, any defects identified will be rectified prior to completion.

A Building User Guide and a training schedule will be prepared for the building occupier and user, to ensure the efficient operation and maintenance of the building.

HEALTH & WELLBEING

Hea01 Visual Comfort

The relevant building areas will either meet good practice daylight factors or meet good practice average and minimum point daylight illuminance criteria and will have access to aesthetically pleasing views.

All lighting will be designed to give occupants the flexibility in achieving desired illuminance levels without excessive energy use. Appropriately maintained illuminance levels will be achieved in line with the SLL Code for Lighting 2012, CIBSE Lighting Guide 2009 and other relevant industry standards.

Internal Lighting should be zoned to allow for occupant control. In offices, the zones should consist of no more than four workplaces and workstations in close proximity to windows or atria.

All external lighting will be designed to provide illuminance levels that enable the users to perform outdoor visual tasks efficiently at night. External lighting will be specified in accordance with BS 5489-1:2013 and BS EN 12464- 2:2014.

Hea02 Indoor Air Quality

An indoor air quality (IQA) plan will be produced, with the objective of facilitating actions to minimise indoor air pollution during occupation of the building.

HVAC systems will be designed in line with BS EN 13779:2007 and fresh air must be provided in accordance with the relevant standards for ventilation.

Hea04 Thermal Comfort

A thermal model will be built in accordance with CIBSE AM11 to inform the development of a thermal zoning and control strategy, which considers the influence of the projected climate change scenarios, or demonstrates how the building can be adapted in future using passive design solutions. The thermal strategy for the building will be informed by this modelling.

Hea05 Acoustic Performance

The building will be designed to meet the acoustic performance standards and internal ambient noise levels in compliance with the design ranges given in BS 8233:2014. A programme of pre-completion testing will be carried out by a compliant test body.

Hea06 Security

A suitably qualified security specialist (SQSS) should conduct a Security Needs Assessment (SNA) during the Concept Design stage (RIBA Stage 2) of the project, and the resulting set of recommendations implemented on site. For the external areas, safe access will be designed for cyclists and pedestrians.

Hea07 Safe and Healthy Surroundings

An outside space providing building users with an eternal amenity space will be included, in addition to a dedicated, safe cyclist and pedestrian route(s).

ENERGY

Ene01 Reduction of Energy Use and Carbon Emissions

An SBEM calculation was carried out to determine the energy demand and CO_2 emissions for the notional and actual buildings. The results were subsequently applied to the Ene01 calculator within the BREEAM 2018 Pre-assessment Scoring tool.

Ene02 Energy Monitoring

Energy sub-meters with pulsed or other open protocol communication outputs will be installed that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems.

Sub-meters should be installed on the energy supply to each relevant function areas or departments within the building.

Ene03 External Lighting

All external luminaries will be energy efficient and all light fittings are to be controlled for the presence of daylight. Daylight sensors will help to ensure that artificial lights are not used when daylight levels are sufficient.

The average initial luminous efficacy of the external light fittings within the construction zone will not be less than 60 luminaire lumens per circuit Watt.

Ene04 Low Carbon Design

A feasibility study will be carried out by the completion of the Concept Design stage (RIBA Stage 2) to establish the most appropriate (if any) low or zero carbon (LZC) energy source(s) for the building in addition to identifying opportunities for implementing passive design measures.

LZC technologies specified for the building should meet at least 5% of the overall building energy demand, unless considered unfeasible.

Project team to analyse building design at concept design stage (RIBA Stage 2) to identify the potential implementation of passive design measures, to reduce the overall building energy demand by at least 5%.

Ene06 Energy Efficient Transportation

Analysis will be undertaken of the transportation demand and usage patterns for the building to determine the optimum number and size of lifts.

Energy efficient lifts will be specified to include the following features:

- Lifts operate in standby mode during off-peak periods.
- Energy efficient lift car lighting (greater than 70 lamp lumens per circuit Watt).
- Variable speed, variable voltage and variable frequency (VVVF) control of drive motor.

TRANSPORT

Tra01 Transport Assessment and Travel Plan

A draft travel plan is developed as part of the design and feasibility stages, encouraging the use of sustainable modes of transport of people and goods during the buildings' operation and use. The travel plan accompanies the application submission.

Tra02 Sustainable Transport Measures

The proposed development will be accessible by public transport, being served by London buses (including night time services), and national and underground rail services. The PTAL rating on the site is 6b, and an associated Accessibility Index of 77.34.

WATER

Wat01 Internal Water Consumption

Sanitary fittings within each commercial unit will be specified and installed by the prospective tenants due to the shell and core nature of the scheme.

Where sanitary fittings are to be specified by the developer/landlord, water efficient fittings will be included.

Wat02 Water Monitoring

A water meter with a pulsed or other open protocol output will be provided on the mains water supply to accurately monitor the building's water usage.

Building service systems with a significant water demand will have additional water monitoring equipment fitted to them. All water meters will be connected to the BMS if applicable.

Any water consuming plant or building areas installed by the tenant need not be assessed.

Wat03 Water Leak Detection and Prevention

A leak detection system will be employed on the main water supply to each of the units.

Wat04 Water Efficient Equipment

Rainwater harvesting will be used for irrigation of landscaped areas.

MATERIALS

Mat01 Environmental Impact Materials

The materials specified for the main building elements will have a low environmental impact.

For this development, the external walls, windows, upper floor slabs, internal walls, roof and floor finishes will achieve Green Guide ratings of between A+ and C.

During concept design a building life cycle assessment (LCA) will be carried out on the superstructure design options. An LCA will also be carried out on the substructure to include an options appraisal of a combined total of at least six significantly different substructure of hard landscaping design options.

Mat03 Responsible Sourcing of Materials

Building materials used for the main construction elements will need to be 'responsibly sourced' with a documented Sustainable Procurement plan in place.

All timber and timber-based products specified will be legally harvested and traded timber (FSC or PEFC certified).

In addition, all major building materials will be required to carry a responsible sourcing certificate.

Mat05 Designing for Durability and Resilience

Suitable durability and protection measures or designed features will be incorporated into the building to prevent damage to vulnerable parts.

Mat06 Material Efficiency

At the end of each RIBA stage the project team will convene to examine opportunities to implement appropriate measures to ensure that the amount of materials used in the construction of the development are optimised and therefore reduce the amount of construction waste arising from site.

WASTE

Wst01 Construction Waste Management

A pre-demolition audit will be carried out for any existing buildings and structures or hard surfaces, to identify key refurbishment/demolition materials and highlight the potential issues in the reuse and recycling of these materials. This audit must be referenced in the RMP.

A Resource Management Plan (RMP) or Site Waste Management Plan (SWMP) covering non-hazardous construction waste and dedicated off-site manufacture will be developed, to ensure that the amount of waste generated is lower than or equal to 6.5m^3 per 100m^2 of gross internal floor area. In addition, 80% of non-demolition waste and 90% of demolition waste must be diverted from landfill.

Wst03 Operational Waste

There will be dedicated space to cater for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities. A minimum of 2m^2 of waste storage per 1,000m^2 of net floor area shall be provided.

Wst 04 Speculative Finishes

For tenanted areas where the future occupant is not known and carpet or other floor or ceiling finishes are installed, these must be limited to a show area only. Where the occupant is known, floor and ceiling finishes must be selected by the known occupant of a development. Alternatively, where only ceiling finishes and no carpets are installed, the building owner must confirm that the first tenants will not be permitted to make substantial alterations to the ceiling finishes.

Wst05 Adaption to Climate Change

During concept stage a climate change adaptation strategy appraisal for the structural and fabric resilience will be undertaken. Recommendations or solutions will be developed that aim to mitigate the identified impacts from the report.

Wst06 Design for Disassembly and Adaptability

The client and design team have developed a strategy that ensures the building design is flexible and can be easily modified to accommodate changes in working practices, change in-use, plant replacement and refurbishment and incorporated into the building design by the end of RIBA Stage 4 (Technical Design) where feasible. For further details please refer to the Circular Economy Statement.

LAND USE AND ECOLOGY

LE01 Site Selection

The redevelopment of an existing urban plot reduces the need to develop greenfield sites. The footprint of this development is located entirely on previously developed land (100%).

LE02 Identifying and Understanding the Risks and Opportunities for the Project

The site will be evaluated using the BREEAM Ecological Risk Evaluation Checklist. During concept design stakeholders will liaise and collaborate with representative stakeholder to identify and consider ecological outcomes for the site.

The client or contractor will confirm that compliance is monitored against all relevant UK and EU legislation relating to the ecology of the site.

LE03 Managing Negative Impacts on Ecology

As the development is replacing an existing development, no negative change in plant species richness is expected.

LE04 Change and Enhancement of Ecological Value

Locally relevant ecological ensures have been implemented that enhance the site's ecological value, based on: recommendations from recognised 'local' ecological expertise and specialist input and guidance, and input from the project team in collaboration with representative stakeholders.

LE05 Long Term Ecology Management and Maintenance

The client or contractor will confirm that compliance is monitored against all relevant UK and EU legislation relating to the ecology of the site.

Measures have been implemented to manage and maintain ecology throughout the project. Handover documents will include a section on Ecology and Biodiversity to inform the owner or occupant of local ecological features, value and biodiversity on or near the site.

A landscape and ecology management plan, or similar, covering as a minimum the first five years after project completion.

POLLUTION

Pol01 Impact of Refrigerants

HVAC systems using refrigerants will be specified so that the level of greenhouse gas emissions arising from the leakage of refrigerants is limited (Direct Effect Life Cycle CO_2 emissions - DELC $CO_2e \leq 1000$).

Pol02 Local Air Quality

The energy strategy for the scheme will be combustion free.

Pol03 Flood Risk and Surface Water Run Off

The Environmental Agency Flood Map shows that the development is located in an area with a low probability of flooding (Flood Zone 1. A site-specific flood risk assessment has been undertaken for the scheme.

Bespoke surface water run-off design solutions are developed and utilised. Peak rate of run-off from the site to the watercourses must show a 30% improvement for the developed site compared to the pre-developed site.

All maintenance agreements for the ownership and long-term operation of specified SUDs will be available and watercourse pollution will be minimised. All calculations will allow for the effects of climate change.

Pol04 Reduction of Night Time Light Pollution

External lighting will be confined to appropriate areas for security and safety purposes, and lighting will comply with the Institution of Lighting Engineers guidance notes for the reduction of obtrusive light.

All external lighting (except for safety and security lighting) will be fitted with timers to enable them to switch off automatically between the hours of 2300hrs and 0700hrs.

Pol05 Reduction of Noise Pollution

A noise impact assessment was carried out in compliance with BS7445 to determine the existing background noise levels at the nearest or most exposed noise sensitive development to the proposed development and the rating noise level resulting from the new noise source.

The noise level from the proposed site is a difference no greater than +5dB during the day and +3dB at night compared to background noise level.

In instances where the noise source from the proposed site is greater than the levels described above, measures will be installed to attenuate the noise at its source to a level where it will comply with the above.

BREEAM PRE-ASSESSMENT RESULTS

A BREEAM pre-assessment has been undertaken at pre-application stage which has shown that a baseline score of 74.91% is feasible for the hotel and 73.22% for the office and laboratory space (including ancillary uses). Potential scores of 80.25% and 83.53% could be achieved for the respective spaces.

The results for the pre-assessment are summarised in the tables below and include a breakdown of the currently targeted score for each issue and category.

Table 3: BREEAM Pre-Assessment Breakdown – Hotel

BREEAM Category	Total Credits Available	Score Assessment			
		Sub-total	Weighting	Baseline Score (%)	Potential Score (%)
Management	18	17	11.0%	10.39%	10.39%
Health & Wellbeing	10	10	8.0%	8.00%	8.00%
Energy	21	15	14.0%	10.00%	11.33%
Transport	12	10	11.5%	9.58%	9.58%
Water	9	6	7.0%	4.67%	4.67%
Materials	14	11	17.5%	13.75%	16.25%
Waste	10	8	7.0%	5.60%	5.60%
Land Use & Ecology	13	6	15.0%	6.92%	6.92%
Pollution	12	8	9.0%	6.00%	7.50%
Innovation	10	0	10.0%	0.00%	0.00%
			BREEAM Excellent	**74.91%**	**80.25%**

Table 4: BREEAM Pre-Assessment Breakdown – Office and Laboratory (including supporting function areas)

BREEAM Category	Total Credits Available	Score Assessment			
		Sub-total	Weighting	Baseline Score (%)	Potential Score (%)
Management	18	17	11.0%	10.39%	11.00%
Health & Wellbeing	11	8	8.0%	5.82%	5.82%
Energy	21	17	14.0%	11.33%	11.33%
Transport	12	10	11.5%	9.58%	11.50%
Water	9	7	7.0%	5.44%	5.44%
Materials	14	9	17.5%	11.25%	12.50%
Waste	11	9	7.0%	5.73%	5.73%
Land Use & Ecology	13	6	15.0%	6.92%	10.96%
Pollution	12	9	9.0%	6.75%	8.25%
Innovation	10	0	10.0%	0.00%	1.00%
			BREEAM Excellent	**73.22%**	**83.53%**

As set out in CPG 'Energy Efficiency and Adaptation' January 2021, the proposed development is required to meet at least 60% of the available Energy and Water credits and at least 40% of all available Materials credits. The following table outlines that the percentage of credits targeted for each building use exceeds the requirements in all categories.

Table 5: Percentage Credits Achieved in Energy, Water and Materials

BREEAM Category	Minimum Percentage Required	Percentage of Credits Targeted	
		Hotel	Office and Laboratory (including supporting function areas)
Energy	60%	71%	81%
Water	60%	67%	78%
Materials	40%	79%	64%

HOME QUALITY MARK

The design of all dwellings for the proposed scheme aims to be in line with Home Quality Mark (HQM) principles where possible and a pre-assessment has demonstrated that an overall 3.5 rating could be achieved.

The Home Quality Mark (HQM), developed by the BRE, provides a measure on a new home's quality and sustainability. The certification scheme builds on best practice guidance within the housing sector, providing a credible and achievable performance label for new homes that reflects industry and occupiers' expectations.

Policy CC2 of the Camden Local Plan, the council will encourage new build residential development to use the Home Quality Mark to demonstrate sustainable design measures. The design of all dwellings for the proposed scheme aims to be in line with Home Quality Mark (HQM) principles where possible. A HQM One 2018 pre-assessment was carried out to outline the rating that could be achieved. The pre-assessment demonstrated that an overall 3.5-star rating is feasible, if considered by the design team after planning stages. It should be noted that if the potential credits outlined below were to be targeted, an aspirational target of 4.5 stars could be met.

Both the baseline and potential ratings demonstrate the high quality of the future homes that will be offered to the residents. The technical and financial feasibility of achieving HQM will be further investigated post planning.

Table 6: HQM Assessment Summary

BREEAM Category	Total Credits Available	Score Assessment			
		Sub-total	Weighting	Baseline Score (%)	Potential Score (%)
Transport and Movement	48	33	9.6%	6.60%	8.20%
Outdoors	58	29	11.6%	5.80%	8.00%
Safety and Resilience	47	37	9.4%	7.40%	8.40%
Comfort	68	33	13.6%	6.60%	9.40%
Energy	83	27	16.6%	5.40%	9.60%
Materials	69	26	13.8%	5.20%	9.80%
Space	24	7	4.8%	1.40%	4.80%
Water	17	5	3.4%	1.00%	1.60%
Quality Assurance	33	4	6.6%	0.80%	6.60%
Construction Impacts	31	16	6.2%	3.20%	5.40%
Customer Experience	22	2	4.4%	0.40%	4.20%
			TOTAL	**43.80%**	**76.00%**
			RATING	**3.5 Star**	**4.5 Star**

OTHER SUSTAINABILITY MEASURES

The design team has also considered incorporating other sustainability standards for the proposed development. Pre-assessments for LEED and WELL have been carried out to determine the potential benefit to the proposed scheme.

LEED

The Leadership in Energy and Environmental Design standard is the most widely known certification system in the world with certified buildings across 176 countries.

A LEED Pre-assessment has been carried out for the office building and the laboratory space of the proposed development at 330 Gray's Inn Road. Given that the project will be fitted out to a Cat A standard, the building falls under the LEED Rating System Building Design and Construction: Core & Shell.

The pre-assessment demonstrates that a score of 63 points, corresponding to achieving a Gold level certification is possible for the office and laboratory spaces. Targeting additional points would enable an aspirational score of 80 points to be met, corresponding to achieving Platinum level. It should be noted that the technical and financial feasibility of achieving LEED certification will be further investigated post planning.

Table 7: LEED Pre-Assessment Summary – Office and Laboratory

LEED Category	Total Points Available	Score Assessment	
		Target	Aspirational
Integrative Process	1	1	1
Location and Transport	20	16	16
Sustainable Sites	11	7	9
Water Efficiency	11	5	7
Energy and Atmosphere	33	19	26
Material and Resources	14	6	9
Indoor Environmental Quality	10	3	5
Innovation	6	2	3
Regional Priority	4	4	4
	TOTAL	**63 (Gold)**	**80 (Platinum)**

WELL

The WELL Building Standard focuses on the health and well-being of building occupants. It consists of ten concepts which are broken down into features, these features are categorised as preconditions, which are mandatory, or optimisations, which are optional strategies which can be targeted to achieve points.

Separate WELL pre-assessments were produced for the main office areas and office areas which will be occupied by UCL to determine the potential scores for these areas of the proposed development. The building falls under the WELL Core category as more than 75% of the project area will be occupied by one or more tenants, additionally at least 2.5% of the total building floor area should be available for performance testing (common areas and spaces under owner control).

The accompanying WELL Scorecard shows that both areas could achieve Platinum level. However, the technical and financial feasibility of achieving WELL certification will be further investigated post planning.

Table 8: WELL Pre-Assessment Summary – Main Offices

WELL Category	Total Points Available	Score Assessment	
		Baseline	Potential
Air	12	11	12
Water	12	12	12
Nourishment	12	3	3
Light	12	10	12
Movement	12	12	12
Thermal Comfort	12	0.5	1.5
Sound	12	6.5	6.5
Materials	12	8	8
Mind	12	7	9
Community	12	3	6
Innovation	10	10	10
TOTAL	**110**	**83 (Platinum)**	**92 (Platinum)**

Table 9: WELL Pre-Assessment Summary – UCL Offices

WELL Category	Total Points Available	Score Assessment	
		Baseline	Potential
Air	12	8	12
Water	12	12	12
Nourishment	12	3	3
Light	12	3	5
Movement	12	12	12
Thermal Comfort	12	0.5	1.5
Sound	12	6.5	6.5
Materials	12	8	10
Mind	12	7	9
Community	12	3	6
Innovation	10	10	10
TOTAL	**100**	**73 (Gold)**	**87 (Platinum)**

CONCLUSION

The sustainability strategy for the proposed development at 330 Gray's Inn Road has been developed with the design team to comply with the relevant environmental policies from the London Borough of Camden and the London Plan. Relevant energy policies have been addressed in the accompanying Energy Statement. The proposed development is targeting the achievement of BREEAM 'Excellent'.

The key sustainable design and construction measures incorporated in the proposals are summarised below:

- Efficient use of land via construction on a previously developed area.
- Retention and refurbishment of the original hospital building and reuse/recycling of materials from the demolition of other buildings at the site, as far as possible.
- Reconfiguration of the public realm through the creation of new pedestrian links through the site.
- Situation of the proposed building in close proximity to a range of amenities and provision of cycle storage to encourage building occupiers to walk or cycle, with the Health Impact Assessment demonstrating that the proposed development will have an overall positive impact on the occupants and surrounding community.
- Measures to reduce energy demand through a range of active and passive measures.
- Inclusion of Air Source Heat Pumps (ASHPs), electric boilers, and Photovoltaics (PV) to deliver CO_2 savings on site, compared to a building regulations compliant baseline.
- Incorporation of water saving fixtures and fittings.
- Use of 100% FSC certified timber or timber accredited by the Programme for the Endorsement of Forestry Certification (PEFC).
- Use of low embodied carbon materials as far as practically possible, whilst also focusing on design practices to reduce waste production.
- Improvement of the ecology on site via the introduction of landscaped areas within the proposed communal courtyard and planting on land that is currently covered with hard surfacing or existing buildings.
- Commitment to complete the surveys and implement the recommended measures outlined in the preliminary ecological survey.
- The adoption of both passive and active design measures to mitigate the potential risk of overheating.
- The incorporation of SuDS, to minimise surface water run-off and flood risk.

In summary, the proposed development at 330 Gray's Inn Road meets the targets set out by the Borough of Camden and the Greater London Authority (GLA). The commercial areas of the scheme could achieve a BREEAM score varying between 73.2% and 74.9% across the hotel and office/laboratory areas, exceeding the BREEAM 'Excellent' target of 70%.

The number of credits obtained in the BREEAM pre-assessment reflects the client and design team's aspirations in integrating sustainability measures and demonstrates that the project is designed to exceed the planning policy sustainability requirements. This is further evidenced via the developer's commitment to LEED and WELL, and the high scores targeted within these pre-assessments, which goes above and beyond planning requirements.

APPENDIX A – URBAN GREENING FACTOR

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URBAN GREENING FACTOR

9370 – 330 GRAY'S INN ROAD

This design note presents the updated Urban Greening Factor calculations for 330 Gray's Inn Road, based on the revised Landscape Design developed by East Landscape Architects. The ecological value of the development was calculated using the Urban Greening Factor methodology outlined in the London Plan and Urban Greening Factor Guidance.

The results demonstrate that a site-wide Urban Greening Factor of 0.25 is achievable if urban greening measures such as intensive and extensive green roofs, green walls and increased planting, in and around, the site boundary are incorporated.

INTRODUCTION

A S73 amendment application is being submitted for the proposed scheme at 330 Gray's Inn Road to reflect amendments to the previously consented scheme. Amendments to the basement levels of the scheme have necessitated a revised landscape design, including a revised scheme for the Railway Garden. For further information on these proposals, please refer to the Landscape Design, developed by East Landscape Architects. The UGF calculations have been updated to account for the proposed amendments to the landscape design. It may be observed that the overall UGF score has increased compared to the previously consented scheme.

POLICY G5 URBAN GREENING

Policy G5 within the London Plan (2021) encourages the inclusion of urban greening measures in new developments, in order to increase their ecological value and contribute to the greening of London. As described in the policy, *urban greening covers a wide range of options including, but not limited to, street trees, green roofs, green walls, and rain gardens*.

The ecological value of the site can be measured by subdividing the site in different habitats areas, each area having a certain weight indicating its ecological contribution. The factor used to assess the site green cover is the Urban Greening Factor (UGF), introduced by the Mayor of London. The UGF ranges between 0 and 1 (in increments of 0.1) and is based on the Green Space Factor used at an international level for cities. An impermeable surface such as concrete will have a factor of 0 whereas a natural surface with high environmental benefit, such as a mature tree in deep soil, will have a factor closer to 1; please refer to Table 1 below for a full list of published urban greening factors.

For a proposed development, the UGF is calculated in function of each green area type and its associated factor. Assuming there are three types of surfaces onsite, A, B and C, the UGF will be calculated as follows:

$$UGF = \frac{Factor\ A\ x\ Area(A) + Factor\ B\ x\ Area(B) + Factor\ C\ x\ Area(C)}{Total\ Site\ Area}$$

According to Policy G5, the proposed scheme is recommended to achieve a target score of 0.4 for the residential portion, and a target score of 0.3 for the commercial portion of the development.

Table 1: Urban Greening Factors (Extract from GLA Urban Greening Factor Guidance)

Urban Greening Factors	
Surface Cover Type	**Factor**
Semi-natural vegetation (e.g. trees woodland, species flower-rich grassland) maintained or established created on site.	1
Wetland or open water (semi-natural; not chlorinated) maintained or established created on site.	1
Intensive green roof or vegetation over structure. Vegetated sections only. Substrate minimum settled depth of 150mm	0.8
Standard trees planted in natural soils or in connected tree pits with a minimum soil volume equivalent to at least two thirds of the projected canopy area of the mature tree	0.8
Extensive green roof with substrate of minimum settled depth of 80mm (or 60mm beneath vegetation blanket) - meets the requirements of GRO Code 2014.	0.7
Flower-rich perennial planting.	0.7
Rain gardens and other vegetated sustainable drainage elements	0.7
Hedges (line of mature shrubs one or two shrubs wide)	0.6
Standard trees planted in pits with soil volumes less than two thirds of the projected canopy area of the mature tree.	0.6
Green wall -modular system or climbers rooted in soil	0.6
Groundcover planting	0.5
Amenity grassland (species-poor, regularly mown lawn).	0.4
Extensive green roof of sedum mat or other lightweight systems that do not meet GRO Code 2014.	0.3
Water features (chlorinated) or unplanted detention basins.	0.2
Permeable paving.	0.1
Sealed surfaces (e.g. concrete, asphalt, waterproofing, stone).	0

SITE SPECIFIC CALCULATIONS

The site layout plan by AHMM and East Landscape Architects has been used for the calculations within this report. All small pockets of site area within the boundary have been included in the calculations and the labelled areas can be found in the following section. Please refer to East Public Realm Strategy for further details.

RESULTS

According to Policy G5, the proposed scheme is recommended to achieve a target score of 0.4 for the residential portion, and a target score of 0.3 for the commercial portion of the development. Urban greening measures have been introduced to the proposed scheme to increase green cover of the site as far as is considered feasible by the design team The UGF is maximised through the specification of an extensive green roof area, green walls and increased planting along Swinton Street. Compared to the consented scheme the most significant change is the increased interlinking of tree pits allowing for larger mature tree sizes. With the inclusion of all practical measures, the scheme achieves a site wide UGF of 0.25 which represents an increase from the previously consented scheme.

Table 2: Results and Calculations

Urban Greening Factors				
Surface Cover Type	**Area (m^2)**	**Factor**	**Score**	**Consented Scheme**
Semi-natural vegetation (e.g. trees woodland, species flower-rich grassland) maintained or established created on site.	171	1	**171**	160
Wetland or open water (semi-natural; not chlorinated) maintained or established created on site.	5	1	**5**	0
Intensive green roof or vegetation over structure. Vegetated sections only. Substrate minimum settled depth of 150mm.	844	0.8	**675**	669
Standard trees planted in natural soils or in connected tree pits with a minimum soil volume equivalent to at least two thirds of the projected canopy area of the mature tree	166	0.8	**133**	67
Extensive green roof with substrate of minimum settled depth of 80mm (or 60mm beneath vegetation blanket) - meets the requirements of GRO Code 2014.	105	0.7	**74**	74
Flower-rich perennial planting - see Centre for Designed Ecology for case-studies.	44	0.7	**30**	43
Rain gardens and other vegetated sustainable drainage elements	16	0	**11**	27
Hedges (line of mature shrubs one or two shrubs wide) - see RHS for guidance.	0	0.6	**0**	0
Standard trees planted in pits with soil volumes less than two thirds of the projected canopy area of the mature tree.	30	0.6	**18**	10
Green wall -modular system or climbers rooted in soil	199	0.6	**119**	116
Groundcover planting	218	0.5	**109**	109
Amenity grassland (species-poor, regularly mown lawn).	135	0.4	**54**	54
Extensive green roof of sedum mat or other lightweight systems that do not meet GRO Code 2014.	0	0.3	**0**	0
Water features (chlorinated) or unplanted detention basins.	7	0.2	**1**	1
Permeable paving	431	0.1	**43**	36
Sealed surfaces (e.g. concrete, asphalt, waterproofing, stone).	3,621	0	**0**	0
Total Score	**1,443**			1,367
Site Area (m^2)	**5,795**			5,647
Urban Greening Factor (Sitewide)	**0.25**			0.24

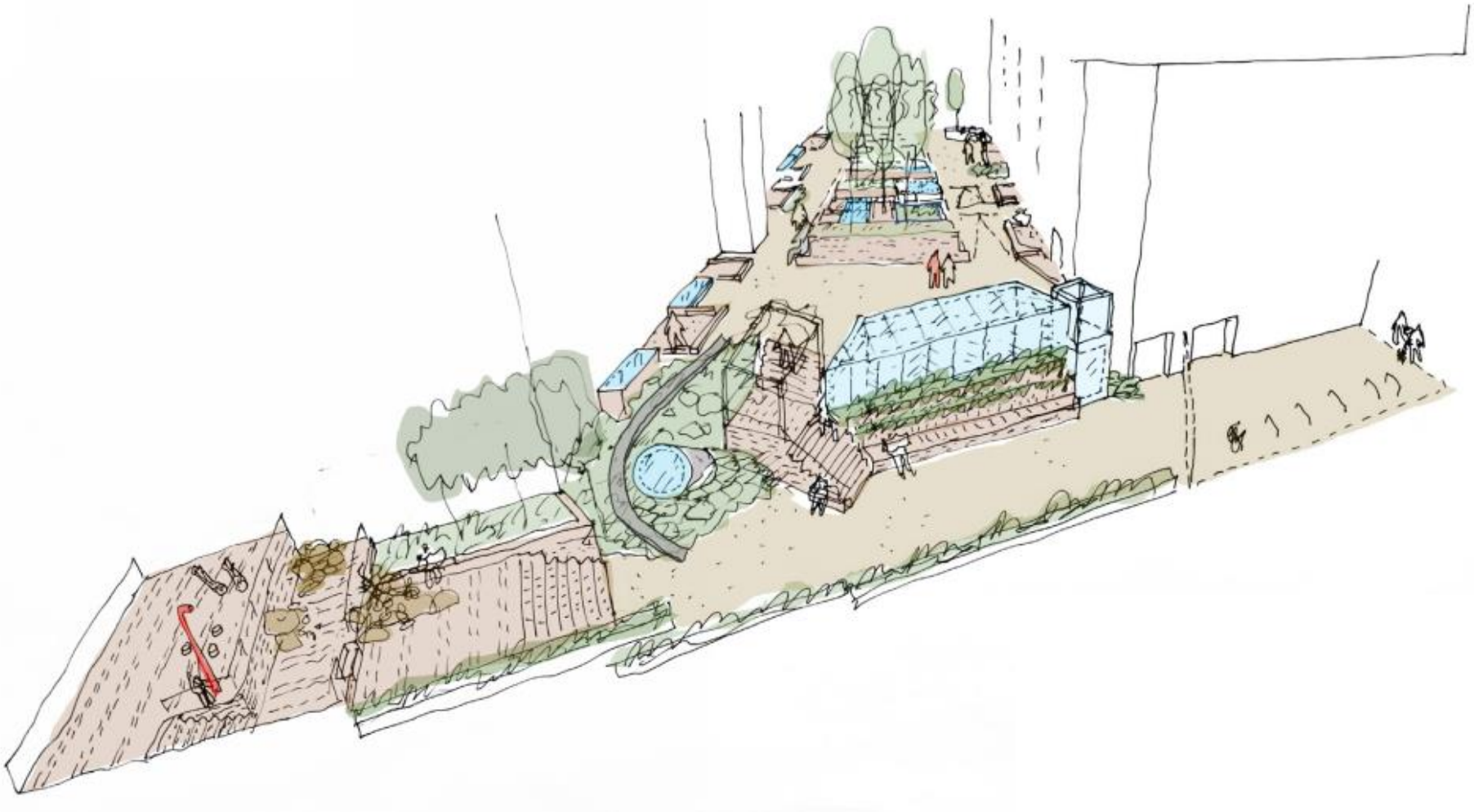

Figure 1: Revised Landscape Scheme (Developed by East Landscape Architects)

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