Sainsbury Wellcome Centre

SWC 5th Quad Support Building

Sustainability Statement

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ARUP

Contents

1 Introduction

Ove Arup and Partners Limited (‘Arup’) has been commissioned by Sainsbury Wellcome Centre (the ‘Applicant’) to produce the Sustainability Statement for the SWC 5th Quad Support Building, an addition to the existing Sainsbury Wellcome Centre in the London borough of Camden. This Sustainability Statement has been produced to support the planning application for the proposed development.

The report outlines how the SWC 5th Quad Support Building will respond to national, regional and local planning policy related to sustainable design and construction, including the London Plan 2021, Camden Local Plan (2017) and associated Camden Planning Guidance (CPG)s.

The sustainability performance of the SWC 5th Quad Support Building will be benchmarked using the Building Research Establishment Environmental Assessment Method (BREEAM) New Construction 2018. The BREEAM pre-assessment for the office is included in the appendix of this document.

The Sustainability Statement should be read in conjunction with all other planning documents.

2 Planning Context

This Statement has been prepared in response to the planning requirements and guidelines outlined in the following documents:

- Camden Local Plan (Camden Council, 2017, 'current CLP')
- Camden Planning Guidance (CPGs): Air Quality (January 2021), Biodiversity (March 2018), Energy efficiency and adaptation (January 2021), Planning for health and wellbeing (January 2021), Transport (January 2021), Trees (March 2021), and Water and Flooding (March 2019).
- The London Plan (Greater London Authority (GLA), March 2021)
- Sustainable Design and Construction Supplementary Planning Guidance (GLA, April 2014)
- National Planning Policy Framework (February 2019) and relevant planning practice guidance

2.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied. It provides guidance for local planning authorities drawing up local plans and is a material consideration for those determining applications.

The NPPF sets out a presumption in favour of sustainable development, and the need to support sustainable economic growth through the planning system. It identifies three overarching objectives as follows:

- **an economic objective** – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;
- **a social objective** – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and
- **an environmental objective** – to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

Planning plays a key role in shaping places to secure meaningful reductions in greenhouse gas emissions, providing resilience to the impacts of climate change and supporting the delivery of renewable and low carbon energy and associated infrastructure. This is central to the economic, social and environmental dimensions of sustainable development.

2.2 The London Plan (2021)

Greater London Authority (GLA) new London Plan, published on March 2021, sets out a new way of delivering 'Good Growth' which focuses on sustainable development and is defined as follows:

'Good Growth is about working to re-balance development in London towards more genuinely affordable homes for working Londoners to buy and rent. And it's about delivering a more socially integrated and sustainable city, where people have more of a say and growth brings the best out of existing places while providing new opportunities to communities.'

The new London Plan Chapter 9: Sustainable Infrastructure, sets out the new targets for sustainable design. It includes the following strategic policies that are relevant for this development's sustainable building design:

- Policy SI1 Improving air quality
- Policy SI2 Minimising greenhouse gas emissions
- Policy SI3 Energy Infrastructure
- Policy SI4 Managing heat risk
- Policy SI5 Water infrastructure
- Policy SI6 Digital connectivity infrastructure
- Policy SI7 Reducing waste and supporting the circular economy
- Policy SI8 Waste capacity and net waste self sufficiency
- Policy SI9 Safeguarded waste sites
- Policy SI10 Aggregates
- Policy SI12 Flood risk management
- Policy SI13 Sustainable drainage

Other policies from the London Plan contained in Chapter 3 Design, Chapter 5 Social Infrastructure, Chapter 6 Economy, Chapter 8 Green Infrastructure and Natural Environment or Chapter 10 Transport are also relevant to this project.

2.3 Camden Local Plan (2017)

The Camden Local Plan is a key document within Camden's development plan, which is the name given to the group of documents that set out the Council's planning policies. For the purposes of this document, the core document is the *Local Plan* updated in January 2017.

The Local Plan includes a number of policies relevant to sustainability, as follows:

Policy C1 Health and wellbeing

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.

Measures that will help contribute to healthier communities and reduce health inequalities must be incorporated in a development where appropriate.

The Council will require:

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

We will:

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

Policy A2 Open space. New and enhanced open space (extract)

To secure new and enhanced open space and ensure that development does not put unacceptable pressure on the Borough's network of open spaces, the Council will:

a. seek developer contributions for open space enhancements
b. apply a standard 0.74 sqm per occupant for commercial and higher education developments
c. give priority to securing new public open space on-site,
d. seek opportunities to enhance links between open spaces recognising the multiple benefits this may bring;
e. seek temporary provision of open space where opportunities arise.

Policy A3 Biodiversity (extract)

The Council will protect and enhance sites of nature conservation and biodiversity. We will:

- secure improvements to green corridors, particularly where a development scheme is adjacent to an existing corridor;
- seek to improve opportunities to experience nature, in particular where such opportunities are lacking;
- require 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;
- secure management plans, where appropriate, to ensure that nature conservation objectives are met; and
- 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;

Trees and vegetation

The Council will protect, and seek to secure additional, trees and vegetation. We will:

- expect developments to incorporate additional trees and vegetation wherever possible.

Policy D1 Design (extract)

The Council will seek to secure high quality design in development. The Council will require that development:

- respects local context and character;
- is sustainable in design and construction, incorporating best practice in resource management and climate change mitigation and adaptation;
- is of sustainable and durable construction and adaptable to different activities and land uses;
- integrates well with the surrounding streets and open spaces, improving movement through the site and wider area with direct, accessible and easily recognisable routes and contributes positively to the street frontage;
- is inclusive and accessible for all;
- promotes health;
- responds to natural features and preserves gardens and other open space;
- incorporates outdoor amenity space;
- preserves strategic and local views;

The Council will resist development of poor design that fails to take the opportunities available for improving the character and quality of an area and the way it functions.

Policy D2 Heritage (extract)

The Council will preserve and, where appropriate, enhance Camden's rich and diverse heritage assets and their settings.

Designed heritage assets include listed buildings. The Council will not permit the loss of or substantial harm to a designated heritage asset.

Listed Buildings

Listed buildings are designated heritage assets and this section should be read in conjunction with the section above headed 'designated heritage assets'. To preserve or enhance the borough's listed buildings, the Council will:

a. resist the total or substantial demolition of a listed building;
b. resist proposals for a change of use or alterations and extensions to a listed building where this would cause harm to the special architectural and historic interest of the building; and
c. resist development that would cause harm to significance of a listed building through an effect on its setting.

Policy CC1 Climate change mitigation (extract)

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.

We will:

a. promote zero carbon development and require all development to reduce carbon dioxide emissions through following the steps in the energy hierarchy;
b. require all major development to demonstrate how London Plan targets for carbon dioxide emissions have been met;
c. 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;
d. support and encourage sensitive energy efficiency improvements to existing buildings;
e. require all proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building; and
f. expect all developments to optimise resource efficiency.

For decentralised energy networks, we will promote decentralised energy by:

- working with local organisations and developers to implement decentralised energy networks in the parts of Camden most likely to support them;

Policy CC2 Adapting to climate change (extract)

The Council will require development to be resilient to climate change. All development should adopt appropriate climate change adaptation measures such as:

a. the protection of existing green spaces and promoting new appropriate green infrastructure;
b. not increasing, and wherever possible reducing, surface water run-off through increasing permeable surfaces and use of Sustainable Drainage Systems;
c. incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and
d. measures to reduce the impact of urban and dwelling overheating, including application of the cooling hierarchy.

Any 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

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

- ensuring development schemes demonstrate how adaptation measures and sustainable development principles have been incorporated into the design and proposed implementation;
- 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

The Council will seek to ensure that development does not increase flood risk and reduces the risk of flooding where possible. We will require development to:

a. incorporate water efficiency measures;
b. avoid harm to the water environment and improve water quality;
c. consider the impact of development in areas at risk of flooding (including drainage);
d. incorporate flood resilient measures in areas prone to flooding;
e. utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible; and
f. not locate vulnerable development in flood-prone areas.

Where an assessment of flood risk is required, developments should consider surface water flooding in detail and groundwater flooding where applicable. 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

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.

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.
- 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

The Council will seek to make Camden a low waste borough. We will:

a. aim 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;
b. 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;

c. 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
d. make sure that developments include facilities for the storage and collection of waste and recycling.

Policy T1 Prioritising walking, cycling and public transport (extract)

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, we will seek to ensure that developments:

a. improve the pedestrian environment by supporting high quality public realm improvement works;
b. make improvements to the pedestrian environment including the provision of high quality safe road crossings where needed, seating, signage and landscaping;
c. are easy and safe to walk through ('permeable');
d. are adequately lit;
e. 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

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:

- provides for and makes contributions towards connected, high quality, convenient and safe cycle routes,
- provides for accessible, secure cycle parking facilities exceeding minimum standards
- makes provision for high quality facilities that promote cycle usage including changing rooms, showers, dryers and lockers;
- is easy and safe to cycle through ('permeable'); and

Policy T2 Parking and car-free development

The Council will limit the availability of parking and require all new developments in the borough to be car-free.

We 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.

Policy T3 Transport infrastructure

The Council will seek improvements to transport infrastructure in the borough.

We will:

a. not grant planning permission for proposals which are contrary to the safeguarding of strategic infrastructure improvement projects; and
b. protect existing and proposed transport infrastructure, particularly routes and facilities for walking, cycling and public transport, from removal or severance;

2.4 Camden Pre-Application Feedback

A Pre-Application report for the SWC 5th Quad Support Building was produced, and a response was received from Camden borough council on 03/06/2021. This response provides sustainability-specific comments which have acted as further guidance for the project. The comments were as follows:

In accordance with Local Plan Policy CC1 and the London Plan, an Energy Statement would be required, as the proposal is a Non-domestic New Build with an uplift of between 500 sqm and 1000 sqm. There is a requirement of the greatest possible overall carbon reduction below Part L of 2013 Building Regulations. There would be a requirement for a 20% reduction in CO2 from on-site renewable energy generation after all other energy efficiency measures have been incorporated (application of the energy hierarchy).

The design approach would need to be supported by consideration of the Energy Hierarchy, with the primary focus on reducing the energy demands of the building at the Be Lean stage of the hierarchy. The proposal would be required to show how adaptation measures and sustainable development principles have been incorporated into the design and proposed implementation.

As per the above guidance, a compliant Energy Statement has been undertaken for the SWC 5th Quad Support Building which follows the framework of the Energy Hierarchy.

3 Design Response

The following section sets out the approach taken for the SWC 5th Quad Support Building to address relevant planning policies.

3.1 Community, health and wellbeing

3.1.1 Health and wellbeing

Camden Local Plan
Policy C1 Health and wellbeing

Camden Planning Guidance
Planning for health and wellbeing CPG January 2021

Current London Plan
Policy GG3 Creating a healthy city
Policy S2 Health and social care facilities

Health and wellbeing

The SWC 5th Quad Support Building will achieve thermal comfort, visual comfort and acoustic performance criteria as set out in BREEAM, complete an assessment in accordance with CIBSE TM52, and demonstrate that the risk of overheating has been mitigated.

3.1.2 Safety and security

Camden Local Plan
Policy C5 Safety and security

Current London Plan
Policy D11 Safety, security and resilience to emergency
Policy D12 Fire safety

Design and security

The project team will aim to achieve the BREEAM credit for Safe and Healthy Surroundings which includes measures to ensure that the design of entrances to the building provides a safe environment for pedestrians and cyclists

From a security perspective, the extension will be designed in line with the approach in use for the existing SWC building.

Fire safety

A fire strategy has been developed for the SWC 5th Quad Support Building to align as a baseline with the strategy for the main SWC building. The fire strategy complies with the life safety requirements of The Building Regulations 2010 (as amended). Additional client goals such as property protection and business continuity are also considered. The strategy also seeks to address Policies D12 Fire Safety and D3 Inclusivity in the New London Plan (2021).

The building shall be protected by a wet sprinkler system. On each floor the existing sprinkler system will be extended across the link bridge and distribute across the floor plate to serve sprinkler heads at high level.

The ground floor area under the new building extension shall also be protected by sprinklers. Any sprinkler pipework within external areas will be protected from freezing through trace heating.

3.2 Protecting amenity

3.2.1 Managing the impact of development

Camden Local Plan
Policy A1 Managing the impact of development

Camden Planning Guidance
Design

Sunlight, daylight, overshadowing and solar glare

A daylight study has been carried out to estimate the daylight factor within the 5th Quad. The daylight assessment of the 5th Quad compares it to the existing building's daylight conditions using daylight factor and identifies areas where additional strategies are needed to achieve the circadian aspirations set. Daylight factor (DF) is defined as the ratio of the indoor daylight illuminance at a point within the enclosure, to the outdoor illuminance at that point under the same unobstructed overcast sky.

Findings show that 40% of the occupied area has a daylight factor greater than 2%. The spaces adjacent to the East and West façades are very well lit by daylight. The spaces towards the middle of the 5fth Quad are receiving comparatively less daylight. In these areas the interior partition walls are planned to be glazed, allowing the occupant views out. This plays a key part in the user's experience, connecting them to the outdoors.

Further daylight assessments were carried out to understand the impact of the 5th Quad on the existing main building of SWC. The study showed that the daylight factor within the Lumium's B2 space has seen a significant reduction, but a sun patch is still observed in the interior vertical surfaces of the Lumium, giving the occupants a sense of the passage of time.

A circadian lighting strategy is proposed for the 5th Quad, including both natural and artificial lighting, that supports the human diurnal need for illumination and darkness cycles in tune with their circadian system. Where needed, the circadian lighting strategy proposed aims to achieve optimum effects of daylighting through the electric lighting. The electric lighting will enhance the occupant's visual experience, supplement the light levels and provide variability through tuneable white colour temperature, informed by the external daylight conditions.

Lighting approach

Sustainability is a core aspiration of the lighting vision for the SWC 5th Quad Support Building.

A successful sustainability strategy does not confine itself only to a low power density in the workplace but aims to identify sustainability holistically within the design process. The objective is for the lighting to break free from the linear approach of the "take-make-use-dispose" model and apply principles of the circular economy to the lighting design.

The lighting design of SWC 5th Quad Support Building seizes the opportunity to innovate the way in which lighting systems are designed, manufactured, procured, operated, and returned.

Five key principles have been defined for SWC 5th Quad Support Building sustainability strategy as follows:

1. Daylight

It is acknowledged to be the light of choice for both physiological and psychological wellbeing. This free source of light is where a sustainable lighting design begins, since the best approach to limit material use, limit operational and embodied carbon is to reduce the use of electric lighting in the first place.

2. Quality

The quality of the lighting design will have a significant impact on the longevity of its use, affecting its circularity. A lighting installation of quality in the workplace creates an environment that fosters creativity and wellbeing, has variability to promote visual interest, provides good illumination to faces and manages glare from the lighting sources. Its spectral distribution and colour rendering will be appropriate to reveal the materiality and texture of the interior architecture.

3. Adaptability

The lighting system proposed will be able to adapt to new layouts, functions and programmes over a building’s lifetime, while being able to integrate with technologies that may not exist at the time of design.

A lighting track system will be provided throughout all areas, with different types of lighting connected in response to the use of the space. This will achieve a consistency of lighting infrastructure throughout, whilst allowing easy adaptation of the lighting in response to spatial use changes.

Wireless Bluetooth controls will allow instant reconfiguration of the lighting without the need to recommission. The lighting control system will provide centralised control for the ambient lighting whereas localised task lighting and feature lighting - such as pendants suspended above informal meet-up tables, will be controlled by the users with a phone or tablet. This is achieved through the lighting control system that will grant levels of permissions to users, enabling them to override the automatic control for these cases.

4. Flexibility

The lighting system proposed will allow for flexibility in lighting outputs, layers and distributions of light within the spaces, such as that they can accommodate variable functions and uses throughout the day. Daylight linking, careful use of the lighting layers and lighting controls will allow the spaces to be transformed for example, from a teleconferencing setting to a more informal meeting room setting.

5. Materials

The materials used in the lighting infrastructure will be carefully considered. The embodied carbon depends on the raw materials used in the product and where they are sourced from. The manufacturing process as well as the location of the assembly factory all play a role on the carbon impact of the luminaire.

At its end of use, the lighting product should be capable of being dismantled to base components to be then upcycled, reused or -as a last resort- recycled. To expand on this, reuse has less impact than recycling, because the aim of circular lighting is to circulate the product back into the economy at its highest possible value instead of entering the longer loop of recycling down to its lower value material components.

There are environmental product declarations and cradle to cradle certifications available from lighting manufacturers that aid designers to make an informed decision. In the cases where such documents are not available, then a more detailed look into each life cycle stage of the luminaire is required to make an estimation on its environmental impact.

Management

The SWC 5th Quad Support Building is targeting the Environmental management credit under BREEAM Man 03, therefore the Contractor for the Works will operate an Environmental Management System (EMS) covering all main operations.

Additionally, a BREEAM Advisory Professional (AP) has been appointed to work with the project team and assist them in maximising performance against the agreed targets.

The SWC 5th Quad Support Building is also targeting the Responsible construction management credits under BREEAM Man 03, therefore is committed to:

- Manage the construction site entrance to minimise the impacts (e.g. safety, disruption) arising from vehicles approaching and leaving the development footprint.
- Ensure the development footprint is accessible for delivery vehicles fitted with safety features (e.g. side under run protection) to remove or limit the need for on-street loading or unloading. Where on-street loading is unavoidable, this should be appropriately managed.
- Identify access routes to the development footprint, including for heavy vehicles to minimise traffic disruption and safety risks to others.
- Minimise the risks of air, land and water pollution.
- Minimise the risks of nuisance from vibration, light and noise pollution.
- Practices that ensure the development footprint is safe, clean and organised at all times. This includes, but is not limited to, facilities, materials and waste storage.
- Ensure that there is clear and safe access in and around the buildings at the point of handover.
- Provide processes and equipment required to respond to medical emergencies.

- Identify and implement initiatives to promote and maintain the health and wellbeing of all site operatives within the development footprint. This can be via site facilities, site management arrangements, staff policies etc.
- Establish management practices and facilities encouraging equality, fair treatment and respect of all site operatives.
- Provide secure, clean and organised facilities (e.g. changing and storage facilities) for site operatives within the development footprint.
- Minimise risks of the site becoming a focus for antisocial behaviour in the local community (e.g. robust perimeter fencing, CCTV, avoid creating dark corners etc.).
- Regularly communicate aspects of the construction process that might impact the community, ensuring that nuisance and intrusion are minimised.
- Ensure ongoing training is provided, and up to date, for personnel and visitors.
- Ensure that site operatives are trained for the tasks they are undertaking (including any site-specific considerations).
- All visitor, workforce and community accidents, incidents and near misses are recorded and action is taken to reduce the likelihood of them reoccurring.
- Processes are in place to facilitate collecting and recording feedback from the community and to address any concerns related to the development footprint.

Considerate Constructors Scheme

Impacts on neighbours from construction will be mitigated by ensuring that the Contractor will comply with best practice on the Considerate Constructors Scheme (CCS). The Considerate Constructors Scheme (CCS) is a national initiative set up by the UK construction industry to improve its image. Sites and companies that register with the scheme sign up and are monitored against a Code of Considerate Practice, designed to encourage best practice beyond statutory requirements.

3.2.2 Biodiversity

Camden Local Plan
Policy A3 Biodiversity

Camden Planning Guidance
Biodiversity CPG March 2018
Trees CPG March 2019

Current London Plan
Policy G5 Urban greening
Policy G6 Biodiversity and access to nature

Ecological surveys

An ecologist has been appointed for the SWC 5th Quad Support Building to carry out a survey and make recommendations for maximising the ecological value of the site. The contractor will be required to take measures on site to protect any existing ecological features and enhance biodiversity wherever practicable, as per the ecologist's guidance.

3.2.3 Noise and vibration

Camden Local Plan
Policy A4 Noise and vibration

Current London Plan
Policy D14 Noise

No additional major items of external plant are proposed to serve the SWC support building. It is therefore not anticipated that there will be any increase in the noise generated by the building as a whole.

3.3 Sustainability and climate change

3.3.1 Climate change mitigation and adaptation

Camden Local Plan
Policy CC1 Climate change mitigation
Policy CC2 Adapting to climate change

Camden Planning Guidance
Energy efficiency and adaptation CPG Jan 2021

Current London Plan
Policy SI 2 Minimising greenhouse gas emissions
Policy SI 4 Managing heat risk

The energy hierarchy

A passive design review was completed during the RIBA Stage 3 design process, addressing issues such as building orientation, site layout and microclimate impacts.

The energy strategy for the overall site and in particular the new SWC 5th Quad Support Building have been designed in line with the energy hierarchy outlined in London Plan Policy SI2 Minimising greenhouse gas emissions:

- Be Lean: use less energy and manage demand during operation.
- Be Clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly.
- Be Green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site.
- Be Seen: monitor, verify and report on energy performance.

These measures are detailed within the Energy Assessment produced by Arup and should be read alongside this statement.

The key energy saving measures implemented in the design are:

Be Lean:

- Solar gains are limited through the optimisation of glazing sizes and implementation of high-performance glazing and highly reflective internal blinds. The building benefits from shading from surrounding buildings.
- Façade performance criteria have been developed to reduce heating and cooling loads, through low U values and high levels of air tightness.
- For much of the year, all occupied spaces will be naturally ventilated via occupant operated windows.
- When windows are closed, mechanical ventilation will be provided by a modular façade integrated ventilation unit with high efficiency heat recovery.
- Cooling to the office is efficiently delivered via a modular displacement system.
- Demand control ventilation by CO_2 sensors, ensuring the fresh air ventilation to non-occupied spaces can be reduced and even shut off.
- High efficiency lighting used throughout, with intelligent lighting control systems.

Be Clean:

- The 5th Quad will connect to the main building's existing CHP to make use of waste heat.

Be Green:

- The building does not have opportunities to implement renewable technologies, so no measures are taken in 'Be Green'.

The measures proposed result in a cumulative carbon emission saving of **36%** (SAP2012 carbon factors) or 33% (SAP10 carbon factors) against the TER Baseline, meeting the required 35% improvement set by the GLA. The 'Be Lean' Measures achieve a reduction of 28% (SAP2012) or 34% (SAP10) before the CHP system is added, as required by the GLA. Figure 1 and Figure 2 show the emissions reductions achieved through the stages of the energy hierarchy using SAP2012 and SAP10 respectively. The client is committed to achieving the on-site carbon emissions reduction, however the final means of achieving this will be subject to the detailed design of the 5th Quad building design.

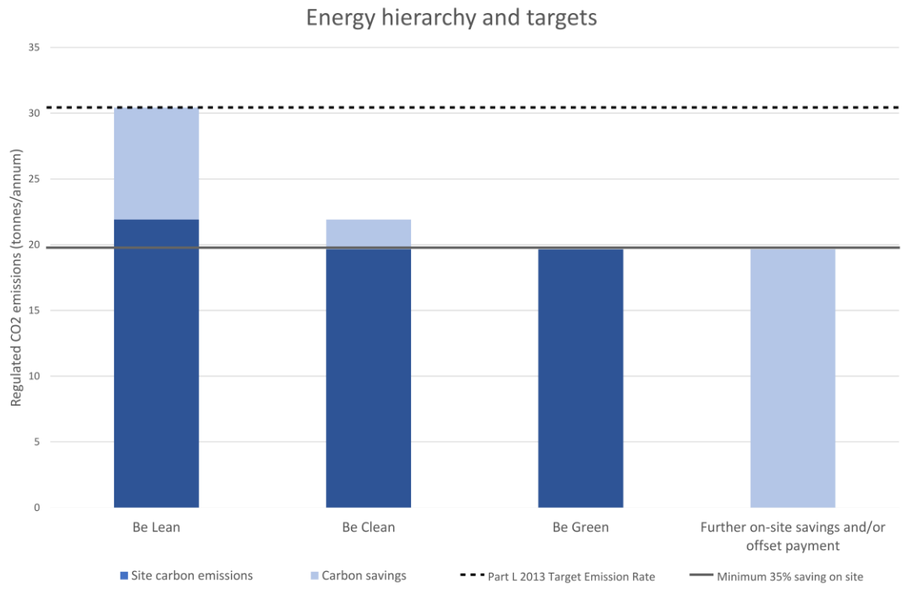

Figure 1 Carbon reductions achieved through the energy hierarchy – SAP2012

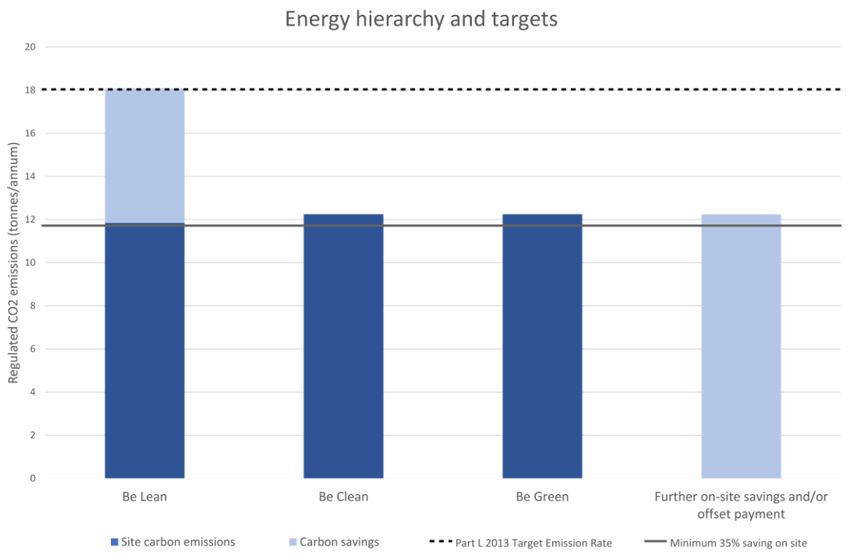

Figure 2 Carbon reductions achieved through the energy hierarchy – SAP10

Embodied carbon

An RIBA Stage 2 BREEAM Mat01 study has been undertaken for the superstructure of the SWC 5th Quad Support Building. The study follows the methodology for the BREEAM New Construction 2018 Mat 01 'Environmental impacts from construction products - Building life cycle assessment (LCA)' and has been carried out using an IMPACT (Integrated Material Profile And Costing Tool) compliant software programme; OneClick LCA.

The results of this study are shown in **Figure 3**.

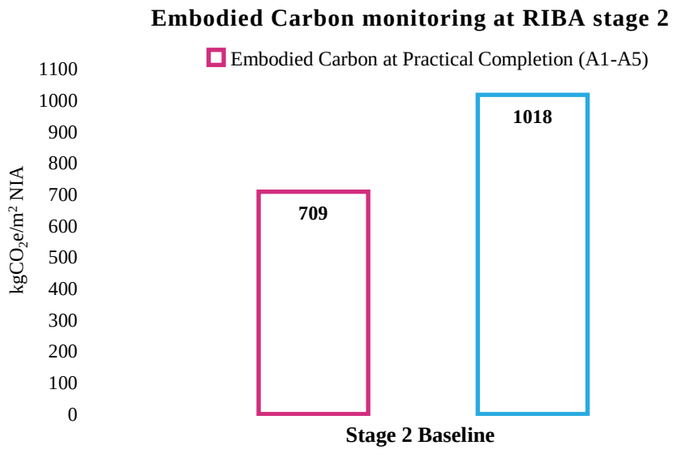

Figure 3 Stage 2 embodied carbon at practical completion (EC-PC, modules A1-A5) and over the building's life cycle (EC-LC, modules A-C)

The IMPACT-compliant LCA assessment identified the following:

- The Stage 2 embodied carbon footprint of the superstructure of the proposed development at Practical Completion (EC-PC, modules A1-A5) is approx. **545 tCO_2e (709 $kgCO_2e/m^2$ NIA)**.
- The embodied carbon for the superstructure over the life cycle (EC-LC, 60 years) is approx. **775 tCO_2e (1018 $kgCO_2e/m^2$ NIA)**.
- The above figures exclude operational carbon emissions.
- These results translate to 2nr BREEAM Mat 01 credits achieved at RIBA Stage 2.

Monitoring

In accordance with the new London Plan requirement for "Be Seen", energy performance will be monitored post-construction and the building's systems subject to seasonal commissioning until optimal performance is maintained under automatic control and the building operator is confident to manage ongoing operation.

Advanced modelling simulations will be carried out in the coming design stages in order to more accurately predict the energy consumption and to optimise the controls strategies of the systems.

Submetering of each individual use class is included in the design to help assess energy performance of the building in operation against the as-designed target. The project is considering a NABERS rating, whereby the actual energy performance of the building will be assessed annually and a NABERS rating awarded. The NABERS rating of the building would be publicly visible.

Climate change adaptation measures

A climate change adaptation and resilience review has been carried out for the SWC 5th Quad Support Building to identify opportunities to mitigate the impacts of climate change and maintain long term value in the building.

Adaption to climate change is the process of reducing vulnerability to the physical impacts of climate change, such as more severe weather, long-term changes in temperature and rainfall, and sea level rise. The role of climate change adaptation in sustainability is to ensure robustness and longevity of the building under changing climatic conditions. There are also crossovers between climate change adaptation and measures to reduce carbon emissions, particularly through energy efficiency, and other aspects of sustainability, such as water resource efficiency and social amenity.

The project is targeting the BREEAM Wst 05 Adaptation to climate change credit and has completed a climate change adaptation strategy appraisal for structural and fabric resilience. This appraisal identifies extreme weather conditions arising from climate change, and recommendations will be made to mitigate these impacts. These are detailed in Table 1.

Table 1: Risk Assessment Summary

Hazard	Risks	Risk management - risk reduction/mitigation measures
Temperature variation	- Deterioration to planted elements on site - Overheating in internal spaces - Poor building performance due to increased load	- Increased use of active solar control - Increased use of natural cross ventilation - Increased use of fan coils
Warmer summers, solar radiation and heat waves	- Excessive solar gains - Overheating in internal spaces - Poor building performance due to increased load	- Increased use of active solar control - Increased use of natural cross ventilation - Increased use of fan coils
Precipitation, Wetter winters	- Increased demand on drainage systems - Ponding/pooling of water on external terraces	- The roof is designed to account for storm conditions
Flooding	- Changes in future groundwater levels - Rising water level of the Thames due to sea level rise - High levels of surface run-off which may exacerbate flood risk	- The extension is elevated on pilotis above ground level which significantly reduces flood risk

The SWC 5th Quad Support Building will be resilient against future climate and needs of the community, with infrastructure and management designed to be adaptable so to protect from flooding, respond to heat waves and water shortages.

Cooling

Following the energy hierarchy, passive measures have been put in place to limit solar gains and reduce the need for mechanical cooling as far as possible. Full details are provided in the Energy Statement which should be read alongside this document.

Cooling will be generated by the existing air-cooled chillers located in the main building, using the redundant capacity within the system. The SWC 5th Quad Support Building will connect directly to the existing flow and return headers and will not have independent cooling generation equipment.

Cooling is provided to the rooms through displacement through the façade integrated ventilation units. The temperature range in the office has been expanded from BCO guidance of 21-24°C, to 20-26°C to further reduce energy use.

3.3.2 Water and flooding

Camden Local Plan
Policy CC3 Water and flooding

Camden Planning Guidance
Water and flooding CPG March 2019

Current London Plan
Policy SI 5 Water infrastructure
Policy SI 12 Flood risk management
Policy SI 13 Sustainable drainage

Water infrastructure

The water strategy is to minimise the water footprint of the extension through the use of water efficient appliances, generating only the hot water needed for use to minimise wastage and using water efficient fittings. To minimise the loss of water from taps leaking the extension will be metered and monitored on the BMS and solenoid valves linked to occupancy sensors will isolate the water supply to the kitchenette when this is not in use.

All BREEAM credits available for water consumption are being targeted.

Mitigating flood risk

A light-weight green roof will be installed on the roof of the 5th Quad building. This green roof will drain via two rainwater outlets and rainwater pipes will convey the rainwater to ground floor. The sloped glazing will drain into gutters which will discharge via rainwater pipes also dropping to ground floor.

The external east-west bridge link will drain via rainwater outlets at each floor and discharge via a rainwater pipe and offset at ground floor. All rainwater pipes will offset at high level on ground floor and drop into the basement (B1) where they will connect to the existing rainwater system. Some existing rainwater outlets on ground floor shall be retained to drain the external area.

3.3.3 Air quality

Camden Local Plan
Policy CC4 Air quality

Camden Planning Guidance
Air Quality CPG Jan 2021

Current London Plan
Policy SI 1 Improving air quality

Air Quality Assessments

There is no new combustion plant within the SWC 5th Quad Support Building, therefore the proposal does not include any additional equipment that will reduce air quality.

Delivery and servicing

Delivery and servicing activity is to continue to be via the existing service yard accessed from Cleveland Street. A delivery and servicing trip rate of 0.175 vehicles per 100sqm GIA per day was identified within the Delivery and Servicing Plan (DSP) for the existing site, equivalent to 24 vehicles per day for the existing building. Application of this trip rate to the additional proposed floorspace equates to an additional two vehicles per day and therefore a total of 26 vehicles per day overall.

The DSP also identifies the split of vehicle types as shown in Table 2.

Table 2: Delivery and Servicing Activity by Vehicle Type

Vehicle Type	Vehicle	Turnaround time (minutes)	Percentage	Forecast
PLGV – Private Light Goods Vehicle	3.5 Tonne, length 6m	15	83%	22
MGV – Medium Goods Vehicle	7.5 Tonne, length 8m	20	17%	4
LGV – Large Goods Vehicle	17 Tonne, length 10m	25		
Gas Bottle Delivery Vehicle	17 Tonne, length 9.35m	25		
Waste Collection Vehicle	26 Tonne, length 10m	25		
			Total	26

The service yard can accommodate up to two vehicles for loading at a time and is managed via a booking system. The service yard capacity therefore will be able to accommodate the additional two vehicles forecast without further loading facilities required. The impact of two additional vehicles will have a minimal impact on air quality.

Construction and demolition

The SWC 5th Quad Support Building is targeting the Responsible construction management credit under BREEAM Man 03. The principal contractor is therefore committed to taking actions to minimise the risks of air, land and water pollution, and also the risks of nuisance from vibration, light and noise pollution.

3.3.4 Waste

Camden Local Plan
Policy CC5 Waste

Camden Planning Guidance
Design

Current London Plan
Policy SI 2 Minimising greenhouse gas emissions
Policy SI 7 Reducing waste and supporting the circular economy
Policy SI 8 Waste capacity and net waste self-sufficiency
Policy SI 9 Safeguarded waste sites

Waste production and recycling

The SWC 5th Quad Support Building is targeting the Operational waste credit under BREEAM Wst 03 and is therefore committed to providing a dedicated space for the segregation and storage of operational recyclable waste generated. The space will be:

- Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams
- Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors
- Of a capacity appropriate to the building type, size and predicted volumes of waste that will arise from operational activities and occupancy rates.

Waste Management Plan

A Site Waste Management Plan (SWMP) will be developed for the SWC 5th Quad Support Building, which outlines the key objectives to achieve efficient use of material resources and to reduce the amount of waste produced due to the construction activities of the Site. It will be based on the guiding principles of sustainable resource and waste management: the waste hierarchy and the circular economy. The waste hierarchy and circular economy principles aim to reduce the quantity of waste generated while trying to maximise the efficient use of material resources.

In accordance with these principles, and in response to the relevant regulatory, policy and guidance context, the SWMP will set out a number of materials and waste management targets, as shown in **Error! Reference source not found.**.

Table 3 Waste management targets

Management type	Target
Waste generation	Less than 7.5m^3/100m^2 or 6.5 tonnes/100m^2 (gross internal area (GIA))
Landfill diversion	80% tonnage of waste diverted

3.4 Transport

3.4.1 Prioritising walking, cycling and public transport

Camden Local Plan
Policy T1 Prioritising walking, cycling and public transport
Policy T2 Parking and car-free development
Policy T3 Transport infrastructure

Camden Planning Guidance
Transport CPG January 2021

Current London Plan
Policy T3 Transport capacity, connectivity and safeguarding
Policy T4 Assessing and mitigating transport impacts
Policy T5 Cycling
Policy T6 Car parking

A Transport Statement and a Travel Plan have been prepared for the project by Arup.

The measures identified within the original Travel Plan are summarised for reference. The proposed development forms an expansion of the existing building but does not seek to alter its operation or type of use. These measures are therefore considered to remain appropriate for the proposed scheme.

Parking

There is no existing on-site car parking, and it is not proposed to introduce any additional car parking as part of this scheme. The site is to remain car-free.

Walking

There is a well-connected and high-quality pedestrian network around the site with footpaths on both sides of the carriageway as well as a number of formal pedestrian crossings including dropped kerbs and tactile paving.

Travel Plan measures to encourage walking / jogging are as follows:

- Provision of shower and locker facilities for those travelling by active modes.
- Promotion of the health benefits of walking.
- Inclusion of information on pedestrian routes and maps showing walking time to stations and local attractions to site included in induction packs.
- Encourage staff to organise walking events.
- Promotion of national events and challenges, such as walk to work week.
- Database of walking mentors who will accompany staff on initial journeys.
- Highest availability of shower and locker facilities for those travelling by active modes.
- Use travel questionnaire to understand and address and barriers to walking.

Cycling

There is a well-connected network of cycle routes around the site including segregated cycle lanes westbound along Howland Street and the eastbound route along Maple Street to the north of the site.

A Santander cycle hire stand is also located immediately adjacent to the site on Howland Street with capacity for up to 30 cycles.

Additional cycle parking is to be installed in accordance with London Plan 2021 standards, which define cycle parking requirements based on land use. The SWC 5th Quad Support Building is identified as Sui Generis. The cycle parking and proposed provision are summarised in Table 4.

Table 4 Cycle Parking Standards and proposal

London Plan Standards Land Use Class	Minimum Cycle Parking Standards		Proposed provision based on +30 staff
	Long-stay	Short-stay	
D1 – Sui Generis	1 space per 4 FTE staff + 1 space per 20 FTE students	1 space per 7 FTE students	8 long-stay spaces

The cycle parking is to be provided in the form of 4 sheffield stands located within the south courtyard. Provision of cycle parking in this format provides an alternative to the existing two-tier cycle parking available. 1 cycle parking space is to be marked for non-standard cycles. This equates to 12.5% of new provision and is in excess of the 5% required by London Cycle Design Standards.

Travel Plan measures to encourage cycling are as follows:

- Provision of cycle parking in line with London Plan standards.
- Provision of shower and locker facilities for those travelling by active modes.
- Provide staff/researchers with an induction pack including information on facilities available to people cycling, UCL Cycle Scheme, cycle routes/maps and links to UCL Green Website.
- Promote awareness of Santander Cycle Hire, and LB Camden free cycle training with links provided on SWC Sustainability web page.
- Publicising promotional material and national events such as Bike to Work campaign, UCL Go-Green Week, Doctor Bike and free bike security marking.

- Allowance for use of private bicycles for work related travel with mileage paid for.
- Bicycle User Group (BUG) set up to discuss and report issues relating to provision for cycling.
- Maintenance of cycle parking, lockers and showers to a high standard.

Public transport

The SWC 5th Quad Support Building benefits from a Public Transport Accessibility level (PTAL) rating of 6b, which indicates an ‘excellent’ connectivity to the surrounding network. The PTAL has been extracted from TfL’s WebCAT online tool.

There are frequent services across a number of routes on all public transport modes accessible from the site. This includes National Rail (Euston), London Underground (Great Portland Street, Warren Street, Goodge Street, Tottenham Court Road and Regents Park), and multiple bus stops.

Travel Plan measures to encourage use of public transport are as follows:

- Induction packs including links to relevant websites with public transport maps and information, which will also be provided on SWC sustainability web pages and UCL Green website.
- LCD screen provided near reception with public transport information.
- UCL provide interest free loans for purchase of public transport annual season tickets to permanent staff.

4 BREEAM UK New Construction 2018

A BREEAM UK New Construction 2018 (v3.0) assessment is being undertaken for the SWC 5th Quad Support Building.

This section outlines the results of the pre-assessment exercise, a summary of the strategy (i.e. targeted credits) currently adopted and the next steps in the assessment process. Pre-assessment is not a formal BREEAM certification stage, but it is intended to give an indication as to the likely level of performance based on the information available at this stage of the design.

The pre-assessment forms the basis of a strategy for the proposed SWC 5th Quad Support Building to achieve a minimum 'Excellent' BREEAM rating. The targeted rating has been set by the project team in line with the London Borough of Camden's planning requirements.

Following various sustainability workshops with the design team the targeted score for the assessment is **78.9%** which equates to an 'Excellent' BREEAM rating with all mandatory rating criteria targeted. The minimum score required for a BREEAM 'Excellent' rating is 70% with all mandatory criteria also achieved.

Table 5 Summary of targeted credits by category

Category	Available score	Target score
Management	11.0%	8.9%
Health & Wellbeing	14.0%	10.9%
Energy	16.0%	11.8%
Transport	10.0%	9.2%
Water	7.0%	7.0%
Materials	15.0%	9.6%
Waste	6.0%	4.2%
Land Use & Ecology	13.0%	12.0%
Pollution	8.0%	5.3%
Total	**100%**	**78.9%**
Expected BREEAM Rating		**Excellent**

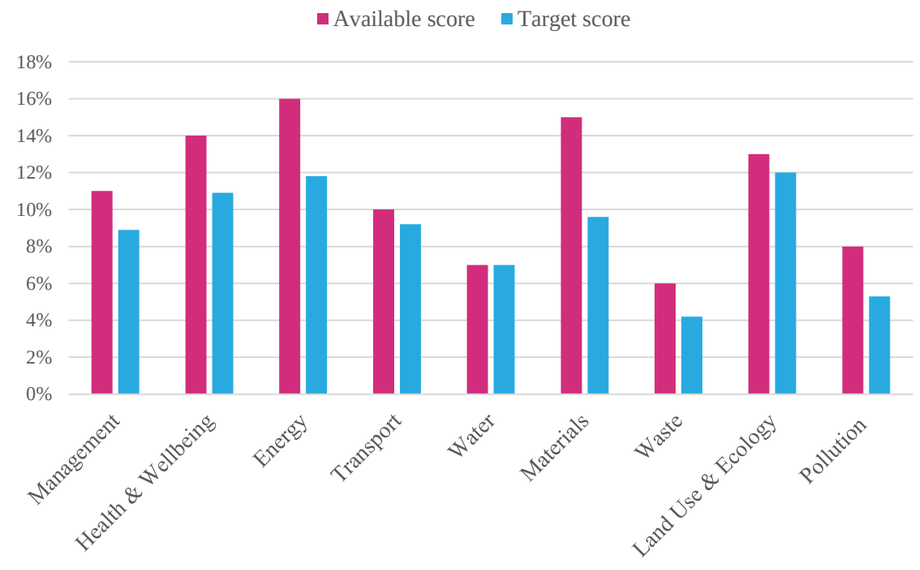

Figure 4 Targeted credits by category

The existing Sainsbury Wellcome Centre building achieved a final certificate of BREEAM 'Excellent' rating with a score of 73.7%.

5 Conclusion

This report has provided a summary of the SWC 5th Quad Support Building's alignment with local planning requirements including the new London Plan, Mayor of London's Supplementary Planning Guidance (SPG) and the Camden Local Plan.

The SWC 5th Quad Support Building has high sustainability aspirations, consistent with the existing building, as demonstrated by the measures described and the target rating of BREEAM 'Excellent' (which puts the building in the top 10% of new buildings in terms of sustainability performance, as described by the BRE).

The key sustainability measures include:

- A BREEAM UK New Construction 2018 'Excellent' rating for the project.
- A five-principle lighting strategy to maximise sustainable options.
- The anticipated Energy Performance Ratio for Non-Domestic New Construction (EPR_{NC}) is a score of 0.719 which is equivalent to 7 credits under BREEAM Ene 01.
- A BREEAM Mat 01 life cycle assessment undertaken to help the project team to understand the environmental impact of the building design and operation.
- The design takes into account resilience against future climate change with adaptable infrastructure and management designed to protect from flooding and respond to heat waves and temperature variation.
- A detailed transport strategy to encourage and facilitate public transport use, walking and cycling to site users.
- An Energy Statement which identifies passive design measures to optimise energy use in the building.

Appendix A BREEAM Pre-Assessment Scorecard

		Available	Targeted	Notes
Management				
Man 01	Project brief and design	4	2	2 credits – BREEAM Advisory Professional
Man 02	Life cycle cost and service planning	4	2	1 credit - Component level LCC options appraisal 1 credit - Capital Cost Reporting
Man 03	Responsible construction practices	6 +1	6	All credits targeted
Man 04	Commissioning and handover	4	4	All credits targeted
Man 05	Aftercare	3	3	All credits targeted
		21 + 1	**15**	
Health & Wellbeing				
Hea 01	Visual comfort	5 +2	3	1 credit – Control of glare from sunlight 1 credit – Internal and external lighting levels 1 credit – View Out
Hea 02	Indoor air quality	4 +1	3	1 credit – Ventilation 1 credit – Emissions from building products 1 credit – Post construction IAQ measurement
Hea 04	Thermal comfort	3	3	All credits targeted
Hea 05	Acoustic performance	3	3	All credits targeted
Hea 06	Security	1 +1	0	
Hea 07	Safe and healthy surroundings	2	2	All credits targeted
		18 + 4	**14**	
Energy				
Ene 01	Reduction of energy use and carbon emissions	13 +5	9	5 credits – Energy Performance 4 credits – Prediction of operational energy consumption
Ene 02	Energy monitoring	2	2	All credits targeted
Ene 03	External Lighting	1	1	All credits targeted
Ene 04	Low carbon design	3	2	1 credit – passive design analysis 1 credit – Low and zero carbon technologies
		19 + 5	**14**	
Transport				
Tra 01	Transport assessment and travel plan	2	2	All credits targeted
Tra 02	Sustainable transport measures	10	9	Accessibility Index Cycle Storage Cycle Facilities Transport Information Point Access to Amenities
		12	**11**	
Water				
Wat 01	Water consumption	5 +1	5	All credits targeted
Wat 02	Water monitoring	1	1	All credits targeted
Wat 03	Water leak detection	2	2	All credits targeted
		8 + 1	**8**	
Materials				
Mat 01	Environmental impacts from construction products - Building life cycle assessment (LCA)	7 +3	4	2 credits – Options appraisal at concept design stage 2 credits – Options appraisal at technical design stage.
Mat 02	Mat 02 Environmental impacts from construction products - Environmental Product Declarations (EPD)	1	1	All credits targeted
Mat 03	Responsible sourcing of construction products	4 +1	3	1 credit – enabling sustainable procurement 2 credits – measuring responsible sourcing
Mat 05	Designing for durability and resilience	1	1	All credits targeted
Mat 06	Material efficiency	1	0	
		14 + 4	**9**	
Waste				
Wst 01	Construction waste management	4 +1	3	2 credits – Construction Resource Efficiency 1 credit – Diversion from landfill
Wst 02	Use of recycled and sustainably sourced aggregates	1 +1	1	All credits targeted
Wst 03	Operational waste	1	1	All credits targeted
Wst 04	Speculative finishes (Offices only)	1	1	All credits targeted
Wst 05	Adaptation to climate change	1 +1	1	All credits targeted
Wst 06	Design for disassembly and adaptability	2	0	
		10 + 3	**7**	
Land Use & Ecology				
LE 01	Site selection	2	1	1 credit – Previously occupied land
LE 02	Ecological risks and opportunities	2 +1	2	All credits targeted
LE 03	Managing impacts on ecology	3	3	All credits targeted
LE 04	Ecological change and enhancement	4 +1	4	All credits targeted
LE 05	Long term ecological management and maintenance	2	2	All credits targeted
		13 + 2	**12**	
Pollution				
Pol 01	Impact of refrigerants	3	2	2 credits – impact of refrigerants
Pol 02	Local air quality	2	0	
Pol 03	Flood and surface water management	5	4	2 credits – flood resilience 2 credits – surface water run-off
Pol 04	Reduction of night time light pollution	1	1	All credits targeted
Pol 05	Reduction of noise pollution	1	1	All credits targeted
		12	**8**	

Notes

Where the number of available credits is set out in the format x + y, this indicates that there are a number of base credits available (x) plus a number of exemplary or innovation credits (y).

Where the notes column states “all credits” this refers to the base credits only. At this stage on the project, no exemplary credits or approved innovations have been assumed in the score.