150 HOLBORN

PLANNING ADDENDUM

SUSTAINABILITY STATEMENT AND BREEAM

PRE-ASSESSMENT

JULY 2017



150 Holborn Sustainability Statement



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EXECUTIVE SUMMARY

Dar Al-Handasah (DAH) has prepared this Sustainability Statement on behalf of the Client (DAH Real Estate sarl) in support of a planning application for the demolition of existing buildings and redevelopment for mixed use development up to nine storeys in height comprising 12,862 sqm GIA office floorspace (Use Class B1), 1,480 sqm GIA retail floorspace (Use Class A1-A3), 13 residential units (Use Class C3), improvements to the public realm and all other necessary enabling works.

Under Camden Council Planning guidance, the Project had a requirement to achieve a certain level of certification, which the design is currently abiding by until advised differently:

- BREEA M rating of 'Very Good' (for non-residential elements (office/retail)); and
- Code for Sustainable Home (CSH) rating of 'Level 4' (for new -built residential element).

Despite the w ithdraw al of the Code for Sustainable Homes (CSH) from regulation, the Project w ill be targeting an energy performance equivalent to CSH Level 4; a good achievement considering the site constraints and urban locale. Based on a pre-assessment, the commercial portion is on track to exceed the requirements and achieve a BREEAM 'Excellent' rating w ith a score of 89.9%.

Sustainable specific studies that have been undertaken as part of the planning submittal include a: Flood Risk Assessment (FRA), Ecology Survey (including Bat Survey), Air Quality Assessment and a Lifecycle Embodied Carbon Analysis.

With regards sustainable design principles, the Project is complying with the London Plan and Camden Development Policies (such as DP22 and DP 23); incorporating measures such as:

- Water-efficiency through low -flow fixtures as w ell as harvesting greyw ater to flush toilets and thus reduce stress on the local potable water and stormwater drainage systems;
- Enhancing positive ecological impact of development by including roof gardens and vertical vegetation w ithin the design to encourage wildlife;
- Using sustainable urban drainage measures such as green roofs to reduce the volume and rate of run-off;
- Encouraging the use of alternative options to motor vehicles (public transit, bicycles, etc);
- Providing adequate storage space for operational w aste; and
- Developing an energy efficient strategy for the Project.

1 INTRODUCTION

1.1 INTRODUCTION

This Sustainability Statement has been prepared by Dar Al-Handasah (DAH) in support of a planning application for the redevelopment of 150 Holborn w hich is bound by Holborn to the south, Gray's Inn Road to the w est and Brooke Street to the east (see Figure 1).



Figure 1 – Proj ect Location

1.2 PROJECT OVERVIEW

The redevelopment will provide a mix of office accommodation (Class B1), retail floorspace (Class A1-A3), residential units (Class C3) and public realm improvements. The description of development is: "Demolition of existing building and redevelopment for a mixed use development up to 9 storeys in height comprising 12,862 m2 GEA office floorspace (Use Class B1), 1,480 m2 GEA retail floorspace (Use Class A1-A3), 13 residential units (Use Class C3), improvements to the public realm and all other necessary enabling w orks".

1.3 PLANNING REQUIREMENTS

This document (Sustainability Statement) has been developed in order to comply with Camden's Local Area Requirements for Planning Applications, which requires a sustainability statement that:

- Provide details of sustainable design and construction measures showing how you propose to reduce the energy, water and materials used in design and construction.
 - The assessment that should be provided for Mixed Use (≥500 m2 of Floorspace) is:
 - Code for sustainable Homes (for residential component)
 - BREEAM (assessment for the non-residential part)
 - Energy new and existing development
 - In line w ith CS13 and Chapter 2 Camden Planning Guidance 3 Sustainability developments involving 5 or more dwellings and/or 500 m2 (gross internal) or more are required to submit an energy statement which demonstrates how carbon dioxide emissions w ill be reduced in line w ith the energy hierarchy
- Flooding
 - Developments located up stream of or near to the areas show n on Core Strategy Map 5 (and Development Policies Map 2) must demonstrate how the development w ill not increase the risk of flooding through the inclusion of mitigation measures
 - Developments on sites of 1 hectare and over are to submit a Flood Risk Assessment in accordance with the NPPF and related guidance.
- Waste Reduction
 - All developments are to submit a statement stating how it will aim for at least 10% of the total value of materials used to be derived from recycled and reused sources. This should relate to the WRAP Quick Wins assessments or equivalent.
 - Major developments are anticipated to be able to achieve 15-20% of the total value of materials used to be derived from recycled and reused sources.

2 PLANNING REQUIREMENTS

2.1 OVERVIEW

All developments in the London Borough of Camden should be compliant w ith the energy and sustainability requirements of the London Plan, as w ell as Camden's Local Plan, w hich w as adopted by Council on 3 July 2017 and has replaced the Core Strategy and Camden Development Policies documents as the basis for planning decisions and future development in the borough. Further guidance w as provided w ithin Camden Planning Guidance (CPG) 3 on meeting these policies, including an energy statement and the detailing of how the development w ill implement the sustainable design principles as noted in Camden Development Policies DP22 and DP23.

BREEA M sustainability certification for the project is required in line with the Camden Planning Policies (specifically Camden Local Plan). Camden Borough planning approval for the previous (MA KE scheme) version of the Project necessitated that (in line with Camden Planning Guidance CPG 3 'Sustainability' and the Development Policies DP22 and DP23) it achieved:

• BREEAM rating of 'Very Good' (for non-residential elements (office/retail)); and

• Code for Sustainable Home (CSH) rating of 'Level 4' (for new -built residential element). Additionally, the Project needs to achieve at least:

- 60% of the available credits in the BREEAM Energy category;
- 60% of the available credits in the BREEAM Water category; and
- 40% of the available credits in the BREEA M Materials category.

The Consultants have discussed the sustainability strategy and requirements with Camden Borough Council, and the criteria listed above are being follow ed (with BREEAM 'Excellent' being targeted).

2.2 LONDON BOROUGH OF CAMDEN

2.2.1 CAM DEN LOCAL PLAN - POLICY CC1: CLIMATE CHANGE MITIGATION

As part of the planning process, an Energy Statement should be submitted show ing how the development will meet the follow ing policy requirements:

- Follow the hierarchy of energy efficiency, decentralised energy and renew able energy technologies set out in the London Plan (2011) Chapter 5 to secure a 35% reduction in regulated CO2 emissions below the maximum threshold allow ed under Part L (2013).
- Where the London Plan carbon reduction target of 35% cannot be met on-site, Camden may
 accept the provision of measures elsew here in the borough or a financial contribution (charged
 at £90/tonne CO2/ year over a 30 year period), w hich w ill be used to secure the delivery of
 carbon reduction measures elsew here in the Camden borough.
- Camden Local Plan Policy CC1 requires all developments to achieve a 20% reduction in CO2 emissions through on-site renew able technologies (the 3rd stage of the energy hierarchy)

w herever feasible, and this should be demonstrated through the energy statement. Any shortfall in the 20% renew able energy target should be justified through a feasibility analysis.

There is an aspiration for all inaccessible roof areas to accommodate photovoltaic panels (PV).
 If the 35% improvement on Part L regulations is achieved then a low er provision of PVs (in order to create more green roof areas) is likely to be an acceptable position.

2.2.2 CAM DEN LOCAL PLAN - POLICY CC2: ADAPTING TO CLIM ATE CHANGE

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

- The protection of existing green spaces and promoting new appropriate green infrastructure;
- Not increasing, and w herever possible reducing, surface w ater runoff through increasing permeable surfaces and use of Sustainable Drainage Systems (SuDS)
- Incorporating bio-diverse roofs, combination green and blue roofs and green w alls w here appropriate; and
- Measures to reduce the impact of urban and dw elling overheating, including application of the cooling hierarchy.

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;
- Encourage new build residential development to use the Home Quality Mark and Passivhaus design standards;
- Encouraging conversions and extensions of 500 sqm of residential floorspace or above or five or more dw ellings to achieve "excellent" in BREEAM domestic ref urbishment; and
- 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.

2.2.3 CAM DEN LOCAL PLAN - POLICY CC3: WATER & FLOODING

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

- Incorporating w ater efficient features and equipment and capturing, retaining and re-using surface w ater and grey w ater on-site;
- Residential developments will be expected to meet the requirement of 110 litres per person per day (including 5 litres for external w ater use).
- Major developments should include a grey w ater and rainw ater harvesting system, unless it is demonstrated that such a system is not feasible or practical
- Avoid harm to the w ater environment and improve w ater quality;
- Consider the impact of development in areas at risk of flooding (including drainage);
- Incorporate flood resilient measures in areas prone to flooding;
- Utilise Sustainable Drainage Systems (SuDS) in line w ith the drainage hierarchy to achieve a greenfield run-off rate w here feasible; and
- Not locate vulnerable development in flood-prone areas.
- Where an assessment of flood risk is required, developments should consider surface w ater flooding in detail and groundw ater flooding w here applicable.

2.2.4 CAM DEN LOCAL PLAN - 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 w ill take into account the impact of air quality w hen 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 w here development is likely to expose
 residents to high levels of air pollution. Where the AQA show s that a development w ould
 cause harm to air quality, the Council w ill 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 w ill not be acceptable unless designed
 to mitigate the impact.
- Development that involves significant demolition, construction or earthw orks w ill 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.

In addition to Policy CC4, The Camden Local Plan also actively supports the improvement of air quality in Camden by:

- Requiring all new development in the borough to be 'car-free' (see "Policy T2 Parking and carfree development");
- Maintaining and increasing green infrastructure (see "Policy A2 Open space");
- Reducing emissions associated w ith new development (see "Policy CC1 Climate change mitigation"); and
- Supporting and encouraging sensitive energy efficiency improvements to existing buildings (see "Policy CC1 Climate change mitigation").

2.2.5 CAM DEN LOCAL PLAN - POLICY CC5: WASTE

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

- Aim to reduce the amount of w aste produced in the borough and increase recycling and the reuse of materials to meet the London Plan targets of 50% of household w aste recycled/composted by 2020 and aspiring to achieve 60% by 2031;
- The Council w ill require developments to provide adequate facilities for recycling and the storage and disposal of w aste.
- Facilities for home composting will be encouraged in appropriate development schemes.
- We will also seek to secure the reuse of construction w aste on development sites to reduce resource use and the need to transport materials.
- To ensure an integrated approach to w aste management and the highest possible reuse and recycling rates, the Council w ill encourage the submission of a site w aste management plan (SWMP) prior to construction.

2.2.6 LONDON BOROUGH OF CAM DEN – ADDITIONAL REQUIREM ENTS

Follow ing on from the pre-planning meeting on 17th November 2015, the additional sustainability requirements were placed on the Project by Camden Borough planners:

- Although the cycling facilities w ill be designed in accordance w ith the spatial requirements from Camden Planning Policy Guidance CPG7, it is necessary to achieve the more stringent cycling standards w ithin the latest London Plan (FALP) rather than those required w ithin CPG7, BREAAM or LEED schemes.
- Justification for the demolition of the existing building is required (Lifecycle Carbon Analysis), specifically an analysis of net reduction in carbon operational and embodied carbon levels.
- There will be a requirement to provide an :
 - Air Quality Assessment;
 - Ecology (Bat) Survey; and
 - Flood Risk Assessment.
- The scheme w ould need to consider an appropriate SUDs strategy in accordance w ith NPPF guidance. Specifically, a 50% improvement on run off rates is required, in line w ith Camden Planning Guidance 3, Section 11.5.

2.3 LONDON PLAN

The London Plan includes a range of policies related to climate change, with the majority of the mitigation and adaptation policies ref erenced within the Energy Strategy section of this report.

Policy 5.3: 'Sustainable Design and Construction' requires that the highest standards of sustainable design and construction should be achieved in London to improve the environmental performance of new developments and to adapt to the effects of climate change over their lifetime.

Development proposals should demonstrate that sustainable design standards are integral to the proposal, including its construction and operation, and ensure that they are considered at the beginning of the design process. Major development proposals should meet the minimum standards outlined in the Mayor's supplementary planning guidance and this should be clearly demonstrated w ithin a design and access statement. The standards include measures to achieve other policies in this Plan and the follow ing sustainable design principles:

- Minimising carbon dioxide emissions across the site, including the building and services (such as heating and cooling systems);
- Avoiding internal overheating and contributing to the urban heat island effect;
- Efficient use of natural resources (including w ater), including making the most of natural systems both w ithin and around buildings;
- Minimising pollution (including noise, air and urban runoff);
- Minimising the generation of w aste and maximising reuse or recycling;
- Avoiding impacts from natural hazards (including flooding);
- Ensuring developments are comfortable and secure for users, including avoiding the creation of adverse local climatic conditions;
- Securing sustainable procurement of materials, using local supplies w here feasible; and
 Promoting and protecting biodiversity and green infrastructure.

Within Local Development Framew orks, boroughs (such as Camden) have considered developing more detailed policies and proposals based on the sustainable design principles outlined above and those w hich are outlined in the Mayor's supplementary planning guidance that are specific to their local circumstances.

2.4 DESIGN RESPONSE

All aspects of the of the design, fabric and services for the dw ellings and commercial building have been assessed and review ed to ensure that the environmental benefits of the development are in keeping w ith the location and setting of the site.

Sustainable design standards are integral to the Project and have been considered at the beginning of the design process; w ith sustainability discussed at kick-of, incorporated in the Project Brief and sustainability charrettes/w orkshops held.

The follow ing sections of the Sustainability Statement describe the sustainable design aspects that have been considered to conf orm to Client and Planning requirements:

- Section 3 BREEAM Pre-Assessment
- Section 4 Energy
- Section 5 Flooding
- Section 6 Waste Reduction and Materials
- Section 7 Water
- Section 8 Biodiversity
- Section 9 Transport
- Section 10 Pollution

3 BREEAM AND CSHPRE-ASSESSMENT

3.1 OVERVIEW

The development is a Mixed Use (≥500sqm of Floorspace) project, and as per Camden's Local Area Requirements for Planning Applications February 2014, the follow ing sustainability assessment tools need to be undertaken:

- Code for Sustainable Homes (for residential component)
- BREEAM (assessment for the non-residential part)

3.2 BREEAM PRE-ASSESSMENT - NON-RESIDENTIAL

3.2.1 CAM DEN PLANNING REQUIREMENTS

As mentioned in Section 2.1, BREEA M sustainability certification for the project is required in line w ith the Camden Planning Policies – primarily Camden's Local Plan, w hich w as adopted by Council on 3 July 2017 and has replaced the Core Strategy and Camden Development Policies documents as the basis for planning decisions and future development in the borough, w ith London Borough of Camden requesting that the Project achieves:

- BREEAM rating of 'Very Good' (for non-residential elements (office/retail)); and
- Code for Sustainable Home (CSH) rating of 'Level 4' (for new -built residential element). Additionally, the Project needs to achieve at least:
- 60% of the available credits in the BREEAM Energy category;
- 60% of the available credits in the BREEAM Water category; and
- 40% of the available credits in the BREEA M Materials category.

3.2.2 DESIGN OVERVIEW

The Project is targeting BREEAM 'Excellent' through the BREEAM UK New Construction 2014 scheme

A BREEA M Pre-Assessment report for the Project has been completed and is attached w ith this statement. It includes assumptions on design development and construction initiatives, and has a target credit score of 86.8%.

This target exceeds the 70% threshold for a BREEAM 'Excellent' rating and includes a buffer against the potential loss of credits during design. It is expected that the final score at post-construction w ould exceed the threshold for Excellent, but w ould probably be below the Pre-Assessment score.

3.2.3 METHODOLOGY

The BREEA M calculation methodology for the NC 2014 scheme includes a mandatory performance requirement for energy consumption, demand and carbon reduction for an 'Excellent' rating. Preliminary modelling demonstrates that the required improvement in energy performance is achievable w ith the proposed mechanical systems, envelope performance and contribution from renew able technologies.

3.2.4 PRE-ASSESSM ENT SCORECARD

The target scenario for BREEA M Excellent is summarised in the table below . The current predicted rating is based on a combination of evidence in the current design and commitments by the Applicant to include specific elements in the scheme in the next stages of design.

Cradit	Description	Points		Responsibility
Credit		Available	Targeted	Responsibility
Management		21	21	12.0%
Man 01	Project brief and design	4	4	Architect / BREEAM Assessor /
				Client / Project Manager
Man 02	Life cycle cost & service life planning	4	4	Cost Consultant
Man 03	Responsible construction practices	6	6	Contractor
Man 04	Commissioning and handover	4	4	MEP Engineer / Contractor
Man 05	Aftercare	3	3	MEP Engineer / Client
Health and	Well-Being	17	14	12.4%
Hea 01	Visual comfort	4	3	MEP Engineer / Architect
Hea 02	Indoor air quality	5	4	MEP Engineer
Hea 04	Thermal comfort	3	3	MEP Engineer
Hea 05	Acoustic performance	3	2	Acoustic Consultant / Architect
Hea 06	Safety and security	2	2	Architect / Transport
				Consultant
Energy	•	23	18	11.7%
Ene 01	Reduction of energy use and carbon	12	8	MEP Engineer
	emissions			-
Ene 02	Energy monitoring	2	2	MEP Engineer
Ene 03	External lighting	1	1	MEP Engineer
Ene 04	Low carbon design	3	2	MEP Engineer
Ene 06	Energy efficient transport systems	3	3	MEP Engineer / Lift Consultant
Ene 08	Energy efficient equipment	2	2	MEP Engineer / Architect
Transport	Transport		9	9.0%
Tra 01	Public transport accessibility	3	3	BREEAM Assessor
Tra 02	Proximity to amenities	1	1	Architect
Tra 03	Cyclist facilities	2	2	Architect / Transport
				Consultant
Tra 04	Maximum car parking capacity	2	2	Architect / Transport
				Consultant
Tra 05	Travel plan	1	1	Transport Consultant
Water		8	6	5.3%
Wat 01	Water consumption	5	3	Architect / MEP Engineer
Wat 02	Water monitoring	1	1	MEP Engineer
Wat 03	Water leak detection	2	2	MEP Engineer
Materials		13	10	10.4%
Mat 01	Life cycle impacts	5	3	Architect / Structural Engineer
Mat 02	Hard landscaping & boundary protection	1	1	Architect
Mat 03	Responsible sourcing of materials	4	3	Architect / Procurement
Mat 04	Insulation	1	1	Architect / MEP Engineer
Mat 05	Designing for durability & resilience	1	1	Architect / Structural Engineer

Table 1 – BREEAM Score Summary

Curalit	Description	Points		
Credit		Available	Targeted	Responsibility
Mat 06	Material efficiency	1	1	Structural Engineer
Waste	•	9	7	6.6%
Wst 01	Construction waste management	4	3	Contractor / Architect
Wst 02	Recycled aggregates	1	0	Structural Engineer
Wst 03	Operational waste	1	1	Architect / Transport
				Consultant
Wst 04	Speculative floor and ceiling finishes	1	1	Client
Wst 05	Adaptation to climate change	1	1	Structural Engineer
Wst 06	Functional adaptability	1	1	Architect
Land Use a	nd Ecology	10	9	9.0%
LE 01	Site selection	2	1	Architect
LE 02	Ecological value of site & protection of	2	2	Ecologist
	ecological features			
LE 03	Minimising impact on existing site ecology	2	2	Ecologist / Contractor
LE 04	Enhancing site ecology	2	2	Ecologist / Landscape Architect
LE 05	Long term impact on biodiversity	2	2	Ecologist
Pollution		13	11	8.5%
Pol 01	Impact of refrigerants	3	3	MEP Engineer
Pol 02	NOx emissions	3	1	MEP Engineer
Pol 03	Surface water run-off	5	5	Structural Engineer
Pol 04	Reduce night time light pollution	1	1	MEP Engineer
Pol 05	Reduction of noise pollution	1	1	Acoustic Consultant
Innovation		10	2	6.0%
Inn 1.3	Man 05: Aftercare	1	1	MEP Engineer
Inn 1.12	Wst 05: Adaption to climate change	1	1	Architect
TOTAL BREEAM SCORE		Exce	llent	86.8%

3.2.5 CAM DEN POLICY GUIDANCE 3: SUSTAINABILITY TARGETS

The project meets the BREEAM section sub-targets included in CPG3: Sustainability as follow s:

Category	Target	Score
Energy	60%	78.3%
Water	60%	77.8%
Materials	40%	76.9%

3.2.6 NEXT STEPS

In order to achieve the target BREEA M rating upon completion of construction, the design team w ould continue to liaise w ith the BREEEA M Assessor for the project, to monitor and document progress against each credit. The follow ing approach w ould be taken to achieve the target rating:

- The BREEAM Assessor w ould attend regular meetings w ith the design team to maintain familiarity w ith the BREEAM process and compliance criteria.
- A Design Stage Assessment w ould be carried out and submitted to the BRE upon completion of tender documentation, to validate the proposed design strategies.
- The Contractor appointed for the scheme w ould be responsible for achieving the targeted BREEA M rating on the development. The pre-assessment carried out at design stage demonstrates that a score exceeding the 'Excellent' threshold is achievable, how ever the BREEA M system is designed to be flexible and theref ore the developer may achieve the 'Excellent' threshold using a different solution. A final BREEAM assessment w ould be undertaken at completion of construction to verify the project's rating.

3.3 CSH PRE-ASSESSMENT - RESIDENTIAL PORTION

3.3.1 OVERVIEW

The Ministerial Statement of 25th March 2015 has resulted in the Housing Standards Review w ithdraw ing the Code for Sustainable Homes (except for legacy cases) and set a new system of optional Building Regulations on w ater and access as w ell as a new national space standard.

The draft MALP 2015 London Plan policy 5.3 'Sustainable design and construction' removes requirements for the Code for Sustainable Homes (CSH) but continues to require development to demonstrate that sustainable design standards are integral to the proposal, including its construction and operation.

3.3.2 CAM DEN PLANNING REQUIREMENTS

Acceptable new residential schemes will be required by Camden Council to ensure that the measures stated in the Sustainability Statement are secured and implemented, including:

- New residential development will be required to demonstrate that the development is capable of achieving a maximum internal w ater use of 105 litres per person/day, with an additional 5 litres person/day for external w ater use (Wat 01: Indoor Water Consumption).
- Follow the hierarchy of energy efficiency, decentralised energy and renew able energy technologies set out in the London Plan (2011) Chapter 5 (particularly Policy 5.2) to secure a minimum 20% reduction in regulated carbon dioxide emissions below maximum threshold allow ed under Part L 2013 (20% is equivalent to CSH Level 4 mandatory requirements).
- Camden Local Plan Policy CC1 requires that all developments (existing and new build) achieve a 20% reduction in on-site carbon dioxide emissions through renew able technologies, unless demonstrated that such provision is not feasible.

3.3.3 CSH PRE-ASSESSMENT

The target scenario for CSH summarised in the table below. The current predicted rating of 69% (Level 4) is based on a combination of evidence in the current design and commitments by the Applicant to include specific elements in the scheme in the next stages of design.

Credit	Description	Points		Rosponsibility
		Available	Targeted	Responsibility
Energy & CO2 Emissions		31	17	19.9 %
Ene 01	Dwelling emissionrate	10	3	MEP Engineer
Ene 02	Fabric energy efficiency	9	5	MEP Engineer / Architect
Ene 03	Energy display devices	2	2	MEP Engineer / Architect
Ene 04	Drying space	1	1	Architect
Ene 05	Energy labelled white goods	2	2	MEP Engineer / Client
Ene 06	External lighting	2	2	MEP Engineer / Architect
Ene 07	Low and zero carbon technologies	2	0	MEP Engineer / Architect
Ene 08	Cycle storage	2	2	Architect
Ene 09	Home office	1	0	Architect
Water		6	4	6 %
Wat 01	Indoor water use	5	3	MEP Engineer / Architect
Wat 02	External water use	1	1	MEP Engineer / Architect
Materials		24	16	4.8 %
Mat 01	Environmental impact of materials	15	10	Architect
Mat 02	Responsible sourcing of materials – basic building elements	6	4	Architect
Mat 03	Responsible sourcing of materials – finishing elements	3	2	Architect
Surface Water Run-Off		4	4	2.2 %
Sur 01	Management of surface water run-off from developments	2	2	Architect / Structural Engineer

Table 2 – CSH Score Summary

	Description	Points			
Credit		Available	Targeted	Responsibility	
Sur 02	Flood risk	2	2	Architect / Structural Engineer	
Waste	·	8	6	4.8 %	
Was 01	Storage of non-recyclable waste and recyclable household waste	4	4	Architect	
Was 02	Construction site waste management	3	2	Contractor / Architect	
Was 03	Composting	1	0	Architect	
Pollution		4	2	1.4 %	
Pol 01	Global warming potential (GWP) of insulants	1	1	MEP Engineer	
Pol 02	NOx emissions	3	1	MEP Engineer	
Health & W	/ell-Being	12	10	11.7 %	
Hea 01	Daylighting	3	2	MEP Engineer / Architect	
Hea 02	Sound insulation	4	3	Structural Engineer/ Architect	
Hea 03	Private space	1	1	Architect	
Hea 04	Lifetime Homes	4	4	Architect / Client	
Manageme	nt	9	8	8.9 %	
Man 01	Site selection Home user guide	3	3	Architect	
Man 02	Considerate Constructors Scheme	2	1	Contractor / Architect	
Man 03	Construction site impacts	2	2	Contractor / Architect	
Man 04	Security	2	2	Architect	
Ecology		9	7	9.3 %	
Eco 01	Ecological value of site	1	1	Ecologist	
Eco 02	Ecological enhancement	1	1	Ecologist / Landscape Architect	
Eco 03	Protection of ecological features	1	1	Ecologist / Contractor	
Eco 04	Change in ecological value of site	4	3	Ecologist / Landscape Architect	
Eco 05	Building footprint	2	1	Architect	
TOTAL CSH SCORE		CSH Le	evel 4	69 %	

The residential portion of the development has been designed with these requirements in mind and the Project is on track for a score in excess of 68% (the CSH 'Level 4' threshold), as well as to achieve the CSH Level 4 minimum standard requirements for internal w ater use (Wat 01: Indoor Water Consumption) and energy efficiency (Ene01: Dw elling Emission Rate).

This 25% Improvement in Dw elling Emission Rate over Target Emission Rate (equivalent to 20% reduction in regulated carbon dioxide emissions below maximum threshold allow ed under Part L 2013) is demonstrated w ithin the Energy Strategy (Section 4).

4 ENERGY

4.1 OVERVIEW

Details on the energy strategy for the development are provided within the 'Energy Strategy' Report

4.2 PLANNING REQUIREMENTS

As part of the planning process, Camden Borough requires that an Energy Statement should be submitted show ing how the development will meet the follow ing policy requirements:

- Follow the hierarchy of energy efficiency, decentralised energy and renew able energy technologies set out in the London Plan (2011) Chapter 5 to secure a 35% reduction in regulated CO2 emissions below the maximum threshold allow ed under Part L (2013).
- Where the London Plan carbon reduction target of 35% cannot be met on-site, Camden may
 accept the provision of measures elsew here in the borough or a financial contribution (charged
 at £90/tonne CO2/ year over a 30 year period), w hich w ill be used to secure the delivery of
 carbon reduction measures elsew here in the Camden borough.
- Camden Local Plan Policy CC1 requires all developments to achieve a 20% reduction in CO2 emissions through renew able technologies (the 3rd stage of the energy hierarchy) w herever feasible, and this should be demonstrated through the energy statement. Any shortfall in the 20% renew able energy target should be justified through a feasibility analysis.
- There is an aspiration for all inaccessible roof areas to accommodate photovoltaic panels (PV).
 If the 35% improvement on Part L regulations is achieved then a low er provision of PVs (in order to create more green roof areas) is likely to be an acceptable position.

4.3 ENERGY STRATEGY

The follow ing Energy Hierarchy, as set out in the GLA guidance on preparing energy assessments methodology, w as adopted to help guide decisions about w hich energy measures are appropriate, and in order to optimise design solutions to maximise carbon reductions:

- Be Lean: using less energy and utilising passive sustainable design measures;
- Be Clean: supplying energy efficiency, including the use of decentralised energy production;
- Be Green: using renew able energy where possible to further reduce carbon emissions.

Design measures to limit local pollution from heating sources are addressed w ithin the Energy Strategy Report and include the reduction of:

- Carbon dioxide emissions across the site, including the building and services;
- Internal overheating and contributing to the urban heat island effect; and
- Efficient use of natural resources (e.g. gas, water and electricity usage)

The Energy Strategy Report show s that best in class mechanical and electrical system efficiencies together w ith a high performing building fabric significantly reduces carbon emissions (21.8%).

There is not a viable year-round load to make CHP (combined heat and pow er) suitable; theref ore this technology has not been included to reduce carbon emissions. Photovoltaic panels are the only suitable renew able technology for this development.

5 WASTE REDUCTION

5.1 OVERVIEW

Measures to minimise w aste generation w hilst also endorsing the maximisation of recycling and reuse of materials is addressed w ithin the 'Waste and Servicing Management Plan', in accordance w ith the requirements of Camden Local Plan Policy CC5.

5.2 PLANNING REQUIREMENTS

Camden Sustainability Statement requires the follow ing to be addressed:

- All developments are to submit a statement stating how it w ill aim for at least 10% of the total
 value of materials used to be derived from recycled and reused sources. This should relate to
 the WRAP Quick Wins assessments or equivalent.
- Major developments are anticipated to be able to achieve 15-20% of the total value of materials used to be derived from recycled and reused sources.

5.3 MATERIALS STRATEGY

From the BREEAM Pre-Assessment, the project in on target to achieve 76.9% of the Materials credits - w ith 40% being the minimum target set by Camden Borough.

The London Plan and supporting policy documents highlight materials and their life cycle impacts as a key priority for achieving sustainable development in the built environment. A preliminary Materials Audit has been carried out using the BREEAM methodology for credit Mat 01 (Life Cycle Impacts), predicting that 3 of the 5 available materials credits w ould be achieved for the project.

A sustainable procurement plan is being developed for the project that will specify responsible sourcing of materials, w hich w ill include environmental product declarations (EPD) as w ell as targets for the recycled content of materials (by value) in line w ith Camden requirements. It is the intention of the development to use only materials that are certified under a Green Product Certification Scheme in order to minimize the embodied energy and associated environmental impact – this will be ref erenced w ithin the project Sustainable Procurement Plan. This will ensure that materials used in the design are sustainably procured and will come from a supervised and responsibly sourced supply chain; using local supplies w here feasible.

6 FLOOD RISK

6.1 PLANNING REQUIREMENTS

6.1.1 FLOOD RISK ASSESSM ENT

Camden Borough planning approval for this Project necessitates that certain documents are submitted by the end of Concept Design (RIBA Stage 2). As part of the sustainability statement, a section on Flooding must be included that covers the follow ing requirements:

- Developments located up stream of the areas show n on Camden Local Plan Policy CC3 'Map 6: Historic flooding and Local Flood Risk Zones' must demonstrate how the development w ill be designed to cope w ith flooding and how the risk w ill be mitigated w ithout increasing the risk elsewhere.
- Development on sites of 1 hectare and over are to submit a Flood Risk Assessment (FRA)

6.1.2 STORM WATER MANAGEMENT

The additional Camden Planning requirements also exist with regards stormwater management:

- Within Camden, Sustainable Drainage Systems (SuDS) must be designed in accordance w ith London Plan Policy 5.13: 'Sustainable Drainage'. This requires that developments should utilis e sustainable urban drainage systems (SUDS) unless there are practical reasons for not doing so, and should aim to achieve greenfield run-off rates and ensure that surface w ater run-off is managed as close to its source as possible in line w ith the drainage hierarchy
- Camden Local Plan Policy CC3 requires developments to achieve a greenfield run off rate once SuDS have been installed. Where it can be demonstrated that this is not feasible, a minimu m 50% reduction in run off rate across the development is required.

6.2 DESIGN RESPONSE – FLOOD RISK ANALYSIS

6.2.1 FLOOD RISK ANALYSIS

The noted map (Figure 2), w as developed by Environment Agency to show parts of the borough that have experienced significant sew er or surface w ater flooding and places that are considered to have the potential to be at risk of surface w ater flooding, given the topography and depth of the site.

From the Property Flood Likelihood Database sourced from the Environment Agency's National Receptor Dataset (NRD), it is noted that the Project site (circled in red) is not within Flood Zones 2 or 3, and is thus in Flood Zone 1 with a low probability of flooding (Figure 3).





Figure 2 - Project Flood Risk (Project site (circled in red) is outside of the affected flood risk areas)

Figure 3 – EA Proj ect Flood Zones

As the development is less than 1 hectare in size (0.29 ha) and w ithin Flood Zone 1 (unless it could be affected by sources of flooding other than rivers and the sea, e.g. surface w ater drains), neither Camden nor the Environment Agency (EA) require a full FRA as part of the planning process.

The development has also been assessed with regards to the London Plan Policy 5.12: 'Flood Ris k Management' and noted that the development is outside of any know n flood-risk areas.

A Site Solutions report w as produced by Argyll Environment in March 2015 as part of the Client's purchase of the site. It identified the Flood Risk as Low - the Site is not considered to be at a significant risk of flooding, and noted the follow ing:

- The Site is at a low risk of flooding from rivers or the sea (as it is at a relatively high elevation above sea level) ;
- There are no water features shown on the Ordnance Survey maps within 500m of the Site;
- There is a negligible risk of groundw ater flooding in this area and any groundw ater flooding incidence w ill be less frequent than 1 in 200 years return period ;
- The EA's records have no indication of past flooding w ithin 500m of the Site; and
- There are no rivers, canals, or drainage channels identified by the regulatory body's detailed river network within 500m of the Site

6.2.2 FLOOD RISK ASSESSM ENT

Further discussions with Camden Borough planners on 17th November 2015 resulted in a request for a Flood Risk Assessment (FRA) to be produced as part of the planning submittal.

Theref ore, in line w ith BREEAM Pol 03: Flood Risk, a FRA w as undertaken by consultants (Sanderson Associates) to provide a more detailed understanding of the site. It has identified that the project is w ithin a low flood-risk location. With this in mind, the Project basement area is being protected against w ater penetration so that it can be used for back of house purposes (siting of mechanical plant and cycle storage) along w ith retail basement uses.

The FRA is attached as part of the Planning Submittal.

6.2.3 DESIGN RESPONSE – STORM WATER MANAGEM ENT

Camden Borough requires that the scheme w ould need to consider an appropriate Sustainable urban drainage systems (SuDS) strategy in accordance w ith NPPF guidance. Specifically, a 50% improvement on run off rates is required, in line w ith Camden Planning Guidance 3, Section 11.5.

Sustainable urban drainage systems for the development have been utilised in accordance w ith the requirements, to ensure that surface w ater run-off is managed as close to its source as possible, w ith measures such as green roofs and attenuation tanks analysed for feasibility.

With regards stormw ater management, urban run-off has been calculated for the project, with:

- The volume and rate of run-off from heavy rainf all designed to be reduced through the use of appropriate sustainable urban drainage systems (SuDS), including vegetative roofs (sedum) w hich have the capacity to moderate this rainf all runoff through both retention (w ater holding) and detention (flow-slowing) properties; and
- Run-off calculations presented to Thames Water to ascertain w hether additional rainw ater attenuation tanks w ill be needed for the site.

7 WATER

Water consumption will be reduced in line with Camden Local Plan Policy CC3 requirements for efficient use of water, with the following design measures considered:

- Wastew ater w ould be collected from sinks, show ers and w ashing machines w ithin the commercial and residential buildings. This w ater w ould discharge into greyw ater treatment plant, w hich w ould be located in the basement. Once treated, the w ater w ould be supplied back into the development for re-use (e.g. toilet flushing);
- Water efficient fixtures, fitting and appliances such as low -flush toilets are specified w ithin the commercial and residential portions of the development;
- In line with Camden Policy Guidance 3 (CPG3) Sustainability Targets, the development is on target for achieving 60% BREEA M of the available water credits (currently targeting 77.8%);
- No water features have been incorporated within the current design.

8 **BIODIVERSITY**

Biodiversity is promoted and protected w ithin the development. To ensure that the site ecology is protected and enhanced, a Suitably Qualified Ecologist has undertaken an ecology survey (including bat survey and tree survey). Their recommendations w ill be incorporated into the final scheme, and they have proposed ecological enhancements such as:

- The roofs of the residential block are designed to be covered by green roofs (an extensive sedum roof system is proposed), with the Level 8 floor of the office building including a substantial roof garden that will incorporate a variety of natural and adaptive vegetation types that will suit the local environment and attract indigenous wildlife. These roof terraces will include a pavilion feature to provide shading for people visiting them, along with strategically located trees and other shade structures;
- Within the passagew ay and backyard shared surface, there is a vertical garden proposed as a ribbon of w alled vegetation along the project boundary; and
- Although the tree survey and bat surveys did not indicate that there w ere either protected trees
 or nesting bats w ithin the site, they advised design, construction or operational measures to
 implement to minimise and ecological impacts. Ecological features w ill be incorporated into the
 design, adding ecological value to the site by providing habitats and resources for a variety of
 species (principally, invertebrates, birds, bats).
- The Ecology Report is provided within this Planning Submittal

9 TRANSPORT

The proximity to the Chancery Lane tube station as well as Farringdon train station and myriad bus routes will be advantageous and encourage use of public transport, thus necessitating minimal carparking (2-3 spaces) within the development.

Road traffic is the main source of pollution in the area, with the provision of bicycle facilities expected to encourage staff to reduce their dependence on motor vehicles.

- Camden requested that design of bicycle facilities complied w ith London Plan Policy 6.9 (1 space per 90m2 = 230 racks) rather than Camden requirements (67 racks) both of w hich exceed LEED (50) & BREEAM (30) requirements; and
- Design has 1 (out of 2) parking spaces with an electrical charging point to encourage uptake of electric vehicles. This meets London Plan (Policy 6.13) that 1 in 5 spaces provide them.
- Both parking spaces are designated for disabled drivers w hich is in line w ith Camden Local Plan Policy CC4 and Policy T2 'Parking and car-free development', w here developments limit on-site parking to spaces designated for disabled people.

10 POLLUTION

Pollution (including noise, air and urban run-off) has been minimised, w ith specialist consultants engaged to produce air quality assessments, noise and vibration studies and flood risk assessments, w ith recommendations to reduce negative impacts implemented.

The follow ing surveys are submitted as part of the Planning Submittal:

- Air Quality Assessment; and
- Flood Risk Assessment.

The Air Quality Assessment has been developed in line w ith Camden Local Plan Policy CC4: Air Quality, and the Flood Risk Assessment developed in line w ith Camden Local Plan Policy CC3 Water and flooding.

11 LIFECYCLE CARBON ANALYSIS

11.1 OVERVIEW

Camden Borough requested that justification for the demolition of the existing 150 Holborn building was required in the form of a Lifecycle Carbon Analysis (LCA); specifically, an analysis of net reduction in carbon operational and embodied carbonlevels.

The planning aspiration behind the request is that demolition should occur only where there is a net carbon saving to be achieved.

11.2 METHODOLOGY

The operational energy inf ormation is within the Energy Strategy report, but the embodied carbon of the two different buildings is a notable study and requires:

- A lifecycle carbon comparison betw een:
 - The proposed building; and
 - A nominal building (ref urbishing and extending the existing building to be a similar size as the proposed building)
- The analysis should include;
 - the operational carbon footprint of the existing building plus ref urbishment and embodied impacts of upgrade and extension, versus
 - new building operational + embodied carbon of new construction and demolition

In the absence of clear guidance, the analysis is being done in line with the methodology in the BREEA M New Construction credit Mat01: Life Cycle Impacts.

11.3 ANALYSIS

The proposed building's embodied carbon w as found to be 20% low er than that of the existing building. It should be noted that the proposed building w ill have a gross external area around 33% higher than the existing.

An embodied carbon study forms part of a Life Cycle Analysis with Operational Carbon being the other part. The proposed building w as designed with reduction in Operational Carbon in mind. It is targeting several energy credits in both LEED and BREEA M and falls under rigorous regulations to ensure it operates with the highest standards. The building's performance and efficiency will be significantly higher than those of the existing.

Due to the design still being at early stage, it w as necessary to make assumptions for construction materials, including:

• Due to the constant updates of the BRE Green Guide, the existing building is assumed to have been built at the same time as the proposed building will be;

• Due to building being in very early design stage w hen the study w as made, a date w as chosen in w hich the design w as frozen (in terms of areas) and the embodied carbon study performed on (8th of January 2016); and

• Due to building being in very early design stage w hen the study w as made, most construction materials are yet to have been confirmed. A meeting w as held betw een the sustainability team, architects and project managers to agree on the most probable materials to be used. These materials w ere then approximated to the closest existing Green Guide construction materials and are assumed to be the correct ones.

The Embodied Carbon Analysis report is attached an as appendix to this document.

APPENDIX A: LIFE CYCLE ANALYSIS: EMBODIED CARBON