

1 Dumpton Place, Primrose Hill, London NW1 8JB

Sustainability Statement

February 2012

CUTTING THE COST OF CARBON

www.ajenergy.com

1 Issue Register

Revision	Reason for Issue	Date of Issue	Issued By
1.0	For comment	31/10/11	J Simpson CEng MCIBSE
2.0	Updated following scheme revisions	14/02/12	J Simpson CEng MCIBSE

2 Contents

1	Issue Register	.2
2	Contents	.3
3	Introduction	.5
3.1	Proposed Development	5
3.2	Sustainable Design and Construction Supplementary Planning Document	5
4	Re-use of land and buildings	.7
4.1	Land	7
4.2	Buildings	7
5	Maximising the use of natural systems	.9
5.1	Local and urban design	9
5.2	Adapting to climate change	9
6	Conserving energy, materials and water resources	10
6.1	Energy	10
6.1.1	Maximising energy efficiency	10
6.1.2	Supplying energy efficiently	11
6.1.3	Renewable sources of energy	11
6.1.4	Energy Summary	11
6.2	Light Pollution	12
6.3	Materials	12
6.4	Water	12
7	Reducing the impacts of noise, pollution, flooding and microclimatic effect	13
7.1	Noise	13
7.2	Air Pollution	13
7.3	Water pollution and flooding	14
7.4	Microclimate	15
8	Ensuring developments are comfortable and secure	16
8.1	Indoor comfort	16
8.2	Design inclusive environment	16
8.3	Secure design	16

S:\Projects\1388 - 1 Dumpton Place\Reports\1388.Sustainability Statement v2.0.docx

9	Conserving and enhancing the natural environment and biodiversity	17
9.1	Open space	. 17
9.2	Natural environment and biodiversity	. 17
10	Promoting sustainable waste behavior	18
10.1	Waste	. 18
11	Conclusion	19
12	Appendix A – Code for Sustainable Homes Assessment	20
13	Appendix B – Preliminary BREEAM Report	21

3 Introduction

3.1 Proposed Development

The Proposed Development consists of four new build 2-bedroom terrace houses and two 3bedroom terrace houses, with a new build office building at the site entrance over four floors.

The Proposed Development is located within the London Borough of Camden. This report demonstrates that the Proposed Development can be considered to be a sustainable development.

3.2 Sustainable Design and Construction Supplementary Planning Document

The Local Development Framework for Camden sets out the planning strategy for managing growth and development in the future. The Core Strategy and Development Policies were adopted at Full Council on the 8th November 2010. The relevant policies within the adopted Development Policies document have been referenced within this report.

The Sustainable Design and Construction Supplementary Planning Guidance (SPG), published by the Greater London Authority (GLA), has also been referenced within this report.

The following issues are to be considered within this report:

- Re-use of land and buildings;
- Maximising the use of natural systems;
- Conserving energy, materials and water resources;
- Reducing the impacts of noise, pollution, flooding and microclimatic effect;
- Ensuring development are comfortable and secure;
- Conserving and enhancing the natural environment and biodiversity; and
- Promoting sustainable water behaviour.

In particular, Policy DP22 – Promoting sustainable design and construction states:

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

a) demonstrate how sustainable development principles, including the relevant measures set out in paragraph 22.5 below, have been incorporated into the design and proposed implementation; and

b) incorporate green or brown roofs and green walls wherever suitable.

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

c) adopting the government target that all new build housing will be zero carbon by 2016 (Code for Sustainable Homes Level 6), along with the stepped targets of Code 3 by 2010 and Code 4 by 2013;

d) expecting developments (except new build) of 500sqm of residential floorspace or above or 5 or more dwellings to achieve 'excellent' in EcoHomes assessments from 2013 and at least 'very good' prior to 2013;

e) expecting non-domestic developments of 500sqm of floorspace or above to achieve 'very good' in BREEAM assessments, with the aim of increasing the target to a rating of at least 'excellent' in 2016, if feasible, and zero carbon from 2019, in line with the government's ambitions.

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

f) summer shading and planting;

g) limiting run-off;

h) reducing water consumption;

i) reducing air pollution; and

j) not locating vulnerable uses in basements in flood-prone areas.'

4 Re-use of land and buildings

The London Plan SPG identifies the following areas to be considered:

- Land, and
- Buildings.

4.1 Land

The land has not been identified as contaminated and therefore remedial measures are not required.

The Proposed Development meets the Essential Standards within the London Plan SPG as 100% of the development is on previously developed land. The development density has also been maximised as accessibility to public transport is high, and the scale of the development is in keeping with neighbouring buildings.

4.2 Buildings

Camden's Policy DP13 – Employment premises and sites states that:

'The Council will retain land and buildings that are suitable for continued business use and will resist a change to non-business unless:

- a. It can be demonstrated to the Council's satisfaction that a site is no longer suitable for its existing business use; and
- b. There is evidence that the possibility of reusing or redeveloping the site for similar or alternative business use has been fully explored over an appropriate period of time.

Where a change of use is proposed, the Council will seek to maintain some business use on site, with a higher priority for retaining flexible space that is suitable for a variety of business uses.

When it can be demonstrated that a site is not suitable for any business use other than B1(a) offices, the Council may allow a change to permanent residential uses or community uses, except in Hatton Garden where we will expect mixed use developments that include light industrial premises suitable for use as jewellery workshops.

The Council will grant planning permission for mixed use developments on employment sites provided that:

- c. The level of employment floorspace is maintained or increased;
- d. Premises suitable for new, small or medium enterprises are provided;
- e. Floorspace suitable for either light industrial, industry or warehousing uses is reprovided where the site has been used for these uses or for offices in premises that are suitable for other business uses;
- *f.* The proposed non-employment uses will not prejudice continued industrial use in the surrounding area.

The Council will support the provision of live/work premises provided they do not:

- g. Result in the loss of any permanent residential units; or
- *h.* Result in the loss of sites in business or employment use where there is potential for that use to continue.'

There is an existing warehouse with office space on the site, which is currently vacant. The warehouse is in poor condition and unsuitable for an alternative use, and a modern and flexible business unit is proposed as part of the Proposed Development.

5 Maximising the use of natural systems

The London Plan SPG identifies the following areas to be considered:

- Local and urban design, and
- Adapting to climate change.

5.1 Local and urban design

The Proposed Development has been designed to minimise the need for mechanical ventilation, heating and cooling systems. The Proposed Development does not overshadow adjacent buildings, with only railway sidings to the north of the site, and does not affect the ability of adjacent buildings to optimise the benefits of the external climatic conditions on the internal comfort levels.

5.2 Adapting to climate change

The houses are to be provided with adequately-sized, safe, secure and weatherproof cycle storage at basement level, with additional cycle store at basement level within Houses 3-6 inclusive. Cycle storage, and the Site's proximity to public transport nodes, would encourage non carbon based transport modes. Separate cycle storage is to be provided for the commercial building at ground floor level.

A good level of air tightness is proposed for the development, with a proposed tested air permeability of 5m³/hr/m² for the dwellings and 5m³/hr/m² for the commercial office building. This, combined with cross ventilation for most residential units and the office building, provides a good balance between ventilation to improve air quality indoors versus air tightness to improve energy efficiency performance.

In response to proposed Policy D22 requirements for incorporating climate change adaptation measures, the following measures are proposed:

- Green roofs to reduce roof surface temperatures of the office building and residential buildings during the summer, as well as attenuating surface water run-off;
- Low water usage sanitary and kitchen fittings to reduce water consumption; and
- Provision of basement within low flood risk area.

6 Conserving energy, materials and water resources

The London Plan identifies the following areas to be considered:

- Energy;
- Materials; and
- Water.

6.1 Energy

An Energy Assessment has been undertaken for the Proposed Development – the proposals for reducing energy are discussed in detail in the accompanying Energy Strategy, but the key areas are summarized below.

6.1.1 Maximising energy efficiency

The Proposed Development would feature energy saving measures such that compliance with Part L of the Building Regulations would be achieved without reliance on the contribution of renewables. As required under Part L, the residential apartments have been assessed under Part L1A, and the commercial office building under Part L2A.

The measures outlined below have been used in the Part L1A calculations, and exceed the requirements of Part L1A:

- Well-insulated building fabric with:
 - External walls at 0.25 W/m²K;
 - Roof at 0.18 W/m²K;
 - Ground floor at 0.18 W/m²K;
 - Glazing at 1.5 W/m²K;
 - Air permeability of 5 m³/hr. m², with air tests to be undertaken in each dwelling;
- Energy efficient lighting (100 %); and
- Efficient underfloor heating.

The measures outlined below have been used in the Part L2A calculations, and exceed the requirements of Part L2A:

- Well-insulated building fabric with:
 - External walls at 0.25 W/m²K;
 - Roof at 0.18 W/m²K;
 - Ground floor at 0.18 W/m²K;
 - Glazing at 1.5 W/m²K;
 - Air permeability of 5 m³/hr. m²;
- Energy efficient lighting at maximum of 2.2 W/m² per 100 lux; and
- Efficient heating production by high efficiency gas fired boilers, with local point-of-use electric water heaters.

6.1.2 Supplying energy efficiently

Combined heat and power (CHP) has been assessed in terms of feasibility. There is no economic or sustainable justification for over-sizing the CHP plant, and therefore the CHP unit size needs to be carefully matched to the demands of the development. The smallest commercially available CHP unit is too large for the scheme due to the limited number of residential dwellings, and therefore CHP is not considered to be viable for the Proposed Development.

The Proposed Development is considered to be too small to successfully incorporate a community heating system. It is also considered that the small increase in heating plant efficiency due to the incorporation of a system would be cancelled out by the increase in energy consumption required to pump the heating water circuit.

6.1.3 Renewable sources of energy

The accompanying Energy Strategy has demonstrated in detail (part 8) that the incorporation of biomass, biomass CHP, ground source heat systems, solar thermal and wind turbines are not technically or economically viable for the Proposed Development.

The use of photovoltaic cells and air source heat pumps is therefore considered to be the most appropriate solution for the Proposed Development. The combination of the air source heat pumps and photovoltaic panels proposed would reduce the annual carbon dioxide emissions of the whole scheme by 16,243 kgCO₂, which equates to a reduction of 24.7% against the energy baseline.

6.1.4 Energy Summary

The proposed Energy Strategy achieves the following:

- Minimum reduction of 56% against the 2010 TER for the residential units, which exceeds the mandatory energy requirements for Code 3 under the Code for Sustainable Homes Assessment, and exceeds the London Plan 2011 requirement for 25% improvement;
- Proposals for the residential units achieve a minimum of 54% of the Energy Credits under the Code for Sustainable Homes Assessment, which is more than the 50% required by Camden;
- Proposals for the office building achieve 63% of the Energy Credits under the BREEAM for Offices 2011 Assessment, which is more than the 60 % required by Camden.

6.2 Light Pollution

The Proposed Development is not considered to be a light-generating development, and therefore it is not considered that a detailed light-impact survey is required.

To improve energy efficiency, 100% of the lighting within the dwellings would be provided by low energy lighting. High efficiency lighting would be provided throughout the office building.

Any external lighting would be designed to reduce any unnecessary light spillage. Lighting would not spill into neighbouring residential properties or cause a hazard to drivers or other road users, and would comply with the guidance notes of the Institute of Lighting Engineers (ILE).

6.3 Materials

Wherever possible, the new materials used for the dwellings will be sustainably sourced to achieve an A or A+ rating under the Green Guide. Proposals for the office building achieve 53.8 % of the Materials Credits under the BREEAM for Offices 2011 Assessment, which is more than the 40 % required by Camden.

6.4 Water

To reduce the consumption of potable water in the home, the dwellings would be provided with flow restrictors on taps, efficient washing machines and dishwashers (where provided), and dual-flush systems for the WC. The water consumption in the proposed dwellings would be less than 90 litres per person per day, in order to exceed the Code Level 3 requirements within the Code for Sustainable Homes assessment.

Individual water meters would be provided for each new dwelling, and for the commercial unit, in order for each tenant to manage, and be charged for, their individual consumption.

The provision of green roofs on both the residential and commercial buildings would reduce the pressure placed on the combined storm water and sewer network, in accordance with proposed *Policy DP23 – Water*.

Proposals for the office building achieve 66.7 % of the Water Credits under the BREEAM for Offices 2011 Assessment, which is more than the 60 % required by Camden.

7 Reducing the impacts of noise, pollution, flooding and microclimatic effect

The London Plan identifies the following areas to be considered:

- Noise,
- Air pollution,
- Water pollution and flooding, and
- Microclimate.

7.1 Noise

There are no known existing sources of noise in close proximity to the site, and the proposed use is not considered as a noise generating development, and therefore no attenuation measures are considered necessary. A further review would be undertaken during the detailed design stage when considering the window specifications for the scheme.

Appropriate party wall robust details would be used between each house to achieve an airborne performance 8dB higher, and impact performance 8dB lower, than Part E requirements, as per the guidance within the Code for Sustainable Homes.

Construction work shall be carried out in accordance with the council's Environmental Code of Construction Practice, in order to reduce the noise and vibration impact on neighbouring properties. The construction works will be carefully managed so as to reduce impact.

The traffic generation associated with the development is likely to be low and it is not considered that it would have any significant impact on the surrounding highway network in terms of safety, capacity or parking stress.

The plant strategy proposed for the scheme has also been specified in order to reduce noise produced by the development. The external heat pump condensers for the six houses would be located, and the enclosure acoustically treated if required, to reduce noise ingress to neighbouring properties.

7.2 Air Pollution

The significant reductions in energy consumption as a result of the extensive energy efficiency measures incorporated within the scheme, contribute to improving air quality. The materials to be specified for the development will have low embodied energy and will be sourced as close by to the site as possible, wherever feasible.

Cycle storage is provided for the six houses, with a secure enclosure provided to encourage cycle use within the basement car park, which will help reduce air pollution associated with transport. In addition, no car parking is to be provided for the commercial building, and cycle storage for the commercial building is to be provided at ground floor.

The Contractor will be required to adopt best practice policies in respect of air (dust) pollution from site activities, and water (ground and surface) pollution on site.

Regular plant maintenance will be carried out on all plant and machinery in order to keep them operating efficiently.

The proposed strategy of efficient gas-fired boilers, photovoltaics and heat pumps has been selected in order to significantly reduce the amount of energy to be used within the development. Boiler flues would be designed in accordance with Building Regulations and manufacturers' requirements in order to minimize emissions.

The ventilation systems within the dwellings and the office building will meet the minimum requirements of Part F of the Building Regulations.

Finishings and paints with low VOC levels will be used wherever possible, to avoid releasing noxious chemicals or odours inside the buildings.

The domestic kitchens are not considered to be a nuisance for neighbouring occupiers. There are no A3 uses within the development, and therefore there are no commercial kitchen extract systems proposed.

7.3 Water pollution and flooding

According to low detail, national-scale flood mapping created on behalf of the Environment Agency, the site lies within Flood Zone 1.



The site therefore is considered as having a low annual probability of flooding.

Attenuation will be provided for the residential areas of the site, such that the peak rate of run-off into watercourses is no greater for the developed site than it is at the existing site. Permeable paving and grassed areas will be used wherever possible to increase the attenuation of surface water on the site. Green roofs are also proposed for both the residential and commercial aspects of the scheme, which would significantly attenuate surface water on the site.

During construction, any chemicals will be carefully stored to prevent spillages. Any oil stored on site will be stored within double-bunded tanks. The Contractor will be required to adopt best practice policies in respect of air (dust) pollution from site activities, and water (ground and surface) pollution on site).

The drainage systems for the Proposed Development shall meet the minimum requirements of Part H of the Building Regulations, and will meet Thames Water's design requirements for adoption.

As this is a mixed use residential and office development, there are no industrial processes or chemicals on the site.

7.4 Microclimate

The Proposed Development is a maximum of three storeys above ground, and therefore falls below the 10 storey threshold where a wind environmental assessment might be undertaken. Given the height of the Proposed Development, it is not considered that a wind tunnel effect would be created in the area.

8 Ensuring developments are comfortable and secure

The London Plan identifies the following areas to be considered:

- Indoor comfort,
- Design inclusive environment, and
- Secure design.

8.1 Indoor comfort

The Contractor would be required to adopt best practice policies in respect of air (dust) pollution from site activities, and water (ground and surface) pollution on site).

Regular plant maintenance would be carried out on all plant and machinery in order to keep them operating efficiently. All plant and machinery is fully accessible for easy maintenance.

Finishings and paints with low VOC levels would be used wherever possible, to avoid releasing noxious chemicals or odours inside the buildings.

Home User Guides would be provided for the owners/occupiers to cover information relevant to the 'non-technical' tenant/owner on the operation and environmental performance of their home. This guide would include information related to the following issues:

- Environmental strategy/design and features;
- Energy;
- Water use;
- Recycling and waste;
- Sustainable DIY; and
- Emergency information.

8.2 Design inclusive environment

The dwellings would incorporate the 16 principles of 'Lifetime Homes' in order to add to the comfort and convenience of the home, and support the changing needs of individuals and families at different stages of life.

8.3 Secure design

The Proposed Development would incorporate the principles of "secured by design".

9 Conserving and enhancing the natural environment and biodiversity

The London Plan identifies the following areas to be considered:

- Open space,
- Natural environment and biodiversity.

9.1 Open space

The Proposed Development does not result in the removal of any open space features, such as green space.

9.2 Natural environment and biodiversity

Using the Ecological Checklist within the Code for Sustainable Homes Assessment, the site can be considered to be of low ecological value. As such, the construction of the Proposed Development is not considered to have any negative impact on the ecological value of the site. There is limited scope for enhancing biodiversity on the site due to the limited external areas, but native planting would be used within the garden areas, with species selected to minimize water requirements. The ecological potential of the green roofs proposed would also be maximized wherever feasible

10 Promoting sustainable waste behavior

The London Plan identifies the following areas to be considered:

• Waste.

10.1 Waste

Separate commercial and residential refuse/recycling stores are located at ground floor level within the scheme. The commercial building has a dedicated service area, with space for general refuse and recycling bins noted. Each residential dwelling has a dedicated external bin store area, with space to store a 240 litre lidded wheeled bin. A flat route is to be provided between the storage area and the collection point, with the storage areas close to the office building and dwellings for easy access by the occupants.

The proposed site use is for residential dwellings and an office building, and therefore there is a no potential for future contamination. There are no industrial activities proposed for the site where chemicals may be stored.

11 Conclusion

This report has responded to the relevant issues raised within the GLA Sustainable Design and Construction SPG and Camden's proposed development policies, and has provided details of how the Proposed Development incorporates sustainable measures in its design, construction and operation.

The residential aspect of the Proposed Development meets the Code Level 3 standard under the Code for Sustainable Homes assessment scheme (as detailed within the separate Preliminary Code for Sustainable Homes Assessment report), and incorporates a number of additional sustainable measures not mentioned in detail within this report. Full details can be found in the Preliminary Code for Sustainable Homes Assessment report.

The commercial aspect of the Proposed Development meets the 'Very Good' standard under the BREEAM for Offices 2011 assessment scheme (as detailed within the separate Preliminary BREEAM report).

The Proposed Development can be considered to be sustainable, using the criteria within Camden's proposed development policies and the GLA Sustainable Design and Construction SPG.

12 Appendix A – Code for Sustainable Homes Assessment



1 Dumpton Place, Primrose Hill London NW1 8JB

Preliminary Code for Sustainable Homes Assessment

February 2012

CUTTING THE COST OF CARBON

www.ajenergy.com

1 Issue Register

Revision	Reason for Issue	Date of Issue	Issued By
1.0	For comment	31/10/11	J Simpson CEng MCIBSE
2.0	Updated following scheme revisions	14/02/12	J Simpson CEng MCIBSE

2 Contents

1	Issue Register	. 2
2	Contents	.3
3	Introduction	.4
3.1	Proposed Development	4
3.2	Code for Sustainable Homes	4
3.3	Scoring System	. 5
4	Preliminary Code Assessment	.6
5	Results	14

3 Introduction

3.1 Proposed Development

The Proposed Development consists of four new build 2-bedroom terrace houses and two 3bedroom terrace houses, with a new build office building at the site entrance over four floors. This report provides further details of the measures proposed to achieve Code Level 3 under the Code for Sustainable Homes Assessment. The November 2010 version of the Code scheme has been used.

The current score for the Proposed Development is 63.14% which equates to Code Level 3 at this stage.

3.2 Code for Sustainable Homes

The Code for Sustainable Homes was launched in December 2006 with the publication of 'Code for Sustainable Homes: A step change in sustainable home building practice" (DCLG 2006). This introduced a single national standard to be used in the design and construction of new homes in England, based on the BRE's EcoHomes[©] scheme. Adoption of the Code is intended to encourage continuous improvement in sustainable home building.

The Code for Sustainable Homes is a set of sustainable design principles covering performance in nine key areas listed below:

- Energy and CO₂;
- Water;
- Materials;
- Surface water run-off;
- Waste;
- Pollution;
- Heath and well being;
- Management; and
- Ecology.

In each of these categories, performance targets are proposed which are in excess of the minimum needed to satisfy Building Regulations, but are considered to be sound best practice, technically feasible, and within the capability of the building industry to supply.

The Code uses a rating system of one to six stars, and it differs from EcoHomes in several key regards outlined below:

- It is assessed at the level of an individual 'Dwelling';
- It contains minimum mandatory standards for energy, water, materials, waste and surface water run-off, which must be met before even the lowest level of the Code can be achieved;
- It demands higher minimum standards for energy and water to be met before the higher levels of the Code can be achieved; and
- It is performed in two stages with 'Final' Code certification taking place after a Post Construction Review has been carried out.

• In addition to the mandatory requirements, each design category scores a number of percentage points. The total number of percentage points establishes the 'star rating' for the dwelling.

3.3 Scoring System

Credits are available for each issue meeting the specified levels of performance. The number of credits available in each category does not necessarily reflect the relative importance of the issues being assessed. Before the final score is calculated each of the scores in the nine category areas has a weighting factor applied before the final score is calculated.

The Code uses a rating system of one to six stars, with six stars being the best. The final rating is determined by the Code assessor and quality assured and certified by BRE.

Before a dwelling can start to be awarded points under the Code it must achieve minimum standards in the following categories:

- Embodied impacts of construction materials;
- Surface water runoff;
- Construction site waste management; and
- Household waste storage space and facilities.

There are also targets for carbon dioxide emissions and potable water consumption for each Code Level.

Rating	Requirements (equal to or greater than)
Level 1	36 %
Level 2	48 %
Level 3	57 %
Level 4	68 %
Level 5	84 %
Level 6	90 %

4 Preliminary Code Assessment

Issue		Credits	Dwelling
Energy			
Ene1	Dwelling Emission Rate		
	Credits are awarded based on the percentage improvement of the Dwelling Emission Rate (DER) over the Target Emission Rate (TER) as calculated using SAP 2009. Minimum standards for each Code level apply.		
	8% improvement	1	
	16% improvement	2	
	25% improvement	3	
	36% improvement	4	
	47% improvement	5	5.8
	59% improvement	6	
	72% improvement	7	
	85% improvement	8	
	100% improvement	9	(max 10)
	True Zero Carbon	10	
	SAP 2009 calculations undertaken show the following:		
	 House 1 – 59.9% improvement = 6.0 credits House 2 – 64.6% improvement = 6.4 credits House 3 – 57.2% improvement = 5.8 credits House 4 – 57.4% improvement = 5.8 credits House 5 – 56.7% improvement = 5.8 credits House 6 – 56.3% improvement = 5.7 credits 		
Ene2	Fabric Energy Efficiency		
	Credits are awarded based on the Fabric Energy Efficiency of the dwelling. Minimum standards apply at Code levels 5 and 6.		0 (max 9)
	FEE calculated for each dwelling from the SAP 2009 calculations, credits as below:		
	House 1 – 0 credits		
	 House 2 – 0 credits House 3 – 0 credits 		
	 House 4 – 0 credits 		
	• House 5 – 0 credits		
	• House 6 – 3.7 credits		
Ene3	Energy Display Devices		

	Credits are awarded where a correctly specified Energy Display Device is installed monitoring electricity and/or primary heating fuel consumption.		2
	Assuming that no gas provided to dwellings, would need to display only electricity consumption for each dwelling.	2	(max 2)
Ene4	Drying space		
	One credit is awarded for the provision of either internal or external drying space with posts and footings, or fixings capable of holding 4m+ of drying line for 1-2 bed dwellings and 6m+ for dwellings with 3 bedrooms or greater.	1	1 (max 1)
	Drying lines to be provided over bath in each dwelling, with minimum line length of 6m for each house, to achieve this credit. Extract rate for bathroom to be increased to 30 l/s,		
Ene5	Energy Labelled White Goods		
	Credits are awarded where each dwelling is provided with either information about the EU Energy Labelling Scheme or White Goods with the ratings stated below:		
	EU Energy Labelling information	1	2
	OR		
	A+ rated fridges and freezers and/or A rated washing machines & dishwashers	1	
	AND		
	B rated washer dryers and tumble dryers	1	(max 2)
	Energy labelled white goods to be provided within each dwelling with a combination of energy labeling scheme information and appropriately rated white goods, in line with the Code technical guidance.		
Ene6	External Lighting		
	Credits are awarded based on the provision of space lighting with dedicated energy efficient fittings and security lighting with appropriate control gear.		2
	Space Lighting – Code compliant	1	
	Security Lighting – Code compliant	1	(max 2)
	External and communal lighting to be Code compliant, with low energy lamps and appropriate lighting controls.		
Ene7	Low or Zero Carbon Technologies		
	Credits are awarded where there is a 10% or 15% reduction in $\rm CO_2$ emissions due to a low or zero carbon technology.		
	10% reduction	1	2
	15% reduction	1	
	2 credits achieved for each dwelling for the heat pump and photovoltaic systems proposed.	-	(max 2)

Ene8	Cycle Storage		
	Credits are awarded where safe, secure and weather proof cycle storage is provided according to the Code requirements.		1
	Limited cycle storage	1	(max 2)
	Full cycle storage	1	(110, 2)
	A communal cycle store is to be provided within the basement, with a total of 8 cycle spaces. These equate to 2 cycle spaces per 3-bedroom house, and 1 cycle space per 2-bedroom house. This equates to 1 credit under the Code assessment. Additional cycle storage space is provided at basement level within houses 3-6 inclusive – while this is a practical use of space, this is not compliant under the Code assessment. Two credits are achieved for Houses 5 and 6, with one credit achieved for Houses 1-4 inclusive.		
Ene9	Home Office		
	One credit is awarded for the provision of space for a home office. The location, space and services provided must meet the Code requirements.	1	(max 1)
	Provision for a Home Office is to be made within Bedroom 2 of each house, with two double power sockets and a broadband point on a single wall of minimum 1.8m length.		
Water			
Wat1	Internal Potable Water Use		
	Credits are awarded based on the predicted average household water consumption, calculated using the Code Water Calculator Tool. Minimum standards for each code level apply.		4
	Less than 120 litres/person/day	1	
	Less than 110 litres/person/day	2	
	Less than 105 litres/person/day	3	
	Less than 90 litres/person/day	4	
	Less than 80 litres/person/day	5	(max 5)
	Assumed water specification achieves a water consumption of 89 litres/person/day, assuming a bath capacity to overflow of 118 litres, kitchen sink tap flow rate of 6 litres/minutes and general tap flow rate of 3 litres/minute, as well as 6/3 dual flush toilets and maximum shower flow rates of 6 litres/minute.		
Wat2	External Potable Water Use		
	One credit is awarded where a compliant system is specified for collecting rainwater for external irrigation purposes. Where no outdoor space is provided the credit can be achieved by default.	1	0 (max 1)
	No external rainwater systems are proposed for the external gardens, and therefore this credit is not achieved. This is due to restricted space within the scheme.		
Materials			
Mat1	Environmental Impact of Materials		
8	S:\Projects\1388 - 1 Dumpton F	Place\Reports\13	388.CSH v2.0.docx

	Mandatory Requirement: At least three of the five key building elements must achieve a Green Guide 2007 Rating of A+ to D.	1-15	10
	Tradable Credits: Points are awarded on a scale based on the Green Guide Rating of the specifications. The Code Materials Calculator can be used to predict a potential score.		(max 15)
	Initial Materials Calculator completed for dwellings, with score of 10 credits.		
Mat2	Responsible Sourcing of Materials – Basic Building Elements		
	Credits are awarded where materials used in the key building elements are responsibly sourced. The Code Materials Calculator can be used to predict a potential score.	1-6	3 (max 6)
	At least 80% of the upper floors, roof , external walls, internal walls and staircase are to be responsibly sourced.		
Mat3	Responsible Sourcing of Materials – Finishing Elements		
	Credits are awarded where materials used in the finishing elements are responsibly sourced. The Code Materials Calculator can be used to predict a potential score.	1-3	0
	Not to be pursued at this stage.		(max 3)
Surface Wa	ater Run-off		
Sur1	Reduction of Surface Water Run-off from Site		
	Mandatory Requirement: Peak run-off rates and annual run-off volumes post development must not exceed the previous conditions for the site.	1-2	0
	Tradable Credits: Where rainwater holding facilities/SUDs are used to provide attenuation of water run-off for the volumes required and in accordance with the Code criteria.		(max 2)
	Peak and annual run-off volumes to be calculated pre and post development to demonstrate that this is not increased as a result of the development. This is a mandatory requirement of the Code assessment.		
Sur2	Flood Risk		
	Credits are awarded where developments are located in areas of low flood risk, or where in areas of medium or high flood risk appropriate measures are taken to prevent damage to the property and its contents in accordance with the Code criteria.	1-2	2
	The site is in a low flood risk area, and therefore both credits are achieved.		(max 2)
Waste			
Was1	Household Waste Storage		
	Mandatory Requirement: The space provided for waste storage should be sized to hold the larger of either all external containers provided by the Local Authority or the minimum capacity calculated from BS 5906.	4	4
	Tradable Credits are awarded for adequate internal and/or external recycling facilities.		(max 4)

	Space is provided external to each dwelling for waste storage. Appropriate internal storage is to be provided to each dwelling to meet the Code requirements, with 3 number 10 litre recycling bins in each dwelling.		
Was2	Site Waste Management Plan (SWMP)/Construction Waste		
	Mandatory Requirements: A SWMP plan including the monitoring of waste generated on site and the setting of targets to promote resource efficiency must be produced and implemented.	1-3	3
	Tradable Credits: The SWMP should also include procedures and commitments for minimising waste and/or commitments to sort, reused and recycle construction waste.		(max 3)
	It is assumed that a Site Waste Management Plan would be provided for the site to meet the legal requirements – credits to be achieved by setting targets for resource efficiency, and incorporating procedures and commitments to minimize non-hazardous and hazardous construction waste, as well as monitoring site waste production through the works.		
Was3	Composting		
	One credit is awarded where individual home composting facilities are provided, or where a community/communal composting service, either run by the Local Authority or overseen by a management plan is in operation.	1	0 (max 1)
	Assumed at this stage that no composting is to be provided.		
Pollution			
Pol1	Global Warming Potential (GWP) of Insulants		
	One credit is awarded where all insulating materials have a Global Warming Potential (GWP) of less than 5.	1	1
	All insulation to be devoid of substances with a Global Warming Potential of 5 or more.		(max I)
Pol2	NOx Emissions		
	Credits are awarded on the basis of NOx emissions arising from the operation of the space heating system within the dwelling.		0
	Less than 100 mg/kWh	1	(may 2)
	Less than 70 mg/kWh	2	(max 5)
	Less than 40 mg/kWh	3	
	Electric heat pumps proposed, therefore no credits achieved.		
Health & V	/ellbeing		
Hea1	Daylighting		
	Credits are awarded for ensuring key rooms in the dwelling have high daylight factors (DF) and a view of the sky.		1
	Where the kitchen has an average DF greater than 2 %	1	(
	Where the living room, dining room and study have an average DF greater than 1.5 %	2	(max 3)

	Where all above rooms have a view of the sky	3	
	Adequate daylighting assumed in living room, dining room and study, but full daylighting calculations to be undertaken during the detailed design stage as additional credits may be achievable.		
Hea2	Sound Insulation		
	Credits are awarded where performance standards exceed those required in Building Regulations Part E. This can be demonstrated by carrying out pre-completion testing or through the use of Robust Details.		4
	Where airborne noise reduction is 3dB higher and impact noise is 3dB lower than Part E	1	(max 4)
	Where airborne noise reduction is 5dB higher and impact noise is 5dB lower than Part E	3	
	Where airborne noise reduction is 8dB higher and impact noise is 8dB lower than Part E		
	Robust Details to be used for party walls between dwellings to achieve all 4 credits under the Code.	4	
Hea3	Private Space		
	One credit is awarded for the provision of an outdoor space that is at least partially private. The space must allow easy access to all occupants.	1	1 (max 1)
	Each dwelling is provided with an external private garden, which meets the credit requirements. Therefore this credit is achieved.		(1107 1)
Hea4	Lifetime Homes		
	Credits are awarded where the developer has implemented all of the principles of the Lifetime Homes scheme.	4	4 (max 4)
	Credits are awarded where the developer has implemented all of the principles of the Lifetime Homes scheme. Lifetime Homes compliance to be achieved for all dwellings.	4	4 (max 4)
Managemo	Credits are awarded where the developer has implemented all of the principles of the Lifetime Homes scheme. Lifetime Homes compliance to be achieved for all dwellings.	4	4 (max 4)
Managemo Man1	Credits are awarded where the developer has implemented all of the principles of the Lifetime Homes scheme. Lifetime Homes compliance to be achieved for all dwellings.	4	4 (max 4)
Managemo Man1	Credits are awarded where the developer has implemented all of the principles of the Lifetime Homes scheme. <i>Lifetime Homes compliance to be achieved for all dwellings.</i> ent Home User Guide Credits are awarded where a simple guide is provided to each dwelling covering information relevant to the 'non-technical' home occupier, in accordance with the Code requirements. The guide must be available in alternative formats on request, and should cover the following topics:	4	4 (max 4)
Managemo Man1	Credits are awarded where the developer has implemented all of the principles of the Lifetime Homes scheme. <i>Lifetime Homes compliance to be achieved for all dwellings.</i> ent Home User Guide Credits are awarded where a simple guide is provided to each dwelling covering information relevant to the 'non-technical' home occupier, in accordance with the Code requirements. The guide must be available in alternative formats on request, and should cover the following topics: Operational issues	4	4 (max 4)
Managemo Man1	Credits are awarded where the developer has implemented all of the principles of the Lifetime Homes scheme. <i>Lifetime Homes compliance to be achieved for all dwellings.</i> ent Home User Guide Credits are awarded where a simple guide is provided to each dwelling covering information relevant to the 'non-technical' home occupier, in accordance with the Code requirements. The guide must be available in alternative formats on request, and should cover the following topics: Operational issues Site and surroundings	2	4 (max 4)
Managemo Man1	Credits are awarded where the developer has implemented all of the principles of the Lifetime Homes scheme. Lifetime Homes compliance to be achieved for all dwellings. ent Home User Guide Credits are awarded where a simple guide is provided to each dwelling covering information relevant to the 'non-technical' home occupier, in accordance with the Code requirements. The guide must be available in alternative formats on request, and should cover the following topics: Operational issues Site and surroundings To be provided, covering both operational issues and the site & surroundings.	4 2 1	4 (max 4)
Manageme Man1 Man2	Credits are awarded where the developer has implemented all of the principles of the Lifetime Homes scheme. Lifetime Homes compliance to be achieved for all dwellings. ent Home User Guide Credits are awarded where a simple guide is provided to each dwelling covering information relevant to the 'non-technical' home occupier, in accordance with the Code requirements. The guide must be available in alternative formats on request, and should cover the following topics: Operational issues Site and surroundings To be provided, covering both operational issues and the site & surroundings. Considerate Constructors Scheme	4	4 (max 4) 3 (max 3)
Managemo Man1 Man2	Credits are awarded where the developer has implemented all of the principles of the Lifetime Homes scheme. Lifetime Homes compliance to be achieved for all dwellings. Ent Home User Guide Credits are awarded where a simple guide is provided to each dwelling covering information relevant to the 'non-technical' home occupier, in accordance with the Code requirements. The guide must be available in alternative formats on request, and should cover the following topics: Operational issues Site and surroundings To be provided, covering both operational issues and the site & surroundings. Credits are awarded where there is a commitment to comply with best practice site management principles using either the Considerate Constructors Scheme or an alternative locally/nationally recognised scheme.	4	4 (max 4) 3 (max 3)

	Best Practice+:- score between 32 and 40	2	(max 2)
	Minimum score of 32 to be achieved by Contractor, with minimum score of 3 in any category.		
Man3	Construction Site Impacts		
	Credits are awarded where procedures meeting the Code requirements are in place for the following:		
	Monitor, report and set targets for CO2/energy use from site activities		
	Monitor, report and set targets for CO2/energy use from site related transport		2
	Monitor, report and set targets for water consumption from site activities		
	Adopt best practice policies in respect of air (dust) pollution from site activities		(max 2)
	Adopt best practice policies in respect of water (ground and surface) pollution		
	At least 80 % of site timber is responsibly sourced		
	One credit is achieved for meeting two of the six procedures above.	1	
	Two credits are achieved for meeting four of the six procedures above.	2	
	Contractor to monitor, report and set targets for energy and water use from site activities, as well as adopting best practice policies in respect of air and water pollution.		
Man4	Security		
	Credits are awarded for complying with Section 2 – Physical Security from Secured by Design – New Homes. An Architectural Liaison Officer (ALO), or alternative, needs to be appointed early in the design process and their recommendations incorporated.	2	0 (may 2)
	Confirmation of meetings with ALO, and how their comments have been incorporated into the scheme, required to award the credits.		
Ecology			
Eco1	Ecological Value of Site		
	One credit is awarded for developing land of inherently low value.	1	1
	Ecological survey required to award credits - assumed this would be undertaken and confirm that site is of inherently low value.		(max 1)
Eco2	Ecological Enhancement		
	One credit is awarded where there is a commitment to enhance the ecological value of the development site.	1	0
	Not to be pursued.		
Eco3	Protection of Ecological Features		
	One credit is awarded where there is a commitment to maintain and adequately protect features of ecological value.	1	1

	Ecological survey required to award credits, with survey noting that any features to be removed are of low ecological value.		(max 1)
Eco4	Change of Ecological Value of Site		
	Credits are awarded where the change in ecological value has been calculated in accordance with the Code requirements and is calculated to be:		
	Minor negative change: between -9 and -3 species	1	2
	Neutral: between -3 and +3 species	2	
	Minor enhancement: between +3 and +9 species	3	(max 4)
	Major enhancement: greater than 9	4	
	Ecological survey required to award credits – assumed to be possible to achieve minor enhancement.		
Eco5	Building Footprint		
	Credits are awarded where the ratio of combined floor area of all dwellings on the site to their footprint is:		
	Houses 2.5:1 OR Flats 3:1	1	1
	Houses 3:1 OR Flats 4:1	2	(max 2)
	The average ratio across the site is approximately 2.7, and therefore achieves 1 credit.		(11107 2)

5 Results

The current score is 63.14%, which achieves Code Level 3 at this stage. The percentage of credits achieved in each section is shown in the graph below.



This therefore meets the requirements within *Policy DP22 – Promoting Sustainable Design & Construction* by achieving Code Level 3.



1 Dumpton Place, Primrose Hill London NW1 8JB

Preliminary BREEAM Assessment

February 2012

CUTTING THE COST OF CARBON

www.ajenergy.com

1 Issue Register

Revision	Reason for Issue	Date of Issue	Issued By
1.0	For comment	31/10/11	J Simpson CEng MCIBSE
2.0	Updated following scheme revisions	14/02/12	J Simpson CEng MCIBSE

2 Contents

1	Issue Register	. 2
2	Contents	.3
3	Introduction	.4
3.1	Proposed Development	. 4
3.2	BREEAM	. 4
3.3	Scoring System	. 5
4	Preliminary BREEAM Assessment	.6
5	Results	11

3 Introduction

3.1 Proposed Development

The Proposed Development consists of four new build 2-bedroom terrace houses and two 3bedroom terrace houses, with a new build office building at the site entrance over four floors. This report provides further details of the measures proposed to achieve a 'Very Good' rating under the BREEAM for Offices Assessment. This report is for the commercial office building only – the residential units are discussed within the accompanying Preliminary Code for Sustainable Homes Assessment Report.

The current score for the proposed office building is 62.30%, which equates to 'Very Good' at this stage.

3.2 BREEAM

BREEAM (Building Research Establishment's Environmental Assessment Method) is the world's leading and most widely used environmental assessment method for buildings. At the time of writing, BREEAM has certified over 200,000 buildings since it was first launched in 1990.

BREEAM is developed, operated and maintained by BRE Global Ltd and the operation and direction of the method is overseen by an independent Sustainability Board, representing a wide cross-section of construction industry stakeholders. Further information about BREEAM, including copies of the BREEAM standards, can be found at www.breeam.org.

Aims of BREEAM

- To mitigate the life cycle impacts of buildings on the environment
- To enable buildings to be recognised according to their environmental benefits
- To provide a credible, environmental label for buildings
- To stimulate demand for sustainable buildings

Objectives of BREEAM

- To provide market recognition of buildings with a low environmental impact
- To ensure best environmental practice is incorporated in building planning, design, construction and operation.
- To define a robust, cost-effective performance standard surpassing that required by regulations.
- To challenge the market to provide innovative, cost effective solutions that minimise the environmental impact of buildings.
- To raise the awareness amongst owners, occupants, designers and operators of the benefits of buildings with a reduced life cycle impact on the environment.
- To allow organisations to demonstrate progress towards corporate environmental objectives.

BREEAM has been developed to meet the following underlying principles:

- Ensure environmental quality through an accessible, holistic and balanced measure of environmental impacts.
- Use quantified measures for determining environmental quality.
- Adopt a flexible approach, avoiding prescriptive specification and design solutions.
- Use best available science and best practice as the basis for quantifying and calibrating a cost effective performance standard for defining environmental quality.

- Reflect the social and economic benefits of meeting the environmental objectives covered.
- Provide a common framework of assessment that is tailored to meet the 'local' context including regulation, climate and sector.
- Integrate construction professionals in the development and operational processes to ensure wide understanding and accessibility.
- Adopts third party certification to ensure independence, credibility and consistency of the label.
- Adopts existing industry tools, practices and other standards wherever possible to support developments in policy and technology, build on existing skills and understanding and minimise costs.
- Stakeholder consultation to inform ongoing development in accordance with the under-lying principles and the pace of change in performance standards (accounting for policy, regulation and market capability).

3.3 Scoring System

Buildings are assessed against the BREEAM criteria at both the design and post-construction stages using a system of environmental issues grouped within the following categories:

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

The assessment of the building results in a final Post Construction stage report. BRE Global audit the report and once satisfied award the final post construction BREEAM certificate detailing the performance of the assessed building against the environmental issues covered by Standard.

The building's performance is expressed as one of the following BREEAM ratings, depending on the final score achieved:

Rating	Requirements (equal to or greater than)
Outstanding	85
Excellent	70
Very Good	55
Good	45
Pass	30
Unclassified	<30

4 Preliminary BREEAM Assessment

Credit Ref	Credit Details		Credit Score
Management			
Man 01 – Sustainable Procurement	Roles, responsibilities and training schedule in accordance with BREEAM. Compliant commissioning of building services to be carried out. With BREEAM AP, thermographic survey, seasonal commissioning, water / energy consumption data and aftercare support for 12 months and water / energy consumption reported / recorded for three years, up to 6 further credits available.	8	2
Man 02 – Responsible Construction Practices	Assumed Considerate Constructors Scheme will be used and target performance score for the contractor of above 32 achieved.	2	2
Man 03 – Construction Site Impacts	Assumed the following consumptions will be metered /monitored: Site energy, site water. Also, site timber sourced in accordance with Government's timber procurement policy. Two further credits available for transport of construction material and waste measurement / monitoring. Complaint EMS held by contractor and best practice pollution policies and procedures adopted.	5	3
Man 04 – Stakeholder Participation	Appropriate consultation activities undertaken, access statement developed and appropriate building user facilities provided. Building user guide provided. 1 further credit available where post occupancy assessment undertaken.	4	3
Man 05 – Life Cycle Cost and Service Life Planning	3 credits available where: Feasibility stage LCC analysis completed, strategic and system level LCC completed and technical design LCC to be completed.	3	0
Health & Wellbe	ing		
Hea 01 – Visual Comfort	Fluorescent lamps all fitted with high frequency ballasts. Assumed adequate glare control (blinds) and view out provided for all building users. Internal / external lighting levels in accordance with CIBSE. 1 further credit available where adequate daylight factors achieved.	3	2
Hea 02 – Indoor Air Quality	Assumed the relevant products will meet VOC testing /emission levels. The building is naturally ventilated. 2 further credits available where an air quality plan produced and VOC levels measured at post construction.	4	2
Hea 03 – Thermal Comfort	Assumed thermal modelling of the design will be carried out and the modelling will inform the development of thermal zoning and control strategy.	2	2
Hea 04 – Water Quality	All water systems to comply with HSE Approved Code of Practice and guidance, no humidification specified and supply of accessible fresh water	1	1

	supplied to all building users.		
Hea 05 – Acoustic Performance	Assumed a suitably qualified acoustician will be appointed and the building will meet relevant acoustic performance and testing requirements.	2	2
Hea 06 – Safety and Security	Credit available if a suitably qualified safety consultant will be appointed and security considerations accounted for. 1 further credit available where external site areas will have safe access designed for pedestrians and cyclists.	1	0
Energy			
Ene 01 – Reduction of CO ₂ Emissions	Building performance data entered into BREEAM Ene 01 Calculator. Based on this data 10 credits can be achieved. Further credits only available where a further reduction in CO2 emissions is achieved.	15	8
Ene 02 – Energy Monitoring	Assumed a BMS or sub-meters will be specified to monitor energy use from major building services systems.	1	1
Ene 03 – External Lighting	Assumed all external light fittings and controls will be in accordance with BREEAM criteria.	1	1
Ene 04 – Low and Zero Carbon Technology	A compliant LZC feasibility study will be undertaken and the operational stage carbon savings /emissions will be 10.6%. The intended energy source is photovoltaic panels. 2 further credits can only be achieved where the reduction of CO2 is greater.	5	3
Ene 06 – Energy Efficient Transportation Systems	Assumed a transportation analysis will be carried out to determine optimum number and size of lifts and three energy efficient features offering the greatest potential energy savings to be part of the system.	2	2
Ene 08 – Energy Efficient Equipment	Assumed that all equipment likely to be a major contributor to 'unregulated' energy use will meet the BREEAM criteria.	2	2
Ene 09 – Drying Space	This credit can be achieved where internal / external drying space and fixings are provided in accordance with the BREEAM criteria.	1	0
Transport			
Tra 01 – Public Transport Accessibility	3 credits awarded for the site.	5	3
Tra 02 – Proximity to Amenities	There are shops in close proximity to the site which meet the distance and type criteria to achieve this credit.	1	1
Tra 03 – Cyclist	Cycle storage spaces are to be located at ground floor level. These meet	2	1

Facilities	the criteria to achieve the first credit.			
	1 further credit is available where compliant cyclist facilities i.e. showers,			
	lockers, changing facilities, drying space are provided.			
Tra 04 – Car Parking Capacity	No car parking spaces are being provided for the commercial unit and therefore these credits can be achieved.	2	2	
Tra 05 – Travel Plan	A compliant transport plan based on a site specific travel survey / assessment is to be developed.	1	1	
Water				
Wat 01 –	Based on the information provided and past experience it would be	5	2	
Water Consumption	realistic to aim for two credits. For two credits, the following must be specified: WC effective flush volume of 4.5 litres or less. Wash hand basin tap volume of 7.5 litres / min or less. Shower volume of 8 litres / min or less. See Refer to BREEAM Issue criteria for further details of compliance for level 2.			
Wat 02 – Water Monitoring	Wat 02 -Assumed the following: A water meter will be fitted to the mains waterWatersupply to the building (mandatory). Water supply to relevant plant /Monitoringbuilding areas is metered / monitored. All specified water meters have a pulsed output.			
Wat 03 – Water Leak Detection & Prevention	Assumed flow control devices will be installed in each sanitary area / facility and a mains water leak detection system will be installed on the building's main water supply.	2	2	
Wat 04 – Water Efficient Equipment	Assumed water efficient irrigation methods will be installed / specified for all internal / external planting / landscaping.	1	1	
Materials				
Mat 01 – Life Cycle Impacts	Based on the information provided and past experience it would be realistic to aim for three credits.	6	3	
Mat 02 – Hard Landscaping & Boundary Protection	Based on the information provided and past experience it is very likely that 80% or greater of the hard landscaping and boundary protection will achieve a Green Guide Rating of A or A+.	1	1	
Mat 03 – Responsible Sourcing	Not being pursued.	3	0	
Mat 04 - Insulation	Assumed an insulating index of 2 or more will be targeted and the insulation will be responsibly sourced.	2	2	
Mat 05 – Designing for Robustness	Assumed that suitable durability / protection measures will be specified and installed to vulnerable areas of the building.	1	1	
Waste				
Wst 01 – Construction Waste	Based on past experience it would be realistic to aim for three credits. Two for not exceeding 7.5m3 of non hazardous waste generated per 100m2 (gross internal floor area) and one credit where 70% of non demolition	4	3	

Management	and 80% of demolition waste (non hazardous) is diverted from landfill.		
Wst 02 – Recycled	Assumed that the criteria for this issue will not be met. To achieve the credit the total amount of recycled and / or secondary	1	0
1.22.02410	aggregate specified is greater than 25% of the total high grade aggregate used on site.		
Wst 03 – Operational Waste	The ground floor bin store serves as a collection point for the refuse/ recycle store. Appropriate facilities for the storage of operational recyclable waste volumes will be provided.	1	1
Land Use & Ecol	ogy		
LE01 – Site Selection	At least 75% of the proposed development's footprint will be located on previously developed land.	2	1
	One further credit is available, only where the site is deemed to be significantly contaminated.		
LEO2 – Ecological Value of Site & Protection of Ecological Features	From the details provided land within the construction zone will be classed as land of low ecological value. Assumed that all features of ecological value surrounding the construction zone / site boundary will be protected.	1	1
LEO3 – Mitigating Ecological Impact	From the information provided it is very unlikely that there will be a negative change in plant species richness on the site.	2	2
LEO4 – Enhancing Site Ecology	Credits not to be pursued.	3	0
LE05 – Long Term Impact on Biodiversity	Assumed that all mandatory criteria and four of the additional criteria for this issue will be met.	2	2
Pollution			
Pol 01 – Impact of Refrigerants	No refrigerants are specified for the development. Therefore, three credits can be achieved by default.	3	3
Pol 02 – NO _x Emissions	The central heating system specified is expected to have NOx emissions of below 70mg/kWh, achieving two credits.	3	2
Pol 03 – Surface Water Run Off	Assumed that the criteria for peak rate surface water run off will be met. Assumed that flooding of property will not occur in the event of local drainage system failure.	5	3
	Two further credits can be achieved where the site meets criteria for surface water runoff volume, attenuation, or limiting discharge.		
	The site is designed to minimise watercourse pollution in accordance with BREEAM criteria.		
Pol 04 – Reduction of Night Time	Assumed the external lighting will be designed to reduce light pollution.	1	1

Light Pollution			
Pol 05 – Noise Attenuation	There are noise sensitive areas / buildings within 800m radius of the development. Assumed that a noise impact assessment will be completed and, if applicable, noise attenuation measures implemented.	1	1

5 Results

The Pre-assessment within this report predicts that the proposed building, with the current design intentions, has the potential to achieve a score of 62.30%, which equates to a BREEAM rating of 'Very Good'.

BREEAM Category	% Weighting	Credits Available	Credits Achieved	Indicate % Score Achieved
Management	12%	22	10	5.45
Health & Wellbeing	15%	14	9	9.64
Energy	19%	27	17	11.96
Transport	8%	11	8	5.82
Water	6%	9	6	4.00
Materials	12.5%	13	7	6.73
Waste	7.5%	6	4	5.00
Land Use & Ecology	10%	10	6	6.00
Pollution	10%	13	10	7.69
Innovation	10%	10	0	0.00
			Total	62.30

The percentage credits achieved in each category is shown in the table below: