
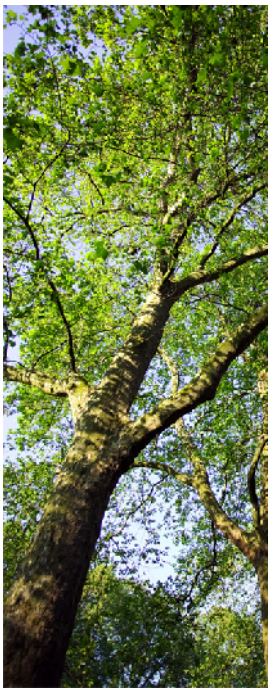


BREEAM Prediction Report - Design and

Project Oasis

November 2011

Mott MacDonald

Fulcrum

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Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
A	2nd April 2007	Dan Widdon	Tom Randall		Draft for design team approval
B	30th November 2007	Dan Widdon	Tassos Christoforo		Updated to include additional E1 and MW1 credits
C	13th December 2007	Dan Widdon	Ian Hamilton		P6 updated to include GSHP
D	25th November 2011	Anna MacKenzie	Jeff Anderson	Peter Mark	Updated E1, P6 and P11 to reflect change in energy strategy as a result of renewal application

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Content

1. Introduction

1.1 Background to BREEAM

Across the world, the issue of environmental protection has become a serious public concern. Since the 1997 Kyoto Summit, governments in the UK and across Europe have been committed to action in reducing damage to the global environment caused by industrialised development.

Underlying this concern is the growing evidence that the planet's fragile climate, atmosphere and eco-system may already be altered irreversibly and that this situation will worsen this century. Symptoms of man-made pollution include global warming, destruction of the ozone layer and deterioration of land, water and air quality at a local level.

The built environment and the construction industry account for a surprisingly large proportion of the total environmental impact. In the UK, the operation of buildings accounts for approximately 50% of our primary energy use and production of building materials account for approximately a further 10% of primary energy use . In addition, natural environments are being damaged and the extraction of materials and release of toxic chemicals through some production processes pose health risks.

1. 2 BREEAM Categories

Against this background, interest in 'greener' buildings has grown, both encouraged by the Government and pioneered at project level by committed clients and design teams. The BREEAM (Building Research Establishment Environmental Assessment Method) was devised by the BRE to provide Clients with an established method of benchmarking the performance of a project so they may clearly understand how their building and organisation impacts on the environment. The assessment is based upon criteria that define the environmental impact of a project and may be briefly defined as follows:

Management (M) – An assessment of the client commitment to management of the environmental impact of the project / organisation during construction or operation.

Health and Wellbeing (HW) – An assessment of the risks posed to occupant health and comfort in the design or operation of the building.

Energy (E) – This assessment primarily measures the energy efficiency of the project and measures taken to minimise energy use (i.e. CO_2 production).

Transport (T) – An analysis is made of the location of the project so that the environmental impact due to the production of CO_2 and other pollutants from commuter transport may be assessed.

Water Consumption (W) – This part of the assessment measures the level of water economy and awareness within the building/organisation.

Materials & Waste (MW) – Primarily an assessment of the embodied environmental impact of the project due to material specification, and of measures to facilitate the collection of recyclable waste.

Land Use and Ecology (LE) – At a local level a building project directly impacts upon the ecology that it interferes with or displaces. An assessment of the degree to which a project detracts from or improves the local environment is provided.

Pollution (P) – An assessment of measures taken to limit the main pollutants (other than CO2) that inflict damage upon the atmosphere, land or local watercourses.

1. 3 Types of BREEAM Assessment

The BREEAM criteria may be used for four forms of assessment:

1.1.1 Design and Procurement Assessment

By far the most common type of assessment and the one usually implied by references to BREEAM in planning and funding requirements. Applied at the Design & Procurement stages of a project and may be initiated from very early on in the design process, greatly assisting the integration of BREEAM requirements within the scheme. It is far more difficult to make changes further down the design process.

1.1.2 Post Construction Review Assessment

To ensure specification stated in relation to a Design and Procurement assessment are followed through in the constructed development a Post Construction Review can be commissioned. Some funding bodies such as English Partnerships require that a Post Construction Review is undertaken.

1.1.3 Management & Operation Assessment

For an existing occupied building an assessment of its Management & Operation may be carried out.

1.1.4 Core

For an existing unoccupied building a Core assessment can be performed. The Core credits form part of the other two assessments and are the basis for the EPI (Environmental Performance Indicator) score.

1. 4 Results

Points for each criterion are scored and totalled. The results for each category are weighted to generate the building's final score. These weighting factors were developed following a comprehensive survey of people from various sectors who were interviewed regarding the relative significance of each category.

When a BREEAM certificate is issued a building may fall under four ratings; Pass, Good, Very Good and Excellent where each category has a minimum score requirement.

The rating system indicates the performance of the whole building. As part of the assessment, an Environmental Performance Indicator (EPI) is also accredited. This score is on a scale from 1-10 and allows simple comparison between both proposed and existing buildings.

2. BREEAM 2006 Prediction Results Summary

Based on the verbal statements of the project team members present at a meeting at the offices of Fulcrum Consulting on 26th March 2007 and subsequent discussions, the following 'Likely' and 'Potential' ratings have been calculated.

- Likely Rating – 67% 'Very Good'

The likely rating is the rating that, based on the statements of the project team, is the likely minimum that the development will achieve, based on current design intentions.

- Potential Rating – 73% 'Excellent

The potential rating is the realistic maximum the development may achieve. This rating includes additional credits that could either be achieved by revising the specifications (for example leak detection) or where insufficient information is currently available for them to be confirmed at this time (for example the CO_2 and NOx emissions).

Note: This assessment is based on the verbal statements of the project team. For a formal BREEAM assessment, through to certification, evidence would be required to demonstrate compliance with the credit criteria.

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Credit Summary BREEAM for Offices 2006		Credit no.	Credits Available	Likely Credits	Potential Credits	Lead Responsibility
Management	**Commissioning**	**M1**	**2**	**2**	**2**	**Client / M&E**
Credit Value	Considerate Constructors	M4	2	2	2	Contractor
1.67%	Construction Site Impacts	M5	4	4	4	Contractor
	Building Users Guide	M12	1	1	1	Client
Section Credit Total			9	9	9	
Weighted Section Total			15%	15%	15%	
Health	**Daylighting**	**HW1**	**1**	**-**	**0**	**Architect**
Credit Value	View Out	HW2	1	-	0	Architect
1.15%	Glare Control	HW3	1	1	1	Client
	High Frequency Lighting	HW4	1	1	1	M&E
	Internal and external lighting levels	HW5	1	1	1	M&E
	Lighting Zones	HW6	1	1	1	M&E
	Potential for Natural Ventilation	HW8	1	-	0	Architect
	Internal air pollution	HW9	1	-	0	Arch / M&E
	Ventilation Rates	HW11	1	1	1	M&E
	Thermal Comfort	HW14	1	1	1	M&E
	Thermal Zoning	HW15	1	1	1	M&E
	Microbial Contamination	HW16	1	1	1	M&E
	Acoustic Performance	HW17	1	1	1	Client
Section Credit Total			13	9	9	
Weighted Section Total			15%	10%	10%	
Energy	**Reduction of CO2 emissions**	**E1**	**15**	**10**	**12**	**Arch / M&E**
Credit Value	Sub-metering of Substantial Energy Uses	E2	1	1	1	M&E
0.76%	Sub-metering of Areas/Tenancy	E3	1	1	1	M&E
	External Lighting	E4	1	1	1	LS Arch or M&E
Section Credit Total			18	13	15	
Weighted Section Total			14%	10%	11%	
Transport	**Provision of Public Transport**	**T1**	**2**	**2**	**2**	**Client**
Credit Value	Transport CO2	T2	10	8	8	Client
0.76%	Cyclist Facilities	T5	2	2	2	Architect
	Travel Plan	T8	1	1	1	Client
Section Credit Total			15	13	13	
Weighted Section Total			11%	10%	10%	
Water	**Water Consumption**	**W1**	**3**	**2**	**2**	**Arch / M&E**
Credit Value	Water Meter	W2	1	1	1	M&E
0.83%	Major Leak Detection	W3	1	1	1	M&E
	Sanitary Supply Shut Off	W4	1	-	1	M&E
Section Credit Total			6	4	5	
Weighted Section Total			5%	3%	4%	
Materials	Materials Specification -	MW1	4	2	4	Architect
Credit Value	Floor Finishes	MW3	1	1	1	Architect
0.83%	Reuse of Building Façade	MW5	1	-	0	Architect
	Reuse of Building Structure	MW6	1	-	0	Architect
	Recycled Aggregates	MW7	1	-	0	Structural Eng
	Responsible Sourcing of Materials	MW8	3	1	1	Contractor / Arch
	Storage of Recyclable Waste	MW12	1	1	1	Architect
Section Credit Total			12	5	7	
Weighted Section Total			10%	4%	6%	
Landuse & Ecology	**Reuse of Land**	**LE1**	**1**	**-**	**0**	**Client**
Credit Value	Contaminated Land	LE2	1	-	0	Client
1.50%	Ecological Value of Land and Protection of	LE3	1	1	1	Client
	Mitigating Ecological Impacts	LE4	2	2	2	Client
	Enhancing Site Ecology	LE5	3	-	0	Client
	Long Term Impact on Biodiversity	LE6	2	1	1	Client
Section Credit Total			10	4	4	
Weighted Section Total			15%	6%	6%	
Pollution	**Refrigerant GWP - Building Services**	**P1**	**1**	**-**	**1**	**M&E**
Credit Value	Preventing Refrigerant Leaks	P2	2	2	2	M&E
1.00%	Insulant GWP	P4	1	-	1	Arch / M&E
	NOx Emissions of Heating Source	P6	3	-	0	M&E
	Flood Risk / Water Run-off	P7	3	2	2	Client
	Minimising Water Course Pollution	P8	1	1	1	M&E
	Renewable & Low Emission Energy	P11	3	2	2	M&E
	Reduction of night time light pollution	P12	1	1	1	LS Arch or M&E
Section Credit Total			15	8	10	
Weighted Section Total			15%	8%	10%	
		TOTALS:	100%	67%	73%	
		RATING:		Very Good	Excellent	

3. BREEAM 2006 Results SummaryCredit Details

3.1 Management

M1 Commissioning
Aim To recognise and encourage an appropriate level of building services commissioning that is carried out in a co-ordinated and comprehensive manner, thus ensuring optimum performance under actual occupancy conditions.
Credit Requirements 1 credit where evidence provided demonstrates that an appropriate project team member has been appointed to monitor commissioning on behalf of the client to ensure commissioning will be carried out in line with current Building Regulations and (where applicable), best practice. 2nd credit where evidence provided demonstrates that seasonal commissioning will be carried out during the first year of occupation, post construction (or post fit out).
Development Features Relating to Credit Fulcrum Consulting's appointment includes reviewing commissioning. This would enable the first credit to be achieved. Seasonal commissioning has not currently been specified but the design team are targeting this credit. Therefore both credits are predicted to be achievable.
M4 Considerate Constructors
Aim To recognise and encourage construction sites which are managed in an environmentally and socially considerate and accountable manner.
Credit Requirements 1 credit where evidence provided demonstrates that there is a commitment to comply with best practice site management principles (e.g. signing up to the Considerate Constructors Scheme www.ccscheme.com with at least 24 points, including no less than 3 in each of the eight sections). 2nd credit where evidence provided demonstrates that there is a commitment to go significantly beyond best practice site management principles (e.g. achieving at least 32 of the 40 points available in the Considerate Constructors Scheme, with minimum scores of 3 in each section).
Development Features Relating to Credit The client intends to require the appointed contractor to sign up to the Considerate Constructors Scheme and commit to achieving at least 32 of the 40 points available under the scheme. Therefore both credits are likely to be achieved.

M5 Construction Site Impacts

Aim

To recognise and encourage construction sites managed in an environmentally sound manner in terms of resource use, energy consumption, waste management and pollution.

Credit Requirements

1 credit where evidence provided demonstrates that all site timber (e.g. shuttering and hoarding) is responsibly sourced (e.g. FSC, or PEFC certified or reused from another site).

Up to 3 additional credits. 1 for each pair of the following 7 items that are confirmed:

1. Monitor, report monthly and set targets for CO_2 or energy arising from site activities;
2. Monitor, report monthly and set targets for CO_2 or energy arising from transport to and from site;
3. Monitor, report monthly and set targets for water consumption arising from site activities;
4. Monitor construction waste on site;
5. Sort and recycle construction waste;
6. Adopt best practice policies in respect of air (dust) pollution; (see EA guides PPG 1, 5 & 6. http://tinyurl.com/m92bv)
7. Adopt best practice policies in respect of water (ground and surface) pollution. (EA guides as above)

Development Features Relating to Credit

The client intends to require the appointed contractor to use certified sustainable timber (PEFC or FSC) or timber used from another site for all temporary site timber. This would achieve 1 credit.

The client intends to require the appointed contractor to comply with at least 6 of the 7 listed good practice measures. This would enable all 3 further credits to be achieved.

4 credits are likely to be achieved.

M12 Building User Guide

Aim

To recognise and encourage the provision of guidance to enable a building user to understand and operate the building efficiently, in line with current good practice and in the manner envisaged by the design team.

Credit Requirements

Where evidence provided demonstrates the provision of a simple, non-technical guide that covers information relevant to the tenant/occupants and non-technical building manager on the operation and environmental performance of the building.

- Areas covered by the guide should include:
- Building Services Information
- Emergency Information
- Energy & Environmental Strategy
- Water Use
- Transport Facilities
- Materials & Waste Policy
- Re-fit/Re-arrangement Considerations
- Reporting Provision
- Training

To fulfil the credit requirements, the guide shall be either:

- A stand-alone document, or
- A single section within the Operation and Maintenance Manuals

Development Features Relating to Credit

The client stated that their intention is to provide a non-technical building user guide.

The credit is likely to be achieved.

3.2 Health And Wellbeing

HW1 Daylighting
Aim To improve the level of daylighting for building users.
Credit Requirements Where at least 80% of net lettable office floor area is adequately daylit; Adequate daylighting in accordance with the guidance in the CIBSE Window Design Guide, BS8206 Part 2 and the BRE Site Layout Guide i.e.: a. An average daylight factor of at least 2% PLUS either (b) OR (c AND d) below b. A uniformity ratio of at least 0.4; (spaces with glazed roofs, such as atria, must achieve a uniformity ratio of at least 0.7). OR c. A view of sky from desk height (0.7m) is achieved AND d. The room depth criterion d/w +d/Hw < 2/(1-RB) is satisfied. (Where: d = room depth, w = room width, Hw = window head height from floor level, RB = average reflectance of surfaces in the rear half of the room.)
Development Features Relating to Credit The criteria are unlikely to be met, due to the depth of the office areas. The credit is not being targeted.

HW2 View Out
Aim To allow occupants to refocus their eyes from close work and so reduce the risk of eyestrain.
Credit Requirements Where evidence provided demonstrates that all desks are within a 7m radius of a window.
Development Features Relating to Credit The depth of the office areas mean this credit cannot be achieved.

HW3 Glare Control
Aim To reduce problems associated with glare in internal occupied areas.
Credit Requirements Where evidence provided demonstrates that an occupant controlled glare control system (e.g. internal or external blinds) is fitted to windows of all occupied rooms.
Development Features Relating to Credit The client intends to require occupant controllable glare control for all office windows. The credit is likely to be achieved.

HW4 High Frequency Lighting
Aim To reduce the risk of health problems related to the frequency of fluorescent lighting.
Credit Requirements Where evidence provided demonstrates that high frequency ballasts are installed on all fluorescent and compact fluorescent lamps.
Development Features Relating to Credit Fulcrum Consulting will specify high frequency lighting. Therefore the credit would be achieved.

HW5 Internal and External Lighting
Aim To ensure lighting has been designed in line with best practice for suitability and visual comfort.
Credit Requirements Where evidence provided demonstrates that all internal and external lighting, where relevant, is specified in accordance with the appropriate maintained illuminance levels (in lux) recommended by CIBSE: • **Internal Lighting:** Part Two of the CIBSE Code for Lighting 2002 and its 2004 Addendum CIBSE Lighting Guide 7, 'Lighting for offices' • **External Lighting:** CIBSE Lighting Guide 6, 'The outdoor environment'.
Development Features Relating to Credit Fulcrum Consulting will specify internal lighting in compliance with the stated CIBSE documents. The design team also intends to comply with the CIBSE guidance for external lighting. The credit is likely to be achieved.

HW6 Lighting Zones
Aim To optimise the level of occupant control over lighting within each workspace.
Credit Requirements Lighting in all occupied areas is zoned to allow separate control. For offices separate zones should be provided for (as a minimum): a. Office and circulation spaces, b. Office zones of no more than four workspaces in office areas (10m² per workplace therefore no more than 40m²) c. Workstations adjacent to windows/atria and other areas. In the case of speculative office buildings, the control system has the capacity to be zoned, as detailed above.
Development Features Relating to Credit Fulcrum Consulting will specify lighting in compliance with the criteria. Therefore the credit would be achieved.

HW8 Potential for Natural Ventilation
Aim To ensure adequate cross flow of air in naturally ventilated buildings and future adaptation to natural ventilation in air conditioned/mechanically ventilated buildings.
Credit Requirements Where evidence provided demonstrates that external façade windows to all occupied areas are openable (equivalent to 5% of the gross internal floor area)
Development Features Relating to Credit The current design intention is to have a sealed façade. Therefore this credit would not be achieved.

HW9 Internal Air Pollution
Aim To reduce the risk to health associated with poor indoor air quality.
Credit Requirements Where air intakes serving occupied areas avoid major sources of external pollution and recirculation of exhaust air. 1. **Air-conditioned and mixed-mode buildings:** Where location of air intakes/outlets are over 10m apart to minimise recirculation AND intakes are over 20m from sources of external pollution. • **Naturally-ventilated buildings:** Where location of openable windows/ventilators are over 10m from sources of external pollution.
Development Features Relating to Credit The layout of the building and likely appropriate service strategy means that compliance with this credit will not be possible.

HW11 Ventilation Rates

Aim

To recognise the provision of adequate fresh air rates, in order to maintain a healthy indoor environment.

Credit Requirements

Naturally ventilated spaces

1. The credit 'Potential for Natural Ventilation' (HW8) is achieved.

2. Background ventilation to be in accordance with the Building Regulations Part F.

3. The plan depth of building is less than 15m. Where the plan depth of the building exceeds 15m additional ventilation measures (such as passive stack ventilation or a central atrium) should also provided.

4. Where there are dedicated smoking rooms these must be separated from all other occupied areas by lobbies and serviced by separate ventilation systems to prevent recirculation.

Mechanically ventilated and air conditioned spaces

1. Fresh air is provided at a rate of 12 litres per second per person in accordance with the top of the range recommended in the British Council for Offices Guide to Best Practice in the Specification of Offices.

2. Where smoking is permitted this should be in dedicated smoking rooms only with a ventilation rate of at least 32 litres per second per person. This must be achieved through mechanical means and the room must also be separated from all other occupied areas by lobbies and serviced by separate ventilation systems to prevent re-circulation

Development Features Relating to Credit

The design team intends to specify that the fresh air rate will be 12 l/s/person.

The credit is likely to be achieved.

HW14 Thermal Comfort
Aim To encourage the use of design tools to ensure that thermal comfort is achieved.
Credit Requirements • Completion of feasibility studies aimed at optimising thermal comfort. • The studies/modelling are used to guide the design • Thermal comfort levels meet the requirements set out in CIBSE Guide A
Development Features Relating to Credit Fulcrum Consulting will model the thermal comfort of the building to ensure compliance with CIBSE Guide A. This would enable the credit to be achieved.

HW15 Thermal Zoning
Aim To recognise the provision of controls allowing independent adjustment of heating/cooling systems to reflect differing load requirements.
Credit Requirements • The heating/cooling system is designed to allow independent occupant thermal control, in all separate rooms/areas (including floors) within the building. • Zoning allows separate occupant control to be made of each perimeter area (i.e. within 7m of each external wall) and the central zone (i.e. over 7m from the external walls).
Development Features Relating to Credit Fulcrum Consulting will specify good practice levels of zoning in compliance with the above criteria. Therefore this credit would be achieved.

HW16 Microbial Contamination
Aim To ensure the building services are designed and maintained to avoid risk of Legionellosis.
Credit Requirements • All water and HVAC (heating ventilation and air-conditioning) systems are designed to meet the requirements of HSE Approved Code of Practice (ACoP) and Guidance, L8, “Legionnaires disease; The control of legionella bacteria in water systems”, 2000. • Where no humidification is present or only steam humidification is provided.
Development Features Relating to Credit Fulcrum Consulting will specify hot and cold water systems in compliance with CIBSE Guide TM13 which BRE accepts as compliance with the above criteria. No humidification is specified. Therefore this credit would be achieved.

HW17 Acoustic Performance
Aim To ensure the acoustic performance of the building meets the appropriate standards for its purpose.
Credit Requirements Indoor ambient noise level in unoccupied offices falls within the following ranges; • 35-40dB LAEQT in small offices (typically cellularised floor plates) • 40-45dB LAEQT in medium offices (up to 40m^2 plan area per floor) • 45-50dB LAEQT in large offices (over 40m^2 plan area) Calculations from a noise consultant (in LAEQT) are required to demonstrate compliance.
Development Features Relating to Credit The design team intends to specify noise levels in compliance with the criteria, and the current intention is to appoint an acoustic consultant to confirm compliance with the noise levels stated above. Therefore the credit would be achieved with the current intent, subject to calculations in LAEQT being provided at a formal assessment meeting.

3.3 Energy

E1 Reduction of CO_2 Emissions

Aim

To recognise and encourage buildings that are designed to minimise the CO_2 emissions associated with their operational energy consumption.

Credit Requirements

Credits	Percentage improvement over the requirements of Approved Document Part L2A	
	New Buildings	Refurbishment
1	+1%	-50%
2	+2%	-25%
3	+4%	+0%
4	+6%	+4%
5	+8%	+7%
6	+10%	+10%
7	+12%	+12%
8	+14%	+14%
9	+18%	+18%
10	+22%	+22%
11	+30%	+30%
12	+40%	+40%
13	+50%	+50%
14	+60%	+60%
15	≥70%	≥70%

Development Features Relating to Credit

Based on previous experience the design team expects an improvement beyond Part L 2006 requirements of at least 35%. This would achieve at least 11 credits.

This is to be achieved through enhanced standards of building fabric and services, and the addition of Air Source Heat Pump and Photovoltaics. This will need to be confirmed through the provision of modelling results produced in compliance with Part L 2006.

E2 Sub-Metering Of Substantial Energy Uses
Aim To recognise and encourage the provision of energy sub-metering to facilitate monitoring of energy use.
Credit Requirements Separate energy sub-meters are provided for the following systems (where present): • Space Heating • Humidification Plant • Cooling Plant • Fans (major) • Lighting • Small power (lighting and small power can be on the same sub-meter where supplies are taken at each floor/department). • Other major energy consuming items where appropriate
Development Features Relating to Credit The client intends to require sub-metering to the level stated above. This would enable this credit to be achieved.

E3 Sub-Metering Of Areas/Tenancy
Aim To recognise and encourage the provision of energy sub-metering to facilitate energy monitoring by tenant or end user.
Credit Requirements Provision of sub-meters covering all potential tenancy or function areas within the building as follows; • Speculative buildings – A commitment to install meters to separate tenancy areas. • Single occupancy buildings – A commitment to install sufficient sub metering to allow for monitoring of different departments or areas of an organisation. Metering by floor plate should normally be sufficient to achieve this.
Development Features Relating to Credit The client intends to require tenants to install sub-meters for the metering of lighting and small power on at least a floor-by-floor basis. Therefore this credit would be achieved.

E4 External Lighting
Aim To recognise and encourage the specification of energy efficient light fittings for external areas.
Credit Requirements • 80% of external luminaires have an efficacy of at least 100 luminaire-lumens/circuit-Watt. • Light fittings are controlled through a time switch or daylight sensor to allow for daylight control
Development Features Relating to Credit The only external lighting in the current design is down-lighting in the entrance porch area. The client intends to require external lighting in compliance with the above criteria. Therefore this credit would be achieved.

3.4 Transportation

T1 Provision of Public Transport
Aim To recognise and encourage the selection of sites served by good public transport facilities.
Credit Requirements 1 credit where good access is available to and from public transport networks for commuting: • The distance from the building entrance to the public transport node (i.e. bus stop, station etc.) is less than 500m. • The transport node has a service at least once every 15 minutes at peak times (i.e. 8.00am-10.00am and 5.00pm to 7.00pm) on working days to a local urban centre. 1 credit where there is good access to and from public transport networks for business travel: • The distance from the building entrance to the public transport node (i.e. bus stop, station etc.) is less than 500m. • The transport node has a service at least once every 30 minutes through the working day (i.e. 8.00am – 7.00pm) to a major transport node serving local and regional infrastructure systems.
Development Features Relating to Credit The development is in London, NW1, within reach of several public transport routes (buses and underground trains) of high frequency. Both credits will be achieved.

T2 Transport CO_2
Aim To reduce the production of CO_2 emissions as a result of commuter travel to and from the building by its users.
Credit Requirements Up to 10 credit based on the estimated kg CO_2/person/year calculated based on: • Building location • UK region • Number of occupants (based on 1 per 10m²) • Number of car parking spaces
Development Features Relating to Credit The location and parking provision of the development will result in 8 of the 10 credits being awarded. This is based on a Central London building with 1,000m^2 NLA and 6 car parking spaces.

T5 Cyclist Facilities

Aim
To encourage building occupants to cycle by ensuring adequate cyclist facilities are or will be present on site.

Credit Requirements

- 1st Credit where evidence is provided to demonstrate that there is adequate provision of covered, secure and well lit cycle racks and showers. Provision based on 1 person per 10m² (a 50% reduction can be applied in city centre locations):
    - 10% of building occupants up to 500 occupants PLUS
    - 7% for building occupants in the range of 501 – 1000 PLUS
    - 5% for building occupants over 1000
- 2nd Credit where in addition to the above information is provided to demonstrate that there is adequate provision of changing facilities and lockers for clothes or a dedicated drying space for wet clothes

Development Features Relating to Credit

For a lettable area of 1,000m² in central London 5 secure cycle spaces would be required, along with 1 shower.

The client's current intention is to provide cycle storage and showers to the level required by BREEAM to achieve this first credit.

The additional facilities for the 2nd credit also form part of the current design intent. Consequently both credits would be achieved.

T8 Travel Plan

Aim
To recognise the consideration given to accommodating a range of travel options for building users, thereby encouraging the reduction of user reliance on forms of travel that have the highest environmental impact.

Credit Requirements
Where evidence is provided to demonstrate that a travel plan has been developed and tailored to the specific needs of the users of the assessed development.

The plan must demonstrate how and what measures have been, or will be taken to minimise the impact of traffic, as a result of the new development.

Development Features Relating to Credit

The adjacent development has a green travel plan as a planning condition and the design team stated their intention to extend this to cover the proposed new building.

The credit is expected to be achieved.

3.5 Water

W1 Water Consumption
Aim To encourage the specification of low water use sanitary fittings.
Credit Requirements Up to 3 credits where the specification includes taps, urinals, WCs and showers that consume less water in use than standard specifications for the same type of fittings. This covers: • WCs, • urinals, • taps, • showers, • grey water/rainwater collection
Development Features Relating to Credit Sanitaryware to achieve at least 2 credits will be specified. A typical configuration to achieve this is: • 6/4 litre flush WCs • Proximity controlled urinals where fitted • Regulated/ aerated taps • <15&≥9 ltrs/min shower flow rates Realistically, 3 credits require the specification of rainwater or grey water harvesting. This is not being considered. 2 credits are likely.

W2 Water Meter
Aim To ensure water consumption can be monitored and managed and therefore encourage reductions in water consumption.
Credit Requirements Where information provided demonstrates that a water meter with a pulsed output will be installed on the mains supply to the building.
Development Features Relating to Credit A new mains water meter with pulsed output will be specified. One credit will be achieved.

W3 Major Leak Detection
Aim To reduce the impact of major water leaks.
Credit Requirements Where evidence provided demonstrates that a leak detection system is specified or installed. This can be achieved through the trend monitoring of the pulsed output from a water meter.
Development Features Relating to Credit Mains leak detection will be specified through the use of trend monitoring, by the BMS, of the pulsed output of the mains water meter. The detection system will be: • Audible when activated; • Activated when a continuous flow of water passes through the water meter at a flow rate above a pre-set minimum for a pre-set period of time; • Able to identify different leakage rates, e.g. continuous, high and/or low level leaks, over set time periods; • Programmable to suit the owner/occupiers' requirements; and • Where applicable, designed to avoid false alarms caused by normal operation of large water consuming plant such as chillers. The credit is likely to be achieved.

W4 Sanitary Supply Shut Off
Aim To reduce risk of minor leaks in toilet areas.
Credit Requirements Solenoid valves are specified for each toilet area in the building (controlling the water supply to all urinals and WC's) and these are linked to EITHER a. Infra-red movement detectors OR b. Sensors placed at or on entry doors.
Development Features Relating to Credit Sanitary supply shut off is not currently being considered but could be if required. The credit could potentially be achieved.

3.6 Materials And Waste

MW1 Materials Selection
Aim To recognise and encourage the use of construction materials with a low environmental impact over the full life cycle of the building.
Credit Requirements Where evidence provided demonstrates that the major building elements specified have an 'A rating', as defined in the Green Guide to Specification. A BREEAM spreadsheet is used that requires data on the Green Guide Rating for the construction methods used for the buildings: a. External Walls b. Windows c. Roof d. Upper Floor Slabs (All floor slabs except ground floor)
Development Features Relating to Credit The credits achieved by the development will not be known until the design is worked up into more detail. The current intention includes: • External Wall: Wall constructions are not yet determined. Many masonry, cladding or rainscreen constructions could achieve an A rating. It is anticipated that an A rated construction will be selected to assist in fulfilling the planning requirements for the borough. • Windows: Likely to be aluminium framed. B rated. It is not anticipated that an A rated window construction will be selected (only hardwood timber frames or curtain walling fenestration have A ratings under the Green Guide to Specification). • Roof: Potentially a mix of heavy weight in-situ concrete (likely C rated) and lightweight (likely A rated) construction. Examples of compliance are: 1. Cold deck flat roofs (e.g. internally insulated with timber super structure) or other timber framed, some inverted decks (i.e. galvanised steel deck with asphalt, insulation and paving slabs; plasterboard, timber joists, plywood, asphalt, insulation and either paving slabs or chippings are given as examples of compliance) 2. One warm deck construction (shown as plasterboard, timber joists, plywood decking, vapour control layer, felt isolating layer, polyester reinforced bitumen felt and chippings). • Upper floor: In-situ Concrete (B or C rated) would not fulfil the local policy

requirements. To secure the required credits (40% of the materials credits) the upper floor slabs would also need to be A rated.

Examples of compliance are:

1. Precast hollow concrete slabs with screed
2. Beam and blockwork constructions

Compliant (A rated) upper floors would be needed (in addition to A rated external walls and roofs) would be required to meet the policy objectives.

From experience, the author anticipates that four credits could be achieved where the roof, walls and upper floor constructions are A rated.

MW3 Floor Finishes
Aim To avoid wastage of materials, by encouraging a single installation of floor finishes selected by the building occupant.
Credit Requirements For speculative developments the design team must provide written confirmation that carpets and other floor finishes will be installed in a show area only prior to tenant fit out works. A show area could be either a floor plate, or an office. However, to award this credit it must be less than 25% of the net lettable floor area. In a building developed for a specific occupant, the design team should provide written confirmation that the future occupant has selected (or agreed to) the specified floor finishes.
Development Features Relating to Credit The client will not fit out more than 25% of the total floor area for marketing purposes. Therefore this credit would be achieved.

MW5 Reuse of Façade
Aim To recognise and encourage the reuse of existing façades from buildings that occupy the site.
Credit Requirements Where at least 50% of the total façade (by area) is reused and at least 80% of the reused façade (by mass) comprises in-situ reused material.
Development Features Relating to Credit This credit is not being targeted.

MW6 Reuse of Structure
Aim To recognise and encourage the reuse of existing structures that previously occupied the site.
Credit Requirements Where evidence provided demonstrates that a design reuses at least 80% of an existing primary structure and for part refurbishment and part new build, the volume of the reused structure comprises at least 50% of the final structure's volume.
Development Features Relating to Credit This credit is not being targeted.

MW7 Recycled Aggregates
Aim To recognise and encourage the use of recycled aggregates in construction thereby reducing the demand for virgin material.
Credit Requirements Where the amount of recycled aggregate specified is over 25% (by weight) of the total 'high grade' aggregate uses (see definition below). Recycled aggregates can be EITHER; a. Obtained on site, OR b. Obtained from sites within a 30km radius, OR c. Obtained from a recycled, non construction post-consumer/post-industrial by-product source, such as crushed/blown glass pellets, PFAs, blast furnace slag, etc. 'High grade' aggregate uses are considered to be: a. Structural frame, b. Floor slabs including ground floor slabs, c. Asphalt based or similar road surfaces, d. Gravel landscaping, e. Site-derived masonry as hardcore under ground floor slabs, site roads and car parking areas.
Development Features Relating to Credit The high proportion of high specification concrete means that it is unlikely that greater than 25% of high quality aggregate will be recycled from other uses. This credit is not being targeted.

MW8 Responsible Sourcing of Materials
Aim To recognise and encourage the specification of responsibly sourced materials for key building elements.
Credit Requirements Up to 3 credits are awarded where evidence provided demonstrates that the materials used in the major building elements have been sourced responsibly; • Timber are from certified sources (such as FSC – www.fsc-uk.org or PEFC – www.pefc.co.uk) • Concrete and metals are from suppliers and/or quarries that have environmental management systems (such as ISO 14001) A BREEAM spreadsheet is used that requires data on the sourcing of the materials used for the buildings: a. External Walls b. Windows c. Roof d. Upper Floor Slabs (All floor slabs except ground floor)
Development Features Relating to Credit The intention is to specify certified sustainable timber (FSC or PEFC) if available. Specification of European timbers is likely to increase the availability of certified timber. In addition, concrete and steel is likely to come from large suppliers who, due to awareness of their environmental impacts, tend to be certified through ISO 14001 or EMAS. The exact number of credits cannot be determined until more detailed design, and identification of likely suppliers, is achieved. However, the assessor would expect 1 credit to be secured.

MW12 Storage of Recyclable Waste
Aim To recognise and encourage recycling of consumables in order to reduce the demand for virgin material and the amount of waste going to landfill or incineration.
Credit Requirements Provision of a central dedicated storage space with the following characteristics: • Clearly labelled for recycling. • Placed within easy reach of all building areas (e.g. less than 20m from the base of a stairwell serving all floors). • In a location with good vehicular access to facilitate collections. The size of the space allocated must be at least: • 2m² per 1000m² of net floor area, • 10m² for buildings with net floor area over 5,000m².
Development Features Relating to Credit The current intention is to include a compliant area explicitly labelled for the storage of recyclable waste within the building. In conjunction with the occupants of the adjacent building, this recyclable material will be placed within reach of collection by contractors' vehicles. This would enable this credit to be achieved.

3.7 Land Use And Ecology

LE1 Re-Use of Land
Aim To encourage the reuse of land that has been previously occupied by building developments and discourage the use of previously undeveloped land for building.
Credit Requirements At least 75% of the proposed development's footprint is on an area of land which has previously been developed or used for industrial purposes in the last 50 years.
Development Features Relating to Credit The development is on a previously derelict central London site, with less than 25% of the site having been built on in the last 50 years. This credit will not be achieved.

LE2 Contaminated land
Aim To encourage positive action to use contaminated land that otherwise would not have been developed.
Credit Requirements A report should identify the degree of contamination and make recommendations for the treatment, containment or removal in line with the Contaminated Land Exposure Assessment (CLEA) procedure, published by DEFRA and the Environment Agency. The contractor responsible for remediation of the site must confirm that the report recommendations and CLEA requirements have been, or will be, implemented in full. If a contractor has not yet been appointed, the specification must state that the contractor responsible for the site remediation is also responsible for demonstrating compliance with the contaminated land report recommendations and CLEA requirements. Either the design team, or contractor, must confirm this before this credit is awarded.
Development Features Relating to Credit The central London location with a site containing an existing structure is very unlikely to require significant decontamination. Therefore it is assumed that this credit will not be achieved.

LE3 Ecological Value Of Land And Protection Of Ecological Features
Aim To encourage development on land that already has limited value to wildlife and to protect existing ecological features from substantial damage during site preparation and completion of construction works.
Credit Requirements Land within the construction zone is defined as land of low ecological value. All existing features of ecological value on the surrounding site and boundary area are adequately protected from damage during clearance, site preparation and construction as listed below; • Trees of over 100 mm trunk diameter, and/or of significant ecological value, are to be protected by barriers. • In all cases trees must be protected from direct impact and from severance or asphyxiation of the roots. • Hedges and natural areas requiring protection must either have barriers erected and be protected, or, when remote from site works or storage areas, be protected with a prohibition of construction activity in their vicinity. • Watercourses and wetland areas are to be protected by cut-off ditches and site drainage to prevent run-off to natural watercourses (as this may cause pollution, silting or erosion).
Development Features Relating to Credit The site is a mainly derelict central London plot which the design team states has little ecological features to be retained or protected. With the support of a suitably qualified ecologist (see LE4 below) this credit is expected to be achieved.

LE4 Mitigating Ecological Impact
Aim To minimise the impact of a building development project on existing site ecology.
Credit Requirements 1st credit where evidence is provided to demonstrate the change in ecological value of the site, as a result of development, is between less than zero and equal to, or less than, minus nine species, i.e. a small negative change. 2nd credit where evidence is provided to demonstrate there is no negative change in the ecological value of the site as a result of development, i.e. equal to, or greater than, zero species. The change in ecological value is calculated using a BREEAM spreadsheet tool or the advice from a BRE recognised suitably qualified ecologist, i.e. a member of one of the following: • Association of Wildlife Trust Consultancies (AWTC) • Chartered Institution of Water and Environmental Management (CIWEM) • Institute of Ecology and Environmental Management (IEEM) • Institute of Environmental Management and Assessment (IEMA) • Landscape Institute (LI)).
Development Features Relating to Credit The site is said to have no existing ecological features of value and the new development will result in at least a neutral change in the ecological value of the site. An ecologist has been appointed. Both credits would be achieved.

LE5 Enhancing Site Ecology
Aim To maintain and enhance the ecological value of the site.
Credit Requirements 1st credit where evidence is provided to demonstrate that the design team (or client) has i) appointed a professional to advise and report on enhancing and protecting the ecological value of the site; and ii) implemented the professional's recommendations for general enhancement and protection for site ecology. 2nd credit where evidence is provided to demonstrate a positive increase in the ecological value of the site of up to (but not including) 6 species. 3rd credit where evidence is provided to demonstrate a positive increase in the ecological value of the site of 6 species or greater. The 2nd and 3rd credits require the 1st credit to be achieved.
Development Features Relating to Credit The pre-development site is said to have no ecological value, but no ecological enhancement is planned for the site. Some existing features are being replaced as part of this scheme. It is unlikely that any credits will be awarded here.

LE6 Long Term Impact on Biodiversity

Aim

To minimise the long term impact of the development on the site's and surrounding area's biodiversity.

Credit Requirements

1 credit for complying with all mandatory requirements and at least 2 additional elements

2 credits for complying with all mandatory requirements and at least 4 additional elements

Mandatory Requirements.

- A suitably qualified ecologist (as defined in Enhancing Site Ecology, LE5), appointed prior to commencement of activities on site, must confirm in writing that:
- All relevant UK and EU legislation relating to protection and enhancement of ecology has been, or will be, complied with during the design and construction process.
- An appropriate biodiversity management plan is produced covering at least the first 5 years after project completion. This is to be handed over to the building occupants.

Additional Elements

- The contractor is required to nominate a 'Biodiversity Champion'
- The contractor is required to train all relevant site work-force on how to protect site ecology during the project.
- The contractor is required to record actions taken to protect biodiversity and monitor their effectiveness throughout key stages of construction.
- The client requires that a new ecologically valuable habitat, appropriate to the local area, be created.
- The client requires the contractor to programme site works to minimise disturbance to wildlife.
- The client requires actions to be taken to protect/enhance biodiversity,

Development Features Relating to Credit

Using the advice of an ecological consultant, and by requiring the appointed contractor to implement the required measures, the current intention is oblige the contractor to meet all of the relevant mandatory elements of the credit and sufficient optional elements to achieve 1 of the 2 credits available. One credit is being targeted.

3.8 Pollution

P1 Refrigerant GWP – Building Services
Aim To reduce the contribution to potential climate change from refrigerants with a high global warming potential.
Credit Requirements Where evidence provided demonstrates the use of refrigerants with a global warming potential (GWP) of less than 5 or where there are no refrigerants specified for use in building services. This is likely to require; no refrigerant, ammonia, propane or butane.
Development Features Relating to Credit Chillers using common HFC refrigerants will not meet the credit criteria. The team stated their intention to include compliant refrigerants where suitable. Where all refrigerants in the building services fulfil the BREEAM criteria, this credit would be achieved. The credit may potentially be achieved.

P2 Preventing Refrigerant Leaks
Aim To reduce the emissions of refrigerants to the atmosphere arising from leakages in cooling plant.
Credit Requirements 1st credit where evidence provided demonstrates that refrigerant leaks can be detected or where there are no refrigerants specified for use in the building or development. 2nd credit here evidence provided demonstrates that the provision of automatic refrigerant pump down is made to a heat exchanger (or dedicated storage tanks) with isolation valves or where there are no refrigerants specified for the development.
Development Features Relating to Credit The current intention is to specify both refrigerant leak detection and automatic refrigerant pump down. These two credits are being targeted.

P4 Insulant GWP
Aim To reduce the potential for global warming from substances used in the manufacture or composition of insulating materials.
Credit Requirements Where evidence provided demonstrates that the specification of insulating materials avoids the use of substances with a global warming potential (GWP) of 5 or more in either manufacture or composition Rockwool and mineral wool are compliant. Compliance of other common Insulants will depend on whether HFCs are used in their manufacture. All Kingspan products and around half of Knauf's products comply. Dow Corning STYROFOAM 'X' products are foamed with a hydrofluorocarbon (HFC) and therefore do not comply. STYROFOAM and 'A' products are foamed with carbon dioxide and do comply.
Development Features Relating to Credit At present there is not a requirement for all Insulants to be manufactured using chemicals with a GWP < 5. The team indicated their intent to specify Insulants that meet the performance specification, subject to suitable products being identified for inclusion in the specification. The credit may potentially be achieved.

P6 NO_X Emissions of Heating Source
Aim To encourage the use of heating that minimises NO_x emissions, and therefore reduces pollution of the local environment.
Credit Requirements Dependent on dry NO_x emissions from delivered space heating energy • 1 credit ≤100 mg/kWh • 2 credits ≤70 mg/kWh • 3 credits: ≤40 mg/kWh
Development Features Relating to Credit The intention is to use an Air Source Heat Pump heating system for Project Oasis. This is to be powered by National Grid electricity, which has high associated NO_X emissions due to the dominant use of fossil-fuelled power stations supplying power to the network. Therefore no credits are accessible to Project Oasis under this credit heading.

P7 Minimising Flood Risk

Aim

To encourage the development of buildings in areas with reduced risk of flooding and ensure that storm water run-off from the development does not increase the flood risk on site or elsewhere.

Credit Requirements

- 1credit where evidence provided demonstrates that Sustainable Urban Drainage techniques are specified to minimise the risk of localised flooding, resulting from a loss of flood storage on site through development.
- 2 credits where evidence provided demonstrates that the assessed development is located in a zone defined as having a low annual probability of flooding OR

  Where evidence provided demonstrates that the assessed development is located in a zone defined as having a medium annual probability of flooding and the ground level of the building, car parking and access is above the design flood level for the site's location AND Sustainable Urban Drainage techniques are specified to minimise the risk of localised flooding, resulting from a loss of flood storage on site through development.
- 3 credits where evidence provided demonstrates that the assessed development is located in a zone defined as having a low annual probability of flooding AND that Sustainable Urban Drainage techniques are specified to minimise the risk of localised flooding, resulting from a loss of flood storage on site through development.

An initial assessment of flood risk can be obtained from this Environment Agency web page: http://tinyurl.com/5zdtr

Development Features Relating to Credit

The Environment Agency website indicates that the development is outside flood risk areas.

Measures to minimise the peak rain water run-off are not currently being considered. If such measures are included then an additional credit could be achieved.

Therefore 2 credits are likely to be achieved.

P8 Minimising Watercourse Pollution
Aim To reduce the potential for pollution to natural watercourses from surface water run-off from buildings and hard surfaces.
Credit Requirements Where evidence provided demonstrates that on site treatment such as oil separators/interceptors or filtration have been specified for areas at risk from pollution, i.e. vehicle manoeuvring areas, car parks, waste disposal facilities, delivery facilities or plant areas.
Development Features Relating to Credit Petrol interceptors will be specified in the car park area and the intention is that these are sized to accommodate discharges from roof plant. This would enable the credit to be awarded.

P11 Renewable & Low Emission Energy
Aim To reduce atmospheric pollution by encouraging locally generated renewable or low emission energy to supply a significant proportion of the building's energy demand.
Credit Requirements • 1 credit where evidence provided demonstrates that a feasibility study considering renewable and low emission energy has been carried out and the results implemented. • 2 credits where evidence provided demonstrates that the first credit has been achieved and 10% of total energy demand for the building/development is supplied from local renewable, or low emission energy, sources. • 3 credits where evidence provided demonstrates that the first credit has been achieved and 15% of total energy demand for the building/development is supplied from local renewable, or low emission energy, sources.
Development Features Relating to Credit A comprehensive renewable energy feasibility study has been undertaken. The study found that Air Source Heat Pumps would be suitable for providing 100% of space heating and 100% of space cooling to the building. In addition, photovoltaics are proposed to provide renewable electricity. Taking the kWh of energy demand satisfied by the ASHPs and PVs, we see that 50% of the total energy demand of the building is provided by renewables. Therefore two credits are achievable by this design.

P12 Reduction of Night Time Light Pollution
Aim To ensure that night-time lighting is concentrated in the appropriate areas and that upward lighting is minimised, reducing unnecessary light pollution, energy consumption and nuisance to neighbouring properties.
Credit Requirements Where evidence provided demonstrates that the external lighting design is in compliance with the guidance in the Institution of Lighting Engineers (ILE) Guidance notes for the reduction of obtrusive light, 2005 (http://tinyurl.com/fck84)
Development Features Relating to Credit The project team intends that the lighting design will be required to meet the requirements of the ILE guidance. Therefore the credit is expected to be achieved.