

BRITISH LAND

NORTH EAST QUADRANT

SUSTAINABILITY STATEMENT AND ENERGY STRATEGY REPORT

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SUSTAINABILITY STATEMENT

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1.0 EXECUTIVE SUMMARY

This report has been prepared by Hoare Lea, on behalf of British Land, in support of the planning application for North East Quadrant, a new development within the London Borough of Camden. It presents the main features of the sustainability strategy for the project. This sustainability strategy responds specifically to UK national sustainable development policy and in particular to the requirements of the London Borough of Camden Unitary Development Plan and the London Plan Supplementary Planning Guidance on Sustainable Design and Construction. The main features of the Sustainability Strategy are:

BREEAM and EcoHomes

The project will achieve a BREEAM for Offices 'Very Good' rating and a EcoHomes 'Very Good' rating. Both pre-assessments are enclosed (see Appendix B) and demonstrate compliance with Camden Planning Guidance:

- More than 60% of credits available under the 'Energy' section are achieved;
- More than 60% of credits available under the 'Water' section are achieved;
- More than 40% of credits available under the 'Materials' section are achieved.

Energy and renewable energy

- Energy efficiency measures have been adopted and 10% of the site energy consumption will be generated by a biomass boiler and 3% by a CHP plant, leading to a 32% reduction in energy consumption and a 31% reduction in CO₂ emissions compared to the 'baseline scheme' based on good practice benchmarks (the difference between the energy figures and the CO₂ figures are due to the different CO₂ contents of the displaced and used fuels, i.e. gas, grid-supplied electricity, displaced electricity, biomass).
- It should be noted that CO₂ emissions above include all energy uses, not just energy uses covered by Part L. As CO₂ emissions not covered by Part L represent a large proportion of total CO₂ emissions, a total CO₂ emissions reduction of 31% between the Baseline Scheme and the Energy Efficient Scheme with CHP and renewables actually represents a Part L CO₂ emissions reduction of 37% and an improvement over Part L 2006 of 15%.

Water

- An average water use in new dwellings within the residential buildings of no more than 40 m³ per bedspace per year (approx. 110 litres / head / day) will be targeted.
- Rainwater will be collected and recycled for irrigation. As greywater requires chemical treatment, it was decided to give preference to rainwater.
- A 50 % attenuation of the undeveloped site's surface water run-off at peak times will be achieved, thanks to an underground buffer tank. This figure has been agreed with the Environment Agency.

Materials and other resources

100% of timber and wood products will be sourced from sustainable sources or will utilise reused or recycled timber.

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Waste management

- For the office buildings, tenants will be encouraged to minimise their waste as far as practicable, with recycling and composting being the preferred options for any waste produced by the building.
- For residential buildings, internal storage recycling bins will be provided in each apartment along with central storage.

Transport

- Public transport is excellent and includes many local bus, underground and rail services.
- A large number of cycle spaces will be provided both for the commercial and the residential development.
- The level of car parking provision reflects the desire to minimise the use of the private car as a means of transport to and from the development.

Biodiversity:

• A Biodiversity Action Plan (BAP) has been prepared for the site.

Others:

- 100% of the NEQ development is located on previously developed land and the proposed development application represents 46,462 m², more than 3 times the existing NIA. This increased density would contribute to the SPG aim of making the best use of all developable land by increasing density.
- The proposed development will meet the principles of inclusive design.
- British Land will sign up to the relevant Considerate Constructor Scheme, and extend that requirement by tender requirements to all contractors.

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2.0 INTRODUCTION

This report has been prepared by Hoare Lea, on behalf of British Land, in support of the planning application for North East Quadrant, a new development within the London Borough of Camden. The planning application includes 31,871 m² NIA of office development, 11,553 m² NIA of residential accommodation 1,749 m² NIA of retail space, and 1,616 m² NIA of community use.

This report presents the main features of the sustainability strategy for the project.

This sustainability strategy responds specifically to UK national sustainable development policy and in particular to the requirements of the London Borough of Camden Unitary Development Plan and the London Plan Supplementary Planning Guidance on Sustainable Design and Construction. For clarity, this sustainability statement follows the structure of the London Plan SPG on Sustainable Design and Construction.

The sustainability strategy has also been driven by British Land's adopted framework: the 'Sustainability Brief'. It requires the review of the sustainability of all British land development projects at various stages of the design.

3.0 ENVIRONMENTAL ISSUES

Environmental issues are at the forefront of Global, European and local government policy. A detailed sustainability strategy has been developed for the building, which specifically takes into account government policy and the environmental issues outlined below.

- Climate Change
- Ozone Depletion
- Pollution
- Resource Efficiency
- Water Resource Depletion
- Sustainable Timber
- Waste
- Transport
- Biodiversity

Climate Change

The evidence for climate change is all around us as we experience milder winters, warmer summers, melting glaciers, changing sea temperatures and more extreme weather events. The overwhelming consensus of scientific opinion is that mankind's release of large amounts of carbon has caused a measurable increase in temperature. The resulting 'global warming' has the effect of changing the global climate. Gases recognised as having a 'greenhouse' or global warming effect include carbon dioxide, methane, CFCs, HCFCs and HFCs.

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Ozone Depletion

Ozone depleting gases cause damage to the 'ozone layer'. CFCs, HCFCs and Halons are the major causes of ozone depletion. Damage to the ozone layer reduces its ability to prevent ultraviolet (UV) rays entering the earth's atmosphere. Under EU regulations, the use of CFCs has been banned since January 2001 and HCFCs will no longer be sold after 2010 and will be phased out of use by 2015.

Pollution

Many construction materials and equipment contain or emit substances, which are hazardous to health and/or the Environment. The emission to air or water of some substances such as heavy metals, dioxins, hydrocarbons and VOCs used during the construction and operation of a building can have serious environmental impacts on human health and plant and animal ecosystems.

Resource Efficiency

Buildings are major consumers of resources, both during construction and in their operation. They use land, consume minerals, fossil fuels and other natural materials.

Water

UK water resources are being depleted on account of a 70% rise in water consumption over the past 30 years. Existing water resources must be protected through strategies to reduce water consumption in buildings and minimise the depletion, disruption or pollution of watercourses and aquifers.

Sustainable Timber

Deforestation of tropical forests is a matter for global concern. Timber, whilst a renewable resource, is largely imported into the UK.

Waste

The construction industry accounts for 29% of all UK controlled waste arising each year, of which 70 million tonnes is construction and demolition (C&D) waste. 30% of (C&D) waste is dumped in landfill or otherwise disposed of. During operation, occupants generate domestic waste and office waste.

Transport

The transport of people between buildings accounts for 22% of national energy use. Transport energy and emissions are growing at 4% per year, mostly owing to the increase in personal transport.

Biodiversity

Although construction is generally perceived as being detrimental to the ecological value of a development site, design solutions can also enhance the ecological value of a site.



4.0 SUSTAINABILITY POLICY, REGULATIONS AND GUIDANCE

There is a vast number of national, regional and local documents that guide the process towards achieving sustainable development. Below are summaries of the most commonly used documents.

4.1 Government Policy

UK Government Strategy for Sustainable Development, 1999, revised 2005

In 1999, the UK Government published its initial strategy for sustainable development, 'A Better Quality of Life: A Strategy for Sustainable Development in the UK.' This has four main objectives:

- social progress which recognises the needs of everyone;
- effective protection of the environment;
- prudent use of natural resources;
- maintenance of high and stable levels of economic growth and employment.

The Sustainable Development Task Force reviewed this Strategy and a revised UK Government Sustainable Development Strategy, 'Securing the Future', was put into place on the 7th March 2005.

The Energy White Paper - Creating a Low Carbon Economy, 2003

The four key goals of UK energy policy are identified:

- reduce carbon dioxide emissions;
- maintain the reliability of energy supplies;
- promote competitive energy markets;
- ensure that every home is adequately and affordably heated.

A specific target is set to reduce carbon dioxide emissions by 60% by 2050.

The UK Air Quality Strategy, 1997, updated 2000, amended 2002

Local Authorities are required to carry out periodic reviews of air quality in their area. The strategy sets objectives for eight main air pollutants to protect health, vegetation and ecosystems.

The UK Waste Strategy, 2000

The Strategy sets challenging targets to be met by local authorities:

- to recover value from 45% of municipal waste by 2010, at least 30% through recycling or composting;
- to recover value from two thirds of municipal waste by 2015, at least half of that through recycling and composting.



The UK Transport Strategy, 2000

'Transport 2010 – The 10 Year Plan' (Department of Transport, 2000) is the Government's integrated transport strategy, which explains the need to extend choice and secure mobility in a way that supports sustainable development.

4.2 National planning policy

Planning Policy Statement PPS1 - Delivering Sustainable Communities, 2005

PPS1 sets out the Government's strategy on the delivery of sustainable development through the planning system. It states that development plans should aim to:

- reduce energy use;
- reduce pollution/carbon emissions (including reducing emissions from transport as well as buildings);
- promote the development of renewable energy resources;
- consider climate change impacts when reviewing the location and design of developments.

Planning Policy Statement PPS22 - Renewable Energy, 2004

PPS22 recognises that renewable energy sources will play a key role in reducing carbon emissions, improving diversity/security of UK energy supply and diversification of employment opportunities. Regional and local planning authorities are required to be positive to the development of renewable energy sources such as wind generation, hydropower, photovoltaics, passive solar design, biomass, energy crops and energy from waste.

4.3 National regulations

Part L Building Regulations, 2006

Part L of the Building Regulations, which covers the conservation of fuel and power, has been revised and released in April 2006. Carbon emissions in new buildings will have to be reduced by an average 18%-28% compared to 2002 standards. The Government proposes to amend the Part L regulations every 5 years (further revisions will therefore be made in 2011 and 2016). It is expected that each revision will aim to reduce carbon emissions from new buildings by 25% each time.

4.4 Regional sustainability strategy

The London Plan: Spatial Development Strategy for Greater London, 2004

The London Plan is the strategic plan for setting an integrated social, economic and environmental framework for the future development of London over the next 15 to 20 years.

The Mayor's Energy Strategy, 2004

The Energy Strategy sets the Mayor's proposals to change the way energy is supplied and used within London over the next 10 years and create a sustainable energy system by 2050. It aims to reduce London's CO₂ emissions and thus help to mitigate climate change. It hopes to achieve this by reducing the use of fossil fuels, encouraging greater energy efficiency and promoting renewable energy.

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Developers are encouraged to use BREEAM (Building Research Establishment Environmental Assessment Method) as well as integrating energy efficiency improvements and efficient supply technologies such as combined heat and power (CHP).

The Mayor's Air Quality Strategy, 2002

Buildings represent an opportunity to reduce air pollution, and the Strategy targets buildings as a source of air pollutants from energy use, particularly heating. Potential for emission reductions are identified in the adoption of best practice for more energy efficient new buildings, and in using renewable energy technologies.

The Mayor's Waste Management Strategy, 2003

London aims to meet the targets for recovering value from 40% of municipal waste by 2005, from 45% by 2010 and from 67% by 2015 by prioritising reduction, re-use, recycling and composting.

The Mayor's Transport Strategy, 2001

The Transport Strategy has ten key transport priorities, those applicable to NEQ development are:

- Reducing traffic congestion;
- Reducing car dependency by increasing travel choice;
- Supporting local transport initiatives, including walking and cycling schemes, road safety improvements, better maintenance of roads.

The Mayor's Biodiversity Strategy, 2002

The objectives of the Biodiversity Strategy, which are applicable to NEQ development include:

- To ensure all Londoners have ready access to wildlife and natural green spaces;
- To provide local climatic benefits through amelioration of ambient noise and absorption of some pollutants;
- To deliver quality open spaces together with green footpaths and cycle ways.

4.5 Local sustainability strategy

London Borough of Camden's Unitary Development Plan, 2006

The London Borough of Camden adopted a Replacement Unitary Development Plan (UDP) in June 2006. Of particular relevance to the NEQ scheme are the requirements to:

- Seek a mix of uses in development, including a contribution to the supply of housing;
- Seek the fullest use of sites and prevent inefficient use of land (High density development will be expected at locations in the Central London Area, Town Centres and other locations well served by public transport);
- Improve quality of life and local amenity;
- Conserve energy and water resources.

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London Borough of Camden's Supplementary Planning Guidance, 2002

The SPG includes a 'checklist' summary of design measures which should be considered from the earliest design stages of a new development scheme through to construction to ensure that the characteristics of a sustainable building are met as far as possible. The design measures within the checklist include:

- Site planning, orientation and form Orientation, form and facade design should seek to minimise energy consumption.
- Energy Energy efficient plant should be specified and the incorporation of renewable energy technologies into the design and CHP should be considered.
- Resource recovery The reuse of demolition materials and recycled materials from other local sites should be encouraged and sufficient space should be allocated within the design of the building for the future recycling of waste materials.
- Water Water consumption should be reduced through on-site treatment, recycling of grey water and on-site groundwater abstractions for cooling and WC flushing. Surface water run-off should be reduced through the use of sustainable drainage systems.
- Ecological value It should be enhanced through the use of green roofs, climbing plants, window boxes and nesting cavities for birds and bats.
- **Green travel** It should be encouraged by minimising parking spaces, providing secure cycle storage facilities and introducing a green travel plan for operation of the development;

The SPG also endorses BREEAM assessments and states that "a favourable BREEAM assessment will be a material consideration in support of an application".

London Borough of Camden's Draft Supplementary Planning Guidance, 2006

Following the council's adoption of the Replacement Unitary Development Plan (UDP) in June 2006, the London Borough of Camden has issued the draft revised supplementary planning guidance to support the policies outlined in the replacement UDP. The revised Camden Planning Guidance 2006 was issued for consultation in July 2006 and following consultation it is intended that the guidance is adopted for use as a material consideration in planning decisions.

4.6 BREEAM and Eco-Homes

The BREEAM (Building Research Establishment Environmental Assessment Method) and Eco-Homes schemes are being used as benchmarking tools in the design of new developments. The aim of BREEAM and Eco-Homes is to estimate the environmental impact of buildings and promote a programme of environmental improvement.

BREEAM for Offices 2005 and Eco-Homes award credits in relation to the following construction, design and procurement options:

- **Management** commissioning, waste management, education and training of building users.
- **Health and Wellbeing** natural ventilation, daylighting, occupant controls.
- Energy carbon emissions, heating and lighting control, energy monitoring, use of daylight, provision of shading.
- Transport car parking provision, cyclist facilities, public transport nodes, distance to local amenities, green transport plan.
- Water leak detection, water meters, low flush toilets and grey water use.

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- Materials specification of building materials and prohibition of hazardous substances.
- Land use and Ecology use of contaminated land and change in ecological value, protection of ecological features and protection of natural habitats.
- Pollution pollution monitoring, ozone depleting substances, NOx emission rates, noise pollution.

British Land has a policy requirement for each of its new build office buildings to achieve a BREEAM rating of at least Very Good.

As part of the development's design process, carried out prior to the Planning Application, British Land appointed Waterman Environmental to undertake, with the design team, a BREEAM for offices 2004 Design and Procurement (D&P) Prediction Checklist and a EcoHomes 2004 Pre-Assessment Prediction Checklist.

Although the predicted scores must at this stage only be used as guidance to the design team and cannot be used to demonstrate compliance with BREEAM and EcoHomes, they indicate that both the residential and the office element of the scheme will be built to very high environmental standards.

The results were as follows:

- Triton Square Office Building: BREEAM Rating of 'Very Good';
- Henry Street Office Building: BREEAM Rating of 'Very Good';
- Market Housing: EcoHomes Rating of 'Very Good';
- Intermediate Housing: EcoHomes Rating of 'Very Good';
- Social Housing: EcoHomes Rating of 'Very Good'

BREEAM and EcoHomes pre-assessments also comply with Camden Planning Guidance:

- More than 60% of credits available under the 'Energy' section are achieved;
- More than 60% of credits available under the 'Water' section are achieved:
- More than 40% of credits available under the 'Materials' section are achieved.

The five Eco-Homes and BREEAM pre-assessments can be found in Appendix B.

During Stage D of the design licensed BREEAM and EcoHomes assessors will be commissioned to conduct a formal assessment of the scheme.

BREEAM and EcoHomes post construction reviews will also be submitted to the Council prior to occupation.

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5.0 BRITISH LAND'S SUSTAINABILITY BRIEF

The purpose of British land's Sustainability Brief is to guide the design and construction process by:

- Promoting the establishment of sustainability objectives and targets for design and construction with the aim of continuous improvement;
- Raising the sustainability awareness of the Company's staff, joint venture partners and suppliers;
- Defining the processes, standards, guidance and responsibilities for managing sustainability issues at each stage in a development project.

British Land's Sustainability Brief requires a review of the sustainability of the project at various stages of the design. The latest review for NEQ, i.e. the Objectives and Targets Report, can be found in Appendix A.



6.0 SUSTAINABILITY STATEMENT

6.1 RE-USE OF LAND AND BUILDINGS

This section formally outlines how the development will practically meet the objectives of Section 2.1 (Re-use of land and buildings) of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, May 2006.

Mayor's Essential Standard

- **Re-use of land** 100% of development on previously developed land, unless very special circumstances can be demonstrated
- Development Density, Open Space Provision, Public Transport
 Capacity Development density should be maximised based on local context (Policy 4B.7) design principles (Policy 4B.1) open space provision (Policy 3D.10) and public transport capacity (Policy 3D.10)
- Existing Building Re-use Existing buildings are re-used where practicable, where the density of development and residential amenity are optimised and where the building conforms or has the potential to meet the standards for energy, materials, biodiversity and water conservation set out in the SPG.

Mayor's Preferred Standard

 Roof Space Re-use - Existing roof space is re-used where practicable to create new outdoor spaces and enhance biodiversity alongside the integration of renewable energy.

NEQ

- Re-use of Land 100% of the NEQ development is located on previously developed land.
- Development Density The existing buildings on the site have a combined Net Internal Area (NIA) of 16,797 m². The planning application includes 31,871 m² NIA of office development, 11,553 m² NIA of residential accommodation 1,749 m² NIA of retail space, and 1,616 m² NIA of community use. In total, it represents 46,789 m², approximately 3 times the existing NIA. This increased density would contribute to the SPG aim of making the best use of all developable land by increasing density.
- Open Space Provision Terraces will be provided for the top-floor apartments of the residential buildings. Balconies will also be provided. Open space will be accessible between and around the buildings.
- Public Transport Capacity Public transport is excellent and includes many local bus, underground and rail services, thus encouraging the use of more sustainable transport modes:
 - the site is directly linked by a short journey by underground to most mainline stations in Central London
 - at London-wide level, 6 underground lines with nearly 100 trains per hour per direction serve the site
 - at a more local level, the site is served by 10 bus routes providing more than 80 buses per hour per direction during peak periods.

The proposed development has pedestrian links with all transport modes in the vicinity of the site and these routes will be further improved.

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Currently, public transport accounts for a 90% mode share of all staff trips to the Estate.

- Existing Building Re-use Existing buildings are outdated in terms of their appearances, natural lighting and environmental performance. They are not suited to the intended purpose and the intended increased density.
- Land contamination The implications of the development in relation to soil
 contamination are considered to be of low importance, as the development
 would be on previously developed commercial and residential land that has
 not been associated with intensive industrial use.

In addition, the excavation of the basements of the existing buildings constructed in the 1960's, 1970's and early 1980's would have removed any potentially contaminated materials within the basement area on site. The construction of the proposed basements would involve excavation of a further 1.5m deeper below the level of the existing basements in some areas. This would remove a significant volume of potentially contaminated material that may still be present below the level of the existing basement. If contaminated material is found to be present on the site, appropriate safe handling practices, including the disposal of contaminated materials, will be implemented. The disposal of contaminated materials would be in accordance with Duty of Care Regulations, the Landfill Directive (2004) and the Hazardous Waste Regulations (2005).

Finally, as there would be no private open space at ground level (i.e. there is only a garden/courtyard with managed access for residents), no contamination impacts are anticipated.

• Roof Space Re-use – Not applicable.



6.2 MAXIMISATION OF THE USE OF NATURAL SYSTEMS

This section formally outlines how the development will practically meet the objectives of Section 2.2 (Maximisation of the use of natural systems) of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, May 2006.

Mayor's Essential Standard

- Principles of Good Design All developments to follow the principles of good design set out in London Plan policy 4B.1
- Minimise mechanical building services systems Minimise need for and use of mechanical ventilation, heating and cooling systems

NEQ

- The site is very dense and characterised by the presence of Euston Tower to the South of the development.
- Principles of good design have been adopted. The energy demand of the building has been minimised through careful design of built form and services, making every effort to minimise the need for air mechanical ventilation, heating and cooling systems. It has led to a 32% reduction in energy consumption and a 30% reduction in CO₂ emissions compared to the baseline scheme.

This is due to an energy efficient design and the incorporation of a renewable energy source (biomass) and CHP. Details on energy efficiency measures are given in section 2.3.1 Energy, but the following passive design features can also be highlighted:

- Glazed facades on Triton Square Office Building will maximise daylighting and reduce reliance on artificial lighting. These facades will all be equipped with solar control glass to reduce air-conditioning requirements. The South façade is a double skin façade which will minimise heating requirements in winter and air conditioning requirements in summer.
- The presence of balconies on residential buildings will prevent high-angle solar rays to penetrate the rooms in summer while allowing passive solar heating in winter (low solar angles).
- Cooling will be provided for the office buildings and apartments in Drummond Street Private Housing Building. These apartments are provided with artificial cooling since the tower does not allow an effective use of natural ventilation. Feasibility of absorption chillers will be investigated during detailed design.
- A proportion of the roofs will be green roofs, which have several advantages including thermal insulation, reduction of rainwater run-off and biodiversity.



Adapting to climate change

Mayor's Essential Standard

- Building Flexibility / Future proofing Buildings provide for flexibility of uses during their projected operational lives.
- Climate Change Mitigation Buildings adapt to and mitigate for the effects
 of the urban heat island and the expected increases in hot dry summers and
 wet mild winters.
- Cyclists / Electric Vehicle Provision Design in facilities for bicycles and electric vehicles.

NEQ

- Building Flexibility / Future proofing The new buildings will provide flexible space capable of multiple uses. A grid structure has been used to provide a consistent and generic internal environment.
- Climate Change Mitigation On the open spaces outside, trees and vegetation will be planted to mitigate the effect of the urban heat island and of climate change. It should also be highlighted that Euston Tower will provide a lot of shading to the external spaces.
- Cyclist facilities Cyclist facilities will meet the following criteria:
 - a total of 189 cycle spaces will be provided within the basement of the office buildings and 247 cycle spaces in connection with the residential development. These figures fall within the requirements set out by the London Borough of Camden UDP, i.e. 176 for the office buildings and 247 for the residential buildings.
 - Showers and changing facilities with lockers will be provided for the office buildings.
 - A heated / ventilated space for wet clothes will be provided in residential units.
- Car parking provision The level of car parking provision reflects the desire
 to minimise the use of the private car as a means of transport to and from
 the development.
 - There will be 107 car park spaces for the residential developments, which represents less than 0.5 space per dwelling.
 - There will be 31 car parking spaces for the office building, which complies with the requirement of the UDP.
- Regent's Place Travel Plan The current Regent's Place Travel Plan, which will be used for the proposed development, offers arguably the most comprehensive and pioneering Travel Plan within Central London. The proportion of car users has halved in the years since the introduction of the Regent's Place Travel Plan in 2001. Statistics show that car use has dropped

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as the main transport mode to work from 6% to 3%). Encouraging environmentally friendly transport modes and working practices is the main travel principle established in the first Travel Plan and will be adhered to in the revised Regent's Place Travel Plan. This will be available for new occupiers (business, residential, retail, and community) of the proposed NEQ development.

The following Regent's Place Travel Plan key initiatives can be highlighted:

- A Regent's Place Transport Forum has been set up to coordinate all travel and transport related issues at Regent's Place;
- A Travel Plan provides comprehensive information regarding public transport links;
- A Bicycle Users Group (BUG) has been set up to support and encourage cycling to site.

It should also be noted that NEQ is located on one of the few Tube lines where carriage of bicycles is permitted and that the local cycle routes form part of the London Cycle Network, which provides a comprehensive layout of cycle ways and advisory cycle routes.

The following options are currently being investigated to encourage more sustainable car usage:

- the possible introduction of a car sharing scheme;
- potential partnership with existing car share schemes in the area;
- the potential joining of a car club or pool car service;
- the promotion of sustainable car technology to current car users;
- the introduction of recharging points to cater for occupiers and residents who may choose to use electric vehicles.

Finally, in order to address whether there are more sustainable ways for making deliveries, consideration will be given to:

- estate-wide or joint ordering system;
- estate-wide recycling schemes;
- encouraging suppliers to use low emission vehicles when delivering to the estate.



6.3 CONSERVATION OF ENERGY, WATER AND OTHER RESOURCES

This section formally outlines how the development will practically meet the objectives of Section 2.3 (Conserve energy, water and other resources) of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, May 2006.

6.3.1 ENERGY

Mayor's Essential Standard

- Reduce Demand Carry out an energy demand assessment.
- Energy Efficiency Maximise energy efficiency.
- Low carbon and renewable energy systems. Major commercial and residential developments to demonstrate that consideration has been given to the following ranking method for heating and where necessary, cooling systems
 - Passive Design;
 - Solar Water Heating;
 - Combined Heat and Power for heating and cooling (i.e. tri-generation), preferably fuelled by renewables;
 - Community Heating and Cooling;
 - Heat Pumps;
 - Gas Condensing Boilers.
- CO₂ emissions Carbon emissions from the total energy needs (heat, cooling and power) of the development should be reduced by at least 10% by on-site generation renewable energy.
- Light Pollution Wherever on site outdoor lighting is proposed as part of a
 development, it should be energy efficient, minimising light lost to sky.

Mayor's Preferred Standard

 Low carbon and renewable energy systems. All developments to demonstrate that consideration has been given to the following ranking method for heating and where necessary for cooling systems and should

NEQ

A detailed assessment of potential methods of conserving energy and the use of energy efficient and renewable technologies has been carried out. The results of this assessment are described in more detail in the NEQ Energy Strategy Report (see Appendix C).

Energy efficiency and reduced demand – The strategic approach to the
design of the development has been to reduce demand for energy
consumption in the first instance prior to the consideration of integrating low
carbon energy sources, since controlling demand is the most effective way of
reducing carbon dioxide emissions.

The following points outline the approaches and strategies that have been considered to improve energy efficiency:

Passive design measures:

- Low U-values for external walls, glazing, roofs and floors: the scheme is designed to exceed the requirements of the new Building Regulations (Part L1A and L2A, 2006);
- Reduced shading coefficients/g values of Triton Square Office Building glazing;
- High standards of airtightness (i.e. minimising air leakage and infiltration rates through gaps and openings);

High efficiency engineering systems:

- Heat recovery within each mechanical ventilation system;
- Energy efficient lighting (including daylight controlled automatic dimming luminaires in the office area);
- Class A rated fridges/freezers, Class A rated washing machines and dishwashers and Class B rated dryers (where provided);
- Ventilation control in bathrooms and kitchens to reduce fan energy when

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incorporate the highest feasible of the following options:

- Solar water heating:
- Combined Heat and Power for heating and cooling (i.e. trigeneration), preferably fuelled by renewables;
- Community Heating (New developments should always be connected to existing community heating networks preferably fuelled by renewables where feasible.)
- Building Services Controls Lighting, heating and cooling controls should enable services to operate efficiently under different loadings and allow for localised control.
- **Zero Carbon Emission Development -** Major developments should be zero carbon emission developments (ZEDs).
- Hydrogen Fuel Cell Technology Major developments should make a contribution to London's hydrogen and / or fuel cell technologies and infrastructure.
- **Light Pollution -** Wherever outdoor lighting or other electrically powered street furniture is proposed on site, it should be solar powered and minimise light lost to the sky.

- not in use;
- Variable speed drives for circulation pumps;
- High efficiency motors incorporated into all building services;
- High efficiency boiler plant;
- Energy metering;
- Enhanced pipework and ductwork thermal insulation.

These changes and passive design features of the buildings have led to a 31% reduction in energy consumption and a 26% reduction in CO_2 emissions compared to the 'baseline scheme' based on good practice benchmarks from CIBSE Guide F on Energy Efficiency in Buildings (i.e. energy efficient scheme with no contribution from renewables and CHP vs baseline scheme).

- Low-carbon and renewable energy systems A range of energy technologies have been appraised as potential on-site energy generation sources in relation to the development. These comprise:
 - Combined Heat and Power (CHP) plant;
 - Solar water heating panels;
 - Ground source heat pumps;
 - Biomass heating boilers;
 - Wind turbines:
 - Photovoltaic (PV) modules for electricity generation.

The conclusion of the several desktop studies which have been carried out is that implementing a biomass boiler can deliver 10% of total annual energy use when serving the heating installations of the office buildings. On this basis it is proposed that a biomass boiler with a capacity of 500 kW is provided. This will meet 10% of predicted annual energy consumption by renewable means and reduce carbon emissions by approximately 6%. In addition, a 30kWe CHP plant will be provided and contribute to the Domestic Hot Water requirements and landlord's electrical requirements of the residential buildings.

The incorporation of these Low-carbon and renewable energy systems will contribute to a 1.1% reduction in energy consumption and a 6.5% reduction in CO₂ emissions compared to the energy efficient scheme. (i.e. energy efficient scheme with biomass and CHP vs energy efficient scheme with no contribution from renewables and CHP).10% of the site

HOARE LEA

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energy consumption will be generated by the biomass boiler and 3% by the CHP plant. The difference between the energy figures and the CO_2 figures are due to the different CO_2 contents of the displaced and used fuels, i.e. gas, grid-supplied electricity, displaced electricity, biomass.

British Land will further discuss with the London Climate Change Agency (LCCA) the possibility of reorganising plant layouts throughout the Regent's Place basement to ascertain whether adequate free space can be created to house a larger CHP and the necessary thermal storage vessels, and whether replacing existing chillers with absorption chillers on the new development and the existing buildings would be viable (this would allow tri-generation). The design team will assess these possibilities.'

- Building Services Controls All building services controls will be designed to enable services to operate efficiently under different loads and allow for localised control.
- Zero Carbon Emission Development The development will not be a Zero Carbon Emission Development.
- Hydrogen Fuel Cell Technology Fuel cell technology has not been included in the NEQ energy strategy.
- Light pollution A light pollution assessment has been carried out and shows that the proposed development will have a negligible effect upon the surrounding properties and comply with the ICE guidelines for the reduction of light pollution. A timer will also be provided for all external lighting to ensure that it can be automatically switched off between 2300 and 0700.



6.3.2 MATERIALS

Mayor's Essential Standard

- Sustainable Timber 50% timber and timber products should be sourced from Forest Stewardship Council (FSC) source and balance from a known temperate source.
- Ozone Depletion Insulation materials containing substances known to contribute to stratospheric ozone depletion or with the potential to contribute to global warming must not be used.
- Aggregate Resource Depletion Minimise use of new aggregates.

Mayor's Preferred Standard

- Embodied Energy neither construction nor specification of material with high-embodied impact to be used (as defined by the summary ratings in the Green Guide to specification), unless a compelling whole life energy or technical case for its use exists.
- Sustainable Timber 90% timber and timber products from Forest Stewardship Council (FSC) source and balance from a known temperate source.
- Minimise Natural Resource Depletion No peat or natural weathered limestone used in buildings or landscaping.
- **Maximise Recycling of Demolition Material** Prior to demolition, appraisal of maximising recycling of materials by use of ICE's Demolition Protocol.
- Specification of locally sourced materials 50% of construction materials by mass used in the development to be sourced from a factory/plant/ quarry/wharf railhead or recycling centre within 35 miles of site wherever feasible.

NEQ

- Sustainable Timber The potential for timber and timber products from temperate sources has been investigated for incorporation into the design. Preference will be given to the selection of FSC certified timber and PEFC certified timber. 100% of timber and wood products will be sourced from sustainable sources or will utilise reused or recycled timber.
- Ozone Depletion The final selection of insulation materials will aim at choosing those with a reduced Ozone Depletion Potential (ODP) and a reduced Global Warming Potential (GWP).
- Embodied Energy A review of the materials specified for the development has been undertaken using the Green Guide to Specification. At least 80% of roof specifications will achieve a Green Guide A rating.
- Minimise Natural Resource Depletion The avoidance of peat and natural weathered limestone in buildings or landscaping will be investigated at detailed design stage.
- Maximise Recycling of Demolition Materials —Prior to demolition, the ICE's Demolition Protocol will be used to maximising recycling of materials.
- **Specification of locally sourced materials** This will be investigated in further detail during detailed design.
- Specification of materials with a low VOC Preference will be given to the selection of paints, floor finishes adhesives and varnishes with a volatile organic content (VOC) of less than 5%.
- Specification of natural materials Preference will be given to the selection of internal finishes and external landscaping manufactured using natural materials such as timber instead of MDF as they are non toxic, have a low embodied energy and are biodegradable.

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- Aggregate Resource Depletion Minimise the use of new aggregates.
- Recycled Content of Materials 10% total value of materials used to be derived from recycled and reused content in products and materials selected.
- Specification of recyclable materials During detailed design, the
 recycled content toolkit devised by the Waste and Resources Action
 Programme (WRAP) will be used to assess how use of recycled and re-used
 materials can be maximised.
- **Specification of inert materials** Preference will be given to the specification of inert materials such as glass, ceramics and stone as they are non toxic and easily re-used or recycled.
- A **monitoring mechanism** will be put in place to ensure that the above principles will be applied.



6.3.3 WATER

Mayor's Essential Standard

- Water consumption: Residential developments to achieve average water use in new dwellings of less than 40 m³ per bedspace per year (approx. 110 litres / head / day).
- Water metering 100% metering of all newly built property.

Mayor's Preferred Standard

- Water consumption: Residential developments to achieve average water use in new dwellings of less than 25 m³ per bedspace per year (approx. 70 litres / head / day).
- Greywater Recycling Use of greywater for all non potable uses.

NEQ

The NEQ Water strategy has been developed to provide a water efficient design, which incorporates measures to reduce water consumption demand:

- Specification of water efficient appliances the following range of water efficient measures have been incorporated into the design of NEQ to reduce water consumption demand:
 - Low-flush toilets;
 - PIR controlled urinals:
 - Low flow taps and showerheads;
 - Water efficient white goods, when provided;
 - A water meter with pulsed output and a mains leak detection system will be implemented on all mains supplies to the buildings;

The feasibility of implementing waterless urinals in the office buildings (Triton Square and Henry Street Office Buildings) will be investigated during detailed design.

An average water use in new dwellings within the residential buildings of no more than 40 m³ per bedspace per year (approx. 110 litres / head / day) will be targeted.

- Specification of rainwater recycling systems the roof and surface rainwater run-off will be attenuated using an underground water storage system. The harvested rainwater would be used for watering plants. However, the potential to use it for other purposes, including for flushing toilets and general cleaning tasks such as car washing will be investigated at a later stage.
- Specification of grey water / black water recycling systems the
 potential for grey water collection and recycling has been investigated, but
 preference has been given for a rainwater recycling scheme (see above)
 since rainwater recycling requires less chemical treatment.

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- Use of borehole water The feasibility of an open-loop ground source heat pump system, using groundwater for heating and cooling has been investigated in detail. The biomass option was preferred to this option as it would lead to a greater CO₂ emission reduction. These two technologies could not be provided together as they would compete for the thermal base load.
- Designing low water use landscaping and gardens Design of landscaping will seek to minimise its water requirements (e.g. droughtresistant plants, water-retaining mulches, etc.). Automatic drip irrigation systems will be considered as they provide regular watering as required depending upon weather conditions and therefore reduce water requirements.
- Water metering 100% metering of all newly built property will be provided.



6.4 REDUCTION OF THE IMPACTS OF NOISE, POLLUTION, FLOODING AND MICROCLIMATIC EFFECTS

This section formally outlines how the development will practically meet the objectives of Section 2.4 (Reduce the impacts of noise, pollution, flooding and microclimatic effects) of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, May 2006.

6.4.1 NOISE

Mayor's Essential Standard

 Demonstrate that adverse impacts of noise have been minimised, using measures at source or between source and receptor (including choice and location of plant or method, layout, screening and sound absorption) in preference to sound insulation at the receptor, wherever practicable.

NEQ

- Planning of buildings and rooms has been designed in order to reduce noise problems. For instance, 'stacking' of conflicting uses has been avoided in the residential buildings.
- Windows and ventilation systems will incorporate acoustic features to address noise, especially at night.
- Building services such as air extract will be positioned away from sensitive locations.
- Mitigation measures will be investigated during M&E design and construction
 phase to ensure that the baseline ambient noise levels are not negatively
 affected by the buildings and to evaluate how the plant noise can be
 attenuated.

6.4.2 AIR POLLUTION

Mayor's Essential Standard

- All new gas boilers should produce low levels of NOx.
- Incorporate measures to reduce and mitigate exposure to air pollution.

NEQ

NOx emissions – Gas boilers will produce low levels of NOx: they will have
a minimum rating equivalent to NOX₃ and emissions will be less than
70mg/kWh. All plant will be readily accessible and easily maintained. All plant
will be subject to a regular service agreement to maintain operational
efficiency and to minimise harmful emissions.

HOARE LEA

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Mayor's Preferred Standard

Developments should be designed to minimise the impact on air quality, with respect to plant, vehicles and other sources of pollution

- Refrigerant leaks An automatic refrigerant leak detection system will be provided.
- Cooling towers Cooling towers will be designed and operated in accordance with HSE Approved Code of Practice (ACGP) and Guidance L8 "Legionnaires Disease".
- Internal air pollution Air intakes / outlets will avoid major sources of external pollution in order to avoid internal air pollution.

6.4.3 WATER POLLUTION AND FLOODING

Mayor's Essential Standard

- Use Sustainable Drainage Systems (SDS) measures, wherever practical.
- Achieve 50% attenuation of the undeveloped site's surface water run off at peak times.

Mayor's Preferred Standard

 Achieve 100% attenuation of the undeveloped site's surface water run off at peak times.

NEQ

- Sustainable Drainage Given the location of the development, its density, and the presence of a car park underground, implementing Sustainable Drainage Systems (SDS) is difficult. However, it should be noted that a total of 290 m² of green roof will be provided. These green roofs will help to attenuate rainwater run-off.
- Attenuation A 50 % attenuation of the undeveloped site's surface water run-off at peak times will be achieved, thanks to an underground buffer tank. This attenuation rate has been agreed with the Environment Agency. Water stored in the underground storage tank will be used for irrigation purposes. Additional features will be provided to protect water quality: oil separators/interceptors or filtration will be incorporated. The drainage systems will be clearly marked.

SUSTAINABILITY STATEMENT



6.4.4 MICROCLIMATE

Mayor's Essential Standard

 Mitigate any negative impact on the microclimate of existing surrounding public realm and buildings to meet the Lawson criteria for wind comfort and safety.

NEQ

 Wind – Wind tunnel testing has been carried out to assess the impact that changes in windiness, caused by the proposed development, have on pedestrian safety and comfort in and around the development. The effect of the development on wind at street level was evaluated using the Lawson methodology and Lawson's evaluation criteria.

Mitigation measures have been designed and tested to ensure suitable conditions at pedestrian level. With mitigation in place, worst season conditions in and around the proposed development are shown to be suitable for the intended uses of the area. The main mitigation measures are as follows

- Along Henry Street deciduous box trees in a staggered arrangement to interfere with the wind flows along the street and an entrance pavilion provides direct shelter to the residential entrance;
- In Triton Square, eight deciduous box trees;
- Tree planting along Brook Street;
- A solid canopy above the residential entrance along Drummond Street;
- Porous canopies running around the outer edge of the terrace area and a porous screen to the West.
- Sunlight and Daylight A Sunlight and Daylight analysis had been carried
 out. It is evident that the presence of Euston Tower, immediately to the South
 of the site, has a considerable impact on the potential sunlight/daylight levels
 of the site.

The analysis also found that some neighbouring building windows will lose some degree of sunlight in relation to the proposed development. The level of reduction in many cases is small and the retained level deemed to be acceptable. The site is, however, within a dense urban area, where some reduction in daylight below BRE Guidelines is inevitable. The daylight levels both internally are also considered to be acceptable.

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Overshadowing – The overshadowing analysis carried out shows that the
proposed development will cast some shadows on to the areas to the North
of the scheme. However, the additional overshadow is only a marginal
increase on the existing situation. This is because of the height, bulk and
massing of the existing surrounding properties, and in particular Euston
Tower, which already significantly overshadows the area to the North of the
site.

The permanent overshadow results show the open amenity areas around and within the proposal will have no more than 40% of their area in permanent overshadow (on 21st March), which is acceptable in relation to the BRE overshadow criteria. Indeed, the areas with less than 25% permanent overshadow will be well sunlit for much of the year.

- Views Strategic and local views have been examined in order to assess heights and massing of proposals and concluded that the optimum height was around 12-16 storeys high for Triton Square Office Building and 25 for Drummond Street Private Housing.
- **Electro-Magnetic-Radiation** Test carried out in 2004 concluded the development will not cause any harmful effects.



6.5 ENSURING DEVELOPMENTS ARE COMFORTABLE AND SECURE FOR USERS

This section formally outlines how the development will practically meet the objectives of Section 2.5 (Ensure developments are comfortable and secure for users) of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, May 2006.

Mayor's Essential Standard

- Indoor comfort Inert or low emission finishes, construction materials, carpets and furnishings should be used wherever practical. All plant and machinery should be accessible for easy maintenance.
- **Design inclusive environments** All developments should meet the principles of inclusive design, adopting the principles of SPG 'Accessible London: achieving an inclusive environment'. All residential development should meet Lifetime Home Standards and 10% should meet wheelchair accessibility standards (London Plan Policy 3A.4).
- Secure design Developments should incorporate principles of 'secured by design'.

Mayor's Preferred Standard

- Indoor comfort Design buildings for indoor comfort of users.
- **Design inclusive environments** All residential developments should be designed to meet wheelchair accessibility standards or be easily adaptable to meet wheelchair standards. Developments should be fully e-enabled.

NEQ

- Indoor comfort Preference will be given to the selection of paints, floor finishes adhesives and varnishes with a volatile organic content (VOC) of less than 5%. Preference will be given to the specification of inert materials such as glass, ceramics and stone as they are non toxic and easily re-used or recycled.
- Designing inclusive environments The proposed development will meet the principles of inclusive design, adopting the principles of SPG 'Accessible London: achieving an inclusive environment'. 100% of the affordable units will meet Lifetime Home Standards and 10% will meet wheelchair accessibility standards.

The following measures have also been introduced to ensure that those with mobility difficulties can access all areas of the Estate:

- pedestrian friendly environment;
- pedestrian priority around the estate;
- step free access to all buildings;
- pavements with tactile surfacing;
- carefully designed landscaping.
- Secure design The proposed development will incorporate principles of 'Secure by Design', in particular:
 - passive surveillance of streets, spaces, parking will be incorporated;
 - basement areas within the car park will be well illuminated.

The development will also ensure that access to public transport is easy and safe.

 Access to plant – All plant and machinery will be easily accessible for maintenance.



6.6 CONSERVATION AND ENHANCEMENT OF THE NATURAL ENVIRONMENT AND BIODIVERSITY

This section formally outlines how the development will practically meet the objectives of Section 2.6 (Conserve and Enhance the Natural Environment and Biodiversity) of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, May 2006.

6.6.1 OPEN SPACE

Mayor's Essential Standard

- · No net loss of publicly accessible open space.
- Create appropriate new open, green, publicly accessible spaces where these can redress identified areas of deficiency of public space.

Mayor's Preferred Standard

Net gain of publicly accessible open space.

NEQ

- Open space The vast majority of people accessing NEQ will do so on foot.
 The development proposals have been designed to provide an excellent
 environment for pedestrians. These pedestrian enhancements include
 removal of the existing barriers and the car park ramp, tree planting, creation
 of frontage activities, improved security and improved footway finishing.
- Landscape strategy The landscape strategy for the proposed development includes planting at Triton Square and along the western boundary of the site. Climbing plants would be planted along the boundary of the residential property. Species will be chosen based on wind and shade tolerance.

6.6.2 NATURAL ENVIRONMENT AND BIODIVERSITY

Mayor's Essential Standard

- No net loss of biodiversity and access to nature on the development site.
- Reduction in areas of deficiency in access to nature.

Mayor's Preferred Standard

• Net gain of biodiversity and access to nature on the development site.

NEQ

 Ecological value— Currently, the entire site is either developed and/or hard surfaced. The environment is characterised by service roads and pedestrian piazza, with occasional planting (typically trees and ground cover). Within the application site boundary, there is very little in terms of ecological value; the site is bereft of wildlife habitat and is not designated in any way for its nature conservation interest. In summary, the site has no ecological significance and consequently the proposed development would not result in any detrimental ecological impact.

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The immediate surroundings of the site are of ecological interest, due to the presence of Regent's Park to the West and St James's Garden to the East but the proposed development would not have a significant impact on the habitat of Regent's Park and St James's Garden as they are located at a distance in excess of 200 m from the site.

• **Biodiversity** – A commitment has been made to provide a positive minor increase in the ecological value of the site. The design team will act on the advice of a suitably qualified ecologist. A Biodiversity Action Plan (BAP) has been prepared for the site. This document lists measures which would be undertaken to improve and enhance the wildlife diversity.

Tree planting will be included as part of the landscaping proposals. Species would be chosen on wind and shade tolerance. In addition to this, nesting boxes for the Black Redstart, the House Martin, the House Sparrow and the Peregrine Falcon will be incorporated into the scheme in suitable locations.

It should be noted that a total of 290 m² of green roof will be provided, which will improve biodiversity and the ecological value of the site.



6.7 PROMOTION OF SUSTAINABLE WASTE BEHAVIOUR

This section formally outlines how the development will practically meet the objectives of Section 2.7 (Promoting sustainable waste behaviour) of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, May 2006.

Mayor's Essential Standard

- Minimise, re-use and recycle demolition waste on site where practical.
- Specify use of reused or recycled construction materials.
- Ensure recycling facilities are as easy to access as waste facilities.

Mayor's Preferred Standard

- Use prefabricated and standardised modulation components to minimise waste. If this is not feasible use low waste fabrication techniques.
- Provide facilities to recycle 70% of commercial and industrial waste by 2020.
- Incorporation of or access to new waste recovery facilities (anaerobic digestion, pyrolysis/gasification) especially to provide a renewable source of energy e.g. methane or hydrogen).

NEQ

- Demolition Waste Management It is unlikely, given the presence of residential areas in close proximity, that on-site recycling of demolition waste would be adopted, due to the greatly enhanced risk of dust emissions and noise associated with the crushing plant required. It is instead envisaged that material for recycling would be exchanged for material processed off-site.
- Re-used or recycled construction materials During detailed design, the recycled content toolkit devised by the Waste and Resources Action Programme (WRAP) will be used to assess how use of recycled and re-used materials can be maximised.
- Waste management during operation -

Reduce and reuse

Reducing waste (e.g. residents choosing goods with minimal packaging) and reusing waste (e.g. retails/offices donating some unwanted goods to local charity shops) principles should be applied to reduce the amount of waste to be treated in the first place, but they are the responsibility of the occupier/tenant. It should be noted that participating to the PC Reuse and Recycling Scheme would be a good opportunity for Camden businesses to support the local community by donating unwanted ICT equipment to be refurbished and put back into local use.

Recycle – Retail and offices

Tenants will be encouraged to minimise their waste as far as practicable, with recycling and composting being the preferred options for any waste produced by the building. Where waste cannot be recycled then recovering energy from waste will be sought by sending non-recyclable waste for incineration.



As a last resort non-recyclable and non-incinerable waste will be sent to landfill.

Separation and recycling will be actively promoted at NEQ with all tenants being encouraged to separate their waste at source into Wet and Dry categories for recycling or disposal.

- **Wet Waste** (contaminated food waste, fruit cores, tea bags, crisp bags, sweet wrappers, napkins, sandwich wrappers/containers);
- **Dry Waste** (plastic bottles and drink cartons, cardboard, paper, plastic and paper cups, aluminium and steel drink cans, books).

In addition, if the volumes of specific heavy waste are sufficient, further separation will be required of heavy or bulky recyclables.

• **Heavy Segregated Recyclables** (glass, metals, wood, construction waste, other bulk recyclables e.g. paper)

How the waste is managed at NEQ will depend on the percentage volumes of each waste stream produced. The largest waste stream (wet or dry) will be compacted in the basement. It is likely that the dry waste stream will be the largest volume therefore most general office waste will be managed through the basement. The wet waste and heavy recyclables would therefore be stored and collected to a timetable dictated by the volumes produced.

Removal and Disposal

Waste will only be disposed of via a licensed waste carrier. Combined dry waste compacted on site will be removed by the waste management contractor and processed at a Materials Recycling Facility (MRF) off site which should ensure that none of the dry waste ends up in landfill. Each type of waste product will then be separately recycled in the most cost effective manner. Wet waste will go direct to an incineration plant.

Fluorescent tubes and batteries are designated Hazardous Waste and will be collected by a specialist waste contractor.

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Management and Tenant Responsibilities

Tenants will be responsible for ensuring waste is segregated into the appropriate categories and placed in the relevant bin or compactor. The Building Management Team will actively promote and police the recycling and waste management regime to prevent waste streams being contaminated and to reduce as far as possible the volume of commercial waste. Waste steams from each Tenant will be monitored and action taken if waste streams are being consistently contaminated.

Recycle - Residents

The aim is to achieve a high recycling rate for the development and therefore to provide residents with the facilities to separate household waste (both internally and externally).

In each apartment, internal storage recycling bins would be provided. The bins would be designed for this purpose, labelled for recycling and have a total capacity of at least 36 litres (minimum compartments size: 7 litres). It is proposed that they are located in a dedicated position, e.g. in the cupboard under the sink or any other cupboard in the kitchen, next to the non-recyclable waste bins.

Residents would take their bags already sorted into recycle and non-recycle types down to holding rooms at the basement level one. The caretaker collects the refuse from the holding rooms regularly and transfers it to the one central collection space at ground level via scissor lift. It is from this one position that the local authority make their collection of different refuse types. This space would be large enough to accommodate 10 to 15 Nr 1,100 litre wheeled bins for recyclable materials and 5 to 8 Nr. 1,100 litre wheeled bins for non-recyclable waste.

With these facilities, residents will be able to achieve a high recycling rate.

SUSTAINABILITY STATEMENT



6.8 SUSTAINABLE CONSTRUCTION

This section formally outlines how the development will practically meet the objectives of Section 3 (Sustainable Construction), of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction May 2006.

Mayor's Essential Standard

- Reduce waste during construction and demolition.
- Reduce risk of statutory nuisance to neighbouring properties as much as possible through site management.
- All developers should consider and comply with the Mayor and ALG's London BPG on the control of dust and emissions during construction and demolition.
- Comply with protected species legislation.
- All developers should sign up to the relevant Considerate Constructors Scheme or in the City of London to the Considerate Contractor Scheme.

Mayor's Preferred Standard

- All contractors should be required by tender requirements to sign up to the Mayor and ALG's London BPG on the control of dust emissions during construction and demolition.
- All contractors should be required by tender requirements to sign up to the relevant Considerate Constructors Scheme or in the City of London to the Considerate Contractor Scheme.

NEQ

- Demolition, site preparation and construction will be phased over approx. 2 ½
 years. Construction phasing is anticipated to be as follows:
 - 1) demolition of all existing buildings;
 - 2) construction of sub-structure to ground level;
 - 3) construction of superstructure of all four buildings;
 - 4) cladding and internal fit out to completion.
- Management British Land will sign up to the relevant Considerate Constructor Scheme, and extend that requirement by tender requirements to all contractors. The Considerate Constructors Scheme is a Code of Practice that seeks to:
 - minimise any disturbance or negative impact;
 - eradicate offensive behaviour and language on construction sites;
 - recognise and reward the constructor's commitment to raise standards of site management, safety and environmental awareness beyond statutory duties.

The contractor will prepare and agree the Construction Environmental Management Plan (CEMP) with Camden Council for the construction phase. Contractors would be required to demonstrate that they would work within these provisions.

 Waste management – The CEMP will include a site waste management plan. It will identify quantities and types of construction and demolition waste, demonstrate how off-site disposal of waste will be minimised and managed, how a better segregation for recovery of construction waste that is hazardous can be achieved and how the amount of waste sent to landfill can be reduced.

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Quantity of waste will be reduced by specifying and purchasing only what is needed for the project and ensuring demolition waste is managed in line with the waste hierarchy .

Waste streams will be sorted to maximise recycling and re-use of waste and decrease landfill costs.

Noise – The site is in a sensitive location adjacent to residential
accommodation and open spaces. Environmental control would therefore be
a priority and would influence demolition methodology. As a result, demolition
would be a dismantling process rather than heavy demolition involving heavy
percussive machinery. In many cases, the works would not be noisy by their
motive; this applies to fit-out and preparatory work.

The proposals to mitigate the noise/vibration during construction comprise the following:

Appropriate 'target criteria' would apply to detailed construction planning (expressed as residential façade noise levels 1 hr LA_{eq}:

Monday-Friday: 0800 - 1800 : 75 dB(A)

Saturday: 0800 - 1300 : 75 dB(A))

Although it is not intended to work outside the core hours, appropriate criteria would be set at 65 dB(A) on evenings and Saturdays, where practical circumstances require it.

- Vehicles and mechanical plant used for the purpose of the works would be required to be fitted with effective exhaust cylinders and to be maintained in good and efficient working order and operated in such a manner as to minimise sound emissions.
- Dust and mud Provisions for dust and mud control may include the following:.
 - Wheel/body washing facilities to be provided and used as necessary
 - Vehicles carrying waste material off-site to be sheeted, if there is any risk of dust blow.

NORTH EAST QUADRANT BRITISH LAND



SUSTAINABILITY STATEMENT

7.0 CONCLUSION

This report demonstrated that high standards of environmental sustainability will be achieved for the proposed development at NEQ This is demonstrated by the commitment to energy efficiency, water conservation, recycling and cycle storage facilities and design and construction processes that aim to limit environmental pollution.

APPENDIX A - BRITISH LAND'S SUSTAINABILITY OBJECTIVES AND TARGETS

Sustainability Brief January 2006

Regents Place: NEQ, Commercial scheme



Sustainability Objectives and Targets

General			
Development: / Reference:	Regents Place North East Quadrant (NEQ) Commercial Office Building	Reviewer name and date of review: January 2006	John Cannon - M&M James Llewellyn - WE Andrew Thrower - WPP Mike Cousins - WPP Fiona Walsh - Environ
			Ashley Bateson - HL Thomas Lefevre - HL
Type of Initial Sus Design Construction	tainability Review (please tick)		Richard Cowan - M3 Consulting Adam Muggleton - M3 Consulting Afo Kuti - M3 Consulting

Sustainability Br	ief Sustainability Objective	Sustainability	Opportunity /	Risks /	Costs	Recommendation	Outcome	Comments
Reference		Target	Outcome	Complexity				
A: Site and Neigh	nbourhood							
A1: Biodiversity	Enhance biodiversity by introducing variety of flora species	Introduce at least five new indigenous species.		No additional risk	No	Adopt		
	Quantity of green spaces improved therefore enhancing habitat for biodiversity	Scheme to significantly improve quantity of green spaces within the public realm		Maintenance of Green spaces		Adopt		
	Access to green spaces improved within the public and private realm	Scheme significantly improves quality of green spaces within the public realm	Enhances lettability of Retail units	Maintenance		Adopt		



Sustainability Brie Reference	f Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
	Nesting boxes	Introduce several nesting boxes for the black redstart in varying locations which will ensure that at least a few are considered desirable by the birds	Low	Low	Yes	Adopt for residential building		
A2: Environmental Conditions	Air Quality: Ensure there are no pollutant concentrations changes as a result of the development	Contractor to prepare and agree the Construction Environmental Management Plan (CEMP) with Camden for the construction phase.		Medium	No	Adopt and develop at detailed design stage		To be developed at pre-construction stage.
	Noise: Ensure the baseline ambient noise levels are not negatively affected by the buildings plus plant noise attenuation measures	Mitigation measures for construction phase and M&E design to be adopted	Develop Neighbourhood plan and discuss noisy works with all stakeholders beforehand	High level of services for certain tenant types may make this hard to achieve		Consider Further		Working hours to mee local authorit guidelines during noisy works



Specific, Measura	ble, Affordable, Realistic, 1	ime-related						
Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
	Solar and Lighting: Ensure the proposed development has minimal adverse impact on the surrounding buildings and open area in terms of daylight and sunlight.	Massing of scheme altered in line with GI advice on ROL		Orientation of roof and overshadowin g by local buildings negates solar collection measures, refer to Sunlight/ Daylight report in ES	I	Consider Further		Rights of Light studies have been conducted
A2: Environmental Conditions - Wind	Environmental Wind: Ensure wind conditions are appropriate for intended use.	Ensure landscape proposals are maintained for wind mitigation.	Improved retail environment	Additional Landscaping and Maintenance	Yes	Adopt		Several wind tunnel tests have been carried out.
A2: Environmental Conditions - EMR. (Electro- Magnetic Radiation)	Ensure development does not increase level of EMR	Test carried out by EMC in 2004 conclude the development will not cause any harmful effects	Low	Low	No	Adopt		
A3: Floodplain	Reduced run-off to sewer	Install holding tank to also be used for rainwater harvesting	Rainwater Harvesting	Finding a tank location	Yes	Consider Further		WPP to consider size of tank
A4: Heritage	Archaeology: The site no longer falls within the Archaeological Priority area. A desk based assessment was undertaken by MoLAS (July 2004)	Ensure MoLAS have opportunity to view site during excavations	Low	Low	No	Consider Further		
	Listed Buildings: There are no listed buildings on or adjacent the site and it does not lie within a conservation area.	None required	-	-	-	-	-	-



Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
A5: Land Use	Ensure disposal of contaminated materials	Contaminated materials found on site disposed of in accordance with Duty of Care Regulations.	Low	Low	No	Adopt		No contaminated soil expected on site.
A6: Local Character, Distinctiveness & Pride	Enhance the physical and social context of the area. Maintain the high quality of public realm area as currently exists throughout Regents Place.	Follow the Framework Masterplan for Estate and impact on surrounding area carried out by TFP in 2003	Extension of Triton square to create an environment even more conducive to public events, building on the existing success of the space. Removal of existing car park ramp and re landscaping of Brook street strengthens North South link with Regents Estates.	Medium	Yes	Adopt		In line with TFP Framework Masterplan
	Address Community Needs: Framework Masterplan for Estate and impact on surrounding area carried out by TFP in 2003.	Community needs addressed with the positioning of a further Diorama facility and replacement WEP One Stop Shop on Drummond Street	Consolidation of Community spaces	Medium	Yes	Adopt		In line with TFP Framework Masterplan



Specific, Measural	ble, Affordable, Realistic, T	ime-related						
Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
	Address Scale and Massing Issues	The design team to investigate strategic and local views to assess optimum heights and massing for the development	The design team investigated strategic and local views in order to assess heights and massing of proposals and concluded that the optimum height was around 12-16 storey high for the office block and 26 storey for the residential	Low	Yes	Adopt		In line with TFP Framework Masterplan. The design team investigated strategic and local views in order to assess heights and massing of proposals and concluded that the optimum height was around 12-16 storey high for the office block and 26 storey for the residential
A7: Local Economy	Work with local partners to maximise the positive impacts of the employment at Regent's Place for local residents	- Provide funding for job finder facilitator - Link with King's Cross construction recruitment initiative	Challenge to standard trade procurement. Build on good community relationships	Local skills shortage	Yes	Adopt		To establish what % of total workforce is to be local



Specific, Measura	ble, A ffordable, R ealistic, \urcorner	Time-related						
Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
A8: Regeneration	Regeneration of area: Existing buildings outdated in terms of its appearance, natural lighting and environmental performance. The building provides an idiosyncratic street frontage that is impermeable, undistinguished and detracts from the character of the surrounding area.	Redevelopment of the site offers an opportunity to improve public amenity by creating active frontages to a remodelled Longford square with Triton square enlarged to form a vibrant social space that will be a focal point for a variety of community	Expand high quality public realm beyond site boundary	Medium	Yes	Adopt		
·	Mitigate cumulative affect of new developments on transport	Cumulative Impact assessment carried out by Arup Transport. Where possible adopt Regents Place Green Travel to the site.	Enhance opportunity for use of Public Transport	Low	No	Adopt		
	For public transport to be the main mode of travel to/from the site	Encourage all personnel to use public transport and make personnel aware of the public transport facilities, with the promotion of sign posting and restricted carparking.		Low	Yes	Adopt		



Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
	To exceed adopted UDP cycle parking standards	To provide cycle parking in accordance with the emerging UDP. Total of 190 spaces will be provided for both the B1 and 247 spaces for the residential element. This is above the Adopted UDP standards and is within the emerging UDP standards.	Encourage cycling, enhancing health of tenants/ residents.	Low	Yes	Adopt		
	Pedestrian / Bicycle facilities: Potential to increase on road cycle parking	To find a suitable cycle parking location for visitors to the estate	Encourage healthy life styles	Restricted to the back of the site	Yes	Consider Further		
	Freight traffic: Off road loading of HGVs provided	Existing loading bay at Ground level relocated to Basement as part of Enabling works	Separation of personnel and vehicles reduces accident risk	Medium	Yes	Adopt		
	Communicate specific local travel information	To provide information on-line via 'Vicinitee site' and travel bulletin board in reception	Building relationship with Tenants as individuals	Tenants may not want it?	Yes	Consider Further		
	Introduce more effective traffic calming to Longford	Review with A6	Improved retail environment	Medium	Yes	Adopted		



Sustainability B Reference	rief Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
	Restrict on site car use	Car parking: 31 Car parking spaces provided for the commercial element and 106 spaces for the residential in line with the current Camden UDP and emerging UDP.	Potential to implement car pool and car sharing scheme for the commercial element	Medium		Adopt		
B: RESOURCE C	CONSUMPTION							
B1:Energy	Reduce energy consumption using lower energy comfort cooling e.g. chilled beams, mixed mode, etc	Adopt Good Practice, set target CO2 10% < Building Regulations L2A requirement (Commercial) and 10% < L2B requirement (Residential)	Reduced energy bills passed to tenants	Medium	Yes	Adopt		Targets to be confirmed
	Apply Renewables	Supply 10% of Energy requirements via renewable energy source		High	Yes	Consider Further		Await info from HL



Sustainability Bri	ief Sustainability Objective	Sustainability	Opportunity /	Risks /	Costs	Recommendation	Outcome	Comments
Reference		Target	Outcome	Complexity				
	Reduce embodied energy	To achieve a reduction in embodied energy of materials by utilising, recycled materials where appropriate, and minimise the quantity of higher engineering performance materials with higher	Demonstrate commitment to green planet living	Medium	Yes	Consider further in detail design		
B2: Materials	Use Sustainable Timber	embodied energy is Specify at least 75% of timber used in building to be FSC (Forest Stewardship Council) certified		Limited choice of procurement	Yes	Adopt		
	Value Engineering	Refine Design and use careful detailing to reduce material	Reduced Construction Cost	Low	No	Adopt		
	Maximise re-use / recycle existing materials	Utilisation of existing basement slab as piling mat	Saving Piling Mat	Medium	No	Adopt		
	Reduce materials use	Adopt modular construction techniques where feasible	Simplifies construction in many cases	Standard practice in many cases	Costs savings possible	Consider Further		
	Consider Zero Global Warming Potential (GWP) and Ozone Depletion Potential (ODP) of materials	Minimise both		Low	Yes	Consider Further		



Specific, Measura	ble, A ffordable, Realistic, I	ime-related						
Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
B3: Waste Management	Adopt Recycling strategy and ensure adequate storage space is provided	Ensure adequate refuse storage area is provided for a 3 times / week collection. Ensure recycling area is provided for Cardboard, Paper & Glass.		Low	Yes	Adopt		
B4: Water	Roof Water harvesting	Design roof water collection system for use in irrigation	Reduce Water Bills	Consider energy used in pumping the water back to roof gardens if the collection tank is in basement	Yes	Adopt		Combine the collection tank with attenuation tank
	Monitoring water consumption for future targeting reductions		Further saving on water bills	Low	Yes	Adopt		
C: ENVIRONMENTA	L QUALITY							
C1: Emission to Air	Consider low N0x boilers	To minimise emissions of Nox		Low	Yes	Adopt		
	Location of flues and air exhaust termination points	Mitigate exhaust air re-circulation into the buildings	High quality living/ working environment. Reduce sick building syndrome	Medium	No	Consider Further		
C2: Landscape	Quantity and quality of green spaces improved therefore enhancing habitat for biodiversity and improving local amenity	Scheme significantly improves quantity of green spaces within the public realm	Improved working environment	Medium	Yes	Adopt		



Specific, Measura	ble, Affordable, Realistic,	Time-related						
Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
C3: Noise and Vibration	EMR emissions. Control noise + vibration emissions during construction and in final form	Apply CEMP Design to MR37 in office spaces	High quality office space	Medium	Yes	Adopt		
C4: Nuisance	Ensure there is no disturbance to the existing tenants on the estate	Provide proper segregation of construction site from the existing estate, including canteen facilities and access / egress routes			Yes	Adopt		
C5: Water	Consider Green Roof irrigation. Protect water Courses and prevent potholes	Install green roof to both residential and commercial elements	Improve biodiversity	Maintenance issues	Yes	Consider Further		4th floor terrace on commercial scheme to have areas of green roof
	Waste Water recycling	Assess methods of treatment of waste water prior to discharge. Rain water holding tanks as B4	Reduced water bills	Medium	Yes	Adopt		Attenuation tank in basement (WPP to provide the size of tank)
	Vehicle wheel washing facilities	At each site exit, wheel washing facilities will be put in place for the entirety of the construction phase		Medium	Yes	Adopt		,
C6: Biodiversity	See A1							
C7: Heritage	See A4							
C8: Land	See A5							



Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
C9: Lighting	Non-intrusive external lighting	Consider the layout of site lighting during construction and final building external lighting scheme so that it does not intrude or interfere with the surrounding area residents and occupiers	Ensures a clean environment in and around the estate	Low	Yes	Adopt		
C10: Pest Control	Ensure pest Control measures are undertaken	Pest control measures to be undertaken during construction and continued afterwards as necessary				Adopt		Contractor to discuss with Broadgate Estates for current arrangements
D: USER AND OCCU	IPANT SATISFACTION							
D1: Access	Buildings to be DDA compliant	Specialist access consultant report compiled as part of planning application	Improves Job opportunities for Disabled	Medium	Yes	Adopt		Buildings to comply with Part M of building regs
D2: Amenities	Physical and Social context: Framework Masterplan for Estate and impact on surrounding area carried out by TFP in 2003.	Community needs addressed with the positioning of a further Diorama facility and replacement WEP One Stop Shop on Drummond Street. Ground floor restaurant provided to Triton Square.	Maintain close links with local community	Medium	Yes	Adopt		



Specific, Measura	ble, Affordable, Realistic,	Time-related						
Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
	- Work in partnership with local community to identify requirements	maintain contact with WEP		Low	No	Adopt		Ground floor retail area in commercial building agreed with Diorama
D3: Comfort, Health & Well Being	Thermal comfort of selected internal environmental solution (chilled beams better than FCU's)							
	Fresh air provision	Exceed CIBSE and BCO recommended levels		Low	Yes	Adopt		
	Controls	Individual controls for each HVAC system terminal unit. Central building management system. Central lighting control system including occupancy detection, automatic daylight recognition and associated dimming capability to reduce energy consumption.		Medium	Yes	Adopt		



Sustainability Brief Sustainability Objective Reference	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
Air filtration	All fresh air supplied into the building to be filtered to BS EN 779 recommendations. All fresh air to be drawn from intakes that avoid introducing any significant levels of pollutants into the building.		Medium	Yes	Adopt		
Construction workers health welfare issues	Exceed best practice on site for health & safety initiatives.	Reduced casualties	Medium	Yes	Adopt		Targets to b confirmed
Lighting in offices to LG7	Comply with LG7 for office area lighting.		Low	Yes	Adopt		
Maximise daylighting	Achieve an average daylight factor of at least 2% and preferably 5% in all office areas.		Some office areas will be challenging	No	Adopt		
Views out of building	All potential office desk locations to have a view out of the building.		Some desk locations will be challenging	No	Adopt		



Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
D4: Connectivity	Enhance pedestrian connectivity through design	As outlined in the masterplan the development is a key part of the strategic regeneration for the Estate and enhances the connectivity North South and East-West. Extend Estate signage system to NEQ Area	Improve footfall to retail, enliven spaces	Security control out of hours	No	Adopt		
D5: Crime and Security	Ensure security issues are considered in design	Involve 'Secure by Design' in design process, Integrate with Regent's Park Estate initiatives.	Medium	Medium	No	Adopt		Wilkinson Eyre to contact the person in Me police for a review.
D6: Employment Issues	Consider local employment during construction	Recruit at least 10% of construction workers from borough of Camden.	Limited procurement options - Consider advertising employment opportunities in Bengali language (concentration of Bangladeshi community in the vicinity)	Limited skill base	Yes	Consider Further		To be discussed with the CM or Main Contractor
D7: Equal Opportunities and Diversity	Carry out proper stakeholder consultation	Consultation on proposals in Bengali. Involve local youth groups	Strengthen community links - concentration of Bangladeshi community in the	Low	Yes	Adopt		



Sustainability Brief	Sustainability Objective	Sustainability	Opportunity /	Risks /	Costs	Recommendation	Outcome	Comments
Reference		Target	Outcome	Complexity				
D8: Health & Safety	Consider reward scheme to reduce accidents on site	Monitoring systems for accidents. Consider displaying man hour (worked without accident) clock on site hoarding	Agree site operative reward scheme	Medium	Yes	Adopt		- To be discussed with the CM or Main Contractor
D9: Human Rights and Ethics	Maintain community Arts Centre	Involve disadvantaged & disabled in Arts	Medium	Medium	Yes			Consider Further
D10: Public Realm	Remove public and servicing interface at grade level	All servicing to be transferred to basement level	Improve External public realm increased pedestrian safety	Medium	Yes	Adopt		
	Extend high quality public realm fabric outside the site	Implement Longford Square project		Pedestrian Safety	Yes	Consider Further		
D11: Training and Education	External Learning: Support external learning and development initiatives	Inclusion of OSS to Drummond street and potential sharing with ITEC.		Medium	Yes	Adopt		
F: STAKEHOI DER I	RELATIONS AND DIALOGUE							
E1: All Stakeholders	Keep all stakeholders updated on project progress	Project updates + live webcam facility to be provided on 'Vicinitee' (Broadgate Estates online portal for tenants) and British Land website		Medium	Yes	Adopt		
E2: Agencies and Organisations	Consultation	Maintain close consultations & involvement with West Euston Partnership + local		Low	No	Adopt		

Sustainability Brief January 2006

Regents Place: NEQ, Commercial scheme



Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
E3: Community	Project progress update	Continued communication through the WEP		Low	No	Adopt		
E4: Employees	Keep all employees updated on project progress	- Use Vicinitee website for effective communication - Time lapse set-up		Low	No	Consider Further		
E5: User and Occupants	User Questionnaire	Bi- annual survey of needs	Better understanding of needs	Low	Yes	Consider Further		

NORTH EAST QUADRANT BRITISH LAND

SUSTAINABILITY STATEMENT



APPENDIX B - BREEAM AND ECO-HOMES PRE-ASSESSMENTS



BREEAM for Offices 2005: Summary of Pre-Assessment Estimator

REGENT'S PLACE, NORTH EAST QUARTER -BUILDING W



BREEAM for Offices 2005: Summary of Pre-Assessment Estimator

REGENT'S PLACE, NORTH EAST QUARTER - BUILDING W

Client

M3 Consulting

Aut	11071

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Summary Of BREEAM For Offices Pre-Assessment Estimator For Building W

EN5031

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1.	ASSESSMENT INFORMATION
2.	INTRODUCTION
3.	МЕТНОРОСЬОВУ
4.	REPORT STRUCTURE
5.	
6.	SUMMARY OF BREEAM FOR OFFICES 2005 PRE-ASSESSMENT ESTIMATOR
7.	BUMMARY OF THE BUILDING PERFORMANCE
	7.1.1 Management
B.	GONCLUSION
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APPENDOLA	BUILDING USERS GUIDE
Арренок В	CONSTRUCTION SITE IMPACTS
APPENDIX C	LONG TERM IMPACT ON BIODIVERSITY



Summary Of BREEAM For Offices Pre-Assessment Estimator For Building W

EN5031

EXECUTIVE SUMMARY

Waterman Environmental was commissioned by M3 Consulting, on behalf of British Land, to undertake a BREEAM Office 2005 Design and Procurement (D&P) Pre-Assessment Estimator for an 8 to 16 storey office building known as Building W, within the wider development Regent's Place, North East Quarter, London.

BREEAM is a voluntary, standard environmental assessment method by which the environmental impact of a building is assessed against a range of issues, and credits are awarded where the building achieves a benchmark performance. A building is awarded a BREEAM rating based on its overall performance expressed as 'Pass', 'Good', 'Very Good' or 'Excellent' depending on the total score achieved.

This report summarises the results of a BREEAM Office Pre-Assessment completed for the current scheme design, in order to provide a quick evaluation of the likely BREEAM rating to be achieved under a formal assessment.

The potential credits being awarded for each category based on the commitments made at the Pre-Assessment meeting held on 29 January 2007 are summarised below;

- · Management 90% of the credits achieved
- Health and Well Being 66.7% of the credits achieved
- Energy 64.7% of the credits achieved
- Transport 92.9% of the credits achieved
- Water 66.7% of the credits achieved
- Materials 41.7% of the credits achieved
- Land Use and Ecology 54.5% of the credits achieved
- Pollution 58.3% of the credits achieved

Based on the information provided by the design team, the commitments made by them and a number of assumptions, the development known as Building W has a predicted BREEAM score of 67.20% and a rating of 'Very Good'. Areas that are performing poorer than others are Materials; Land Use and Ecology; and Pollution. Improvement in these areas and others could ensure a rating of 'Excellent' is achieved.



Summary Of BREEAM For Offices Pre-Assessment Estimator For Building W

EN5031

1. Assessment Information

Nature of Assessment BREEAM Office 2005 Design and Procurement Pre-

Assessment Estimator

Name of Building W. Regent's Place North East Quarter

Address of Building Regent's Place North East Quarter, London

Client M3 Consulting

Developer British Land

Project Manager Contact Richard Cowan

Project Manager Address M3 Consulting, 7 Tokenhouse Yard, London EC2R 7AS

Architect's Contact James Llewellyn of Wilkinson Eyre Architects

Architect's Address 24 Britton Street, London, EC1M 5UA

Building Services Engineer's Contact Andrew Thrower of Watkins Payne Partnership

Contact Address 56 Grosvenor Street, London, W1K 3HZ ND

Occupancy The offices are a speculative development and at this stage

the type and occupants are unknown.

office building referred to as Building W which comprises three linked blocks of 10, 16 and 8 storeys in height. The building forms part of the wider mixed-use redevelopment

referred to as Regent's Place, North East Quarter.



Summary Of BREEAM For Offices Pre-Assessment Estimator For Building W

EN5031

2. INTRODUCTION

A design team including Wilkinson Eyre Architects, and Watkins Payne Partnership as the Building Services Engineers, was commissioned by M3 Consulting, to prepare proposals for Building W. The new office building forms part of the wider mixed-use redevelopment referred to as Regent's Place, North East Quarter.

The development is located off Euston Road in the London Borough of Camden. Building W comprises three linked blocks of 10, 16 and 8 storeys in height and will provide retail at ground floor with office accommodation above.

M3 Consulting, the project managers, , has instructed Waterman Environmental to complete a BREEAM Office 2005 Design and Procurement (D&P) Pre-Assessment Estimator for Building W. This report summarises the results of the Pre-Assessment Estimator, sets out the commitments and assumptions made by the design team during the exercise and highlights areas where the potential exists for additional points to be achieved. The Pre-Assessment Estimator meeting was held on 29 January with the following members of the design team present:

- Richard Cowan M3 Consulting;
- Andrew Thrower Watkins Payne Partnership (WPP);
- . Guy Morgan Munkenbeck and Marshall Architects (M and M); and
- Jane Liewellyn Wilkinson Eye Architects

3. METHODOLOGY

The Building Research Establishment (BRE) has developed a voluntary, standard environmental assessment method (known as BREEAM), by which the environmental impact of a building is assessed against a range of issues, and credits are awarded where the building achieves a benchmark performance. BREEAM seeks to bring about reductions in the environmental impact of buildings through recognition of the business benefits, which can be achieved.

The method addresses impacts of a building on the global, local and indeor environments across a range of issues, grouped under the headings of:

- · Management;
- · Health and Wellbeing:
- Energy:
- Transport;
- Water;
- Materials;
- · Land Use and Ecology; and
- · Pollution.

A building is given a score to indicate its overall environmental performance. This is referred to as the 'BREEAM' rating which is expressed as 'Pass', 'Good', 'Very Good' and 'Excellent' depending on the total score awarded. A minimum score is required to achieve a 'Pass' rating, below which a BREEAM rating is not awarded.

A Pre-Assessment Estimator provides a quick evaluation of the BREEAM rating likely to be achieved under a formal assessment. The results can be used to feed into the design process in order to maximise the score achieved; and its completion is a means of monitoring the sustainability performance of the development against this established, independent benchmark. It should be noted that, as the Pre-Assessment Estimator is a simplified version of the full method, it only provides an estimate of the BREEAM rating. As a consequence, the final rating may vary following a formal assessment by a licensed BREEAM assessor.

REPORT STRUCTURE

The following section, Section 5, summarises the findings of the assessment in a table format and highlights the scores and the percentage achieved for each criteria. Section 6 provides a summary table of each of the issues assessed by the BREEAM method. The third column of the table in Section 6 denotes the number of credits available for each issue and the fourth column provides the percentage value for each credit. This allows the design team to calculate the score should they choose to alter the design and focus on other credits. The fifth column denotes the number of credits that are likely to be achieved in the full assessment. These credits have been awarded based on the commitments made by the design team during the pre-assessment meeting held on 29 January 2007. A brief description of the credit requirements is provided in the fifth column, followed by the 'design commitments and action' column which highlights actions for the design team in order to ensure that the points are achieved in the formal BREEAM Assessment. The seventh column identifies where there is the potential for additional credits and the final column provides information regarding the additional requirements for these credits to be awarded.

Section 7 of this report describes the performance of the building. This summarises how the scheme is expected to perform under the eight topic headings provided by BREEAM.

The probable BREEAM rating is provided in Section 7.2, with overall conclusions presented in Section 8.

SUMMARY TABLE

This summary table, based on the assessment in Section 6, provides the score for each criteria and the

Overall Credit Allocation	Environmental Weighting	Credits Available	Gredits Assumed	% of the Gredit Assumed	Gredits Score
Management	0.15	10	9	90	13.5%
Health and Wellbeing	0.15	15	10	66.67	10.0%
Energy	1000	17	11	64.71	1 1000000
Transport		14	13	92.06	
Sub Total	0.25	31	24	77.42	19.35%
Water	0.05	6	A	66.67	3.33%
Materials	0.10	12	5	41.07	4.17%
Land Use and Ecology	0.15	11	6	54.55	8.18%
Pollution	0.15	12	7	58.33	8.75%
TOTAL	The second	1		7	67.29%



ESTIMATOR 2005 PRE-ASSESSMENT OFFICES BREEAM FOR

Additional Requirements	VS.		NA	
Potential Additional Credits		9	0	•
Design Commitments	Anches Throser of Walding Papes Partnership stated during the pre-assessment meeting on the 25° states and Marketin Spring but for the 25° states of the Walding Spring but commissioning. Provide appointment document or specification to confirm Nisaless Papes Partnership is responsibility to confirm Nisaless Papes Partnership is responsibility to commissioning. It must fill all whereast apparent to predict commissioning requirements must be people on to all confessions. Where there are complex systems, a specialist.	Walkins Payre Pathorning to ensure the regulements for commissioning are passed on the all curtisdom. Details of commissioning responsibilities must be included in the specifications.	Walkins Payne Parherning stated they would support the contractor in preparing a Building Users Guide in the will BSE requirements, see Appardia A. The checkper will also require the contractor to prepare a Building User Guide.	Rodward Cowern of M.C. Comsulting stated that the constraint will be required to cample; with at last 6 of the 1 communication that a communication of the 2 communication of the 2 communication diseases must require communication to put relevant systems or procedures in place. Refer to Appendix 9 for detailed requirements of construction procedures required to proceeding the contrador will be required to provide evidence of registration with the Considerate Communication Scheme as indicated in Appendix 8.
Summary of Credit Requirements	Where address can be provided to demonstrate that a design team manufacility appointed to monitor commissioning or befulf of the clerit, and that where there are complex spatients a commissioning agent or manager is appointed.	Where pre-commissioning, commissioning, and quality movitaving are present on the facility movitariors and all table on othe in accordance with 8599A/DSSE guidelines.	Provision of a simple Building Users Gade as a segurate section or document to the CMM manual.	Commitment to ensure that protractions takes these the minimise construction that the contraction of the protection. Ondits assurbed where six of the following are authorised: 1. Set largets, monitor and report on: energy consumption or COs, arising than site activities. 2. Uniform and report on transport to and from the site. 3. Committee waste monitored: 4. Construction waste monitored:
Probable Credits		-		N
Sylane	ti	27	15	27
Credits Assiste		-	*	n
Description of Credit	Commissioning	Commissioning Clauses	Building Uter Guide	Constudios Site Impacts.
Condt Ref No.	Man 1-2	Man 1-4	Man 1-5	25 mg



Additional Requirements		ă	ă	ž.		TS.	ă.	NUX.	100
Potential Additional Credits		0	0	o.		0	0	0	0
Design Commitments		Commitment to register with the Considerable Constructor Scheme and achieve a total of all less 10; points, with over 3 points soome under each category.	Commitment for all side limber to be sourced from FSC or alternative sustainable sources. This must be included in the relevant specification clause.	Authors Thrower of Bisplains Payne Partnership stated that Second control and the understate. These requirements will include tasking all buildings periods up that band conditions and during periods of externe (Righ or low) accounting and during periods of externe (Righ or low) accounting the understates in the commissioning of systems must be understates must be controlled.		Walkins Payne Partnership confirmed that systems will be compaint with COSEC That's and HOSE Approved Code of Practice Guidence which will be included in the selevant syndication clause.	Walkins Payne Partnership confirmed that systems will be complaint with OSSE Thirth and NSE Approved Cobe or Practice Guidance which will be included in the relevant specification cleans.	Ordit not sought after.	Waltons Payne Partnership confirmed that no steam humidication is present. Withour matement should be provided as confirmation.
Summary of Cheld Requirements	pollution to air from site operations in the subdictions (Add.) and BEE subdictions (Add.) 1-4, and BEE subdictions (Add.) 1-4, a Establish best practice for maintaining pollution to ground & watercourses/mark(pull systems in fine with Environment Agency guidolines (Refs. 2 - 5).	Consilines to comply with the Considerate Constructors Scheme and achieve best practice standards.	Sourcing of temporary limber from sustainably managed sources.	Seasonal commissioning to be carried out churing the first year of occupation.		Systems to be designed to CRSE TAITS and HSE Approved Code of Practice (ACOP) and Galdence LS (Ref. 9 and 15)	Water systems are designed in compliance with KSE AOsP and CRISE TM13.	Where external lapade windows to all complete areas are operable.	Where sharn handstration is inspired or where no hundstration is present.
Probable Onedis			-			+	÷	0	-
S. Value		15	2	5	13.5	•	-	•	
Oresis Available				**	- 10	+	#	1.	#
Description of Description of		Considerate Constructors Scheme	Sourcing of temporary Ember	Sessoral		Cooling Towers and Evipporative Condensers	Water systems- Legionelosis	Potential for Natural Ventilation	Falsate Humidification
Credit Per No				12-1 mill	Sub-total:	Hea G-1	Hea 6-2	Hes 5-3	ii i

Decrinq21343



Account Recurrents	rá	ď.	rá	NO.	NGA	ž	NUA
Potential Additional Credits	0	0	0		0	o	0
Design Commitments	The others for an intakes and outsides are not achievable on this site. Ordel not sought after.	Walkins Payre Partnership confirmed that heath air will be provided at a rate of 12% person. This will also be required to be stated in Specifications.	Wilkinson Eyes Anchlacks confirmed that the daylighting orbins are unlikely to be met. Due to the daylith of the floor point which is over 14st in width, the credit for view out it also unadhievable.	The scheme incorporates fixed lowers therefore no blinds will be provided.	Walkins Payne Partnership confirmed that high Impactively billings will be installed and this requirement will be included in the elevant lighting specification or indicated on a plan.	Walkins Payne Partenship confirmed that Lighting Guide 7 registereds will be met. Desait to be included in the relevant lighting specification or indicated on a plan.	Andrew Thrower of Ittakins Poyles Parthership has stated that Spring will be zoned to 40m² and controls will be provided for the separate street. The thomston expanse must be included in design
Summary of Credit Requiements	Where are intelescolotics avoid major sources of entered politics and sociolation of estimate air (i.e. air estatescolotics over 10m apart and air estatescolotics over 10m sources such as reads and car parts).	Fresh air is provided at a rate of "Chileperson.	Where at least 80% of net lettable office for area is adoptablely it. Where there is an average caylight factor of at least 2%. AND uniformly ratio of at least 0.4, or a view of sky from desis height is advised. AND The norm desit height is advised. The norm depth coherion diw + 40%, < 2. 11 - Rej is switched. Second credit available where occupants have a view of it we workstations are within 7 in d a window.	Occupant controlled system of glars control (e.g. internal or external binds) is filted.	Lighting for all accepted areas must have high frequency ballasts.	Lighting design is compliant with the authoritors to CRSE Lighting Guide 3, and brother the CRSE Lighting Guide 3, and place place designed to anoth glare and distracting surner reflections from electric fighting.	For offices, separate strikes should be provided for. For office and circulation spaces:
Probable Credits	0	+	o	o	+	+	+
Nittee		-	*			-	-
Credits Arcticabe	+	-	-			-	
Description of Condition	Internal Ae Podudion	Vendiation Rates	Delighting and View Dut	Daying Clare Contra	High hequency lighting	Deutic Lighting Galde	Lighting Zones
Coade Ref No	Hea D-5	Hea 0-6	Ha 6.7	Hea 0-8	Hea 0-9	Hea 0-10	Mea 0-11



Additional Requirements		TO.	NA NA	á		MA	NO.
Potential Additional - Oresits		0	o	0	0	0	o
Design Commitments	deskings and specifications. These should include confirmation of the control systems specified, details of installations and its zoning.	Watkins Payne Partnership confined appropriate thermal braing would be used. Details of the braing would need to be included in the relevant specification and forwarded to the SPREAMI assessor.	Walkins Payne Partnership confirmed that thermal comfort studies will be provided at a later stage in the design process. Walkins Payne Partnership to provide delate of the calculations undertaken.	The design haim agreed that the requirements for a large office should be achievable. To achieve these points the appointment of according in required and provision of calculations showing compliance with cateria.		Waters Payers Patherstip stated that sub-mests will be provided. To achieve this credit, plens must be provided to show the location and function of all relevant sub-meters which should also be reformed to in the specifications.	Walkins Payne Partwentip confirmed that sub- metering would be provided. Details to be included in the sile-set specification disease and included on the plants.
Summay of Oredit Requirements	For that or less workspaces in office areas (approx 40m*); and Separately for workstations adjacent to windows after and other areas.	Local control for temperature in all agentatic monocheses is wheel differing based requirements including separate control of each perimeter area (i.e. within The of each externity wall) and the contral area (i.e. one Thin from the external wall). Where broughts positions are specified these are designed to service the base these are designed to service the base beauting is provided which is zoned as above.	Assessments of fremal contact levels to be made at the design stage and meufle used to beginned servicing galdors and hermal comfort lessie. Thermal confort levels should meet the requirements set out in CRSSE Gaide A (Fibel 8).	Ambient internal note levels to achieve the following. • 35-4058 Law, T in small offices, • 45-4568 Law, T in medium offices, • 45-50 dis Law, T is large offices.		Where dress sub metering is provided for substantive energy seen which free hundreg covering lighting, small power and computer norms. Cetting studies and any video major energy consuming plant must also be sub-metered if present.	Where electrical sub metering of lemancy arms is installed; in multi-compart address or authorized by floor plate / department is installed in single consupercy buildings.
Probable Credits		-	+	+	90	+	
S.Value		*		*	#	0.61	0.80
Owdes Available		*	-	÷ .	15	+	+
Description of Condi		Thermal Zhong	Thermal Comfort Modeling	Accusic Performance - Internal licine Levits		Energy Sub- metaning	Tenancy Sub- literating
Condition No.		Hea 0-12	15 1,7	Hea 1-3	Sub-total:	Ene 6/2	Ene 0-3

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Additional Requirements	NA	VIV		NA	5 5
Potential Additional Credits:		0	0	o	
Design Commitments	At this stage, an assumption has been made that 2 oredits will be achieved.	Andrew Thrower of Walkins Paper Partnership stated that the budding will achieve a 15th improvement on the new Sulding Pagustors 2006 part L2A. Andrew Thrower stated for this is approximately equivalent to less than 35 CO ₂ In-year. T credit assumed: Walkins Paper Partnership to provide calculations to confirm.		Total Net CO, emissions antiring from framport will be predicted using the BYEEAM calculator. The estimated number of building users is repected to be approximately 2,8100. Only 31 car packing spaces will be provided therefore this achieves 10 credits according to the transport calculator.	Although provides is made for 154 cycle spaces not except a country of the spaces and second showers will be required. Wildrano: Eyes Achthora confirmed that adequate the plants. The plants.
Surmary of Oredi Requirements	Credits awarded based on the predicted laboric boses minus gates (VMAINT) based on the results of BPE's babric and form calculator.	Oreth assetted based on the predicted net CO, emissions (kgCO),hr?year),		Total Nat CO, emissions uning from transport to and from the building.	Provision of conversal, social and all Reposition of conversal and selected trades trained on the bibosing scales buildings to 10% of select (\$500 staff); Where there is provision of cycling shollies for 7% of self (\$501 - 1000 staff); and Where there is provision of cycling shollies for 7% of self (\$501 - 1000 staff); and Stronge hubblings must be secure and conversal. Showers must also be provided for staff one (1 shower for every 10 cycle mods). All test one of the following must be applied: Compliant changing buildings with boliess in or algoort to the changing must be bolies in or algoort to the changing must be changing mones if states 400mm with by 200mm, with and all forms with provise of the changing must be provided for the changing must be applied to the changing must be changing.
Probable Credits	F4	6	E	ß	
% Value	15 15 15 15	G.81 424.0	57 80	18	5
Credits Available	v9	St	17.	9	-
Description of Dreets	Fabric and Form	CO ₂ emissions		Transport CO ₂	Oge Table
Credit Ref. No.	7	2 2	Sub-total:	2 d	2



Additions Requirements		MA	tý.		ń	NA	Additional credit must be achieved here if an appropriate leak detector is included.	NA
Potential Additional Credits		0	a		0	o		
Design Committee to		The sile is done to tube stations and has traited. Details of public transport provision including the location of transport roddes, distance from the entirence, the public public of service, to be provided to SPEECARI assessor.	The site is close to take stations and has routes. Details of public transport provision including the condition of transport routes, distance from the entirance. Impuney of service, to be provided to DREEABL assessor.		Design team has staked that water efficient fidtings will be intaked. These include aerating taps, dual flush bolids and documers with a few rate of believen 9 and 15 threatments. On equality systems will not be provided.	Walkins Payne Pathenhip confirmed that a vater meter with pulsated output to enable future connection to a Building Management 5/54the (SMS) all be specified on the mains water supply to the building Details to be included in the relevant specification.	Waters Payne Pathership comfirmed that a leav, chelection system will not be installed.	Waters Payne Partnership conformed that proximity detection shut off will be installed. This should be included in the plans and specifications.
Surmary of Credit Requirements	at least equal with the number o cycle apparent. OR Complete drying space for well dothers for self dathers.	Where good access is evaluable to public respond naturals 1.6, within 500m with all least a 15 minute service frequency to and from a local urban certies.	Where good access is available to public respective theorem (as a second or to least a 20 minute service thequarcy to and from a major bandport mode.		Specification of water efficient sanitary improvements and a few rate of before 12 flows por minute, a provided sparsy or flow regulator tape. Additional positions are available where previous or salimate harvesting systems are raintable where	A water meter with pulsed output to be installed on all mains supplies to each building.	institution of a mains losis detection system which is capable of clerifying major issis within the building and between the building and the site boundary.	Provisor of a proximity detection shut set to the water supply for all WCs and uniteds.
Probable Credits		-		2	C4		0	
S. Value		110	25	10.53	0.80 each	880	970	120
Credits Available		1		25	m			
Description of Credit		Communing Public Transport	Public Transport Business Use		Water Consumption	Water Metor	Major Leak Denocion	Sanitary Supply Shut of
Oredi Ref. No.		Sel	To 04	Sub-total	Wat 5-1	War 5-2	We b3	がない

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Additional Requirements		MA	MA	NGA.	NA.	NA.	NA.	MA	NA.	WA		NA
Additional p	1	0	0	0	0	0	0	0	0	0	٥	0
Design Commitments		No ashestes will be included in the works. A specific classes excluding the tast of ashestos porticularly for the oil bostes (where its use is still logal) must be included in the specifications.	Walkins Payer Partnership confirmed that recycled strange buddes will be incorporated in the bissement area. The allocating special most budden to all beat 10th- fined floor area of approximately 11.87.2m²) and should be chashy identified on the plans.	New build, flemstore this cannot be achieved.	New build, therefore this carnot be achieved.	Wikinson Eyra Achitects confirmed that 'X' rading will be difficult to achieve for external walf elements.	As above, this andit unikely to be achieved.	As above, this credit unlikely to be achieved.	As above, this credit unlikely to be achieved.	Recycled appropries in not being used therefore credit	Richard Covers of MD Consolings has stated that the design bare will be required to use 100% PSC leader as part of the developers requirements. Provide a copy of the specifications for confirmation.	No carpets or floor frishes will be installed. Provide written stalement to confirm.
Summy of Credt Requirements		When askestes is excluded form any new works.	Provision of a central, dedicated space for the storage of recidible worth militrals, Space provided must be at least 2nd per NUCOM of test from area, up to a maximum of 10m?.	Re-use of at least 50% of the existing façade where at least 50% of the reused façade comprises in-situ re-used material.	Retention of at least 80% of the existing structure.	External wall specifications to achieve XI rathing in the Green Guide to Specification.	Whole specifications to achieve an X rating.	Rad specifications achieve an 'X' rating.	Lipper flox size specifications to achieve an X rating.	Where the amount of recorded aggregates appeared to one 2.7% for weight of the table high-grade aggregate weight of the clark high-grade aggregates can either the confidence on the control of Chairmed from within 30-m radius. Obtained from within 30-m radius. Obtained from within 30-m radius.	Commitment to souncing limiter and composite timber products used in shoulders and non-shoulders delinests are either from sustainable sounces or where record or morpided timber is specified.	Where carpets/floor finishes will be installed in a show area of speculative
Protestie Credits				0	0	a	40	0	o	a	**	+
S.Value	172	970	970	0.83	070	0.83	0.83	0.85	0.83	23.0	the state of the s	220
Credits				+	1	+	+	1	1		2	+
Description of Credit		Autheths	Recyclable worth storage	Reuse of Fagade	Reuse of Structure	Materials Specification:				Recirbed Aggregates	Soriamable Imber	Floor Finishes
Credit Ref. No.	Sub-total	140 84	Mat 0-2	Mar 1-1	Mag 5-2	2 3				57.26	Mar 5-7	7 2



Additional Requirements			NA.	NA	MA	Primetta for an additional profess of concepts a before a cought to exposit to exposit to exposit to the size of the size and the size and the size and the size and the size of all the size of all the size of size	NA N		NA.
Potental Adottonal Credits			0	0	0	-	a	0	0
Design Commitments			The existing site consists of 100% buildings and hard standing. A plan must be provided to confirm the existing uses on site.	No semedation of the site is required therefore credit withheld.	The Site includes some existing hers which will be removed as part of the development therefore credit withhold.	The sile is 100% hard standing with the emorption of some three. The operate encopation value is not likely to change proposal value is not likely to change therefore 3 condits assisted. Withmost Eyes Architects to provide points showing the area of existing fruitablesding, new building bodyint and landscaping to be provided. Richard Chean of MS Connating has stanted that EDOOD Design Landers Let has been consulted to enhance the bodinershy of the site by at least 3 species.	As excitigat action has been rought. To achieve this credit, a report must be provided to confirm that he excitigate recommendations for enhancement have been taken on buand in the design.	Ondit withheld due to the removal of trees.	A commitment has been made to take stops to minimise the long term impact of the development. Advice from an appropriating qualified ecologist is required to achieve the detailed requirements suffined in Appropria
Summary of Credit Requirements	by the new lenants.		Where the site has previously been developed or used for industrial purposes in the last SO years.	Where adequate deps have been taken to remediate contaminated land.	Development of a size that has low ecological value and protection of all existing features of value.	Where the ecological value of a development of a subcompanie, the is either not a subcompanie, harmed or is enhanced beyond its previously existing state.	Where achion-has been sought and achied on horn a subdish qualified rentogoial onestheri (harbeiter in acondence with 89% supplemental is. Mil member of the includes of Environmental Management and Assessment (EMM), the healthin of Ecology and Environmental Management (EEMI).	Protection of any important ecological features.	Where appropriate straps have been taken to maintain the long lenn impact of the development on bodiversity.
Probable Credits		49		0	0	•	*	0	
S.Valor		4.57	ž.	138	S.	1.36 each	B	138	15 15
Credits Arts able		12		1	1	vs	**		r-
Description of Oract			Re use of Land	Contaminated Land	Ecological Value	Change in Enright Value	Enthproment Enthproment	Potedon of Ecological Features	Long Term Impact on Sodiversity
Credit Ref No.		Sub-late	1 1	Lan 5-2	1 83	77 22	Em M	E00 14	Eto 1-5

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Additional : Requirements		ti.	NG	Potential for an additional credit if which could like the potent are before Steropfalth determined health; sneegy.	NA.	15	NO.
Potential Additional Oredits	1	۰			0	0	a
Design Commitments		Walkins Payee Partnership confirmed that a neblogram and observed system will be installed constructionly high-risk observed by the plant. This would need to be included in the relevant specification classes and drawings.	Waters Payne Pateuship confirmed that provision will be made for appropriate rehipment recovery. Obtain must be included in the specifications and deserting.	Walkins Payne Partnership confirmed that the high efficiency boliens will have emissions of less than 89 registrich delivered healing energy.	Strenge tanks located in the basement will provide between 62 and 65% attenuation of rainwater. Plane to confirm the provision of rainwater hidding lucilless and calculations to demonstrate the attenuation actioned would need to be provided.	Walking Payne Pathership confirmed that of interceptors would be incorporated. The specifications would need to include a requirement for the appropriate hote of oil interceptors to be used in accordance with the Environment Agency Custance. PPICS (PME 11).	Oedt not sought after.
Summay of Credit Requirements		A retriguent less deleution system to be specialled covering all fight they garb of the parts of the plant of or or wingerants specified. Systems should be contained in a modernically at fight endocuse or a modernically wettland income. There is also a requirement for automatic non. There is also a requirement for automatic non endocates and endocates or an endocate or an endoca	Provision of an submatic vehigerant pump down to the heat exchanger for dedicated storage tanks; with isolation valves, or no refrigerants are specified.	Specification of his NDs bolen: 1 could where emissions are \$140 mg/UN believed healthy energy. 2 cordis where emissions are \$18 mg/UN believed healthy energy. 3 coulds where emissions are \$ \$9 mg/UN believed healthy energy, and coulds where emissions are \$ \$9 mg/UN believed healthy energy; and 4 credits where emissions are \$ \$9 mg/UN believed healthy energy.	Where salwater holding facilities and/or sustainable drainage inchrolouses are used to spray bedroopes are used to spray the area from the sales rund? by a post three to either natural watercounce and/or municipal drainage systems.	Provision of all separators' interceptors or fibration in areas that are at risk form pollution (i.g. car parks, waste deposal facilities or plant areas.)	At refigerant types have a Clobal Warming Potential (GMP) of below 5 or where no refrigerants are present.
Probable Credits		-	1	2	+	+	0
A.Value Probacie Credits	8.15	at a	ià	125 86.5	123	19	57
Credits:	#	-	-	*	-	-	
Description of, Credit		Religement Lasis. Detection.	Retigerant Recovery	NOt enistors of healing source.	Materian of	litaternoute Poliden	Retrigerant GMP
Credit Ref. No.	Sub-total:	2	2 2	75 74	2 2	200	22

B

Acceptance of Proceedings of Procedural Spinor of Procedural Spinor of Procedural Spinor of Procedural Procedu		Details of esternal lighting would need to be points and specifications.	Details of the your of insulation, when of insulations, manufacture, and GMP would have provided to the provided to the section of the section of the building areas section.		
Potential Additional Credits		er.		*	621%
Design Commitments	Recolotis borness baller will be incoparated and is expected to achieve 10% of the buildings energy demand. Provide details of biomass baller and colourates to confirm 10% energy demand is achieved.	Onell not apospt after.	Afficings there is no current commitment, insulation materials could potentially be specified to achieve this oracle.		
Summay of Credit Requirements	A least VVs of either the heat demand or the electricity consumption in the buildings is supplied from local rememble energy sources.	External lighting to be in compliance with LE Caristonee Nobes for the eduction of observes light, 2005 [Ref. 12]. All external lighting can be automatically switched all between 2000 and UND. Where safety or security lighting is used between these forces, the lighting must comply with the lower levels set by the LE Cautience Notes.	Where insulating materials specified have a CIMP of below 5 and CIDP of 0. The clocker in the blocker in the blocker in the blocker, and cide of 0. Building stress: Building stress: only focus and enchanted in the enchanted in the interest, doors, can'ty doesn'te and in the interest, doors, can'ty doesn'te and in the interest, doors, can'ty doesn't building services including (but not enchanted); childid water proencity, in the great code water pipes. And water prevently, and code water pipes, and water to code water pipes, and water to code water pipes, and water to be interest, and water to be interest, and water to be interest, and water to be interest.		
Probable Credits	-	e		1	The same
5.1/2/00	19	S	kī	122	67.29%
Credits Are side	-	**	**	12	
Description of 1	Renewable Energy	Reduction of Night Time Light Polysion	Insulant Otene Depiction Potential (OOP) and Gooss Warming Potential (GWP)		The state of the s
Credit Ret No.	20	Polos	17	Sub-liste	TOTAL

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Summary Of BREEAM For Offices Pre-Assessment Estimator For Building W

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7. SUMMARY OF THE BUILDING PERFORMANCE

7.1.1 Management

The building is expected to perform well under Management issues, achieving 9 credits out of a possible 10. The design team has made a commitment to minimise a number of impacts during construction by complying with the Considerate Constructor Scheme to 'better than industry standards', using sustainably sourced temporary timber and monitoring and reporting on a number of site activities. Provisions will be made for the commissioning stage including a commitment to undertake seasonable commissioning and ensuring all responsibilities for commissioning are passed on to all contractors. A commitment has also been made to provide a simple building users' guide.

7.1.2 Health & Wellbeing

The building is expected to achieve 10 credits out of a possible 15 in this section as a result of various design considerations. These include the specification of: high frequency ballasts; appropriate zoning for lighting, heating and cooling; absence of any humidification, lighting compliant with CIBSE Lighting Guide 7; water and air conditioning systems in compliance with HSE Approved Code of Practice and Guidance L8. The design will also allow for appropriate ventilation rates and indoor ambient noise levels. In addition, a commitment has been made to undertake thermal modelling to inform the building design and form. Points for daylighting and view out were lost due to the expanse of the floorplan and also since not all windows will be openable. Also, although the design incorporates fixed louvers, a credit was withheld due to the absence of occupant controlled blinds.

7.1.3 Energy

The building is expected to achieve 11 out of the 17 credits available for energy issues. The building design allows for energy sub-metering and electrical sub-metering for individual tenants. Due to the early stage of the design, assumptions have been made of the performance of the buildings fabric and form and also the predicted net carbon dioxide emissions. Additional credits may be achieved here although no potential credits have been assumed due to the stage of the design.

7.1.4 Transport

The building is expected to achieve 13 credits out of the 14 available in the Transport category due to the accessibility of the sites location and provision of drying space for cyclists. One credit was lost since the provision of showers is not sufficient to achieve the credit (1 shower per every 10 cycle spaces required). However, since the building is expected to perform 15% better than new Building Regulations, this will result in a large number of credits being obtained. No additional credits are likely to be achieved here unless there is space available for additional shower provision.

7.1.5 Water

The building is expected to achieve 4 credits out of the 6 available in the Water category, due to the provision of water efficiency measures including a water meter, low flow sanitary ware and sanitary shut-off devices. No additional credits are likely to be achieved here unless further consideration is given to installation of greywater systems or leak detection systems.



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7.1.6 Materials

The building is expected to achieve 5 credits out of a possible 12 in the Materials category of the assessment due to the exclusion of asbestes, suitable storage for recyclable waste, use of sustainable timber and by not installing any floor finishes. Credits were tost due to the materials used in the design which are unlikely to achieve an 'A' rating as defined by BRE's Groen Guide to Specification, also since the design is new build and therefore does not re-use an existing structure or façade. Potential points could also be achieved for the provision of adequate recyclable waste storage, the requirements for which should be reviewed further as the design progresses. No additional credits are likely to be achieved here without major changes to the design to incorporate 'A' rated materials.

7.1.7 Land Use and Ecology

The building is expected to score 6 credits out of a total possible 11 in the Land Use and Ecology section for the use of previously developed land and use of an appropriately qualified ecologist to provide ecological enhancements to the site and manage the long term biodiversity impacts. Additional credit could be achieved where enhancements to the ecological diversity to achieve a positive change of at least 6 species can be demonstrated.

7,1.8 Pollution

The building is expected to achieve 7 credits out of a maximum 12 available for Pollution. This section assesses the building against a wide range of issues and commitment has been made to incorporate various initiatives, including the use of biomass to supply at least 10% of the developments energy demand, use of petrol interceptors and attenuation of rainwater runoff, installation of a leak detection system, refrigerant recovery, lighting that is in compliance with Institute of Light Engineers (ILE) guidance notes for reduction of light pollution and boilers with dry NOx emissions of less than 89mg/kWh delivered heat energy.

Additional credits could be achieved through specifying boilers with a dry NOx emission of less than 59mg/kWh delivered heat energy, specification of: insulation materials which avoid the use of ozone depleting and global warming substances and external lighting that is compliant with ILE Guidance Notes.

7.2 PROBABLE BREEAM FOR OFFICES RATING

	Minimum Score Required	BREEAM Rating
	25	PASS
Ourrent Rating	40	GOOD
Correct Having	55	VERY GOOD
Potential Rating	70	EXCELLENT

Based on the 'Probable Credita' detailed by this 'Pre-Assessment Estimation', the likely BREEAM for Offices Rating of Building W, Regent's Place, North East Quarter is currently 'Very Good' (with a probable score of 87.29 credits). There are potentially an additional 5 credits available in a variety of different BREEAM credit areas which would provide a score of 73.23 and a rating of 'Excellent'.

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It should be noted that the 'Pre-Assessment Estimator' provides only an estimate of a BREEAM rating. Predicted ratings are likely to change in some credit areas following the formal BREEAM assessment of the latest scheme details and the BRE QA audit.

Please also note that this 'probable score' also currently includes the assumptions detailed in the previous section that were agreed with design team members. Supporting evidence is required in all these cases for the formal BREEAM Assessment and, should firm evidence be unavailable in any area, that credit must be withheld.

Conclusion

Based on the information provided by the design team, the commitments made by them and the assumptions outlined above, the BREEAM Office 2005 Pre-Assessment Estimator has predicted a BREEAM rating of 'Very Good'. The design team must ensure that all the credits that have been committed to are met in order for the rating to be achieved. The design team must also be aware that all information must be documented in either specifications or drawings for these credits to be awarded at the formal assessment stage. In addition credits have been identified that can potentially increase the score to 73.23 which will achieve an 'Excellent' rating.

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9. REFERENCES

- Building Research Establishment (BRE), 2003, Control of Dust from Construction and Demolition Activities.
- 2. Environment Agency, PPG6: Working at demolition and construction sites.
- Building Research Establishment (BRE), 2003, Pollution Control Guide Parts 1-5.
- 4. Environment Agency, PPG1: General Guide to the Prevention of Pollution.
- Environment Agency, PPG5: Works in, near or liable to affect watercourse.
- 6. Chartered Institution of Building Services Engineers (CIBSE), 2004, Code for Lighting, Part 2.
- Chartered Institution of Building Services Engineers (CIBSE), 2001, Lighting Guide 3: Addendum 2001, The Society o Light and Lighting 2001.
- 8. CIBSE, 1999, CIBSE Guide Volume A: Design Date.
- 9. CIBSE, 2002, CIBSE TM13: Minimising the risk of legionnaires disease
- Approved code of practice and guidance L8 'Legionnaires' disease; The control of legionella bacteria in water systems'. HSC 3rd Ed. 2000..
- Environment Agency, Pollution Prevention Guideline (PPG) 3 Use and design of oil separators in surface water drainage systems.
- 12. Institute of Lighting Engineers, 2005, Guidance noire for the reduction of obtrusive light, GN01.



Summary Of BREEAM For Offices Pre-Assessment Estimator For Building W

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Appendix A BUILDING USERS GUIDE

User Guide Contents

The list below indicates the type of information that should be included to meet the needs of the Facilities Management (FM) Team/Building Manager and the general users (staff).

1. Building Services Information

- General User Information on heating, cooling and ventilation in the building and how these can be adjusted, e.g. thermostat location and use, implications of covering heating outlets with files, bags etc., and use of lifts and security systems.
- FM As above plus, a non technical summary of the operation and maintenance of the building systems (including BMS if installed) and an overview of controls.

2. Emergency Information

- a) General User Include information on the location of fire exits, muster points, alarm systems and fire fighting systems.
- FM As above plus, details of location and nature of emergency and fire fighting systems, nearest emergency services, location of first aid equipment.

3. Energy & Environmental Strategy

This should give owners and occupiers information on energy efficient features and strategies relating to the building, and also provide an overview of the reasons for their use, e.g. economic and environmental savings. Information could include:

- a) General User Information on the operation of innovative features such as automatic blinds, lighting systems etc., and guidance on the impacts of strategies covering window opening and the use of blinds, lighting and heating controls.
- b) FM As above plus, information on airtightness and solar gain (e.g. the impact of feaving windows/doors open in an air-conditioned office, or use of blinds in winter with respect to solar gain); energy targets and benchmarks for the building type, information on monitoring such as the metering and sub-metering strategy, and how to read, record and present meter readings.

4. Water Use

- a) General User details of water saving features and their use and benefits, e.g. aerating taps, low flush toilets, leak detection, metering etc.
- FM As above plus, details of main components (including controls) and operation.
 Recommendations for system maintenance and its importance, e.g. risk of legionella.

5. Transport Facilities

- a) General User details of car-parking and cycling provision; local public transport information, maps and timetables; information on alternative methods of transport to the workplace, e.g. car sharing schemes; local 'green' transport facilities.
- b) FM As above plus, information on conditions of access, maintenance and appropriate use of car parking and cycling facilities, e.g. number of spaces provided. The above information does not need to be included in the user guide if there is a separate dedicated travel information space, accessible to the staff, and in compliance with BREEAM credit T10. However the guide must reference the travel information space, the information provided and its location."



Summary Of BREEAM For Offices Pre-Assessment Estimator For Building W

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6. Materials & Waste Policy

- a) General User Information on the location of recyclable materials storage areas and how to use them appropriately.
- FM = As above plus, information on recycling, including recyclable building/office/fit out components, waste storage and disposal requirements; examples of Waste Management Strategies and any cleaning/maintenance requirements for particular materials and finishes.

7. Re-fit/Re-arrangement Considerations

- a) General User an explanation of the impact of re-positioning of furniture, i.e. may cover grilles/outlets, implications of layout change, e.g. installation of screens.
- b) FM As above plus, environmental recommendations for consideration in any refit. Relevant issues covered in BREEAM should be highlighted, e.g. the use of natural ventilation, use of Green Guide 'A' rated materials, re-use of other materials etc., the potential impact of increasing occupancy and any provision made in the original design to accommodate future changes.

8. Reporting Provision

- a) General User Contact details of FM/manager, maintenance team, and/or help desk facility; and details of any building user group if relevant.
- FM = As above plus, contact details of suppliers/installers of equipment and services and their areas of responsibility for reporting any subsequent problems.

9. Training

Details of the proposed content and suggested suppliers of any training and/or demonstrations in the use of the building's services, features and facilities that will be needed. This could include;

- a) General User Training in the use of any innovative/energy saving features.
- FM As above plus, training in emergency procedures and setting up, adjusting, and fine tuning, the systems in the building.

10. Links & References

This should include links to other information including websites, publications and organisations. In particular, the 'Carbon Trust' programme should be referenced and links provided to its website and good practice guidance.

11. General

Where further technical detail may be required by the FMTeam or manager there should be references to the appropriate sections in the Operation and Maintenance Manual.

> ENS031/R/2.1.3/KB Appendices



Summary Of BREEAM For Offices Pre-Assessment Estimator For Building W

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Appendix B Construction Site Impacts

- Commitment to monitor, report and set targets for CO₂ production or energy use arizing from site activities
 - Confirmation is required that monthly measurements of energy use will be recorded and displayed on site.
 - Appropriate target levels of energy consumption must be set and displayed (targets could be annual, monthly, or project targets).
 - c. As a minimum monitoring must include checking the meters and displaying some form of graphical analysis in the site office to show consumption over the project duration and how actual consumption compares to the targets set.
 - d. The design/site management team is to nominate an individual who will be responsible for the monitoring and collection of data.
- Commitment to monitor and report GO₂ or energy arising from commercial transport to and from the alle

Confirmation is required that a site monitoring system will be in place to monitor and record deliveries. This system will need to record:

- a. The number of deliveries,
- b. The mode of transport,
- c. The kilometres/miles travelled for all deliveries.
- Confirmation is required that the site's construction waste is being monitored. Confirmation can either be in the form of:
 - a. a site specific waste policy or procedure,
 - b. specification.
 - c. letter of appointment or
 - d, other formally written document

Waste must either be:

- a. Re-cycled on site or
- sorted on site and collected for recycling locally.
- Confirmation is required that the site's construction waste will be sorted into at least five categories (including ceramics, metals, packaging, concrete, insulation, plaster/cement, timber, chemicals and oils) and recycled / reused as appropriate.

This confirmation can be in the form of a site specific waste policy or procedure, specification, letter of appointment for a waste / recycling contractor, or other formally written document.

6. Commitment to monitor, report and set targets for water consumption arising from site activities

Confirm in writing, that monthly measurements of water consumption will be recorded and displayed on site.

- a. Appropriate target levels of water consumption must be set and displayed.
- b. As a minimum monitoring must include checking the meters and displaying some form of a graphical analysis in the site office to show consumption over the project duration and show actual consumption compares to targets set.

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Appendices



Summary Of BREEAM For Offices Pre-Assessment Estimator For Building W

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- c. The design/site management team is to nominate an individual who will be responsible for the monitoring and collection of data.
- 7. Commitments to adopt best practice policies in respect to air (dust) pollution

Confirmation is required of the site's procedures to minimise air / dust pollution. This can include:

- a. 'dust sheets'.
- b. regular proposals to damp down the site in dry weather,
- c. covers to skips etc.

The site team must indicate how this information is disseminated to site operatives.

Note: the following publications provide good practice guidelines on construction related pollution.

- Building Research Establishment (BRE), 2003, Control of Dust from Construction and Demolition Activities.
- 14. Environment Agency, PPG6: Working at demolition and construction sites.
- 15. Building Research Establishment (BRE), 2003, Pollution Control Guide Parts 1-5.
- 16. Environment Agency, PPG1: General Guide to the Prevention of Pollution.
- 8. Commitment to adopt best practice policies in respect to water (ground and surface) poliution

Confirmation is required of the site's procedures to minimise water pollution following best practice guidelines outlined in the following documents:

- a. PPG 1 General guide to the prevention of pollution. Environment Agency
- b. PPG 5 Works in, near or liable to affect watercourses. Environment Agency
- PPG 6 Working at demolition and construction sites. Environment Agency.

The site team must also indicate how this information is disseminated to site operatives.

Commitment to source timber used during construction from sustainably managed sources

75% of timber used during construction, including formwork, site hoardings and other temporary site timber used for the purpose of facilitating construction, is to be procured from sustainably managed sources, such as FSC and PEFC.

- d. Re-used timber from off site can be counted as equivalent but reusable formwork only complies if it meets the above criteria.
- e. This credit can be awarded where all the timber used is reclaimed timber



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Appendix C Long Term Impact on Biodiversity

All the mandatory requirements, plus any three of the additional requirements listed below must be achieved.

Mandatory Requirements

A suitably qualified ecologist (as defined in Eco 1-3), appointed prior to commencement of activities on site, must confirm in writing that:

- A) All the relevant UK and EU legislation relating to protection and enhancement of ecology has been complied with during the design and construction process.
- (B) An appropriate management plan covering at least the first 5 years after project completion is produced. This is to be handed over to the building occupants and should include:
- management of any protected features on site;
- management of any new, existing or enhanced habitats; and
- a reference to the current or future site level Biodiversity Action Plan.

Additional Requirements

- (C) The client must require the contractor to appoint a 'Biodiversity Champion' with authority to influence site activities and to ensure impacts on the site biodiversity are minimised in line with an ecologist's recommendations.
- (D) The client must require the contractor to train the site workforce on how to protect the site ecology during the project. Specific training should be carried out for all the site work force to ensure they are aware of how to avoid damaging site ecology. The training should be based on the findings and recommendations for protection of features highlighted within an ecologist's report.
- (E) The client must require the contractor to monitor and record actions taken to protect biodiversity, and their effectiveness throughout key stages of the construction. The requirement should commit the contractor to make such records available where publicly requested.
- (F) The client must require that a new ecologically valuable habitat, appropriate to the local area, is created. This includes habitat that supports nationally, regionally or locally important biodiversity, and/or which is nationally, regionally or locally important. It includes any habitat listed in the UK Biodiversity Action Plan (UK BAP), Local Biodiversity Action Plan (LBAP), those protected within statutory sites (e.g. SSSIs) or those within nonstatutory sites identified in local plans. For further guidance, refer to credit Eco 1-2: 'Change in Ecological Value'.
- (G) The client must require the contractor to programme the site work to minimise disturbance to wildlife. For example site preparation, ground works and landscaping have been or will be scheduled at an appropriate time of year to minimise disturbance to wildlife. Timing of works may have a significant impact on for example, breeding birds, flowering plants, seed germination, amphibians etc. Actions such as phased clearance of vegetation may help to mitigate ecological impacts. This item will be achieved where a clear plan has been produced detailing how activities will be timed to avoid any impact on site biodiversity.
- (H) The client must require that actions to protect/enhance biodiversity take full account of the UK Biodiversity Action Plan(UK BAP), and use local biodiversity experts a help identify ecologically important habitats/species on site. Local biodiversity expertise should be sought at or before design stage, to help identify species of local biodiversity importance on site. It is likely that their recommendations will draw on the Local Biodiversity Action Plan (LBAP) where one e



BREEAM for Offices 2005: Summary of Pre-Assessment Estimator

REGENT'S PLACE, NORTH EAST QUARTER -BUILDING M



BREEAM for Offices 2005: Summary of Pre-Assessment Estimator

REGENT'S PLACE, **NORTH EAST QUARTER** - BUILDING M

Client

M3 Consulting

Author:

Kate Bellew BSc MSc Name

Signature

Consultant and Registered BREEAM Assessor Position

Checked by:

Pallab Chatterjee BSc (Hons) MSc Name

Signature Idlah Challogee

Senior Consultant and Registered Position Assessor

Approved by:

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This report has been prepared by Waterman Environmental, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.



Summary Of BREEAM For Offices Pre-Assessment Estimator For Building M

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Summary Of BREEAM For Offices Pre-Assessment Estimator For Building M

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EXECUTIVE SUMMARY

Waterman Environmental was commissioned by M3 Consulting, on behalf of British Land, to undertake a BREEAM Office 2005 Design and Procurement (D&P) Pre-Assessment Estimator for a 16 storey office building known as Building M, within the wider redevelopment Regent's Place, North East Quarter, London.

BREEAM is a voluntary, standard environmental assessment method by which the environmental impact of a building is assessed against a range of issues, and credits are awarded where the building achieves a benchmark performance. A building is awarded a BREEAM rating based on its overall performance expressed as 'Pass', 'Good', 'Very Good' or 'Excellent' depending on the total score achieved.

This report summarises the results of a BREEAM Office Pre-Assessment completed for the current scheme design, in order to provide a quick evaluation of the likely BREEAM rating to be achieved under a formal assessment.

The potential credits being awarded for each category based on the commitments made at the Pre-Assessment meeting held on 29 January 2007 are summarised below:

- · Management 90% of the credits achieved
- · Health and Well Being 65.7% of the credits achieved
- Energy 64.7% of the credits achieved
- Transport 100% of the credits achieved
- · Water 66.7% of the credits achieved
- Materials 41,7% of the credits achieved
- Land Use and Ecology 54.5% of the credits achieved
- Pollution 58.3% of the credits achieved

Based on the information provided by the design team, the commitments made by them and a number of assumptions, the development known as Building M has a predicted BREEAM score of 68.09 % and a rating of 'Very Good'. Areas that are performing poorer than others are Materials; Land Use and Ecology; and Pollution. Improvement in these areas and others could ensure a rating of 'Excellent' is achieved.



Summary Of BREEAM For Offices Pre-Assessment Estimator For Building M

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1. ASSESSMENT INFORMATION

Nature of Assessment BREEAM Office 2005 Design and Procurement Pre-

Assessment Estimator

Name of Building Building M, Regent's Place North East Quarter

Address of Building Euston Road, London Borough of Camden

Client M3 Consulting

Developer British Land

Project Manager Contact Richard Cowan

Project Manager Address M3 Consulting, 7 Tokenhouse Yard, London EC2R 7AS

Architect's Contact Guy Morgan of Munkenbeck and Marshall Architects

Architect's Address 24 Britton Street, London, EC1M 5UA

Building Services Engineer's Contact Andrew Thrower of Walkins Payne Partnership

Contact Address 56 Grosvenor Street, London, W1K 3HZ ND

Occupancy The offices are a speculative development and at this stage

the type and occupants are unknown.

office building referred to as Building M which comprises an office building of 16 storeys in height. The building forms part of the wider mixed-use redevelopment referred to as

Regent's Place, North East Quarter.



Summary Of BREEAM For Offices Pre-Assessment Estimator For Building M

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. INTRODUCTION

A design team including Munkenbeck and Marshall as the Architect and Watkins Payne Partnership as the Building Services Engineers, was commissioned by M3 Consulting, to prepare proposals for Building M, The new office building forms part of the wider mixed-use redevelopment referred to as Regent's Place. North East Quarter.

The development is located off Euston Road in the London Borough of Camden. Building M comprises an office block of 16 storeys in height and will provide retail at ground floor with office accommodation above.

M3 Consulting, the project managers, has instructed Waterman Environmental to complete a BREEAM Office 2005 Design and Procurement (D&P) Pre-Assessment Estimator for Building M. This report summarises the results of the Pre-Assessment Estimator, sets out the commitments and assumptions made by the design team during the exercise and highlights areas where the potential exists for additional points to be achieved. The Pre-Assessment Estimator meeting was held on 29 January with the following members of the design team present:

- Richard Cowan M3 Consulting;
- · Andrew Thrower Watkins Payne Partnership (WPP);
- Guy Morgan Munkenbeck and Marshall Architects (M and M); and
- Jane Llewellyn Wilkinson Eye Architects

METHODOLOGY

The Building Research Establishment (BRE) has developed a voluntary, standard environmental assessment method (known as BREEAM), by which the environmental impact of a building is assessed against a range of issues, and credits are awarded where the building achieves a benchmark performance. BREEAM seeks to bring about reductions in the environmental impact of buildings through recognition of the business benefits, which can be achieved.

The method addresses impacts of a building on the global, local and indoor environments across a range of issues, grouped under the headings of:

- Management;
- Health and Wellbeing:
- Energy:
- Transport;
- · Water;
- Materials;
- Land Use and Ecology; and
- Pollution.

A building is given a score to indicate its overall environmental performance. This is referred to as the 'BREEAM' rating which is expressed as 'Pass', 'Good', 'Very Good' and 'Excellent' depending on the total score awarded. A minimum score is required to achieve a 'Pass' rating, below which a BREEAM rating is not awarded.



A Pre-Assessment Estimator provides a quick evaluation of the BREEAM rating likely to be achieved under a formal assessment. The results can be used to feed into the design process in order to maximise the score achieved; and its completion is a means of monitoring the sustainability performance of the development against this established, independent benchmark. It should be noted that, as the Pre-Assessment Estimator is a simplified version of the full method, it only provides an estimate of the BREEAM rating. As a consequence, the final rating may vary following a formal assessment by a licensed BREEAM assessor.

REPORT STRUCTURE

The following section. Section 5 summarises the findings of the assessment in a table format and highlights the scores and the percentage achieved for each criteria. Section 6 provides a summary table of each of the issues assessed by the BREEAM method. The third column of the table in Section 6 denotes the number of credits available for each issue and the fourth column provides the percentage value for each credit. This allows the design team to calculate the score should they choose to alter the design and focus on other credits. The fifth column denotes the number of credits that are likely to be achieved in the full assessment. These credits have been awarded based on the commitments made by the design team during the pre-assessment meeting held on 29 January 2007. A brief description of the credit requirements is provided in the fifth column, followed by the 'design commitments and action' column which highlights actions for the design team in order to ensure that the points are achieved in the formal BREEAM Assessment. The seventh column identifies where there is the potential for additional credits and the final column provides information regarding the additional requirements for these credits to be awarded.

Section 7 of this report describes the performance of the building. This summarises how the scheme is expected to perform under the eight topic headings provided by BREEAM.

The probable BREEAM rating is provided in Section 7.2, with overall conclusions presented in Section 8.

SUMMARY TABLE

Table summary provides the score for each criteria and the percentage of the credit that is assumed will

Overall Credit Allocation	Environmental Weighting	Credits Available	Gredits Assumed	% of the Gredit Assumed	Credits Score
Management	0.15	10	9	90	13.5%
Health and Wellbeing	0.15	15	10	66.67	10.0%
Energy		17	11	64.71	1
Transport		14	14	100	
Sub Total	0.25	31	25	80.65	20.16%
Water	0.05	6	4	66.67	3.33%
Materials	0.10	12	5	41.67	4.17%
Land Use and Ecology	0.15	11	6	54.55	8.18%
Pollution	0.15	12	7	58.33	8.75%
TOTAL		(The last of the			68.09%



SUMMARY OF BREEAM FOR OFFICES 2005 PRE-ASSESSMENT ESTIMATOR

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Additional Requirement	į.		N/A,	
Potential Additional Credits	0	0		0
Design Commitments	Andrew Thrower of Walkins Payre Partnership stated during the pre-screenment meeting on the 20° farmural that Walkins Payre Partnership will be carrying and commissioning. Provide appointment document or operationality for confirm Walkins Payre Partnership's responsibility for commissioning. It must like all relevant opplates the which commissioning is required. Commissioning a required, Commissioning appeted on the all contractions. Where there are complex systems, a specialist commissioning agent or manager must be appointed.	Making Payer Pathership to ensure the requirements for commissioning are possed on to all contractions. Details of commissioning repossibilities must be included in the specifications.	Habins Payer Patneship state they would support. the contractor is property a Building Users Guide in line with INFC requirements, see Appendix A. The developer will also require the contractor to propert a Building User Guide.	Richard Cowan of MI Consulting stated that the controllar will be required to comply with all tast 6 of the 7 controllar inspects. Appointment downstrained to research specification disease must require controllar to put trebeard systems or procedures in place. But the test to Appendix 8 for procedures in place. Considering providers strapilized. The controllar with the Considerate trapilized. The controllar with the Considerate Constructor Scheme as indicated in Appendix 8.
Summary of Credit Requirements	Where evidence can be provided to demonstrate that a design learn manufactly agostated to monitor commissioning on behalf of the clerk, and that where there are complex systems a commissioning agost or manager is appointed.	Where pre-commissioning are commissioning and quality monitoring are second on the appropriate contractors and all factors on talk in economics with ESPANCHESE guidelines.	Proision of a simple Building Liters Guide as a separate section or document to the C&M manual.	Commitment to ensure that contractors that stages in minimize committed in the stages in minimize committed in the stages. Orefs awarded where six of the following are achieved: 1. Set largels, months and report on energy contramption or CO ₁ , arraing from site achieves. 2. Months and report on transport to and from the site. 3. Contraction weath enotitized. 4. Contraction weath sorted 8 recycled. 5. Establish best practice for minimizing.
Probable Oredes	-	+		59
System	2	15	15	2
Credits Available	+			e
Description of Credit	Commissioning	Chartesioning	Building User Guide	Construction Site Impacts.
Credit Ref No.	27 m 1.27	Man 14	25 57	Man 1-6



Additional Requirements			NIA	NIA	NA.		NA	NA	MA	150
Potential Additional Orecits					0				0	0
Design Commitments			Commitment to register with the Considerate Constructor Scheme and achieve a total of at least 32 points, with over 3 points scared under each callegory.	Commitment for all site limber to be sourced from FSC or alternative sustainable sources. This must be included in the referent specification clause.	Author Those of Walkins Payer Partnership stated find seasoned commissioning will be undertaken. These requirements will robush heafing all building pervious under full and pull bad conditions and during periods of entires (high or box) comparts, hier-week with building comparise must be undertaken to be beingly problems and re-commissioning of systems must bis place where recessary.		Watkins Payre Partnership confirmed that systems will be compliant with DSSE TINIS and NSE Approved Code of Practice Solidance which will be included in the relevant syndication clause.	Watkins Payre Partnership confirmed that systems will be compliant with OSSE THITS and INSE Approved Code of Practice Collectors which will be included in the relevant specification clause.	Credit not sought after.	Rabbins Payer Partnership confirmed that no sham hundiculors is present. Written statement should be provided as confirmation.
Summary of Credit Requirements	publisher to all from site operations in line publishers (Path. 1 - 4). Elizabether (Path. 1 - 4). Elizabether throughout for maintaing problem to ground & watercourses! municipal systems in line with. Environment Agency guidelines (Path. 2 - 5).	7.5et targets, monitor and report-on water consumption ansing from site activities	Commitment to comply with the Considerate Constructors Scheme and achieve best practice standards.	Sourcing of temporary finitive from sustainably managed sources.	Sesonal commissioning to be carried auf during the first year of occupation.		Systems to be designed to CROSE TM13 and HGE Approved Code of Placifice (ACAP) and Guidance LB (Ref. 9 and 10)	Mater systems are designed in complance with HSE AGAP and CRISE TUTS.	Where external lagade windows to all compiled areas are operable.	Where shean furnishasion is installed or where no furnishasion is present.
Probable Credits			+-	+		60	-		0	
NValee			1.5	1.5	51	\$13	-	72		-
Credits Available			**	-	*	10			*	
Description of Credit			Considerate Constructors Scheme	Sourcing of temporary Sinber	Seasonal Commissioning		Cooling Towers and Engoystine Condenses	Water systems - Legonelises	Potential for Natural Ventilation	Falsale Hunidikalon
Condi Ref No					Wan 1-1	Subtotal	Mar 0-1	Hea 0-2	Mea 0.3	Math

ENGINELLING Page 6



Additional Requirements	NA.	NOA	Calculators would need to be mould need to be obneratively BRE's orbital for calculations.	NIX	5	MA	NA
Potental Additional Credits	0	0	-	0	0	o	0
Design Commitments	The collects for air intakes and outsides are not achievable on this site. Credit not sought after.	Walkins Payne Partnership confirmed that hesh air will be provided at a rate of 1290 person. This will also be required to be stated in Specifications.	Municipals and literated Architects confirmed that Carlyghings, chimin could be nest therefore potential for an additional chaeft. Since the Box plan is over 14th its width, the could the view but its unachinable.	The scheme incorporates fasc buvers therefore no blinds will be provided.	Waters Payne Pathership confirmed that high hoperancy befores will be installed and this requirement will be included in the relevant lighting specification or indicated on a plan.	Waters Payer Partnership confirmed that Lighting Guide 7 regimenters will be met. Details to be included in the relevant lighting specification or indicated on a plan.	Andrew Thrower of Walkins Payer Partnership has stated that lighting will be zowed to 40m² and controls all be provided by the separate zones. The information required must be included in design
Surmary of Credit Requirements	Where ar intuises builders avoid major sources of external polision and much mortalism of estimates are (a.e. air interespondes over 10m apart and air intakes over 20m from sources such as mods and car parks).	Fresh are is provided at a rate of Unityperson.	Where at least 80% of net intable office floor area is admonstricy it. Where there is an average daylight factor of at least 2% an average daylight factor AND ordinarily rate of at least 8.4 or a view of sky from deak height is achieved. AND The moon dayth critishen diw + dH ₄ < 2 (1 - R _A) is satisfied. The average average accompanishment in average in the average in the average in the average in the width.	Occupant controlled system of glave canted (i.g. internal or external blinds) is filted.	Lighting for all completed areas must have high frequency ballacts.	Lighting design is compliant with the addendum to CBRS Lighting Guide 3, 2001 (Red.7) and has been designed to avoid plans and distracting screen reflections from electric lighting.	For offices, separate zones should be provided for: For offices and circulation spaces;
Protection			60	0	+	r	+
NValue	-		*		-		-
Credits Available	-	-	-	+	+	-	+
Description of Drede	Internal Air Polision	Verillation Rates	Day(grieng and View Out	Daylight Glave Control	High frequency lighting	Electric Lighting Guide	Lighting Zones
Credit Ref. No.	21 mg	Hea 5-6	Fee 67	Hea D-E	He to	Hea 0-10	Hea 0-11



Additional Requirements		NO.	NA.	ń		NA.	NA.
Potential Additional Credits		0	0	0	0	0	o
Design Commitments	drawings and specifications. These should include confirmation of the carbot systems specified, details of installations and its saming.	Walkins Puyne Partnership sunfamed appropriate thermal coning would be used. Distain of the coning would need to be induced in the minimant specification and forwarded to the EPEEMI assessor.	Wakins Payee Partnership confirmed that thermal comfort studies will be provided at a later stage in the design process. Walkins Payee Partnership to provide details of the calculations undertaken.	The design fearn agreed that the requirements for a large office should be achievable. To achieve these provision of calculations showing compliance with otheria.		Walkins Payee Parbership stated that sub-meters will be provided. To achieve this credit, plans must be provided to show the location and function of sil relevant sub-meters which should size be reterred to in the specifications.	Walkins Payne Partnership confirmed that sub- metering would be provided. Details to be inducted in the relocant specification cleanse and included on the plant.
Summay of Credit Requirements	For four or less workspaces in office areas (leptus 40m²), and Separatility for workstations adjacent to windowstating and other areas.	Local control for temperature in sife appearable transperature in sife papearable transperature or effect offering based requirements including separation control of each perionelist and the central The sife sech endersal walf, and the central The sife sech endersal walf, and the central The sife sech endersal walf, and the central The sife is expensively expensive external from only and responsive extending y heading is provided which is stored as above.	Assessments of thermal comfort levels to be made at the design stage and results used to evaluate servicing, updoes and the evaluate servicing, updoes and themal comfort levels. Thermal comfort levels should meet the experiments and out in CIBSE Gottle A (Field: 8).	Anticert internal ratio bods to achieve the following. 35-4048 Lang T in small offices. 45-4548 Lang T in medium offices. 45-50 46 Lang T in large offices.		Where direct sub metering is provided for subdarfive energy uses within the building covering lighting, small power and computer norms. Catering taxibles and any often major energy consuming plant must also be sub-metered if present.	Where electrical sub-metering of lenancy arms is installed in multi-compart buildings or submersioning by floor plate / department is installed in single conceasing by bloor plate / conceasing buildings.
Probable Credits		-		+	91	-	
Sylabe		-	<i>-</i>		10	180	1870
Credits		w	:: **	-	12	<u>:</u>	+
Description of Creek		Themsi Zhring	Thermal Confort Modeling	Amate Petimans - Interd Note Lents		Energy Sub- metering	Terancy Sub- Metering
Section 2		District	No 1-2	HBT-3	Sub-total:	Ene 6-2	Ele El

ENSTERNITANS Page 8



Additional Requirements	NA.	ti.		NA.	NA.	15
Potential Additional Credits	0		0	۰	o-	0
Design Commitments	A this stage, an assumption has been made that 2 oredits will be achieved.	Address Thrower of Walkins Payne Partnership stated that the building will action or a 10% improvement on the tree Building will actions 2006 part LDA. Access Thrower stated that this is approximately equivalent to less than 35 CO ₂ Im ₂ /year. To redite assumed. Wellins Payne Pannership to provide calculations to confirm.		Tool Net CO, emissions arising from temport will be predicted using the BREEAM calculator. The self-maint number of building uters is especial to be appreciated number of building uters is especial to be appreciated by SC. Only 1 car parking space will be provided therefore this achieves 10 onedite according to the bransport calculator.	Provision will be made for 8 cycle spaces and 4 showers which will comply with BRE's criteria. These would need to be included in the plans and specifications.	stunierbeck and titerateli confirmed that dying space will be provided. This must be shown on the plant.
Surmary of Credit Requirements	Oveds precised based on the predicted flathic loose minus game (WMhm*) broad on the results of BRE's static and form calculator.	Oveith swarded based on the prediction net CO ₂ emissions (kg/CO ₂ /m ²)/war).		Total Net CO, emissions arising from transport to and from the building.	Provision of covered, secure and well it opide state based on the following scale: • Where there is provision of cycling basilises for VMs. of staff (500 staff). • Where there is provision of cycling stacilises for TM of staff (501 - MOD staff), and • Where there is provision of cycling basilises for SM of staff (>100 staff). Stronge facilises must be secure and covered. Showers must also be provided for staff covered.	At least one of the following must be addressed. • Compliant changing buildes with bookers in an adjoord to the changing moons—at least 400mm with by 700mm wide and 400mm deen promision to be wide and 400mm deen promision to be
Produce Credits	N	ps.	n	8	-	+
S. Value	45 TE 15	8.81 each	8.91	2	50	100
Oredits Available	un.	B	11	\$	+	+
Description of Credit	Fabric and Form	CO _t , entissions		Transport CO ₂	Opdisi Facilities	
Credit No.	I I	Ene 1.	Sub-total:	I A	N	



Additional Requirements		5	VS.		ş.	NA.	Additional oradit most be achieved here if an appropriate less detection is trotaled.	NA
Potential Additional Credits		0		0				
Design Commitments		The site is close to tube stations and bus noutes. Details of public transport provision including the location of transport nodes, distance from the enforces. Heartness of service, to be provided to BREEAM sussessor.	The site is close to tube stations and trus noutes. Details of public tramport provision including the location of tramport nodes, distance from the surfacros. Inspound of service, to be provided to BPEEAM assessor.		Design have that stated that water efficient fittings will be installed. These include aerothing back, dust flush boiles and showers with a flow rate of between 9 and 15 libeshinulae. Getywater systems will not be provided.	Wakins Payne Parkenship confirmed that a water meter with published output to entible future connection to a Salding Management System (SMS) will be specified on the maint water scopily to the building. Details to be included in the referent specification.	ilitables Payne Partnership confirmed that a leak detection system will not be installed.	Walkins Payne Partnership confirmed that proximity detection shut off will be installed. This should be included in the plans and specifications.
Surmary of Credit Requirements	at load equal with the number o cycle spaces. OR Compilant drying space for set cothers for set cothers.	Where good access is available to public transport redworks Liu, within 500m with at theart a 15 minute service thropanny its and them a local untervicentine.	When good access is available to public transport redended Lie, within 500m with all leasts a 30 minute service tropporty to and from a major transport mode.		Specification of water efficient samilary fiftings in cholding And or low fluch bright, a strong with a flow rate of below 12 library per minute, spray or flow regulator track. Additional positis are available where greywater or tainwater harvesting systems are installed.	A water meter with pulsed output to be installed on all mains supplies to each building.	Installation of a mains loss detection system which is capable of identifying major issis within the building and botheror the building and boundary.	Provision of a proximity beleafon shut off to the water supply for all WCs and uniteds.
Probable Credits	,319-,300-6	-	-	22	*	-		
System		ä	<u> </u>	11.34	0.63 each	89	GIO.	17
Credits		-	-	25	n			
Description of Credit		Communing Public Transport	Public Transport Business Ube		Water Consumption	Water Meter	Magnr Leak Detection	Santary Supply Shut of
Credit No.		5 5	1	Sub-total	Wat P-1	Wat 5-2	Wat 6-3	Wat D-4

ENGOSTAGE 1.3NS Page 10



Addional Requirements			1002									
Page 1	-	ă	2	ž.	ă	N.	ž	100	NA A	tă.		NGA
Potential Additional Credits		0	o	o	0	o	o	0	0	0	0	0
Design Commitments		No adhestics will be included in the works. A specific dates excluded the use of adhestics particularly for the lift brakes (where its use is still legal) must be included in the specifications.	Walkins Payne Partnership confirmed that excided storage bodies will be incorporated in the besencert area. The allocated speak must be at least 10th- (hell floor area of approximately 31 £12m²) and should be clearly identified on the plans.	New build, therefore this cannot be achieved.	New build, therefore this cannot be achieved.	Municipated and Versial confirmed that X rating will be difficult to actions for external wall elements.	As above, this credit unlikely to be achieved.	As above, this oradil unleady to be achieved.	As above, this credit unlikely to be achieved.	Recycled appregate is not being used therefore credit withhest.	Roburt Cover of ND Consulting has stated that the design from will be required to use 100% FSC states as part of the developers requirements. Provide a copy of the specifications for confermation.	No carpets or floor forishes will be installed. Provide willbut stallement to confirm.
Summary of Credit Requirements		When schedus is encluded form any new works.	Provision of a central, dedicated apace for the storage of recycloble words materials. Space or provided must be at least 2n° per 1900m° of see floor area, up to a maximum of 100m°).	Re-use of at least 30% of the existing topode where at least 80% of the roused topode comprises in-situ re-used material.	Retention of at least 80% of the existing shudure.	Esternal wall specifications to achieve XI making in the Green Guide to Specification.	Whither specifications to achieve an 'A' rating.	Roof specifications achieve an 'A' rating.	Upper floor stab specifications to achieve an X rating.	When the amount of necicied aggregate appropriate appealand is over 20% for weight) of the total high gazer aggregate uses (abrudural trans. Box relation, route set; Amount of aggregates can either to: Ottained from within 33km rollicit. Obtained from within 33km rollicit. Obtained from a mechalicitics.	Commitment is sourcing (inher and composite british products used in structural and non-structural demonstrate are either true scalaringles ources or where received or morpoid finitee is specified.	Where carpetation freibes will be installed in a show area of speculable offices, carpetation finishes are specified
Probable Credits	*			0	0	0	0	0	0	0	14	4
N.Value	111	9	9	120	610	9	3	070	22	100	C83 850	0.63
Credits Available	•			-	1	+				Ç.	**	-
Description of Onede		Adhesias	Pocyclable waste stonge	Rause of Fagade	Roose of Structure	Materials Specification:				Recycled Aggregates	Sustainable Ember	Floor Fnishes
Credit Ref No.	Sub-total	N N	Mat 0-2	Math	Mar 1-2	Mar 15.				114 1-6	Mar to Tal	Martis



Additional Requirements			NA	NA	NA	Potentia for an additional could of a swight to improve the improve the cooking of the side and the side and the side and the side of an improvemental place. A supprise to be sequented to confirm any opening to confirm any opening to confirm any opening to confirm any opening the sequented to the sequented to confirm any opening the sequented to confirm any opening the sequented to the	NA		NA.
Potential Additional Credits				0	0	_	•		
Design Commitments			The existing site consists of 100% buildings and hard standing. A plan must be provided to confirm the existing uses on site.	No remediation of the site is required therefore oradit withheld.	The She includes some existing trees which will be semoved as part of the development therefore-credit withhold.	The sile is 100% hard standing with the exception of some three. The oversal exception style is not likely to change the regional value is not likely to change therefore 2 credit available. Standards and Manhall to possible piens showing the area of exciting buildharding, new building boopinit and arthrosping to be provided, and building boopinit and strateging to be provided, and standard cover of 100 Controlling has stand that EDOO Design London List has been consulted to enhance the shockwards of the site by at libed 3 species.	An ecologist advice has been sought. To achieve this oracle, a report must be provided to can'eller that the ecologists recommendations for enhancement have been taken on board in the design.	Credt withheld due to the removal of trees.	A connilment has been made to take steps to minimize the long-term impact of the development. Advice from an appropriately qualified ecologist is requirements cultimed in Appendix C. and a Appendix C. and a supplementation of the desired in Appendix C.
Summary of Credit Requirements	by the new lensings.		Where the site has previously been developed or used for industrial purposes in the last SI years.	Where adequate steps have been taken to remediate contaminated land.	Development of a sile that has low exalogical value and protection of all existing features of value.	Where the ecological value of a development the is either not substantially hamed or is enhanced beyond its previously existing state.	Where activity has been sought and activity on them a suitably qualified excitogical consultant (accordance) and accordance with BRE requirements i.e. full member of the hosbate of Environmental Management and Assessment (EMM), the institute of Ecology and Environmental Management (EEM),	Protection of any important ecological features.	Where appropriate steps have been taken to minimise the long tarm impact of the development on bodiversity.
Probable Credits		in.		0	o	n	-	e	
System		4.07	îi	136	8	136 each	B	138	5
Condits Ann able		12				10			
Description of Credit			Reuse of Land	Contaminated Land	Ecological Value	Charge in Ecological Valve	Enforcement	Protection of Ecological Features	Lory Tem Impact on Sochersty
Credit Ref No.		Sub-total:	17 m2 77	Line 1/2	1 83	Eco 1-2	Eco 5-2	Eto 14	Eto 15

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Additional Sequencer's		Mar.	NA	Principal for an additional order of additional order of MQ, bends are today order orderly order orderly.	rs.	NA.	MA
Potential Additional Credits		0		-	0	0	o
Design Commitments		Makine Payee Partership confirmed that a rehippeart and designed of the partial med benefit high-risk person of the plant. This would need to be indicated in the relevant specification clauses and drawings.	Wokins Payor Partnership curifimed that provision will be made for appropriate refrigerant recovery. Consist must be included in the specifications and drawings.	Waldes Payne Parteenlip confirmed that the high efficiency bollers will have emissions of less than Eg mg/VM definent haufing energy.	Storage tanks located in the basement will provide between 65 and 65% attenuation of saimster. Pleas to confirm the provision of saimster holding bodies and caticulations to demonstrate the attenuation achieved would need to be provided.	Waters Payne Partnership confirmed that of interceptors would be incorporated. The specifications would need to include a requirement for the would need to include a requirement for the accordance with the Environment Agency Caldance PPGS (Ref. 11).	Orest not sought after.
Summay of Credit Requirements		A nethyperant least detection system to be specified covering at least nick pers of the plant or no enhyperant specified. Systems should be contained in a moducering at light enclosure or a moducering werefulned room. There is also a requirement for automatic asion a requirement for automatic redisposed pump down to be made to a heat enclosure.	Provision of an automatic refrigerant pump down to the head exchanger for dedicated storage famils) with isolation valves, or no militigerants are specified.	Specification of low NOs bollers: 1 orabli where emissions are s140 mg/clift definered beating strongs; 2 orablis where emissions are s 589 mg/klift definered beating energy; 3 orablis where emissions are s 599 mg/klift definered beating energy; and 4 orablis where emissions are s 390 mg/klift definered beating energy;	Where rainwainr holding facilities and/or seatainable drainage facthriques are used to provide alternation of water rand by SIVs at peak lines to either natural welencourse and/or municipal drainage systems.	Provision of all separations' interceptors or Bitration in areas that are at risk form politicion (i.e., car parks, wester disposal facilities or plant areas.)	All redrigorant types have a Global Warming Potential (GMP) of below 5 or where no refrigorants are present.
Propadle Credits	9	-		2	**	an .	0
S Value	818	23	ā	125 such	ST.	ST.	ži
Credits	11	ar .		*	-	art .	
Description of Credit		Refiguration Delector	Rethipment Recovery	MDs emissions of healing source.	Watersand	Waternare Polition	Publipment GNP
Credit Ref No.	Sta-600	3	2 2	I Z	2	I Z	Z Z



Additional Paquiments	NA.	Details of endernal lighting endernal lighting included in the plors and specification.	Desit of the top of insulation when of insulation, when of insulation, manufacture, and SVIP would need to be provided to the provided to the provided to the subsection of the subsection of the building areas board.		
Potential Additional Ondes	o	-	+	m	6,85%
Design Commitments.	Woodship borness boile will be incorporated and is expected to achieve 10% of the buildings energy contrast. Provide details of biomass boiler and coloubations is confirm 10% energy demand is achieved.	Credt not sought after.	Although there is no current connellment, insulation materials could potentially be specified to achieve this credit.		
Summay of Ordd Requirements Design Commitments .	At least 17% of other the heat domand or the electricity comunitation in the building is supplied from book renewable energy sources.	External lighting to be in compliance with I.E. Guidence Motels for the refuction of obstravior light, 2005 [Ref. 11]; All external lighting can be automatically switched at between 2500 and (1770). Where safety or security lighting is used between these house, the lighting must comply with the lower levels set by the ILE Guidence Notes.	Where insulating materials specified have a GMP of blook of 0. Includes insulation products used in the following areas: • Building flants including (but not exclusively); walks, not, floor, window frames, doors, cavity obsuses and lends; • Building services including (but not exclusively); sales, not, floor, window frames, doors, cavity obsuses and lends; • Building services including (but not exclusively); chilled varier pipework, not and ood value pipes, and water brincs; and • Internal sound prodleg.		
Protestie Credits	-	0	0	1	
S.Vela	128	ā	at a	8.75	52829
Credits		*	#-	17	
Description of Crede	Renewable Energy	Reduction of Night Time Light Pollution	Insulant Occore Depletion Potential (OCP) and Occore Intermity Potential (OWP)		
Credit Ref No.	2	2 2	2	Sub-total:	30184

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SUMMARY OF THE BUILDING PERFORMANCE

7.1.1 Management

The building is expected to perform well under Management issues, achieving 9 credits out of a possible 10. The design team has made a commitment to minimise a number of impacts during construction by complying with the Considerate Constructor Scheme to 'better than industry standards', using sustainably sourced temporary timber and monitoring and reporting on a number of site activities. Provisions will be made for the commissioning stage including a commitment to undertake seasonable commissioning and ensuring all responsibilities for commissioning are passed on to all contractors. A commitment has also been made to provide a simple building users' guide.

7.1.2 Health & Wellbeing

The building is expected to achieve 10 credits out of a possible 15 in this section as a result of various design considerations. These include the specification of: high frequency ballasts; appropriate zoning for lighting, heating and cooling; absence of any humidification, lighting compliant with CIBSE Lighting Guide 7; water and air conditioning systems in compliance with HSE Approved Code of Practice and Guidance L8. The design will also allow for appropriate ventilation rates and indoor ambient noise levels. In addition, a commitment has been made to undertake thermal modelling to inform the building design and form. Points for daylighting and view out were lost due to the expanse of the floorplan and also since not all windows will be openable. Also, although the design incorporates fixed louvers, a credit was withheld due to the absence of occupant controlled blinds.

7.1.3 Energy

The building is expected to achieve 11 out of the 17 credits available for energy issues. The building design allows for energy sub-motering and electrical sub-metering for individual tenants. Due to the early stage of the design, assumptions have been made of the performance of the buildings fabric and form and also the predicted net carbon dioxide emissions. Additional credits may be achieved here although no potential credits have been assumed due to the stage of the design.

7.1.4 Transport

The building is expected to achieve 14 credits out of the 14 available in the Transport category due to the accessibility of the sites location, provision of drying space and showers for cyclists. No additional credits available.

7.1.5 Water

The building is expected to achieve 4 credits out of the 6 available in the Water category, due to the provision of water efficiency measures including a water meter, low flow sanitary ware and sanitary shut-off devices. No additional credits are likely to be achieved here unless further consideration is given to installation of grewwater systems or leak detection systems.

7.1.6 Materials

The building is expected to achieve 5 credits out of a possible 12 in the Materials category of the assessment due to the exclusion of asbestos, suitable storage for recyclable waste, use of sustainable timber and by not installing any floor finishes. Credits were lost due to the materials used in the design which are unlikely to achieve an 'A' rating as defined by BRE's Green Guide to Specification, also since the design is new build and therefore does not re-use an existing structure or façade. Potential points could also be achieved for the provision of adequate recyclable waste storage, the requirements for which



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should be reviewed further as the design progresses. No additional credits are likely to be achieved here without major changes to the design to incorporate 'A' rated materials.

7.1.7 Land Use and Ecology

The building is expected to score 6 credits out of a total possible 11 in the Land Use and Ecology section for the use of previously developed land and use of an appropriately qualified ecologist to provide ecological enhancements to the site and manage the long term biodiversity impacts. Additional credit could be achieved where enhancements to the ecological diversity to achieve a positive change of at loast 6 species can be demonstrated.

7.1.8 Pollution

The building is expected to achieve 7 credits out of a maximum 12 available for Pollution. This section assesses the building against a wide range of issues and commitment has been made to incorporate various initiatives, including the use of biomass to supply at least 10% of the developments energy demand, use of petrol interceptors and attenuation of rainwater runoff, installation of a leak detection system, refrigerant recovery, lighting that is in compliance with institute of Light Engineers (ILE) guidance notes for reduction of light pollution and boilers with dry NOx emissions of less than 89mg/kWh delivered heat energy.

Additional credits could be achieved through specifying boilers with a dry NOx emission of less than 59mg/kWh delivered heat energy, specification of: insulation materials which avoid the use of ozone depleting and global warming substances and external lighting that is compliant with ILE Guidance Notes.

7.2 PROBABLE BREEAM FOR OFFICES RATING

	Minimum Score Required	BREEAM Rating
	26	PASS
Current Rating	40	G000
Current reating	55	VERY GOOD
Potential Rating	70	EXCELLENT

Based on the 'Probable Credits' detailed by this 'Pre-Assessment Estimation', the likely BREEAM for Offices Rating of Building M, Regent's Place, North East Quarter is currently 'Very Good' (with a probable score of 68.09 credits). There are potentially an additional 6 credits available in a variety of different BREEAM gredit areas which would provide a score of 75.04 and a rating of 'Excellent'.

It should be noted that the 'Pre-Assessment Estimator' provides only an estimate of a BREEAM rating. Predicted ratings are likely to change in some credit areas following the formal BREEAM assessment of the latest scheme details and the BRE QA audit.

Please also note that this 'probable score' also currently includes the assumptions detailed in the previous section that were agreed with design team members. Supporting evidence is required in all these cases for the formal BREEAM Assessment and, should firm evidence be unavailable in any area, that credit must be withheld.

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CONCLUSION

Based on the information provided by the design team, the commitments made by them and the assumptions outlined above, the BREEAM Office 2005 Pre-Assessment Estimator has predicted a BREEAM rating of 'Very Good'. The design team must ensure that all the credits that have been committed to are met in order for the rating to be achieved. The design team must also be aware that all information must be documented in either specifications or drawings for these credits to be awarded at the formal assessment stage. In addition credits have been identified that can potentially increase the score to 75.04 which will achieve an 'Excellent' rating

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9. REFERENCES

- Building Research Establishment (BRE), 2003, Control of Dust from Construction and Demolition Activities.
- 2. Environment Agency, PPG6: Working at demolition and construction sites.
- Building Research Establishment (BRE), 2003, Pollution Control Guide Parts 1-5.
- 4. Environment Agency, PPG1: General Guide to the Prevention of Pollution.
- 5. Environment Agency, PPG5: Works in, near or liable to affect watercourse.
- Chartered Institution of Building Services Engineers (CIBSE), 2004, Code for Lighting, Part 2.
- Chartered Institution of Building Services Engineers (CIBSE), 2001, Lighting Guide 3: Addendum 2001, The Society o Light and Lighting 2001.
- CIBSE, 1999, CIBSE Guide Volume A: Design Date.
- 9. CIBSE, 2002, CIBSE TM13: Minimising the risk of legionnaires disease.
- Approved code of practice and guidance L8 'Legionnaires' disease; The control of legionella bacteria in water systems'. HSC 3rd Ed. 2000.
- Environment Agency, Pollution Prevention Guideline (PPG) 3 Use and design of oil separators in surface water drainage systems.
- Institute of Lighting Engineers, 2005, Guidance noire for the reduction of obtrusive light, GN01.



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Appendix A BUILDING USERS GUIDE

User Guide Contents

The list below indicates the type of information that should be included to meet the needs of the Facilities Management (FM) Team/Building Manager and the general users (staff).

1. Building Services Information

- a) General User Information on heating, cooling and ventilation in the building and how these can be adjusted, e.g. thermostat location and use, implications of covering heating outlets with files, bags etc., and use of lifts and security systems.
- FM As above plus, a non technical summary of the operation and maintenance of the building systems (including BMS if installed) and an overview of controls.

2. Emergency Information

- a) General User Include information on the location of fire exits, muster points, alarm systems and fire fighting systems.
- FM As above plus, details of location and nature of emergency and fire fighting systems, pearest emergency services, location of first aid equipment.

3. Energy & Environmental Strategy

This should give owners and occupiers information on energy efficient features and strategies relating to the building, and also provide an overview of the reasons for their use, e.g. economic and environmental savings. Information could include;

- a) General User Information on the operation of innovative features such as automatic blinds, lighting systems etc., and guidance on the impacts of strategies covering window opening and the use of blinds, lighting and heating controls.
- b) FM As above plus, information on airtightness and solar gain (e.g. the impact of leaving windows/doors open in an air-conditioned office, or use of blinds in winter with respect to solar gain); energy targets and benchmarks for the building type, information on monitoring such as the metering and sub-metering strategy, and how to read, record and present meter readings.

4. Water Use

- a) General User details of water saving features and their use and benefits, e.g. aerating taps, low flush tollets, leak detection, metering etc.
- FM As above plus, details of main components (including controls) and operation.
 Recommendations for system maintenance and its importance, e.g. risk of legionella.

5. Transport Facilities

- a) General User details of car-parking and cycling provision; local public transport information, maps and timetables; information on alternative methods of transport to the workplace, e.g. car sharing schemes; local 'green' transport facilities.
- b) FM As above plus, information on conditions of access, maintenance and appropriate use of car parking and cycling facilities, e.g. number of spaces provided. The above information does not need to be included in the user guide if there is a separate dedicated travel information space, accessible to the staff, and in compliance with BREEAM credit TO. However the guide must reference the travel information space, the information provided and its location."



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6. Materials & Waste Policy

- a) General User Information on the location of recyclable materials storage areas and how to use them appropriately.
- b) FM As above plus, information on recycling, including recyclable building/office/fit out components, waste storage and disposal requirements; examples of Waste Management Strategies and any cleaning/maintenance requirements for particular materials and finishes.

7. Re-fit/Re-arrangement Considerations

- a) General User an explanation of the impact of re-positioning of furniture, i.e. may cover grilles/outlets, implications of layout change, e.g. installation of screens.
- b) FM As above plus, environmental recommendations for consideration in any refit. Relevant issues covered in BREEAM should be highlighted, e.g. the use of natural ventilation, use of Green Guide 'A' rated materials, re-use of other materials etc., the potential impact of increasing occupancy and any provision made in the original design to accommodate future changes.

8. Reporting Provision

- a) General User Contact details of FM/manager, maintenance team, and/or help desk facility; and details of any building user group if relevant.
- FM As above plus, contact details of suppliers/installers of equipment and services and their areas of responsibility for reporting any subsequent problems.

9. Training

Details of the proposed content and suggested suppliers of any training and/or demonstrations in the use of the building's services, features and facilities that will be needed. This could include:

- a) General User Training in the use of any innovative/energy saving features.
- FM As above plus, training in emergency procedures and setting up, adjusting, and fine tuning, the systems in the building.

10. Links & References

This should include links to other information including websites, publications and organisations. In particular, the 'Carbon Trust' programme should be referenced and links provided to its website and good practice guidance.

11. General

Where further technical detail may be required by the FM Team or manager there should be references to the appropriate sections in the Operation and Maintenance Manual.

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Appendix B Construction Site Impacts

- Commitment to monitor, report and set targets for CO₂ production or energy use arising from site activities
 - Confirmation is required that monthly measurements of energy use will be recorded and displayed on site.
 - Appropriate target levels of energy consumption must be set and displayed (targets could be annual, monthly, or project targets).
 - c. As a minimum monitoring must include checking the meters and displaying some form of graphical analysis in the site office to show consumption over the project duration and how actual consumption compares to the targets set.
 - d. The design/site management team is to nominate an individual who will be responsible for the monitoring and collection of data.
- Commitment to monitor and report GO₂ or energy arising from commercial transport to and from the site

Confirmation is required that a site monitoring system will be in place to monitor and record deliveries. This system will need to record:

- a. The number of deliveries,
- b. The mode of transport,
- The kilometres/miles travelled for all deliveries.
- Confirmation is required that the site's construction waste is being monitored. Confirmation can either be in the form of:
 - a. a site specific waste policy or procedure,
 - b. specification,
 - c. letter of appointment or
 - d. other formally written document.

Waste must either be:

- a. Re-cycled on site or
- b. sorted on site and collected for recycling locally.
- Confirmation is required that the site's construction waste will be sorted into at least five categories (including ceramics, metals, packaging, concrete, insulation, plaster/cement, timber, chemicals and oils) and recycled / reused as appropriate.

This confirmation can be in the form of a site specific waste policy or procedure, specification, letter of appointment for a waste / recycling contractor, or other formally written document.

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Summary Of BREEAM For Offices Pre-Assessment Estimator For Building M

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6. Commitment to monitor, report and set targets for water consumption arising from site activities

Confirm in writing, that monthly measurements of water consumption will be recorded and displayed on site.

- a. Appropriate target levels of water consumption must be set and displayed.
- b. As a minimum monitoring must include checking the meters and displaying some form of a graphical analysis in the site office to show consumption over the project duration and show actual consumption compares to targets set.
- The design/site management team is to nominate an individual who will be responsible for the monitoring and collection of data.
- Commitments to adopt best practice policies in respect to air (dust) pollution

Confirmation is required of the site's procedures to minimise air / dust pollution. This can include:

- n. 'dust sheets'.
- b. regular proposals to damp down the site in dry weather,
- c. covers to skips etc

The site team must indicate how this information is disseminated to site operatives.

Note: the following publications provide good practice guidelines on construction related pollution.

- Building Research Establishment (BRE), 2003, Control of Dust from Construction and Demolition Activities.
- 14. Environment Agency, PPG6: Working at demolition and construction sites.
- 15. Building Research Establishment (BRE), 2003, Pollution Control Guide Parts 1-5.
- 16. Environment Agency, PPG1: General Guide to the Prevention of Pollution.
- 8. Commitment to adopt best practice policies in respect to water (ground and surface) pollution

Confirmation is required of the site's procedures to minimise water pollution following best practice guidelines outlined in the following documents:

- a. PPG 1 General guide to the prevention of pollution. Environment Agency
- b. PPG 5 Works in, near or liable to affect watercourses. Environment Agency
- e. PPG 6 Working at demolition and construction sites. Environment Agency

The site team must also indicate how this information is disseminated to site operatives.

Commitment to source timber used during construction from sustainably managed sources

75% of timber used during construction, including formwork, site hoardings and other temporary site timber used for the purpose of facilitating construction, is to be procured from sustainably managed sources, such as FSC and PEFC.

- Re-used timber from off site can be counted as equivalent but reusable formwork only complies if it meets the above criteria.
- e. This credit can be awarded where all the timber used is reclaimed timber

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Summary Of BREEAM For Offices Pre-Assessment Estimator For Building M

Appendix C Long Term Impact on Biodiversity

All the mandatory requirements, plus any three of the additional requirements listed below must be achieved.

Mandatory Requirements

A suitably qualified ecologist (as defined in Eco 1-3), appointed prior to commencement of activities on site, must confirm in writing that:

- A) All the relevant UK and EU legislation relating to protection and enhancement of ecology has been complied with during the design and construction process.
- (B) An appropriate management plan covering at least the first 5 years after project completion is produced. This is to be handed over to the building occupents and should include:
- management of any protected features on site;
- management of any new, existing or enhanced habitats; and
- a reference to the current or future site level Biodiversity Action Plan.

Additional Requirements

- (C) The client must require the contractor to appoint a 'Biodiversity Champion' with authority to influence site activities and to ensure impacts on the site biodiversity are minimised in line with an ecologist's recommendations.
- (D) The client must require the contractor to train the site workforce on how to protect the site ecology during the project. Specific training should be carried out for all the site work force to ensure they are aware of how to avoid damaging site ecology. The training should be based on the findings and recommendations for protection of features highlighted within an ecologist's report.
- (E) The client must require the contractor to monitor and record actions taken to protect biodiversity, and their effectiveness throughout key stages of the construction. The requirement should commit the contractor to make such records available where publicly requested.
- (F) The client must require that a new ecologically valuable habitat, appropriate to the local area, is created. This includes habitat that supports nationally, regionally or locally important biodiversity, and/or which is nationally, regionally or locally important. It includes such habitat listed in the UK Biodiversity Action Plan (UK BAP), Local Biodiversity Action Plan (LBAP), those protected within statutory sites (e.g. SSSIs) or those within nonstatutory sites identified in local plans. For further guidance, refer to credit Eco 1-2: 'Change in Ecological Value'.
- (G) The client must require the contractor to programme the site work to minimise disturbance to wildlife. For example site preparation, ground works and landscaping have been or will be scheduled at an appropriate time of year to minimise disturbance to wildlife. Timing of works may have a significant impact on for example, breeding birds, flowering plants, seed germination, amphibians etc. Actions such as phased clearance of vegetation may help to mitigate ecological impacts. This item will be achieved where a clear plan has been produced detailing how activities will be timed to avoid any impact on site biodiversity.
- (H) The client must require that actions to protect/enhance biodiversity take full account of the UK Biodiversity Action Plan(UK BAP), and use local biodiversity experts a help identify ecologically important habitats/species on site. Local biodiversity expertise should be sought at or before design stage, to help identify species of local biodiversity importance on site. It is likely that their recommendations will draw on the Local Biodiversity Action Plan (LBAP) where one exists.

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EcoHomes 2005 Pre-Assessment Estimator

REGENT'S PLACE NORTH EAST QUARTER, LONDON -SOCIAL HOUSING



Author:

Associate Director

EcoHomes 2005 Pre-Assessment Estimator

REGENT'S PLACE NORTH EAST QUARTER, LONDON - SOCIAL HOUSING

Client:

M3 CONSULTING

www.waterman-group.co.uk/we

Pallab Chatterjee BSc (Hons) MSc Reference: EN5031/FV4.1.1 /PC Tatlas Chatterjoe. Senior Consultant & BREEAM Assessor Status: FIRST ISSUE Signature FEBRUARY 2007 Position Date: Checked by: Issued by: Waterman Environmental Steve Brindle BSc (Hons) MSc AlEMA Name Kirkaldy House Position Principal Consultant & BREEAM Assessor 99 Southwark Street London SE1 0JF Approved by: Telephone: 020 70287888 Joanna Bagley BSc (Hons) AIEMA 020 70020081 Name Signature environmental@waterman-group.co.uk

This report has been prepared by Waterman Environmental, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

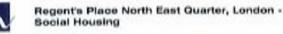
This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.



Regent's Place North East Quarter, London - Social Housing

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EXECUTIVE SUMMARY

Waterman Environmental was commissioned by M3 Consulting, on behalf of British Land, to undertake an EcoHomes 2005 Design and Procurement (D&P) Pre-Assessment Estimator for the social element of the new residential development of Regent's Place North Eastern Quarter, London.

EcoHomes is a voluntary, standard environmental assessment method by which the environmental impact of a residential building is assessed against a range of issues, and credits are awarded where the building achieves a benchmark performance. A building is awarded an EcoHomes rating based on its overall performance expressed as 'Pass', 'Good', 'Very Good' or 'Excellent' depending on the total score achieved.

This report summarises the results of an EcoHomes Pre-Assessment completed for the current scheme design, in order to provide a guick evaluation of the likely EcoHomes rating to be achieved under a formal assessment. M3 Consulting and British Land would like to achieve a 'Very Good' rating and aspire to achieving an 'Excellent' rating.

Based on the information provided, the commitments made by the design team and a number of assumptions, the development known as Regent's Place North Eastern Quarter, London has a predicted EcoHomes score of 69.4% and a rating of 'VERY GOOD'.

The potential credits being awarded for each category based on the commitments made at the Pre-Assessment meeting are summarised below:

- Energy 85% of the credits achieved;
- Transport 100% of the credits achieved;
- Pollution 71.4% of the credits achieved;
- Materials 51.6% of the credits achieved;
- Water 66.7% of the credits achieved;
- Land Use and Ecology = 66.7% of the credits achieved;
- Health and Wellbeing 50% of the credits achieved.

The area that is performing poorer than the others is Health and Wellbeing. Improvements in this area could ensure a rating of 'Excellent' is achieved.

Regent's Place North East Quarter, London -Social Housing

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ASSESSMENT INFORMATION

Nature of Assessment EcoHomes 2005 Design and Procurement Pre-Assessment

Entimator

Name of Building Regent's Place North East Quarter

Address of Building Regent's Place North East Quarter, London

Client M3 Consulting

British Land Developer

Richard Cowan **Project Manager Contact**

Project Manager Address 7 Tokenhouse Yard, London EC2R 7AS

Guy Morgan of Munkenbeck and Marshall Architects **Architect's Contact**

Architect's Address North Building, Gainsborough Studios, One Poole Street

London N1 5EB

Building Services Engineer's Contact Andrew Thrower of Watkins Payne Partnership

Contact Address 51 Staines Road West, Sunbury-on-Thames, Middlesex

TW16 7AH

30, 296m² **Gross External Area**

171 units of which 70 are affordable (social and Occupancy

intermediate).

Details of the Development The development consists of a new build apartment block,

24 storeys in height, containing one bedroom, two bedroom

and three bedroom units.

INTRODUCTION

A design team, including Munkenbeck and Marshall Architects as the Architects and Watkins Payne Partnership as the Building Services Engineers, was commissioned by M3 Consulting on behalf of British Land, for the development of Regent's Place North East Quarter.

The new building will be a mixed use 16 storey office and 24 storey residential development with retail units on the ground floor. The residential units will include one bedroom, two bedroom and three bedroom units. The site is on Drummond Street and Hampstead Road and currently has existing buildings with mixed office and residential use.

M3 Consulting, the project managers of the building, has instructed Waterman Environmental to complete an EcoHomes 2005 Pre-Assessment Estimator for the scheme in order to achieve a desired rating of 'Very Good' and to understand the requirements to achieve an 'Excellent'. This report summarises the results of the Pre-Assessment Estimator, sets out the commitments and assumptions made by the design team during the exercise and highlights areas where the potential exists for additional points to be achieved. The Pre-Assessment Estimator meeting was held on 29 January 2007 with the following members of the design team present:

- Richard Cowan M3 Consulting;
- Andrew Thrower Watkins Payne Partnership (WPP); and
- Guy Morgan Munkenbeck and Marshall Architects (M and M).

METHODOLOGY

The Building Research Establishment (BRE) has developed a voluntary, standard environmental assessment method known as EcoHomes for all dwelling units. The tool assesses the environmental impact of a building against a range of issues and credits are awarded where the building achieves a benchmark performance. EcoHomes seeks to bring about reductions in the environmental impact of buildings through recognition of the business benefits, which can be achieved.

The method addresses impacts of a building on the global, local and indoor environments across a range of issues, grouped under the headings of:

- Energy:
- Transport:
- Water:
- Materials;
- Land Use and Ecology; and
- Pollution:
- Health and Wellbeing.

A building is given a score to indicate its overall environmental performance. This is referred to as the EcoHomes rating which is expressed as 'Pass' (36%), 'Good' (48%), 'Very Good' (58%) and 'Excellent' (70%) depending on the total score awarded. A minimum score is required to achieve a 'Pass' rating. below which an EcoHomes rating is regarded as unclassified.

A Pro-Assessment Estimator provides a guick evaluation of the EcoHomes rating likely to be achieved under a formal assessment. The results can be used to feed into the design process in order to maximise the score achieved; and its completion is a means of monitoring the sustainability performance of the development against this established, independent benchmark. It should be noted that, as the Pre-Assessment Estimator is a simplified version of the full method, it only provides an estimate of the likely EcoHomes rating. As a consequence, the final rating may vary following a formal assessment by a licensed assessor.



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4. REPORT STRUCTURE

The following section, Section 5 summarises the assessment in a table format and highlights the scores and the percentage achieved for each criteria. Section 6, provides a more detailed table of each of the issues assessed by the EcoHomes method. The third column of the table denotes the number of credits available for each issue and the next column provides the percentage value for each credit. This will allow the design team to calculate the score should they choose to alter the design and focus on other credits. The fifth column denotes the number of credits that are likely to be achieved in the full assessment. These credits have been awarded based on the commitments made by the design team during the pre-assessment meeting held on 29 January 2007. A brief description of the credit requirements is provided in the sixth column, followed by the 'design commitments and actions' column which highlights actions for the design team in order to ensure that the credit is achieved at the final assessment stage. The seventh column identifies where there is the potential for additional credits and the final column provides information regarding the additional requirements for these credits to be awarded.

Section 7 of this report describes the performance of the building. This summarises how the scheme is expected to perform under the seven topic headings provided by EcoHomes and highlights areas where improvements to the predicted EcoHomes rating could be made.

The probable and potential EcoHomes rating is provided in Section 8, with overall conclusions presented in Section 9.

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5. SUMMARY TABLE

The table summary below provides the score for each criteria and the percentage of the credit that were awarded during the pre-assessment meeting held on 29 January 2007. These credits have been awarded on the assumption that they will be achieved once the required information is provided at the final Eco-homes assessment stage.

Credit Allocation Table

Overall Credit Allocation	Environmental Weighting	Credits Available	Gredits Assumed	% of the Credit Assumed	Gredits Score
Energy		20	17	85	
Transport		8	8	100	
Sub Total	0.3	28	24	85.7	26.8
Pollution	0.15	7	5	71.4	10.7
Materials	0.15	31	16	51.6	7.7
Water	0.10	6	4	66.7	6.67
Land Use and Ecology	0.15	0	0	66.7	10.0
Health and Wellbeing	0.15	8	4	50	7.5
TOTAL		North House			69.37 %

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SUMMARY OF ECOHOMES PRE-ASSESSMENT ESTIMATOR 6.

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Design Commitments and Actions	Richard Cowan of ILID Consulting stated during the pre-accessment meeting to 25 January 2007 that the social units will contain histories between the social units will contain the Landon Borough of Candon marketis. E-prelix assumed. To action these credits information must be provided confirming that a collection school of the provided confirming that a collection by provided confirming that a collection of the provided confirming that a collection of the provided confirming that a collection of the tracycling to the specified. Note the following confirming the position of the tracycling through a collection of the tracycling to the specified. Note the following internal stronge will be required for Econformer; I strong stronge will be required for Econformer; I strong stronge will be required for Econformer; I strong stronge them; where no includual thin its stradier position within the appartment.	There is no boundary protection and this orall; can be availed by defeat. The makes is such that the protection of the fact about dogs envelope are preciously of rated according to the Green Guide to Housing therefore the other credits carried by awarded. There is not also boundary protection for this credit to be awarded.	
Summay of Credit	Provision of reternal schools only OR Provision of external schools by Authority collection schools any OR Provision of reternal AND external schools for Liccal Authority collection schools for Liccal Authority collection schools	The following elements obtaining an Y. rating from the Chemic Guide for intuation Specification, for 60%, by area of the element. Root External walt. Internal walt. Internal walt. Ploors - upon and ground floor. Window. Edimum surchiding - chievage, paths and patient, and Soundary probedion.	
Probable Credits		¥	20
System	Ch.48 each	Que 55.0	275
Credits	C4 C4 49 49 49	0 0 0 0 0 t t t th	Si
Description of Credit	Recycling of Household Waste	Environmental Ingact of Baterials	
Condit.	C PRE	724	Sub-total:

ENSORIGHT 1PC



Credit Ref No.		T T T T T T T T T T T T T T T T T T T	Wat 2	Sub-total:		Eco 1
Description of Credit	WATER	Internal Water Ute	External Water Use		ECOLOGY	Ecological Value of Site
Credits Available		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	,	9		
System		157 and	ā	5897		181
Probable Credits		n		*	77	0
Summary of Credit Requirements		Less then 50m² per bedepases per year Less then or equal to 45m² per bedepase per year Less then or equal to 40m² per bedepase per year Less then or equal to 30m² per bedepase per year Less then or equal to 30m² per bedepase per year Less then or equal to 30m² per bedepase per year Less then or equal to 30m² per bedepase per year	Rainwater colection system for watering gardens and tendecoped areas, e.g. water bulb, control carnester collection system.			For developing land of inherently low enological value.
Design Commitments and Actions	CONTRACTOR OF THE PARTY OF THE	Anches Thrower of WFP stated during the pre-assessment meeting of 20 January 2007 that water efficient samilary fellings such as dual flush, aerating taps and showing with the fiber ritin will be provided. 3 credit have been assumed. The credits can be awarded if the blowing misosons are undertaken; 64 little dual flush INCs, everating lapar, blowing misosons are undertaken. 64 little dual flush INCs, everating lapar, blowers E and 5 if the flow rate by showing the providents of the fiftings should be shown on the drawings and stated in the specifications.	Anches Thomas of WRP stated during the pre-sessement meeting on 25 January 200 Mark at it in season from the tooks and more than a season so that a serious and serious will be collected in a certification system in the beamment thus the water norder to serious and the season of the EDA of the water norder to the montace of the moral of extrangle system. But the collected variet will be used for mighton purposes. To achieve the credit, provide years from the season of collection of the tomastim collection said develops confirming the took location of the tomastim collection specification of the tomastim collection specification is a memory 200 item, and a minimum 1 like popular for each system of land places in a memory of the each system matter of land places for the each system collection to the dishold places.			The existing site contains these that will be transferred to another site as a part of the demolitor works. Ones not achievable.
Additional Credits		о	0	0		0
Additional Requirements		THE STATE OF THE S	25			NA



Additional Requirements		TÉ	ti.
Potential Additional Credits			o
Design Commitments and Actions	Richard Coware of M3 Connuiting stated during the pre-assentanent meeting on 35 January 2010 that a Registered Ecological Consultant has been consulted for assentant assentant. Consultant has been consulted for assentant assentant. For the credit to be assented the ecologist must be a Full, member of one of the must be a Full, member of one of the final state assentant and a target of the Ecology Region must be provided with details of the ecologist state survey, and the planned works by the control on the survey. Developer must adapt all key as momentations and one 30% of additional meeting additional meeting on the ecologists.	Existing trees on the sile are to be removed as a part of the development. Oreds not achievable.	Richard Covers of M3 Consulting stated during the pre-statesment meeting on 25 January 200 that a Registered Ecological Consultant has been consulted for meeting to 25 separatement has been consulted for the state 20 separatement includes are landscaping on ground level and green rode. The embodical consultant Desid Cooness on ground level and green rode. The embodical consultant Desid Cooness and 15 february 2007, that 5 new spocies will be introduced to the residential site, excluding green rode and rod gardens. It makes have been assumed which refers to 2 change of ecological value between 43 and 49 natural species. Plans of the site and sumounding area always retained and build will be explosed. These should any natural and build statement 3 lets of new species is building schemes. A let of new species to be infractioned must be provided by the ecological.
Summary of Credit Requirements	Enhancing the ecological value of the abile through consultation with an acceptance expect. The ecologist must be FULL member of other. - Association of Wildelle That Consultations (Wildelle That Consultations (Wildelle That Environmental Management (CINEA). - Charlmed behavior of Wildelle of Environmental Management (EEW). - Institute of Ecology and Environmental Management (EEW). - Institute of Environmental Management (EEW).	Ensuing the protection of any existing ecological testures on the site.	For a change of ecological value of between -8 and -3 valued species For a change of ecological value of between -3 and -3 natural species For a change of ecological value of between -3 and -9 natural species For a change of ecological value of greater from -5 natural species.
Probable Credits	-	0	**
N. value	93	19	157 each
Credits Available	-	+	1
Description of Credit	Enthancement	Protection of Ecological Features	Change of Ecological Value of Site
Orect Part No	2 2 2	E00.3	Ero 4

ENSTRUCTING



Credits Symbol Probable Summary of Credits Available Credits Requirements	Building Footprint 1 LEF stach 2 Where 80% of cheelings in the Oversponent have a Floor area of Footprint ratio greater trans 2.51 Where 80% of cheelings in the development have a Floor area Footprint ratio greater trans 2.51	Sub-total: 9 8,26% 6	HEALTH & WELLBEING	Deplighting 1 188 each 1	Sound insulation 1.88 each 2 Where pre-completion leafing is carried out its cample or improve an performance standards in Approved Document E (2003 Estion, Building Regulations England and Riskel). 1 2 least meeting part E requirements 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
System Probable Summary of Credit	167 each 2 Where 60% of dwellings in dwellings in dwellings in frootpoint ratio greater tran 2.5.1 Where 80% of dwellings in development have a Floor a Footpoint ratio greater than 2.5.1	4365		1.88 seuth provision according to the term of the term	1.88 each 2
Probable Summary of Orect Credits Requirements	2 Where 60% of cheelings in development there a Floor a Footprint ratio greater tran 2.5.1 Where 80% of cheelings in development have a Floor a Footbrint ratio greater than 2.5.1			Provision according to the transfer of the tra	**
Summary of Credit	Where 80% of cheelings in development have a Floor a Footprint ratio greater tran 2.5.1 Where 80% of cheelings in development have a Floor a Footbrint ratio greater tran 2.5.1	40		Provision according to the first the student student student or the first student or them.	
	A A			Provision of adequate deplipment according to \$55 SCRE pot in: In the kitchen In the kinds rooms, deling rooms studies View of sky in all above rooms	Where pre-completion leafing is can out it examply or improve an out becomes to improve an out becomes standards in Approved Document E (2000 Editor). A Steak meeting part E requirements. 3 Steak meeting part E requirements. 3 Steak meeting part E requirements. 3 Steak stooms 368 shiper an impact 368 loses than part E requirements. 3 Steak stooms 568 loses than part E requirements. 3 Steak stooms 568 loses than part E requirements. 3 Steak stooms 568 loses than part E requirements.
Design Commitments and	2012		1000	8 8	y v v s
Actions	The building is 2N stoneys high and will achieve it credits. M and lift by provide the total foot area for the whole building housing the office and commercial element. M and It to provide the building brotphist and provide drawings showing dimensioned floor plane.			Richard Cowen of Idd Consulting stated why the presentement meeting on 25 January 2001 that confighting coloudions will be understaken. The design harm stated but the prosition of the faths will allow the living scores to achieve a design tooms and dening scores to achieve a design factor of 1.5%. Therefore 1 under the but more assumed. Cuclusters are required to confirm that the designt factor of 1.5% is achieved in the designt factor of the provider Set by the conditions.	Richard Cowan of NG Compuling states during the pre-excelent et meeting on 25 January 2007 that accordic consultants will be undertaking 5 and of pre-completion testing to meet Plant E. 2 countle assistants. These credits will be assisted once within statement by the assistant pre-completion that have been provided to confirm pre-completion testing will be undertaken meeting part E. moplements.
Potential Additional Credits	o	o		0	
Additional Requirements	sa sa			NO.	Recommendations made by the accounting constablant is advised the adviser the adviser the adviser that are at least 3 de higher that are at least 3 de highe

Additional Requirements		NA.		
Potential Additional Credits				2 (4.02%)
Design Commitments and Actions		Richard Covan of M2 Consulting stated during the per-processment meeting on 29-connumy 2007 that a semi-private communal area will be previously as well as belicaries and nod heraces. Wand life confirm the size of the space manths the following moultainments. — Private space 1.5 m/Sedepoze (i.e., number of cooperate the three is despited but incinium and if hope elegand but incinium and if hope elegand but minimum and if hope elegand elegand but minimum and if hope elegand in the homes saved by the space). The space must be accessible to the minimum the her goods. The space must be accessible to the confirm.		
Summary of Credit Requirements	-thadigns	Provision of outside space that is at least partially private.		
Probable Credits		-	*	9t
N.value		8	7.52%	20.4%
Credits Averable		-	9	88
Description of Crede		Private Space		
Coeds Ref. No.		Head	Sub-total:	TOTAL



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7. SUMMARY OF THE BUILDING PERFORMANCE

7.1.1 Energy

The building is expected to perform well under Energy issues (16 credits out of a possible 20 can potentially be awarded). There is a commitment for the building to achieve less than 25 kg/m²/yr for carbon dioxide emissions and for a building envelope performance improvement of at least 15% compared to 2002 Building Regulations part L1. The developers will provide all social and intermediate units with information regarding energy efficient white goods and will provide energy efficient internal and external lighting.

7.1.2 Transport

The building is expected to achieve maximum 8 out of 8 credits on Transport related issues. This is primarily due to the excellent location of the development since it is within 500m of Warren Street and Great Portland Street tube stations and is a ten minutes walk from Euston station. The site is also serviced by at least eight bus routes along Euston Road. In addition, the design team are committed to providing cycle storage for 95% of the dwellings and space for home office provision in all units.

7.1.3 Pollution

The building is expected to achieve 5 credits out of a maximum 7 available for Pollution. This section assesses the building against a wide range of pollution issues, and commitment has been made to incorporate various initiatives, including the use of an efficient boiler and the attenuation of rainwater from roofs and hard surfaces, to be collected in a central storage system.

Potential credit: An additional credit can be achieved if the design team were to use insulating material with a zero Ozone Depleting Potential (ODP) and a Global Warming Potential (GWP) of less than 5. This credit is recommended to achieve an 'Excellent' rating.

7.1.4 Materials

The building achieves 16 credits out of a possible 31 in the materials category. The complete materials specification and the percentage areas covered have yet to be provided for the building elements. However, based on discussions with the architect a general description of the materials revealed that the majority of materials proposed used would achieve a 'B' rating according to the 'Green Guide to Housing Specification'. The design team has committed to using 100% FSC timber as a part of the developers requirements. The design will also integrate the dedicated space for internal recycling bins in all the units.

7.1.5 Water

The building is expected to score at least 4 out of 6 credits in the Water category. The design team has committed to providing water efficient sanitary fittings such as dual flush WCs, aerating taps and showers with a flow rate between 6 and 9 litres. The design will also be providing a central rainwater collection system for watering the gardens.

7.1.6 Land Use and Ecology

The building is expected to perform well under the Land Use and Ecology category scoring 6 credits out of a possible 9. The proposed building has the advantage of being developed on a site that consists of existing buildings and hard landscaping, however the site does contain trees of over 1m height and therefore according to the EcoHomes Ecological Value checklist, cannot be regarded as having low of scological value. The developer is endeavouring to improve the landscape of the site and has employed



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the assistance of an ecologist to enhance the biodiversity of the site. It is proposed to include extensive landscaping, green roofs and roof gardens.

7.1.7 Health and Wellbeing

The building is expected to score 4 credits out of a total possible 8 in the Health and Wellbeing section. The units are expected to achieve a daylight factor of at least 1,5% in the living rooms and dining rooms. Private space will also be provided in the form of private gardens and communal gardens for the residents only. Currently the scheme is committing to undertaking sound insulation pre-completion testing and will include for 3 tests meeting part E requirements.

Potential credit: The design may consider committing to achieving airborne sound insulation values that are at least 3dB higher, and impact sound insulation values that are 3dB lower, than the performance standards in Approved Document E(2003 Edition). This credit is recommended to achieve an 'Excellent' rating.

8. PROBABLE ECOHOMES RATING

	Points Score	EcoHomes Rating
	36	PASS .
	48	G00D
Current Predicted	58	VERY GOOD
Rating	70	EXCELLENT

Based on the 'Probable Points' detailed in this report, the likely EcoHomes rating of Regent's Place North East Quarter is currently 'Very Good' (with a score of 69.4%).

Conclusion

Based on the information provided by the design team, the commitments made by them and the assumptions outlined above, the EcoHomes 2008 Pre-Assessment has predicted a rating of 'Very Good'. The design team must ensure that all the credits that have been committed to are met in order for the rating to be achieved. The design team must also be aware that all information must be documented in either specifications or drawings for these credits to be awarded at the formal assessment stage.

In addition credits have been identified that can potentially increase the score to 73.4%, which will achieve an 'Excellent' rating. The additional requirements will include exceeding sound insulation requirements and using insulating materials with a GWP less than 5.

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EcoHomes 2005 Pre-Assessment Estimator

REGENT'S PLACE NORTH EAST QUARTER, LONDON -INTERMEDIATE HOUSING



EcoHomes 2005 Pre-Assessment Estimator

REGENT'S PLACE NORTH EAST QUARTER, LONDON -INTERMEDIATE HOUSING

Client

M3 CONSULTING

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EXECUTIVE SUMMARY

Waterman Environmental was commissioned by M3 Consulting, on behalf of British Land, to undertake an EcoHomes 2005 Pre-Assessment Estimator for the Intermediate element of the new residential development of Regent's Place North Eastern Quarter, London.

EcoHomes is a voluntary, standard environmental assessment method by which the environmental impact of a residential building is assessed against a range of issues, and credits are awarded where the building achieves a benchmark performance. A building is awarded an EcoHomes rating based on its overall performance expressed as 'Pass', 'Good', 'Very Good' or 'Excellent' depending on the total score achieved.

This report summarises the results of an EcoHomes Pre-Assessment completed for the current scheme design, in order to provide a quick evaluation of the likely EcoHomes rating to be achieved under a formal assessment. M3 Consulting and British Land would like to achieve a 'Very Good' rating and aspire to achieving an 'Excellent' rating.

Based on the information provided, the commitments made by the design team and a number of assumptions, the development known as Regent's Place North Eastern Quarter, London has a predicted EcoHomes score of 69.4% and a predicted rating of 'VERY GOOD'.

The potential credits being awarded for each category based on the commitments made at the Pre-Assessment meeting are summarised below:

- . Energy 85% of the credits achieved;
- Transport = 100% of the credits achieved;
- Pollution 71.4% of the credits achieved;
- Materials 51.6% of the credits achieved;
- Water = 66.7% of the credits achieved;
- Land Use and Ecology 66.7% of the credits achieved;
- Health and Wellbeing 50% of the credits achieved.

The area that is performing poorer than the others is Health and Wellbeing. Improvements in this area could ensure a rating of 'Excellent' is achieved.

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1. ASSESSMENT INFORMATION

Nature of Assessment EcoHomes 2005 Design and Procurement Pre-Assessment

Estimator

Name of Building Regent's Place North East Quarter

Address of Building Regent's Place North East Quarter, London

Client M3 Consulting

Developer British Land

Project Manager Contact Richard Cowan

Project Manager Address 7 Tokenhouse Yard, London EC2R 7AS

Architect's Contact Guy Morgan of Munkenbeck and Marshall Architects

Architect's Address North Building, Gainsborough Studios, One Poole Street,

London N1 5EB

Building Services Engineer's Contact Andrew Thrower of Watkins Payne Partnership

Contact Address 51 Staines Road West, Sunbury-on-Thames, Middlesex

TW16 7AH

Gross External Area 30, 296m²

Occupancy 171 units of which 70 are affordable (social and

intermediate).

Details of the Development The development consists of a new build apartment block,

24 storeys in height, containing one bedroom, two bedroom

and three bedroom units.

INTRODUCTION

A design team, including Munkenbeck and Marshall Architects as the Architects and Watkins Payne Partnership as the Building Services Engineers, was commissioned by M3 Consulting on behalf of British Land, for the development of Regent's Place North East Quarter.

The new building will be a mixed use 16 storey office and 24 storey residential development with retail units on the ground floor. The residential units will include one bedroom, two bedroom and three bedroom units. The site is on Drummond Street and Hampstead Road and currently has existing buildings with mixed office and residential use.

M3 Consulting, the project managers of the building, has instructed Waterman Environmental to complete an EcoHomes 2005 Pre-Assessment Estimator for the scheme in order to achieve a desired rating of 'Very Good' and to understand the requirements to achieve an 'Excellent'. This report summarises the results of the Pre-Assessment Estimator, sets out the commitments and assumptions made by the design team during the exercise and highlights areas where the potential exists for additional points to be achieved. The Pre-Assessment Estimator meeting was held on 29 January 2007 with the following members of the design team present:

- Richard Cowan M3 Consulting;
- · Andrew Thrower Watkins Payne Partnership (WPP); and
- . Guy Morgan Munkenbeck and Marshall Architects (M and M).

METHODOLOGY

The Building Research Establishment (BRE) has developed a voluntary, standard environmental assessment method known as EcoHomes for all dwelling units. The tool assesses the environmental impact of a building against a range of issues and credits are awarded where the building achieves a benchmark performance. EcoHomes seeks to bring about reductions in the environmental impact of buildings through recognition of the business benefits, which can be achieved.

The method addresses impacts of a building on the global, local and indoor environments across a range of issues, grouped under the headings of:

- Health and Wellbeing;
- Energy;
- · Transport:
- Water:
- · Materials;
- Land Use and Ecology; and
- Pollution.

A building is given a score to indicate its overall environmental performance. This is referred to as the EcoHomes rating which is expressed as 'Pass' (36%), 'Good' (48%), 'Very Good' (58%) and 'Excellent' (70%) depending on the total score awarded. A minimum score is required to achieve a 'Pass' rating, below which an EcoHomes rating is regarded as unclassified.

A Pre-Assessment Estimator provides a quick evaluation of the EcoHomes rating likely to be achieved under a formal assessment. The results can be used to feed into the design process in order to maximise the score achieved; and its completion is a means of monitoring the sustainability performance of the development against this established, independent benchmark. It should be noted that, as the Pre-Assessment Estimator is a simplified version of the full method, it only provides an estimate of the likely EcoHomes rating. As a consequence, the final rating may vary following a formal assessment by a licensed assessor.



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4. REPORT STRUCTURE

The following section, Section 5 summarises the assessment in a table format and highlights the scores and the percentage achieved for each criteria. Section 6, provides a more detailed table of each of the issues assessed by the EcoHomes method. The third column of the table denotes the number of credits available for each issue and the next column provides the percentage value for each credit. This will allow the design team to calculate the score should they choose to alter the design and focus on other credits. The fifth column denotes the number of credits that are likely to be achieved in the full assessment. These credits have been awarded based on the commitments made by the design team during the pre-assessment meeting held on 29 January 2007. A brief description of the credit requirements is provided in the sixth column, followed by the 'design commitments and actions' column which highlights actions for the design team in order to ensure that the credit is achieved at the final assessment stage. The seventh column identifies where there is the potential for additional credits and the final column provides information regarding the additional requirements for these credits to be awarded.

Section 7 of this report describes the performance of the building. This summarises how the scheme is expected to perform under the seven topic headings provided by EcoHomes and highlights areas where improvements to the predicted EcoHomes rating could be made.

The probable and potential EcoHomes rating is provided in Section 8, with overall conclusions presented in Section 9.

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S. SUMMARY TABLE

The table summary below provides the score for each criteria and the percentage of the credit that were awarded during the pre-assessment meeting held on 29 January 2007. These credits have been awarded on the assumption that they will be achieved once the required information is provided at the final EcoHomes assessment stage.

Credit Allocation Table

Overall Credit Allocation	Environmental Weighting	Credits Available	Credits Assumed	% of the Gredit Assumed	Credits Score
Energy		20	17	85	
Transport		8	8	100	
Sub Total	0.3	26	24	85.7	26.8
Pollution	0.15	7	5	71.4	10.7
Materials	0.15	31	16	51.6	7.7
Water	0.10	6	4	66.7	6.67
Land Use and Ecology	0.15	9	0	66.7	10.0
Health and Wellbeing	0.15	8	4	50	7,5
TOTAL		The state of	He die		69.37 %

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SUMMARY OF ECOHOMES PRE-ASSESSMENT ESTIMATOR ú

Additional Requirements		NO.	MA
Adelional		0	e
Design Commitments and Actions		Andrew Throser of NPP stand during the presencement meeting of 128 January 2007 that the development will be 10 to 15% more efficient than new Part I. Building Progulations. This is likely to achieve O.O., endeaton of less than or endeated in 25 Sylphi's, therefore 1 condits have been assumed. Therefore 1 condits have been assumed, as Sylphican or assessor. Andrew Throsen has stalled that assessor. Andrew Throsen has stalled that assessor with the Sylphican according to order to calculate the credit of devicable for energy sight filtings will be provided for the burry, with the and only it humstered stands or dedicated ONL it furnescent stay lamps or dedicated only of American stands or dedicated only and Cassings or a according Appropriate Cassings or specifications must be provided to confirm approaches.	renegal lighting. Andrew Throater of WPP stated during the pre-assessment meeting on 30 January 2007 that decided and an explainment meeting on 30 January 2007 that the adolphing will achieve a 15% improvement tampened to 2002 Building megalithous part L1.1 5 credits have them assessment must be averable, a 5AP assessment must be averabled, a 5AP assessment must be averabled by an execution 5 AP assessment in the Euclidean by an exception of the parent of the parent beautiful and the averaged by an exception of the assessment in the Euclidean State of the Euclidean S
Summary of Credit Requirements		Points, are asserted on the book of Sup 2000 resided average CO, entialous in acconditions with the biblowing cirkes. Less trans or equal to \$5 topin'ly:	Percent improvement somes the site in relevant building regulations. That it is supported with relevant building regulations. England and Wales 2002 Building regulations part L1. Southant Part J of the Technical Sandards (F Technical Sanda
Probable Credits	一川の大松		
%value		03 H	137 each
Credits	1000	* * * * * * * * * * * * * * * * * * * *	i
Description of Credit	BNERGY	Carbon Dicarde Enissions	Suidding Envelope Performance
Condition No.	THE STATE OF	200	Est 2



Additional Requirements		NO.	150	NA
Potential Additional Oredts			0	0
Design Commitments and Actions	the oracle.	Anches Thoser of WPP stand during the pre-seismonth meliting on 25 January 2001 that hermal orying space will be provided. To obtain this credit a line faring over the bath must be provided with an extract fare highlightest. This information must be highlightest. This information must be highlightest. This information must be highlightest in outpin drawings and specifications.	Richard Cowan of MD Consulting strend during the presencement method on 35 danuary 2007 that /K caref white proofs will be provided only in the private units, who were all affordable units will be provided with information about energy provided with information about energy information about energy information about energy information for the private developing will be including, and a shortable developing will be energial to the provided confining will be asserted information. Dealth will be asserted information to the provided confining product and performance orbest, information to be provided to the affective developing and manufacturer's information for the white goods.	Andrew Thrower of WRP stated during the pre-assemblent meeting on 29 January 2007bed all enteresting will meet requirements. 2 Dealths spring will meet suppliements. 2 Dealths spring meet Clease from specification and changes are required to confirm the layer of lighting, are required to confirm the layer of lighting, broadco and details. Provide manufacturer's literature to confirm layer of filtings.
Summary of Gredit Requirements	- 15 inprvenet - 15 inprvenet - 15 inprvenet	Points are awarded for providing space and pools, bothings and feings for drying dother in a secure environment for each write on the site. This may be external or internal.	Provision of eco labelled while goods with a bibliography dency; statings: • All widoos, freezers, kidgo-freezers with an X stating • All westing machines, and debuschers where supplied, with a control of provision of control of provision and transfer dryvers with a rating of \$6 or higher. OR while dryvers with a rating of \$6 or higher	Space lighting all space lighting is specifically compact fluorescent lamps (CPL) Security lighting all introder lighting to be 150 wath maximum and be fitted with PIR and day light secure and all other type of security lighting to
Probable Credits	10	+	~	4
Syabe		101	1.IT each	157 each
Credits	5 Mar 5	-	8- Z	
Description of Credit		pying Space	Eco Labelled White Goods	External Lighting
Coedit Ref. No.		Ene 3	Fire 4	E a c



Credit Description of Ref. No. Credit		Sub-total:	TRANSPORT	Tra 1 Public Transport	Tra 2 Cycle Storage	Tra 3 Local Amenities
Available	Max 2	8		1	- 8 - F	
System		2225		1.07 each	1.07 each	1.07 each
Probable Credits		11		м	M	2
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Additional Requirements		NA	NO.
Potential Additional Credits	0	0	9
Design Commitments and Actions	Richard Cowan of M3 Consulting stated among the control of the consultant has been consultant meeting to 129 among the properties of Consultant has been consultant for the past 1 consultant as assumed. For the credit to be assumed, the emologist meeting the 2 FULL member of one of the meetings of the Emologist meetings of the Emologist and the credit of the Emologist works by the developer death of this survey. Developer meetings and the planned works by the developer themsel on this survey. Developer meetings of the emologist is they address the planned and constitution and one 20% of additional recommendations made by the ecologist.	Existing thess on the side are to be namowed as a part of the development. Oneth not achievable.	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 23 January 2007 that is Registered Ecological Consultant passes been consulted for entancoeners of the Site. Site entancoeners of the Site Site in the Site Site on ground large and green took. The ecological consulted Divid Coemes on ground large and green took. The ecological consulted Divid Coemes of EDOO Design has stated by e-rail. The ecological consulted Divid Coemes of EDOO Design has stated by e-rail. The ecological consulted Divid Coemes of EDOO Design has stated by e-rail. The ecological consulted Divid Coemes of EDOO Design has stated to the excidential side ecological and a stated with the excitential side ecological and the proposed by the ecological consulted and any proposed by the ecological count has proposed for the stated of the ecological count has proposed for the stated count of the ecological count has provided in the specifical to the supposed particles to be introduced must be provided for the specifical to be introduced must be provided by the ecological.
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Nedae	1.57 each	835%		135 each	100 807
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Addbonal Requirements	NA.			48	Recommendations made by the abounding consultent to achieve the airborne sound insulation relates that as as it sheat 3 of shown in the abounding that are at least 3 of leave, then part E. must be provided.

Additional Requirements		м		
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Probable Summary of Credit Credits Requirements	stebote.	Provision of outside space that is at least partially private.		
Probable Credits		*	7	R
% value		9	7.525	1910
Credits		**		22
Description of Condition		Private Space		
Coedt Ref No		±	Sub-total:	TOTAL



Regent's Place North East Quarter, London -Intermediate Housing

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SUMMARY OF THE BUILDING PERFORMANCE

7.1.1 Energy

The building is expected to perform well under Energy issues (16 credits out of a possible 20 can potentially be awarded). There is a commitment for the building to achieve less than 25 kg/m²/yr for carbon dioxide emissions and for a building envelope performance improvement of at least 15% compared to 2002 Building Regulations part L1. The developers will provide all social and intermediate units with information regarding energy efficient white goods and will provide energy efficient internal and external lighting.

7.1.2 Transport

The building is expected to achieve maximum 8 out of 8 credits on Transport related issues. This is primarily due to the excellent location of the development since it is within 500m of Warren Street and Great Portland Street tube stations and is a ten minutes walk from Euston station. The site is also serviced by at least eight bus routes along Euston Road. In addition, the design team are committed to providing cycle storage for 95% of the dwellings and space for home office provision in all units.

7.1.3 Pollution

The building is expected to achieve 5 credits out of a maximum 7 available for Pollution. This section assesses the building against a wide range of pollution issues, and commitment has been made to incorporate various initiatives, including the use of an efficient boiler and the attenuation of rainwater from roofs and hard surfaces, to be collected in a central storage system.

Potential credit: An additional credit can be achieved if the design team were to use insulating material with a zero Ozone Depleting Potential (ODP) and a Global Warming Potential (GWP) of less than 5. This credit is recommended to achieve an 'Excellent' rating.

7.1.4 Materials

The building achieves 16 credits out of a possible 31 in the materials category. The complete materials specification and the percentage areas covered have yet to be provided for the building elements. However, based on discussions with the architect a general description of the materials revealed that the majority of materials proposed would achieve a 'B' rating according to the 'Green Guide to Housing Specification'. The design team has committed to using 100% FSC timber as a part of the developers requirements. The design will also integrate the dedicated space for internal recycling bins in all the units.

7.1.5 Water

The building is expected to score at least 4 out of 6 credits in the Water category. The design team have committed to providing water efficient senitary fittings such as dual flush WCs, aerating taps and showers with a flow rate between 6 and 9 litres. The design will also be providing a central rainwater collection system for watering the gardens.

7.1.6 Land Use and Ecology

The building is expected to perform well under the Land Use and Ecology category scoring 6 credits out of a possible 9. The proposed building has the advantage of being developed on a site that consists of existing buildings and hard landscaping, however the site does contain trees of over 1m height and therefore according to the Eco-Homes Ecological Value checklist, cannot be regarded as having low of ecological value. The developer is endeavouring to improve the landscape of the site and has employed



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the assistance of an ecologist to enhance the biodiversity of the site. It is proposed to include extensive landscaping, green roofs and roof gardens.

7.1.7 Health and Wellbeing

The building is expected to score 4 credits out of a total possible 6 in the Health and Wellbeing section. The units are expected to achieve a daylight factor of at least 1.5% in the living rooms and dining rooms. Private space will also be provided in the form of private gardens and communal gardens for the residents only. Currently the scheme is committing to undertaking sound insulation pre-completion testing and will include for 3 tests meeting part E requirements.

Potential credit: The design may consider committing to achieving airborne sound insulation values that are at least 3dB higher, and impact sound insulation values that are 3dB lower, than the performance standards in Approved Document E(2003 Edition). This credit is recommended to achieve an 'Excellent' rating.

8. PROBABLE ECOHOMES RATING

	Points Score	EcoHomes Rating
	36	PASS
	4.6	G000
Current Predicted	58	VERY GOOD
Rating	70	EXCELLENT

Based on the 'Probable Points' detailed in this report, the likely EcoHomes rating of Regent's Place North East Quarter is currently 'Very Good' (with a score of 69.4%).

Conclusion

Based on the information provided by the design team, the commitments made by them and the assumptions outlined above, the EcoHomes 2005 Pre-Assessment has predicted a rating of 'Very Good'. The design team must ensure that all the credits that have been committed to are met in order for the rating to be achieved. The design team must also be aware that all information must be documented in either specifications or drawings for these credits to be awarded at the formal assessment stage.

In addition credits have been identified that can potentially increase the score to 73.4%, which will achieve an "Excellent" rating. The additional requirements will include exceeding sound insulation requirements and using insulating materials with a GWP less than 5.

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EcoHomes 2005 Pre-Assessment Estimator

REGENT'S PLACE NORTH EAST QUARTER, LONDON -MARKET HOUSING



EcoHomes 2005 Pre-Assessment Estimator

REGENT'S PLACE NORTH EAST QUARTER, LONDON - MARKET HOUSING

Client

M3 CONSULTING

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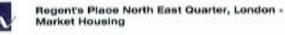
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Regent's Place North East Quarter, London - Market EN5031 Housing

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EXECUTIVE SUMMARY

Waterman Environmental was commissioned by M3 Consulting, on behalf of British Land, to undertake an EcoHomes 2005 Design and Procurement Estimator for the Market element of the new residential development of Regent's Place North Eastern Quarter, London.

EcoHomes is a voluntary, standard environmental assessment method by which the environmental impact of a residential building is assessed against a range of issues, and credits are awarded where the building achieves a benchmark performance. A building is awarded an EcoHomes rating based on its overall performance expressed as 'Pass', 'Good', 'Very Good' or 'Excellent' depending on the total score achieved.

This report summarises the results of an EcoHomes Pre-Assessment completed for the current scheme design, in order to provide a quick evaluation of the likely EcoHomes rating to be achieved under a formal assessment. M3 Consulting and British Land would like to achieve a 'Very Good' rating and aspire to achieving an 'Excellent' rating.

Based on the information provided, the commitments made by the design team and a number of assumptions, the development known as Regent's Place North Eastern Quarter, London has a predicted EcoHomes score of 69.4% and a predicted rating of 'VERY GOOD'.

The potential credits being awarded for each category based on the commitments made at the Pre-Assessment meeting are summarised below:

- Energy 85% of the credits achieved;
- Transport = 100% of the credits achieved;
- Pollution = 71.4% of the credits achieved;
- Materials 51.6% of the credits achieved;
- Water 66.7% of the credits achieved;
- Land Use and Ecology 66.7% of the credits achieved;
- Health and Wellbeing 50% of the credits achieved.

The area that is performing poorer than the others is Health and Wellbeing. Improvements in this area could ensure a rating of 'Excellent' is achieved.



Regent's Place North East Quarter, London -Market Housing

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Assessment Information

Nature of Assessment EcoHomes 2005 Design and Procurement Pre-Assessment

Estimator

Name of Building Regent's Place North East Quarter

Address of Building Regent's Place North East Quarter, London

Client M3 Consulting

Developer British Land

Project Manager Contact Richard Cowan

Project Manager Address 7 Tokenhouse Yard, London EC2R 7AS

Architect's Contact Guy Morgan of Munkenbeck and Marshall Architects

Architect's Address North Building, Gainsborough Studios, One Poole Street,

London N1 5EB

Building Services Engineer's Contact Andrew Thrower of Watkins Payne Partnership

Contact Address 51 Staines Road West, Sunbury-on-Thames, Middlesex

TW16 7AH

Gross External Area 30, 296m²

Occupancy 171 units of which 101 are market dwellings.

24 storeys in height, containing one bedroom, two bedroom

and three bedroom units.



Regent's Place North East Quarter, London -Market Housing

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2. INTRODUCTION

A design team, including Munkenbeck and Marshall Architects as the Architects and Watkins Payne Partnership as the Building Services Engineers, was commissioned by M3 Consulting on behalf of British Land, for the development of Regent's Place North East Quarter.

The new building will be a mixed use 16 storey office and 24 storey residential development with retail units on the ground floor. The residential units will include one bedroom, two bedroom and three bedroom units. The site is on Drummond Street and Hampstead Road and currently has existing buildings with mixed office and residential use.

M3 Consulting, the project managers of the building has instructed Waterman Environmental to complete an EcoHomes 2005 Pre-Assessment Estimator for the scheme in order to achieve a desired rating of 'Very Good' and to understand the requirements to achieve an 'Excellent'. This report summarises the results of the Pre-Assessment Estimator, sets out the commitments and assumptions made by the design team during the exercise and highlights areas where the potential exists for additional points to be achieved. The Pre-Assessment Estimator meeting was held on 29 January 2007 with the following members of the design team present:

- Richard Cowan M3 Consulting;
- Andrew Thrower Watkins Payne Partnership (WPP); and
- Guy Morgan Munkenbeck and Marshall Architects (M and M).

METHODOLOGY

The Building Research Establishment (BRE) has developed a voluntary, standard environmental assessment method known as EcoHomes for all dwelling units. The tool assesses the environmental impact of a building against a range of issues and credits are awarded where the building achieves a benchmark performance. EcoHomes seeks to bring about reductions in the environmental impact of buildings through recognition of the business benefits, which can be achieved.

The method addresses impacts of a building on the global, local and indoor environments across a range of issues, grouped under the headings of:

- · Health and Wellbeing:
- · Energy;
- Transport;
- Water;
- Materials:
- Land Use and Ecology; and
- Pollution

A building is given a score to indicate its overall environmental performance. This is referred to as the EcoHomes rating which is expressed as 'Pass' (36%), 'Good' (48%), 'Very Good' (58%) and 'Excellent' (70%) depending on the total score awarded. A minimum score is required to achieve a 'Pass' rating, below which an EcoHomes rating is regarded as unclassified.

A Pre-Assessment Estimator provides a quick evaluation of the EcoHomes rating likely to be achieved under a formal assessment. The results can be used to feed into the design process in order to maximise the score achieved; and its completion is a means of monitoring the sustainability performance of the development against this established, independent benchmark. It should be noted that, as the Pre-Assessment Estimator is a simplified version of the full method, it only provides an estimate of the likely EcoHomes rating. As a consequence, the final rating may vary following a formal assessment by a licensed assessor.



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4. REPORT STRUCTURE

The following section, Section 5 summarises the assessment in a table format and highlights the scores and the percentage achieved for each criteria. Section 6, provides a more detailed table of each of the Issues assessed by the EcoHomes method. The third column of the table denotes the number of credits available for each issue and the next column provides the percentage value for each credit. This will allow the design team to calculate the score should they choose to after the design and focus on other credits. The fifth column denotes the number of credits that are likely to be achieved in the full assessment. These credits have been awarded based on the commitments made by the design team during the pre-assessment meeting held on 29 January 2007. A brief description of the credit requirements is provided in the sixth column, followed by the 'design commitments and actions' column which highlights actions for the design team in order to ensure that the credit is achieved at the final assessment stage. The seventh column identifies where there is the potential for additional credits and the final column provides information regarding the additional requirements for these credits to be awarded.

Section 7 of this report describes the performance of the building. This summarises how the scheme is expected to perform under the seven topic headings provided by EcoHomes and highlights areas where improvements to the predicted EcoHomes rating could be made.

The probable and potential EcoHomes rating is provided in Section 8, with overall conclusions presented in Section 9.

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S. SUMMARY TABLE

The table summary below provides the score for each criteria and the percentage of the credit that were awarded during the pre-assessment meeting held on 29 January 2007. These credits have been awarded on the assumption that they will be achieved once the required information is provided at the final Eco-Homes assessment stage.

Credit Allocation Table

Overall Gredit Allocation	Environmental Weighting	Credits Available	Credits Awarded	% of the Credit Awarded	Credits Score
Energy		20	17	86	
Transport		0	0	100	
Sub Total	0.3	28	24	85.7	26.8
Pollution	0.15	7	5	71.4	10.7
Materials	0.15	31	16	51.6	7.7
Water	0.10	6	4	66.7	6.67
Land Use and Ecology	0.15	9	6	66.7	10.0
Health and Wellbeing	0.15	8	4	50	7.6
TOTAL	1	Total Til	NAME OF TAXABLE PARTY.		69.37 %

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SUMMARY OF ECOHOMES PRE-ASSESSMENT ESTIMATOR 0.

Design Commitments and Actions		Anches Thrower of WPP states during the pre-accessment meeting on 25 January 2007 that the development will be 15 to	15% more efficient fram new Part L. Sutdone Reculations. This is likely to	achieve CO ₂ emissions of less than or equal to 25 kolm?lyr, therefore 7 credits			must be undertaken by an accredited SAP assessor. Andrew Thrower has stated that		assessor with the SAP worldheets in order to calculate the credit.	in addition WPP must ensure that dedicated lose enems light fiftens will be		CNLY fuorescent strip lamps or dedicated compact fluorescent lamps will be	accepted. Appropriate drawings or specifications must be provided to confirm the details and the location of the low enemy location.	-		For coulds to be awarded, a SAP assessment must be undertaken by an accessment fould personner SAP.	worksheets should be given to the Euphornes assessor in order to calculate
Summary of Credit. Requirements	The state of the s	Points are awarded on the basis of SAP 2005 related average CO ₂ emissions in accordance with the following otheric.	 Less transpropriet and telepholy 	 Less than or equal to SChaptrity 	 Less than or equal to 45 kg/m²/yr 	 Less than or equal to 35 agently 	· Less Barror equel to 20 lightly	 Less than or equal to 27 light by 	· Lesten oregal b 23 kgm/y	 Less transmissib Zilight İyr 	 Less than or equal to 10 kg/m/ly 	Less france equal bit	Alueb	Percent improvement across the site in average U-salar compared with referred building regulations.	fluid to: England and Mains 2002 Building	Souther Part J of the Technical Standards (6" amendment)	- 3% inprovement - 6% inprovement
Probable Credits									+								
System			101	238	125	435	8	6.43	252	8.57	25	16.71		127640			
Credits Available			÷	14	e	*	W	w			(7)	2	Max 10				- 24
Description of Credit	BNERGY	Carbon Dioxide Emissions	8										71	Building Envelope Performance			
Condition Of Condi	9	Land C m												Ene 2			



Additional Requirements		ri d	*	4
Potential A Additional R. Checks		0	0	9
Design Commitments and Actions	the credit.	Anthree Throser of IMPP straint during the personscenant meeting on 23 January 2007 that insensit drying space will be provides. To obtain this credit a line flowing over the hash must be provided with an extract lan highlighted. This information must be highlighted in design drawings and specifications.	Richard Cowan of M3 Consulting stated during the speakersonned meeting on 23 January 2007 that X crast white pools will be provided in all the market chedings. 2 credit have been assumed provided where the 100% to be market develope will worker to 100% to the market develope will worker to 100% to the market develope will worker to 100% to the market develope will be market as a populated because the provided continuing product and performance orbitals for the written goods.	Andrew Thrower of IRPP stated during the pre-consonent meeting on 25 January 2000 that 26 entered lighting will meet experiment. It confide assumed. Classe hort specification and chanlegs are required to confine the type of lighting, the basis and details. Provide manufacturer's literature to confine tipe of Midnig.
Summary of Credit Requirements	- 15% ingrovement - 12% ingrovement - 15% ingrovement	Points are awarded for providing space and pools, but the post but the post but the post of po	Provision of ear labelled white goods with the belonging onergy station. • All histopia, features, kings-features with an X rating. • All washing machines, and deliveratives where supplied, with a not X rating and washer dyness and furtise dynes with a rating of 5 or higher. Oil No white goods provided but into on higher medicing provided but into on expensive medicing. NOTE: For developments containing a percentage of althoristic intown Kills of the specialisms with Mill homes have XX rating appliances, and YMX of social homes have information provided.	Space lighting all space lighting is specifically dissipate by accompact flumescent lamps (CFL) Security lighting all cithoder lighting to be 150 watts maximum and be filted with PRR and day light sensor and and deep filted with principal send day light sensor and
Probable Credits	si0	+	Ph.	2
Syabo		91	the sta	400
Credits	3 5 Max 5	*	95	
Description of Credit		Drying Space	Ent Labellet White Goods	External Lightling
Condit Ref. No.		E .	Pe 4	2 2 2



Condit Red No.		Substate		ĮĮ.	Ta 2	Thu:
Description of Oned!			TRANSPORT	Public Transport	Oycle Storage	Local Amenibes
Credits	Mpx 2	R	No. of the last	1	1 08 -1 1 08 -1	
System		17.7%		1.07 each	1.07 each	1.07 49.03
Probable Credits		11		24	64	n
Summary of Crede Requirements	accommodate CPLs or fluorescent strips only and be fitted with down to duck sensors or limers		THE RESIDENCE OF THE PARTY OF T	MITs, of the development within: 1000m of a 30 min peak and an houfly of peak service OR 500m of a 15 min peak and a half hourly off peak service	Provision of cycle storage for: 50% of dwellings 08 55% of swellings The provision is determined by the number of bedrooms within a dwelling. • I and 2 bedrooms within a storage for 1 cycle • 3 bedroom flashbouse - storage for 2 cycles • 4 bedrooms and above - storage for 4 cycles. The storage provision should be safe and weather provision should be safe	Proximity to local amenibes: • Within 500m of a food shop and post box • Wither 1000m of 5 of the following:
Design Commitments and Actions			THE RESIDENCE OF THE PARTY OF T	The residential development of NEQ is within 500m eV Women Street take station and Great Portrard Street take station; is addition there are all tears eight has routes addition there are all tears eight have been assumed. To award coulds, the assessor will require a site plan clearly marking the distance from the bost door of the sectionals development to the anderground stations and the nearest tos stops via safe probesium routes.	The suddential development consists of 101 market units of which is not to and he bedroom fasts and it are three bedroom fasts. The development will be provided 112 cycle specials for the market units which exceed the Euciromes requirement of 100 spoons for 95% of the development of 100 spoons for 95% of the condition. For the credit to be awarded, chawings are required to confirm the awarded, chawings are spound to confirm the spool of the confirm the number of raids provided, that the storage and the security professions. Next, and confirm the storage should allow both the store and the store and the time is the tocked security.	The design lean stated during the pre- assessment meding that the building will meet all negativements. 3 credits assumed.
Additional Credits		0		0	•	0
Additional Requirements				ă.	VS.	YN.

ENGCELLING Propert



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Adetional Requirements		rgi.		The same of the same of	Provide specification and Graenings confirming the location and type of mulation uses. Provide Great to confirm the included ness a zero ODP and CRIP of less has 5 Note Exemples of insulation materials with a CRIP with heart
Potential Additional Credits		0	63		
Design Commitments and Actions	M and M to provide a site plan identifying. The boaston of its amenties and distances then the forst door of the building. Distances should be measured as a walking trulk his safe perbestram crossings and MUT as a straight line.	Andrew Throws of IRPP stated during the pre-assessment meeting on 29 January 2007 that bacilities for a home office will be provided. Cheff assumed. For the cheff assumed, drawings and specifications about the provided to confirm that the forms office location meets the minimum requirements. Confirm that the home office location meets the minimum requirements. Confirm that the alth will have access to			This credit is currently not sought.
Summay of Credit Requirements	boot story operate floating, lawel' cash machine, planes, politicary school, machine paramacy, principary school, machine centre, letters public northe, children's play area, place of worship, custinent plays area, place of worship, custinent spen access public area. Safe production nuclea to the local amenities. Y not used for the tist credit.	Provision of a space and services when afforms the companies is set up a home office in a quiet norm. The required space and services are, as a minimum. In the required space and services are, as a minimum. In the improve points or equivalent (in g. broadcand) are adjusted. In the improve points or equivalent (in g. broadcand) are allegations point. In window and adoptable verdisation. In window and adoptable verdisation. In window a deal and fling qualities. In these a deal and fling qualities. In the space of flucture, leing room, resister bedoom or halfmoon. In or one if had bedoom or stadio homes, the space of flucture, leing room, or the L ² bedoom or stadio homes, the space stadiole homes. In the space stadiole seal is the home such as a large hell or doing area.			Specifying insubsting materials, that anoid the use of substances that have a popul warming potential (GWP) of 5 or more jard hose a COP of street, in either manufacture or composition, for the fallowing elements. The Manufacture of composition, for the Manufacture or composition or an inferior and and selected and selected forching doors. Whele and all
Probable Credits				THE REAL PROPERTY.	0
System		£5%	82528		# C
Credits	† Mac 3	÷	100		+
Description of Credit		Home Office		POLLUTION	bresidation ODP and GMP
Credit Ref. No.		to t	Sub-total:		ž



Adelional Reprintments	than 5 include mineral word and glass flow; however companies soch as Celebra and Kingspan do manufacture products which meet this prilants.	NO.	of the second	YO.	
Potential Additional Credits		0		•	
Design Commitments and Actions		Authors Through of IMPP stated during the throossessment meeting of 122 January 2007 fact central meeting of 122 January 2007 fact central meeting of NG, emission rate plant mom will have a NG, emission rate plant mom will have a NG, emission rate Through the plant plant plant assumed. Details of the boler to be used will be required, including mendantum's obtain, make, model and day NO, level I dates of bolier.	Andrew Thrower of INPP stated during the pressumment in meeting or 25 January 2007 that all this water from the roots and hard surfaces will be collected in a central hard surfaces will be collected in a central attenuating approximately left at 45% of the senter ran-off to either robust senter contents or the meritigist desirage system. The credits have therefore been assumed. Provide drawings and specifications confirming new off attenuation devices and bodion. Provide calculations to confirm but both and storage volumes of the attenuation nesserves and the amount of attenuation nesserves and the amount of	This credit is not sought.	
Summary of Credit Requirements	aconstic insultion) thou (including fourthings) Hor water cylinder, spe insultion and other thermal store.	99% of dwellings throughout the development must be severed by heading and holf water populars with an average NG, entission rath of less than or equal to TSO NG, engithtly or capal to 150 NG, engititity or capal to 150 NG, engitity, or capal to 150 NG, engitity, or capal to 150 NG, engitity, or equal to 150 NG, engitity, or equal to 170 NG, engitity, or equal to 170 NG, engitity.	Where salmatier holding bacilies and or sustainable drainage lectriques are ond to either natural watercourses and/or municipal drainage systems, by 30% at pass lines from. • Hand Surteces • Roofs	If at least 10% of EDIGR • The heart (space and hot water) demand OR • The more heating destricted bemand within the development's supplied hom local warewalds energy sources.	
Probable Credits		п	M	0	- 4
System		2.14 aach	2.14 each	2.16 each	10.7%
Credits			1 1 1 Max 2	-	100
Description of Credit		WO, Emissions	Rancel Rancel	Zero Enission Energy Source	
Condit Ref. No.		P61.2	Pol 3	2 d	Sub-total:

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5

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Additional	THE SHARE	NO.	ti .
Potential Additional Credits		0	
Design Commitments and Actions		Rohard Cower of MS Conculting stead during the pre-sessement meeting or 29 January 2007 that the desertope. Bellin Land requires all lender to be source. Bellin Land requires all lender to be source of cooking seasons and as FSC. 6 or seed seasons begins with letters of index must be obtained how FSC or expeditionals sources together with letters of index must be obtained by the FSC or expeditional sources together with letters of index than all suppliers confirming that the chain of countries together reprintments will be met. The volumes of the index used for each element must also be provided to confirm than 100% of the timber to be used will be PSC.	Richard Covers of MS Consulting stands during the pre-assessment meaning on 29 areas a supplied on the pre-assessment meaning on 29 areas you'velve as the free from the sources. Either Land requires all tender to the sources such as FSC. If you would need to be a season of the pre-assessment to the property confirming that all tender from all suppliers confirming that the draw of suppliers to optimizing the season of the first of chard from all suppliers posteriors will be met. In the form of chard from all suppliers posteriors will be met. The following that the first of the standard for each sileness of most of the standard for the suppliers posterior to be used for each that TVD's of the standard to be used will be FSC.
Sumary of Gredit Requirements		Percentage of certified. Sinter and simple products and or recopied housed demonstra. 20% and origin of remaining timber No. Temperate Service of remaining timber Temperate Service of remaining timber Temperate Office and origin of remaining timber No. Temperate Service of remaining timber No. Temperate Service of remaining timber No. Temperate Office of the origin of remaining timber No. Temperate No. Temperate No. Temperate No. Temperate Service Office of temperate Service Office Office Service Office Off	Percentage of conflict Index and interpretage of conflict index products and or records insections of the conflict index products and or records insections in the conflict index in the conflict in the conflict index in the conflict
Probable Credits	No.	10	-
System	10000	At each	the state of the s
Orects Available		0 N N 4 4 6	0 + + N N N
Description of Dredit	MATERIALS	Timber: Basic Building Elements	Timber: Freisbing Elements
Per Contract of the Contract o	100	1 200	74 18 28



Additional Requirements	NK.	rie N	
Potential Additional Credits	•	0	0
Design Commitments and Actions	Richard Chouse of M3 Controlling stated during the pre-assessment neeting on 29 January 2007 that the market units will control interest strongs they for response of half and that the London Schraugh of Chrackin operates a callection scheme to response material, if credit seasured. To achieve these credits internation materials or provider community that a callection scheme is in operation. If and M to be provide channing the position of scheme is in operation. If and M to be provided channing to be individual apartments. If and M sibo is provide type of sthrongs to be aparticled. Note: the blooking internal schrauge will be be suited to the schooling internal schrauge will be because the Cockhoners. 2 internal sthrough the will still schooling in a seasible than 17 illness, where no individual line is seasible position within the apartment.	There is no handery protection and this coefficies be assembled by default. The maintain under the the building services are predominately of reted according to the Green Guide to Housing beneficing the Green Guide to Housing beneficing the Green Guide to Housing peneticular the client control the assemble. Aske plan will be expained to confirm that there is not diet boundary protection for this coeffici to be assembled.	
Summary of Credit Requirements	Provision of Internal storage only OR. Provision of external storage (or Local Authority calculor scheme) only OR. Provision of returns AND external storage (or Local Authority collection scheme).	The biboard elements detaining as X rating from the Green Guide for incurring Specification, for 80% by area of the demonstructure. • Root • External walte. • Internal walte. • External walte. • External walte. • External walte. • External waltering. • chression. • points and ground floor. • Windows. • External waltering. • chression.	
Probable Credits	44	+	10
% value	45	59 59 50	272
Condits	2 C 9 III	2 2 2 2 2 1 1 M	75
Description of Credit	Recycling of Household Waste	Envisormental Impact of Materials	
Condit Ref. No.	25	Met	Sub-total:

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Credit D Ref. No. 0		TA TANK	in the state of th	Sub-total:	an .	1003
Description of Credit	MATER	Internal Wither Use	External Water Use		BOOLOGY	Ecological Value of Site
Condis		3 2 4 5 Mars 5	+	0		+
Syake	The state of the s	1.57 each	5	4.68%		Gş.
Probable Credits	No.	*	*	*		0
Summay of Credit Requirements		Less than SDm ² per bedspace per year Less than or equal to 45m ² per bedspace per year Less than or equal to 45m ² per bedspace per year Less than or equal to 35m ² per bedspace per year Less than or equal to 35m ² per bedspace per year Less than or equal to 35m ² per bedspace per year	Rainwater collection system for watering gardens and landscapel areas, 4-g, water buffs, central rainwater collection system.			For developing land of inherently low ecological value.
Design Commitments and Actions		Anches Thrower of WPP stood during the pre-assessment metalling of Jahrung 2000 that water efficient samilary littings such as dual flush, aerating taps and stoods and flush, aerating taps and stoods are fluored to card flush, aerating taps and provided. 3 credits have been assumed. The credits can be aerating the blowing measurers are undertainer. 451 little dual flush 1000, aerating taps; between 6 and 5 9 libe flow rate for showing and 50 libe flow rate for showing and flush of 50 libestate. Details of the fiftings should be shown on the formarings and stated in the	Andrew Thrower of RIPP stated during the pre-assessment meeting on 22 January 2007 four all since weath him it is not a profit and four and since weath him it is not a control collection system in the boardward his a control collection system in the boardward water or attentioning agreement the attention agreement the distinct of the entire of the effort retained to 60% of the collection of the distinct of the collection was the samed for impact Comman of MS Concusting staked that the collection was will be used for impact or purposes. To achieve the crock, provide system in collection sand distanting comming the systemical consistency or for resincents collection system is a minimum 200 lets. In a minimum 1 like capacity for each system mater of land allocated to the cheefing.			The existing site contains these that will be transferred to another site as a part of the demotion works. Once not acherodite.
Potenta Additional Credits		0	•	0		0
Additional Requirements	THE REAL PROPERTY.	150	152			ŭ



Additional Requirements		NA	rí
Potential Additional Credits		0	0
Design Commitments and Actions	Richard Chean of MJ Consulting stated forward put pre-assessment meeting on 25 January 2007 that a Registered Emologial Consultant has been consulted for exprovement of the pile. I conditions been assumed. For the entit is better a searched the ecologist must be a Full I member of one of the must be a Full I member of one of the mast be a Full I member of one of the must be a Full I member of one of the largest must be provided with details of Report must be provided with details of the ecological is survey and the planned works by the developer based on this aurey. Developer must adopt all key accommendations and our 20% of additional recommendations made by the ecologist.	Existing trees on the site are to be removed as a part of the development. Oreof not achievable.	Rechard Covers of M3 Consulting stated during the pre-assessment meeting on 25 annuary 2009 that a Registered Ecological Consolium has been consulted for enhancement of the site. Site enhancement of the site. Site or ground lewer and green todic. The ecological consultant David Comman of EDOCO Design has stated by e-mail. In the ecological consultant David Comman of EDOCO Design has stated by e-mail. In the ecological consultant David Comman of EDOCO Design has stated by e-mail. In the ecological consultant David Comman of EDOCO Design has stated by e-mail. In the ecological consultant design of seasons will be introduced to the ecological state and supposed layout much be provided. These strough any natural and built flaterers and any provided These strough any natural and built flaterers and any provided These strough any natural and built flaterers. A list of new species to the introduced much by the excitogical.
Summary of Credit Requirements	Enhancing the ecological value of the state through consultation with an accepted expect. The ecologist must be FULL member of either. Association of Welde Trust Consultancies (AWTC) - Charmed Institute of Missien and Environmental Management (CWEM) - Institute of Esology and Environmental Management (EEM) - Institute of Esology and Environmental Management (EEM) - Institute of Esology and Environmental Management (EEM)	Ensuing the protection of any existing ecological features on the site.	For a change of ecological rates of between -9 and -3 realized species For a change of ecological rates of between -3 and +3 realized species For a change of ecological rates of between -1 and -9 realized species For a change of ecological rates of greater from +9 returnal species.
Probable Credits			m
Nyakae	9	Di .	157 sach
Credits Analistic	-	+	1 2 3 3 4 Mar 4
Description of Credit	Enhancement Enhancement	Protection of Ecological Features	Change of Ecological Value of Site
Creek No.	Em 1	Ero 3	F00 +



Additional Requirements	zi.			NO.	Recommendations made to the account of the account of account to account of the acco
Potential Additional Onetis		400		o	-
Design Commitments and Actions	The building is 24 strains high and is likely to achieve 2 condis. And Ille provide the bods from area for the whole building including the office and commercial element. Mand Ill to provide the building fromprint and provide chawings showing dimensioned from plant.			Rebard Cowan of M3 Consulting stated through the pravatesament meeting on 33 through 2000 that dayleging calculations will be understaten. The design bean will be understaten. The design bean stated frait the position of the faths will allow the living norms and dering stores to partiers a daylegit factor of 1.5%. Therebox I contact has been assumed. Colouistons are required to confirm that the failing theory of 1.5% is achieved in the living norms, driving norms and thickes. Set layout should size be provided is surfered fris ones.	Richard Cowan of M3 Consulting stated during the private street meeting on 23 annuary 200 flust accepts meeting on 23 annuary 200 flust accepts amounted annuary 200 flust accepts annual on 200 flust assumed. These oneits will be awarded once withen statement by the accounts consultants has been sponiced to conference their goal to the accounted once within the statement by the accounts consultants has been sponiced to conference annual to the accounted once within the statement of the accounted once within the statement of the accounted once the statement of the statement of the statement once the statement once the statement of the statement once the statement
Summary of Credit Requirements	Where 62% of deelings in the consistent have a Floor sear. Footpoint siting greater than 2.5.1 Where 62% of deelings in the development have a Floor sear. Footpoint siting greater than 2.5.1			Provision of advenue deylighting, according to \$5.9206.pg in: In the kitchen This play more, diving nome and studies Were of sky in all above mores	Where pre-completion healthy is carried out to cample of important and performance standards in Approach Document E (2010) Edition, Building Republisher England and Wakes). 2 bests' meeting part E requirements 3 bests' meeting part E requirements 3 bests' meeting part E requirements 3 bests' andone 368 higher and impact 368 hours then part E requirements 3 bests' andone 568 higher and impact 368 hours then part E requirements 10 bests' andone 568 higher and impact 368 hours then part E requirements 10 bests' andone 568 higher and impact 368 hours then part E requirements
Probable Credits	Fe .	10		+	**
Syraine	1.57 (84)	125%		1.88 each	1.86 each
Credits Available	1 2 Mar 2	es.		1 1 1 Mars 3	1 1 1 1
Description of Credit	Building Footprint		WELLERWS	Depligating	Sound Insulation
Credit Ref No.	Eno 5	Sub-total:		F	No 2

Additional Requirements		5		
Potential Additional Credits			4	2 (402%)
Design Commitments and Address		Richard Cowar of NO Consulting staked during the pre-assessment meeting on 29 January 2007 has a serie pohelate communal area will be provided as well as before others are talouries and not famests. March M to confirm the size of the space meets the following mouthments. - Things space 1.5 m/hedgeose [i.e., number of occapants the Notes is confirmed to the number of occapants the Notes is designed for J. minimum. 3m/hoope. - Shared appace minimum the Medgeose [i.e., number of occapants estimated to the in the homes served by the space). The appare must be accessible to the cardinals. The space must be accessible to the cardinals.		
Summary of Credit Requirements	-thubps	Provision of outside space that is at least partially private.		
Probable Credits		-	*	a
Nyane		周	7.52%	£ 18
Condis		-	8	8
Description of Credit		Private Space		
Credit Ref No.		28	Sub-total:	1000



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7. SUMMARY OF THE BUILDING PERFORMANCE

7.1.1 Energy

The building is expected to perform well under Energy issues (16 credits out of a possible 20 can potentially be awarded). There is a commitment for the building to achieve less than 25 kg/m²/yr for carbon dioxide emissions and will have a building envelope performance improvement of at least 15% compared to 2002 Building Regulations part L1. The developers will provide all market dwellings with 'A' rated energy efficient white goods and will provide energy efficient internal and external lighting.

7.1.2 Transport

The building is expected to achieve maximum 8 out of 8 credits on Transport related issues. This is primarily due to the excellent location of the development since it is within 500m of Warren Street and Great Portland Street tube stations and is a ten minutes walk from Euston station. The site is also serviced by at least eight bus routes along Euston Road. In addition, the design team are committed to providing cycle storage for 95% of the dwellings and space for home office provision in all units.

7.1.3 Pollution

The building is expected to achieve 5 credits out of a maximum 7 available for Pollution. This section assesses the building against a wide range of pollution issues, and commitment has been made to incorporate various initiatives, including the use of an efficient boiler and the attenuation of rainwater from roofs and hard surfaces, to be collected in a central storage system.

Potential credit: An additional credit can be achieved if the design team were to use insulating material with a zero Ozone Depleting Potential (ODP) and a Global Warming Potential (GWP) of less than 5. This credit is recommended to achieve an "Excellent" rating.

7.1.4 Materials

The building achieves 16 credits out of a possible 31 in the materials category. The complete materials specification and the percentage areas covered have yet to be provided for the building elements. However, based on discussions with the architect a general description of the materials revealed that the majority of materials proposed would achieve a 'B' rating according to the 'Green Guide to Housing Specification'. The design team has committed to using 100% FSC timber as a part of the developers requirements. The design will also integrate the dedicated space for internal recycling bins in all the units.

7.1.5 Water

The building is expected to score at least 4 out of 6 credits in the Water category. The design team has committed to providing water efficient sanitary fittings such as dual flush on the WCs, aerating taps and showers with a flow rate between 6 and 9 litres. The design will also be providing a central rainwater collection system for watering the gardens.

7.1.6 Land Use and Ecology

The building is expected to perform well under the Land Use and Ecology category scoring 6 credits out of a possible 9. The proposed building has the advantage of being developed on a site that consists of existing buildings and hard landscaping, however the site does contain trees of over 1m height and therefore according to the EcoHomes Ecological Value checklist, cannot be regarded as having low of ecological value. The developer is endeavouring to improve the landscape of the site and has employed



Regent's Place North East Quarter, London - Market EN5031 Housing

the assistance of an ecologist to enhance the biodiversity of the site. It is proposed to include extensive landscaping, green roofs and roof gardens.

7.1.7 Health and Wellbeing

The building is expected to score 4 credits out of a total possible 8 in the Health and Wellbeing section. The units are expected to achieve a daylight factor of at least 1.5% in the living rooms and dining rooms. Private space will also be provided in the form of private gardens and communal gardens for the residents only. Currently the scheme is committing to undertaking sound insulation pre-completion testing and will include for 3 tests meeting part E requirements.

Potential credit: The design may consider committing to achieving airborne sound insulation values that are at least 3dB higher, and impact sound insulation values that are 3dB lower, than the performance standards in Approved Document E(2003 Edition). This credit is recommended to achieve an 'Excellent' rating.

PROBABLE ECOHOMES RATING

	Points Score	EcoHomes Rating
	36	PASS
	48	G000
Current Predicted	58	VERY GOOD
Rating	70	EXCELLENT

Based on the 'Probable Points' detailed in this report, the likely EcoHomes rating of Regent's Place North East Quarter is currently 'Very Good' (with a score of 69.4%).

Conclusion

Based on the information provided by the design team, the commitments made by them and the assumptions outlined above, the EcoHomes 2005 Pre-Assessment has predicted a rating of 'Very Good'. The design team must ensure that all the credits that have been committed to are met in order for the rating to be achieved. The design team must also be aware that all information must be documented in either specifications or drawings for these credits to be awarded at the formal assessment stage.

In addition credits have been identified that can potentially increase the score to 73.4%, which will achieve an "Excellent" rating. The additional requirements will include meeting sound insulation requirements and using insulating materials with a GWP less than 5.

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NORTH EAST QUADRANT BRITISH LAND

SUSTAINABILITY STATEMENT



APPENDIX C - ENERGY STRATEGY REPORT



BRITISH LAND NORTH EAST QUADRANT ENERGY STRATEGY REPORT

8th February 2007

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NORTH EAST QUADRANT BRITISH LAND

HOARE LEA

ENERGY STRATEGY REPORT FOR PLANNING SUBMISSION

REVISION	DESCRIPTION	DATE	ISSUED BY	REVIEWED BY
1	First issue	19.12.05	T. Lefevre	A. Bateson
2	Second issue	06.01.06	T. Lefevre	A. Bateson
3	Third issue	11.08.06	T. Lefevre	A. Bateson
4	Fourth issue	08.09.06	T. Lefevre	A. Bateson
5	Fifth issue	13.09.06	T. Lefevre	A. Bateson
6	Sixth issue	13.10.06	T. Lefevre	A. Bateson
7	Seventh issue	20.10.06	T. Lefevre	A. Bateson
8	Eighth issue	22.01.07	T. Lefevre	A. Bateson
9	Ninth issue	08.02.07	T. Lefevre	A. Bateson

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NORTH EAST QUADRANT BRITISH LAND

ENERGY STRATEGY REPORT FOR PLANNING SUBMISSION



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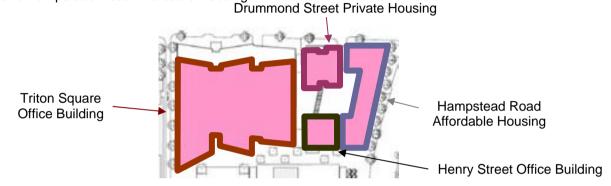
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- 2.0 APPROACH
- 3.0 ENERGY DEMAND ASSESSMENT BASELINE SCHEME
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APPENDIX A - OVERVIEW OF RENEWABLE ENERGY SOURCES AND CHP



1.0 EXECUTIVE SUMMARY

This report describes the proposed energy strategy for the North East Quadrant (NEQ) project to be developed by British Land in the London Borough of Camden. The planning application includes 31,871 m² NIA of office development, 11,553 m² NIA of residential accommodation, 1,749 m² NIA of retail space, and 1,616 m² NIA of community use. The development consists of four buildings: Triton Square Office Building, Henry Street Office Building, Drummond Street Private Housing and Hampstead Road Affordable Housing.



The Mayor's Energy Strategy for London requires that large developments appraise the feasibility of sourcing 10% of annual energy consumption from renewable energy technologies. In addition, the London Borough of Camden Unitary Development Plan (adopted 2006) states that 'the Council expects major developments to incorporate renewable energy production equipment to provide at least 10% of predicted energy requirements' (Paragraph 1.64). It also highlights that 'Combined Heat and Power, through its far greater energy efficiency, also has enormous potential for reducing carbon dioxide emissions'. This report addresses how the design for the North East Quadrant scheme responds to the ambitions of the London Borough of Camden Unitary Development Plan and the Mayor's Energy Strategy for London.

In order to reduce the baseline scheme carbon dioxide emissions, energy efficiency measures have been applied. A range of energy technologies have also been appraised as potential on-site energy generation sources in relation to the development. These comprise:

- Combined Heat and Power (CHP) plant.
- Solar water heating panels;
- Ground source heat pumps;
- Biomass heating boilers;
- Wind turbines;
- Photovoltaic (PV) modules for electricity generation.

The conclusion of the several desktop studies which have been carried out is that implementing a biomass boiler can deliver 10% of total annual energy use when serving the heating installations of the office buildings (i.e. Triton Square and Henry Street). On this basis it is proposed that a biomass boiler with a capacity of 500 kW is provided. In addition, a 30kWe CHP plant will be provided and contribute to the Domestic Hot Water requirements and landlord's electrical requirements of the residential buildings (i.e. Drummond Street and Hampstead Road).



The changes between the Baseline Scheme and the Energy Efficient Scheme with renewables and CHP have led to a 32% reduction in energy consumption and a 31% reduction in CO₂ emissions. It should be noted that CO₂ emissions above include all energy uses, not just energy uses covered by Part L. As CO₂ emissions not covered by Part L represent a large proportion of total CO₂ emissions, a total CO₂ emissions reduction of 31% between the Baseline Scheme and the Energy Efficient Scheme with CHP and renewables actually represents a Part L CO₂ emissions reduction of 37% and an improvement over Part L 2006 of 15%. The difference between the energy figures and the CO₂ figures are due to the different CO₂ contents of the displaced and used fuels (i.e. gas, grid-supplied electricity, displaced electricity, biomass).

British Land will further discuss with the London Climate Change Agency (LCCA) the possibility of reorganising plant layouts throughout the Regent's Place basement to ascertain whether adequate free space can be created to house a larger CHP and the necessary thermal storage vessels, and whether replacing existing chillers with absorption chillers on the new development and the existing buildings would be viable (this would allow tri-generation). The design team will assess these possibilities.'

Table 1: Summary of the selection of Low or Zero Carbon Technologies for NEQ

Technology	Selected	Comments
Combined Heat and Power (CHP)	Yes	A 30 kWe unit to serve the residential buildings (i.e. Drummond Street and Hampstead Road).
Solar water heating panels	No	Not appropriate for NEQ due to the roof area available and to the overshadowing effect of Euston Tower. Could only contribute to a small proportion of the site's energy requirements (i.e. 1.0-1.8%).
Ground source heat pumps	No	Could contribute to 10% of the site energy requirements but would lead to a lesser reduction of CO ₂ emissions than Biomass heating. Would also be riskier and more disruptive during the construction process.
Biomass heating boilers	Yes	A 500 kW biomass boiler will be provided and contribute to 10% of the site's energy requirements.
Wind turbines	No	Not appropriate, as the number of wind turbines required (i.e. 160) would be technically and architecturally difficult to integrate.
Photovoltaic (PV) modules	No	Not appropriate for NEQ due to the roof area available and to the overshadowing effect of Euston Tower. Could only contribute to a small proportion of the site's energy requirements (i.e. 0.5%).

Table 2: Summary of the impact of energy saving measures and Low or Zero Carbon technologies on Energy Consumption and CO₂ emissions for NEQ

	Baseline Scheme		Energy Efficient Scheme		Energy Efficient Scheme with CHP and renewables		Change (energy efficient scheme with CHP and renewables VS baseline)	
	kWh	kgCO ₂	kWh	kgCO ₂	kWh	kgCO ₂	kWh	kgCO ₂
Heating	5,079,000	985,000	2,360,000	458,000	2,367,000*	299,000	- 53%	- 70%
Cooling	906,000	382,000	2,173,000	917,000	2,173,000	917,000	+ 40%	+ 40%
Electricity (other than cooling)	7,598,000	3,206,000	4,780,000	2,017,000	4,670,000	1,955,000	- 37%	- 39%
TOTAL	13,583,000	4,574,000	9,463,000	3,392,000	9,210,000	3,187,000	- 32%	- 31%

* of which 950,000 kWh would be generated from biomass

The increase in coolingrelated energy consumption is due to the improved accuracy of the thermal model compared to benchmarks used to establish the baseline cooling-related energy consumption.

NORTH EAST QUADRANT BRITISH LAND

ENERGY STRATEGY REPORT FOR PLANNING SUBMISSION



2.0 REPORT STRUCTURE

For clarity, the approach to energy efficiency and the integration of renewable energy sources and Combined Heat and Power (CHP) is split up into three sections:

- The first section presents the assessment of energy consumption and CO₂ emissions for the baseline scheme (without energy efficiency measures and with no contribution from Low or Zero Carbon Technologies);
- The next section is dedicated to the energy efficiency measures that have been adopted, and the effect they have on energy consumption and CO₂ emissions: this scheme is named the 'energy efficient scheme';
- The final section is dedicated to Low or Zero Carbon technologies that could be implemented at the site.



3.0 ENERGY DEMAND ASSESSMENT – BASELINE SCHEME

Energy consumption benchmarks have been used to calculate the baseline scheme energy consumption and CO₂ emissions. These benchmarks are generally based on good practice figures from the CIBSE Guide F on Energy Efficiency in Buildings. They represent the energy consumption to be expected from various types of space / buildings in the UK, when good practice design and good management principles have been applied. These benchmarks have been used since the beginning of the design, which was initiated long before Part L 2006 came into force.

It should be noted that these figures include all energy uses in the building, not only those covered by Part L.

3.1 Benchmarks

Table 3: Energy consumption benchmarks for North East Quadrant DevelopmentBaseline scheme – no contribution from energy efficiency measures and low carbon energy sources

Space	Heating consumption (gas supplied)	Cooling consumption	Electricity consumption (other than cooling)	Benchmark source
	(kWh/m²/yr)	(kWh/m²/yr)	(kWh/m²/yr)	
Offices	97	18	181	Benchmarks for a good practice prestige air-conditioned office (Energy Efficiency in Buildings, Guide F, CIBSE).
Breakout/ conference space	100	33	34	Benchmarks for a good practice lecture room (Energy Efficiency in Buildings, Guide F, CIBSE), assuming that cooling represents 50% of the electricity consumption.
Retail	96	79	316	Retail space consumption figures assumed to be a weighted average of good practice supermarket (80%) and high street bank (20%) (Energy Efficiency in Buildings, Guide F, CIBSE). Assuming that cooling represents 20% of the electricity consumption.
Café	20	15	57	Estimate based on Starbucks' Corporate Social Responsibility Report, 2004. Based on data from 2,460 stores (gas) and 4,137 stores (electricity). Assuming that cooling represents 20% of the electricity consumption.
Diorama	125	0	22	Benchmarks for a good practice community centre (Energy Efficiency in Buildings, Guide F, CIBSE).
Restaurant	1100	130	520	Benchmarks for a good practice restaurant. (Energy Efficiency in Buildings, Guide F, CIBSE), assuming that cooling represents 20% of the electricity consumption.
Circulation, lobbies, storage in officel buildings	0	8	32	Estimate for good practice circulations, lobbies and storage spaces in office buildings, assuming that cooling represents 20% of the electricity consumption.
WCs in office buildings	0	0	50	Estimate for good practice WCs in office buildings.
Plant / Car Park	0	0	15	Benchmarks for typical practice car parks (Energy Efficiency in Buildings, Guide F, CIBSE).
Residential (without comfort cooling)	105	0	50	Estimate based on a typical modern dwelling.
Residential (with comfort cooling)	105	13	50	Estimate based on a typical modern dwelling.
Circulations and basement in residences	0	0	30	Estimate for good practice circulations in residences.



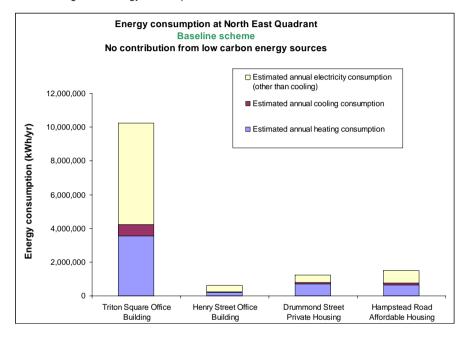
3.2 Assessment of energy consumption and CO₂ emissions – Baseline scheme

Energy consumption

Table 4: Energy consumption breakdown - Baseline scheme

Building	Estimated annual HEATING consumption (kWh/yr)	Estimated annual COOLING consumption (kWh/yr)	Estimated annual ELECTRICITY consumption (other than cooling) (kWh/yr)	TOTAL annual energy consumption (kWh/yr)
	(,-)	(((······· J ··)
Triton Square Office Building	3,545,000	664,000	6,012,000	10,231,000
Henry Street Office Building	193,000	41,000	382,000	615,000
Drummond Street Private Housing	695,000	86,000	449,000	1,230,000
Hampstead Rd Affordable Housing	637,000	115,000	755,000	1,510,000
TOTAL				13,583,000

Figure 1: Energy consumption breakdown - Baseline scheme



As shown in Table 4 and on the bar chart, the energy consumption of Triton Square Officee Building accounts for the main part of the energy use at North East Quadrant (baseline scheme).



CO₂ emissions

An assessment of the predicted baseline scheme carbon dioxide emission for the development has been calculated using the following carbon dioxide emission factors (source: ADL2A, Part L 2006):

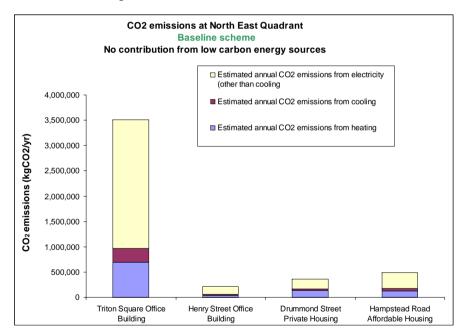
- Natural gas: 0.194 kgCO₂/kWh
- Grid supplied electricity: 0.422 kgCO₂/kWh

Table 5, below, shows the baseline scheme estimated CO₂ emissions breakdown by building.

Table 5: CO₂ emission breakdown – Baseline scheme

Building	Estimated CO ₂ emissions from HEATING	Estimated CO ₂ emissions from COOLING	Estimated CO ₂ emissions from ELECTRICITY (other than cooling)	TOTAL annual CO ₂ emissions
	(kgCO ₂ /yr)	(kgCO ₂ /yr)	(kgCO₂/yr)	(kgCO₂/yr)
Triton Square Office Building	690,000	280,000	2,537,000	3,506,000
Henry Street Office Building	37,000	17,000	161,000	216,000
Drummond Street Private Housing	135,000	36,000	189,000	361,000
Hampstead Rd Affordable Housing	124,000	49,000	318,000	491,000
TOTAL				4,574,000

Figure 2: CO₂ emission breakdown – Baseline scheme





4.0 ENERGY DEMAND ASSESSMENT – ENERGY EFFICIENT SCHEME

4.1 Energy efficiency measures

The strategic approach to the design of the development has been to reduce demand for energy consumption in the first instance prior to the consideration of integrating low carbon energy sources, since controlling demand is the most effective way of reducing carbon dioxide emissions.

The following points outline the approaches and strategies that have been considered to improve energy efficiency:

- Low U-values for external walls, glazing, roofs and floors: the scheme is designed to exceed the requirements of the new Building Regulations (Part L1A and L2A, 2006);
- Reduced shading coefficients/g values of Triton Square Office Building glazing;
- High standards of airtightness (i.e. minimising air leakage and infiltration rates through gaps and openings);
- Heat recovery within each mechanical ventilation system;
- Energy efficient lighting (including daylight controlled automatic dimming luminaires in the office area);
- Class A rated fridges/freezers, Class A rated washing machines and dishwashers and Class B rated dryers (where provided);
- Ventilation control in bathrooms and kitchens to reduce fan energy when not in use;
- Variable speed drives for circulation pumps;
- High efficiency motors incorporated into all building services;
- High efficiency boiler plant;
- Energy metering;
- Enhanced pipework and ductwork thermal insulation.

In addition, the developer aims to get an EcoHomes 'Very Good' rating and a BREEAM 'Very Good' rating.

4.2 Adjusted benchmarks

The energy efficiency measures have been implemented and have led to an adjustment in the benchmarks. Therefore, some benchmarks from CIBSE Guide F were:

- · reduced by a margin which reflected the impact of energy efficiency measures,
- or replaced by an even more reliable source: the output of the thermal model for Triton Square Office Buildings (using IES software), or the output of the SAP calculations for the residential buildings.

It should be noted that these figures include all energy uses in the building, not only those covered by Part L.



Table 6: Energy consumption benchmarks for North East Quadrant Development Energy efficient scheme – no contribution from low carbon energy sources

Space	Heating consumption (gas supplied) (kWh/m²/yr)	Cooling consumption (elec. supplied) (kWh/m²/yr)	Electricity consumption (other than cooling) (kWh/m²/yr)	Benchmark source
Offices	25	59	98	For heating, cooling, fans, pumps and lighting: Based on the preliminary thermal modelling results using the TAS model provided by Watkins Payne (i.e. 25 kWh/m² for heating, 59 kWh/m² for cooling, fans, pumps and lighting). For office equipment, computer room and other electricity: Based on benchmarks for a good practice prestige air-conditioned office (i.e. 18 kWh/m² for office equipment, 70 kWh/m² for computer room and 10 kWh/m² for other electricity).
Breakout/ conference space	100	33	34	Benchmarks for a good practice lecture room (Energy Efficiency in Buildings, Guide F, CIBSE), assuming that cooling represents 20% of the electricity consumption.
Retail	96	79	316	Retail space consumption figures assumed to be a weighted average of good practice supermarket (80%) and high street bank (20%). (Energy Efficiency in Buildings, Guide F, CIBSE), assuming that cooling represents 20% of the electricity consumption.
Café	20	15	57	Estimate based on Starbucks' Corporate Social Responsibility Report, 2004. Based on data from 2,460 stores (gas) and 4,137 stores (electricity), assuming that cooling represents 20% of the electricity consumption.
Diorama	62	0	11	Benchmarks for a good practice community centre (Energy Efficiency in Buildings, Guide F, CIBSE), reduced by 50% given the energy efficient envelope and services.
Restaurant	792	94	374	Benchmarks for a good practice restaurant (Energy Efficiency in Buildings, Guide F, CIBSE), reduced by 28%, and assuming that cooling represents 20% of the electricity consumption.
Circulation, lobbies, storage in officel buildings	0	8	32	Estimate for good practice circulation, lobbies and storage spaces in office buildings, assuming that cooling represents 20% of the electricity consumption.
WCs in office buildings	0	0	50	Estimate for good practice WCs in office buildings.
Plant / Car Park	0	0	15	Benchmarks for typical practice car parks.
Residential (without comfort cooling)	85	0	40	Estimate based on a typical modern dwelling using SAP calculations.
Residential (with comfort cooling)	85	10	40	Estimate based on a typical modern dwelling using SAP calculations.
Circulations and basement in residences	0	0	30	Estimate for good practice circulations in residences.



4.3 Assessment of energy consumption and CO₂ emissions – Energy efficient scheme

Principles of energy efficient design have been incorporated into the outline design proposals. Table 7, below, shows North East Quadrant Development estimated energy consumption breakdown (i.e. Energy Efficient Scheme).

Energy consumption

Table 7: Energy consumption breakdown - Energy efficient scheme

Building	Estimated annual HEATING consumption	Estimated annual COOLING consumption	Estimated annual ELECTRICITY consumption (other than cooling)	TOTAL annual energy consumption
	(kWh/yr)	(kWh/yr)	(kWh/yr)	(kWh/yr)
Triton Square Office Building	1,206,000	1,868,000	3,473,000	6,547,000
Henry Street Office Building	50,000	123,000	217,000	389,000
Drummond Street Private Housing	562,000	66,000	383,000	1,011,000
Hampstead Rd Affordable Housing	542,000	115,000	707,000	1,365,000
TOTAL				9,313,000

Figure 3: Energy consumption breakdown - Energy efficient scheme

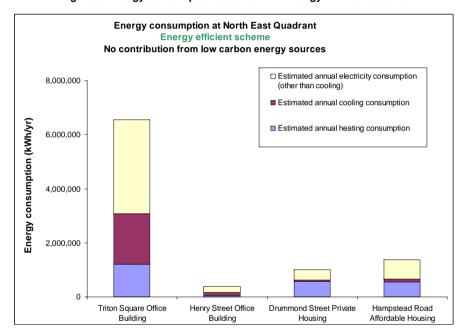


Table 7 confirms the findings of the baseline scheme analysis: the energy consumption of Triton Square Office Building accounts for the main part of the energy use at North East Quadrant.



CO₂ emissions

An assessment of the predicted energy efficient scheme carbon dioxide emission for the development has been calculated using the following carbon dioxide emission factors (source: ADL2A, Part L 2006):

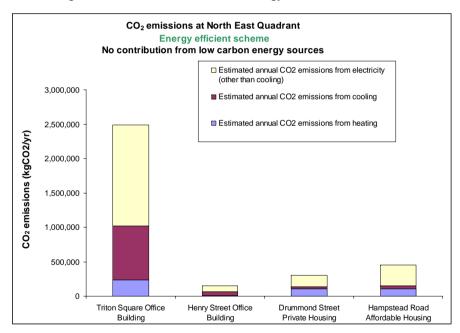
- Natural gas: 0.194 kgCO₂/kWh
- Grid supplied electricity: 0.422 kgCO₂/kWh

Table 8, below, shows North East Quadrant Development estimated CO₂ emissions breakdown by building (i.e. Energy Efficient Scheme).

Table 8: CO₂ emission breakdown - Energy efficient scheme

Building	Estimated CO ₂ emissions from HEATING (kgCO ₂ /yr)	Estimated CO ₂ emissions from COOLING (kgCO ₂ /yr)	Estimated CO ₂ emissions from ELECTRICITY (other than cooling) (kgCO ₂ /yr)	TOTAL annual CO ₂ emissions (kgCO ₂ /yr)
Triton Square Office Building	234,000	789,000	1,465,000	2,421,000
Henry Street Office Building	10,000	52,000	92,000	153,000
Drummond Street Private Housing	109,000	28,000	162,000	299,000
Hampstead Rd Affordable Housing	105,000	49,000	298,000	452,000
TOTAL				3,392,000

Figure 4: CO₂ emission breakdown - Energy efficient scheme





4.4 Comparison between the baseline scheme and the energy efficient scheme

Table 9: Comparison between the baseline scheme and the energy efficient scheme

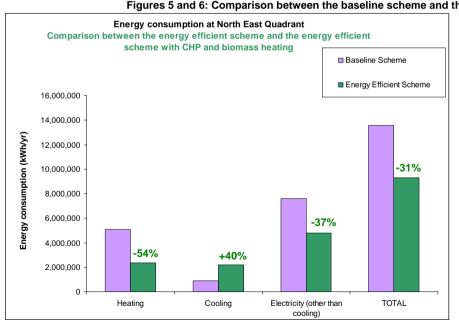
	Baseline Scheme		Energy Effic	ient Scheme	Change	
	kWh	kgCO ₂	kWh	kgCO ₂	kWh	kgCO ₂
Heating	5,079,000	985,000	2,360,000	458,000	- 54%	- 54%
Cooling	906,000	382,000	2,173,000	917,000	+ 40%	+ 40%
Electricity (other than cooling)	7,598,000	3,206,000	4,780,000	2,017,000	- 37%	- 37%
TOTAL	13,583,000	4,574,000	9,463,000	3,392,000	- 31%	- 26%

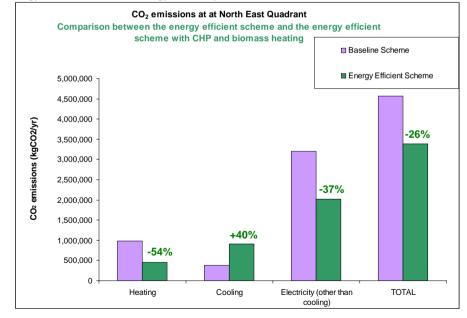
The increase in cooling-related energy consumption should not be interpreted as a result of a reduced energy efficiency.

In fact, as the IES thermal model provides more reliable information than the energy consumption benchmarks, it should be perceived as an adjusted figure reflecting the real building more accurately.

The changes between the Baseline Scheme and the Energy Efficient Scheme have led to a 31% reduction in energy consumption and a 26% reduction in CO₂ emissions.

Figures 5 and 6: Comparison between the baseline scheme and the energy efficient scheme: Energy consumption and CO₂ emissions







5.0 APPRAISAL OF RENEWABLE ENERGY SOURCES AND CHP

5.1 Heating and cooling systems – Future proofing

Instead of providing individual boilers to the residential units, the choice was made to provide one communal plant for the residential buildings. There will also be a communal plant for the commercial buildings.

Communal heating has several advantages compared to individual heating:

- The central plant rooms (i.e. commercial central plant and residential central plant) will be centrally and efficiently maintained: the owners and tenants of individual apartments / office space will not need to be concerned about maintaining or servicing their own boilers.
- The absence of a boiler and storage tank creates additional storage space for the residents.
- Gas is not brought into each apartment therefore removing associated safety issues and inspection check obligations.
- It is estimated that the running costs of the communal heating scheme are lower than for a conventional system.

Buildings served by the residential communal plant

Buildings served by the commercial communal plant

Finally, having only two communal plant rooms will bring flexibility in the future in terms of energy source and will allow an increased use of renewable energy sources in the future.

However, it was decided not to group the two plant rooms together (i.e. having one single energy centre for the whole development) in order to accommodate the possibility of the two types buildings being sold independently in the future.



5.2 Appraisal of a low carbon energy source: CHP

This section covers a low carbon, or 'clean' energy source, Combined Heat and Power (CHP). This low carbon energy source can help to reduce total project carbon dioxide emissions, as shown in this figure.

Combined Heat and Power (CHP) is the on-site generation of electricity and the utilisation of the heat that is a by-product of the generation process. Due to the utilisation of heat from electricity generation and the avoidance of transmission losses because electricity is generated on site, CHP typically achieves a 30 per cent reduction in primary energy usage compared with power stations and heat only boilers.

CHP is considered here to be a gas-fired engine or gas turbine. In such a scheme, the CHP unit would sit alongside the main central gas-fired boilers and act as the lead boiler. It is generally advised to size the CHP plant to cover part or all of the base thermal load (i.e. the domestic hot water load) and to ensure that the electrical output can be used.

Table 10 below summarises the domestic hot water energy consumption of each space.

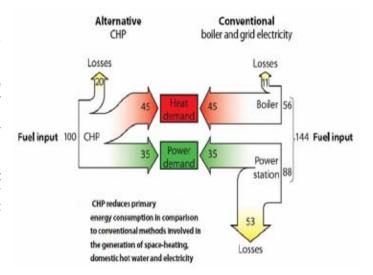


Table 10: Estimate of Domestic Hot Water (DHW) requirements for each building

Building	DHW energy consumption (kWh/yr)				
Triton Square Office Building	141,000				
Henry Street Office Building	10,000				
Drummond Street Private Housing	298,000				
Hampstead Rd Affordable Housing	220,000				

Assumptions - DHW: 5% of gas duty for retail spaces, 30% of gas duty for restaurants and cafés, 10% of gas duty for Diorama; 80% of electricity duty for WCs, 50% of gas duty for residences.



The table above shows that potentially all buildings except Henry Street Office Building have a sufficient DHW load to allow the implementation of a CHP unit.

However, as the strategy is based on renewable energy sources serving Triton Square and Henry Street Office Buildings (i.e. the biggest CO₂ emitters), a CHP could not be implemented at these buildings as it would have competed with the renewable technologies for the base thermal load. Therefore, it was decided to implement the CHP unit at the residential buildings.

Moreover, a review of the potential base electrical load within the residential buildings has been carried out. It indicated that the residential electrical base loads (Drummond Street Private Housing and Hampstead Road Affordable Housing) would be equivalent to approximately 30kW. This base electrical load principally relate to landlord's area lighting, car park ventilation and general allowance for miscellaneous power demands.

Therefore, a 30 kWe CHP unit could be implemented in the communal plant of the residential buildings. Based on the energy efficient scheme, this CHP unit would achieve the following contributions:

- it would generate 2.9% of the site energy requirements;
- it would reduce CO₂ emissions by 0.8%.

Table 11: CHP - Feasibility study

System size considered	Annual thermal output (kWh/yr)	Annual elec. output (kWh/yr)	Proportion of annual energy use	Net annual CO₂ reduction	Sizing and performance notes
1 no. 30kWe	164,000	110,000	2.9%	0.8%	Electrical capacity considered is 30kWe per unit. Thermal capacity is 45kW per unit. Fuel input 100kW (natural gas) per unit.
			Assuming the CHP plant would run 10 hours a day throughout the year.		

British Land will further discuss with the London Climate Change Agency (LCCA) the possibility of reorganising plant layouts throughout the Regent's Place basement to ascertain whether adequate free space can be created to house a larger CHP and the necessary thermal storage vessels, and whether replacing existing chillers with absorption chillers on the new development and the existing buildings would be viable (this would allow tri-generation). The design team will assess these possibilities.'



5.3 Appraisal of renewable energy sources

A number of renewable energy sources are considered for North East Quadrant Development:

Solar Water Heating.

Solar water heating systems use heat from the sun to pre-heat domestic hot water. Solar water heating systems are generally composed of solar thermal collectors and a fluid system to move the heat from the collector to a storage tank to stock the heat for subsequent use. The system requires solar panels on the roof, ideally south facing, linked to hot water storage cylinders. Further information on the types of solar panels available and indicative costs are included in Appendix A of this report.

Ground Source Heat Pumps

Ground source heat pumps can be used to extract heat from the ground by circulating a fluid through a system of pipes to a heat exchanger which transfers the energy to the distribution network. This can provide space heating and/or pre-heat domestic hot water. Ground source heat pumps have the advantage that they can act as a source of both heating and cooling for the buildings. Ground source heat pumps are either open-loop (abstracting and rejecting water to the aguifer below the site) or closed-loop. Further information is listed in Appendix A.

Biomass

Biomass heating systems combust biomass material in a biomass boiler in order to heat water in the same way that gas boilers combust gas. Biomass materials include all land and water based vegetation, e.g. wood chips, wood pellets, wood waste, fast growing coppice trees such as willow. The carbon dioxide emitted from burning biomass is balanced by that absorbed during the fuel's production. Biomass heating therefore approaches a carbon neutral process. Biomass boilers require storage adjacent to the boiler to be provided. The fuel is then delivered on a regular basis. Further information on the types of boilers available and indicative costs are included in Appendix A.

Wind Power

Wind turbines use the wind's lift forces to turn a rotor which in turn generates electricity. Wind power is used in large scale wind farms for national electrical grids as well as in small individual turbines or building integrated turbine. Further information on the types of turbines available and indicative costs are included in Appendix A of this report.

Photovoltaic Electricity Generation

Photovoltaic modules are devices or banks of devices that use the photovoltaic effect to generate electricity directly from sunlight. Until recently, their use has been limited due to high manufacturing costs. In buildings current applications include PV on the roof, PV curtain walling systems and PV louvred external shading devices. Further information on the types of photovoltaic modules available and indicative costs are included in Appendix A of this report.



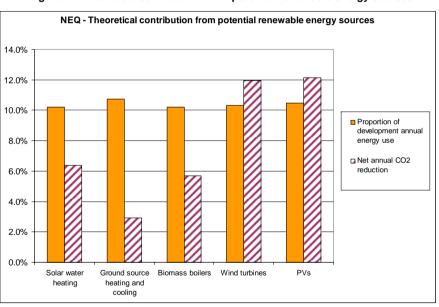
A preliminary analysis has been undertaken to evaluate the size/number of the various renewable energy technologies to meet a nominal target of 10% of the overall energy use. The outcome of this preliminary analysis is summarised in Table 12 below.

Assumptions on sizing and cost estimates of renewable energy technologies and Combined Heat and Power (CHP) can be found in Appendix A.

Table 12: Theoretical contribution from potential renewable energy sources

Energy source	nergy thermal elec. annual ann ource output output energy Co		Net annual CO ₂ reduction	Sizing and performance notes		
Solar water heating Panels (1,900 m ²)	950,000	0	10.2%	6.4%	Area of solar panels selected to deliver 10% of the site energy consumption. Thermal output assumed to be 500kWh/m².	
Ground source heating and cooling (400 kW)	600,000 + 400,000*	0	10.7%	2.9%	Ground source heat pumps sized to suit 10% renewable energy contribution. Assumed COP of 4 and 1,500 operating hours in winter and 1,000 operating hours in summer.	
Biomass boiler (500 kW)	950,000	0	10.2%	5.7%	Biomass boiler sized to suit 10% renewable energy contribution. Assumed 1,900 operating hours during the year.	
Micro vertical axis wind turbines (160 No 6kW)	0	960,000	10.3%	11.9%	Micro vertical axis wind turbines selected to suit the constraints of the urban location. Number of wind turbines required calculated to suit 10% renewable energy contribution. Electrical output assumed to be 6,000 kWh per wind turbine.	
Solar PV modules (13,000 m²)	0	975,000	10.5%	12.1%	Area of PV modules required calculated to suit 10% renewable energy contribution. Annual power output 750kWh per kW peak output.	

Figure 7: Theoretical contribution from potential renewable energy sources



^{* 400,000} kWh represents the annual chilled water output from the ground source heat pump system.



However, there are building integration and economic issues to take into account. The potential integration of renewable energy sources has the following implications:

• Solar water heating panels – Solar panels could be mounted on the roof or actually form part of the roof fabric. They should be facing southeast to southwest and not be shaded in order to maximise annual thermal output.

The potential location of solar panels are limited due to the roof shapes and forms and also due to the major potential overshadowing effect from Euston Tower to the South of the development. An analysis of potential locations for solar thermal panels has led to the conclusion that the likely contribution from solar thermal panels would not exceed 1% of the site energy requirements (i.e. 220 m² of solar thermal panels). The maximum contribution from solar thermal panels would be 1.8% of the site energy requirements (i.e. 400 m² of solar thermal panels) but would require the implementation of solar thermal panels on sloping roofs facing northwest / northeast, leading to a reduction in their efficiency.

Therefore it was concluded that **solar water heating would not be appropriate for NEQ**, as it could only contribute to 1.0-1.8% of the site energy requirements.

• Ground source heat pumps – In theory, it would be technically feasible to meet around 10% of annual energy demand by providing a ground source coupling system. A desktop study has been carried out by a borehole specialist to investigate the feasibility of an open-loop ground source heat pump system, which depends on being able to abstract aquifer water for heat exchange. It concluded that in the strata surrounding Drummond Street, ground water appears to flow reasonably well through the Upper Chalk and should be able to provide a sufficient flow rate for a 400kW ground source heat pump to generate 10% of the site annual energy requirements.

However, given the risks carried by the fact that the feasibility of this system can only be verified by making a test borehole, given the impact it would have on the construction period and given the reduced CO₂ emissions this system would lead to, it was concluded that a ground source heating and cooling system would not be appropriate for NEQ.

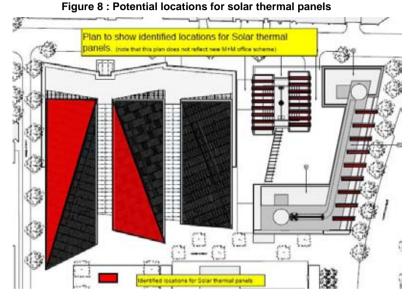
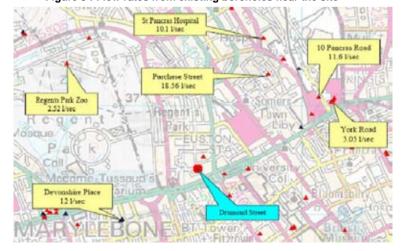


Figure 9: Flow rates from existing boreholes near the site





• Biomass boiler – Potentially, a 500 kW biomass boiler could meet 10% of the

site energy requirements. Unlike a natural gas boiler system that relies on a piped gas supply, a biomass system relies on a store of fuel that needs to be topped up regularly by lorry deliveries. This issue was not considered to be critical as there are several sources of wood chips both within a 20-mile radius and within a 50-mile radius of the site (see green points on figure 10).

A wood fuel store has been provided in the basement of the development. Its sizing has been carried out assuming wood chips would be the preferred fuel. If it turns out that the preferred fuel is wood pellets, the wood fuel store would be large enough as wood pellets have a greater energy density than wood chips.

Finally, the emissions associated with the burning of wood fuel would be minimised to ensure compliance with the Clean Air Act.

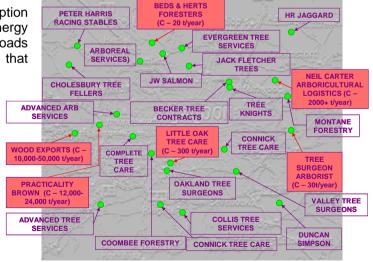
Biomass is the preferred option for NEQ. It would only serve the heating installations of Triton Square and Henry Street Office Buildings. It would contribute to 10% of the whole site energy requirements and would reduce the whole site CO₂ emissions by 5.7%.

Note on the biomass boiler capacity:

It should be highlighted that 500 kW is the optimum capacity for the biomass boiler. An option was investigated to increase the capacity of the biomass boiler to further increase its energy contribution and the CO₂ reduction it would help to achieve. However, given the thermal loads of the office buildings, it was concluded that 500 kW was the optimum capacity and that increasing this capacity would carry a risk of oversizing the biomass boiler.

Figure 10 :Potential sources of wood chips within a 20-mile and a 50-mile radius of the site







- Wind turbines Theoretically, wind power could contribute to 10% of the site energy requirements, but it would require 160 micro vertical axis wind turbines to be mounted on the roofs. This would be technically and architecturally difficult. Therefore, wind turbines would not be appropriate for NEQ.
- **PV modules** Installing 13,000 m² of PV modules on the roofs of North East Quadrant would be both difficult from an architectural perspective and not efficient (overshadowing from Euston Tower). As explained on the section dedicated to solar water heating, the area of roof available is limited. If this area was to be covered by PV modules, it would only generate 0.3% of the site energy requirements and reduce CO₂ emissions by 0.4%. Therefore, **PV modules would not be appropriate for NEQ**.

5.4 Conclusion

This analysis demonstrated that:

- Biomass is the best option for NEQ as it would contribute to 10% of the site energy requirements and reduce CO₂ emission by 5.7%.
- Ground source heating and cooling could also contribute to 10% of the site energy requirements but would lead to a lesser reduction of CO₂ emissions and would be riskier and more disruptive during the construction process.
- Solar water heating and PV modules are not appropriate for NEQ due to the roof area available and to the overshadowing effect of Euston Tower. They could only contribute to a small proportion of the site's energy requirements.
- Wind turbines are not appropriate, as the number required (i.e. 160) would be technically and architecturally difficult to integrate.

A CHP unit will also be provided for the residential buildings.

5.5 Comparison between the energy efficient scheme and the energy efficient scheme with CHP and renewables

The combined impact of CHP and biomass heating at NEQ is summarised in the following table:

Table 13: Comparison between the energy efficient scheme and the energy efficient scheme with CHP and renewables

	Energy Efficient Scheme		Energy Efficier CHP and re	nt Scheme with enewables	Change		
			kWh KgCO₂ kWh		KgCO ₂	kWh	KgCO ₂
Heating	2,360,000	458,000	2,367,000*	299,000	0%	- 35%	
Cooling	2,173,000	2,173,000 917,000		917,000	0%	0%	
Electricity (other than cooling)	4,780,000	2,017,000	4,670,000	1,955,000	- 2%	- 3%	
TOTAL	9,463,000	3,392,000	9,210,000	3,187,000	- 1.1%	- 6.5%	

^{*} of which 950,000 kWh would be produced from biomass

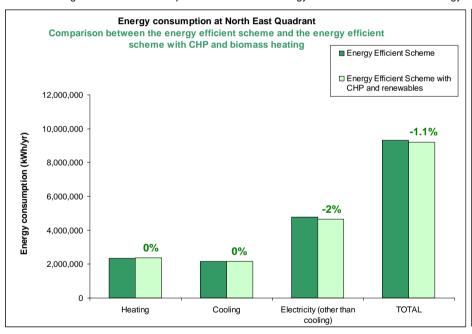


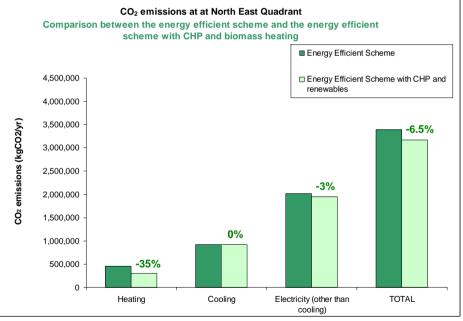
The following carbon dioxide factors have been used (source: ADL2A, Part L 2006):

- Natural gas: 0.194 kgCO₂/kWh
- Grid supplied electricity: 0.422 kgCO₂/kWh
- Grid displaced electricity: 0.568 kgCO₂/kWh

The changes between the Energy Efficient Scheme and the Energy Efficient Scheme with CHP and renewables have led to a 1.1% reduction in energy consumption and a 6.5% reduction in CO₂ emissions. 10% of the site energy consumption will be generated by the biomass boiler and 3% by the CHP plant. The difference between the energy figures and the CO₂ figures are due to the different CO₂ contents of the displaced and used fuels (i.e. gas, grid-supplied electricity, displaced electricity, biomass).

Figures 11 and 12: Comparison between the energy efficient scheme and the energy efficient scheme with CHP and renewables (Energy consumption and CO₂ emissions)







7.0 CONCLUSIONS

The conclusion of the several desktop studies which have been carried out is that implementing a biomass boiler can deliver 10% of total annual energy use when serving the heating installations of the office buildings (i.e. Triton Square and Henry Street). On this basis it is proposed that a biomass boiler with a capacity of 500 kW is provided. In addition, a 30kWe CHP plant will be provided and contribute to the Domestic Hot Water requirements and landlord's electrical requirements of the residential buildings (i.e. Drummond Street and Hampstead Road).

Table 1: Summary of the selection of Low or Zero Carbon Technologies for NEQ

Technology	Selected	Comments			
Combined Heat and Power (CHP)	Yes	A 30 kWe unit to serve the residential buildings			
Solar water heating panels	No	Not appropriate for NEQ due to the roof area available and to the overshadowing effect of Euston Tower. Could only contribute to a small proportion of the site's energy requirements (i.e. 1.0-1.8%).			
Ground source heat pumps	No	Could contribute to 10% of the site energy requirements but would lead to a lesser reduction of CO ₂ emissions than Biomass heating. Would also be riskier and more disruptive during the construction process.			
Biomass heating boilers	Yes	A 500 kW biomass boiler will be provided and contribute to 10% of the site's energy requirements.			
Wind turbines	No	Not appropriate, as the number of wind turbines required (i.e. 160) would be technically and architecturally difficult to integrate.			
Photovoltaic (PV) modules	No	Not appropriate for NEQ due to the roof area available and to the overshadowing effect of Euston Tower. Could only contribute to a small proportion of the site's energy requirements (i.e. 0.5%).			

Table 2: Summary of the impact of energy saving measures and Low or Zero Carbon technologies on Energy Consumption and CO₂ emissions for NEQ

	Baseline Scheme		Energy Efficient Scheme		Energy Efficient Scheme with CHP and renewables		Change (energy efficient scheme with CHP and renewables VS baseline)	
	kWh	kgCO ₂	kWh kgCO ₂		kWh	kgCO ₂	kWh	kgCO ₂
Heating	5,079,000	985,000	2,360,000	458,000	2,367,000*	299,000	- 53%	- 70%
Cooling	906,000	382,000	2,173,000	917,000	2,173,000	917,000	+ 40%	+ 40%
Electricity (other than cooling)	7,598,000	3,206,000	4,780,000	2,017,000	4,670,000	1,955,000	- 37%	- 39%
TOTAL	13,583,000	4,574,000	9,463,000	3,392,000	9,210,000	3,187,000	- 32%	- 31%

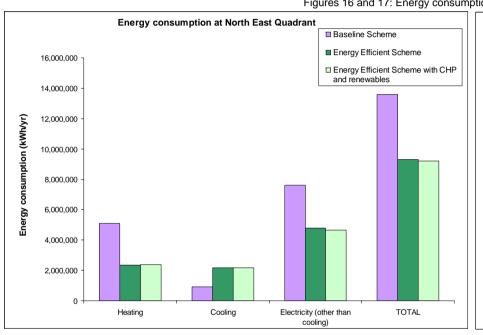
^{*} of which 950,000 kWh would be generated from biomass

The increase in coolingrelated energy consumption is due to the improved accuracy of the thermal model compared to benchmarks used to establish the baseline cooling-related energy consumption.

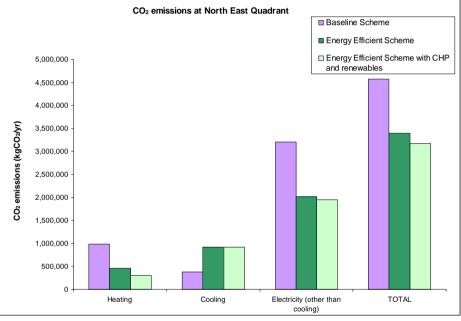


Impact of energy efficiency measures, biomass and CHP

The changes between the Baseline Scheme and the Energy Efficient Scheme with renewables and CHP have led to a 32% reduction in energy consumption and a 31% reduction in CO₂ emissions. 10% of the site energy consumption will be generated by the biomass boiler and 3% by the CHP plant.



Figures 16 and 17: Energy consumption and CO₂ emissions at NEQ



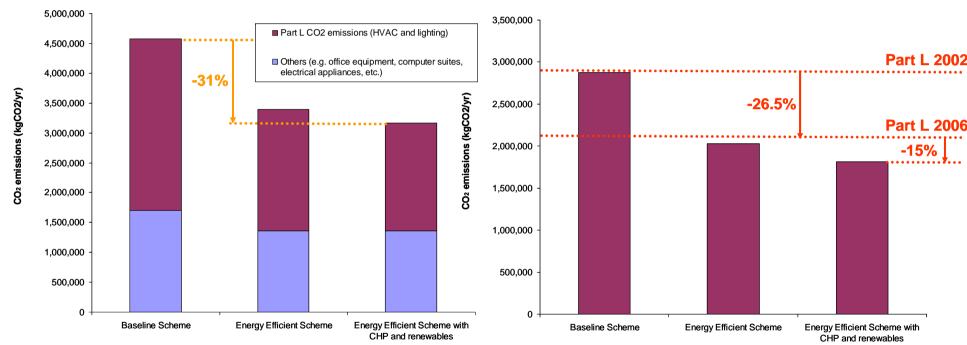
Clarification on benchmarks and Part L

It should be noted that:

- The Baseline Scheme represents the starting point of the Design. It is based on good practice benchmarks from CIBSE Guide F on Energy Efficiency in Buildings.
- The Energy Efficient Scheme and the Energy Efficient Scheme with CHP and renewables are based on a combination of results from thermal modelling and SAP cals, benchmarks, and calculations.



• It should be noted that CO₂ emissions above include all energy uses, not just energy uses covered by Part L. As CO₂ emissions not covered by Part L represent a large proportion of total CO₂ emissions, a total CO₂ emissions reduction of 31% between the Baseline Scheme and the Energy Efficient Scheme with CHP and renewables actually represents a Part L CO₂ emissions reduction of 37% and an improvement over Part L 2006 of 15%. See Figures 18 and 19 below.



Figures 18 and 19: Energy consumption and CO_2 emissions at NEQ / Part L

British Land will further discuss with the London Climate Change Agency (LCCA) the possibility of reorganising plant layouts throughout the Regent's Place basement to ascertain whether adequate free space can be created to house a larger CHP and the necessary thermal storage vessels, and whether replacing existing chillers with absorption chillers on the new development and the existing buildings would be viable (this would allow tri-generation). The design team will assess these possibilities.



APPENDIX A

RENEWABLE ENERGY SOURCES AND CHP

WIND GENERATION

There are three basic types to consider:

• Horizontal axis (propeller type)









Vertical axis (helical type)





 Building integrated type (building design is adapted to suit the wind turbine)





Building integrated systems are still at prototype stage.

Preliminary cost estimate

Assumed installed cost rate is £3,000/kW (Source: Enercon Cost Esimates /GLA Renewable Energy Toolkit Benchmarks).

Technical life expectancy

20-25 years.

Typical maintenance requirements

Low maintenance. Occasional lubrication of bearings. Service check every couple of years.



PHOTOVOLTAICS (PVs)

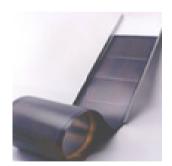
There are two types to consider: both types are viable

a) Solid PV cells – these can be roof or façade mounted (although solar modules fitted on a south facing façade have only 75% the output of roof mounted modules)





Thin film PV types are more flexible. They can be curved or flat.





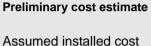
b) PVs integrated into glazing – the gaps around the PV cells allow some daylight penetration. This can be used for partial shading in a glazed roof.



Typical PV colours are dark blue, grey or green:



Example of PV cells laminated in glass and used as external shading:



rate of solar PV is £8,000/kW peak duty.

0.1kW peak duty is equivalent to 1m²

Technical life expectancy

20 years.

<u>Typical maintenance</u> requirements

Low maintenance. Visual inspection on monthly to ensure PV modules are clean and clear of obstructions. Check electrical connections 1-2 times/year.



SOLAR WATER HEATING

a) Roof mounted solar water heating tubes or flat panels – these could feasibly be mounted at roof level:





b) Solar thermal roof system (forms rain screen cover) – these could feasibly be installed as part of roof cover:



Preliminary cost estimate

Assumed installed cost rate per unit area of solar thermal panel is £700/m² (Source: GLA Renewable Energy Toolkit).

Technical life expectancy

25 years.

Typical maintenance requirements

Low maintenance. Annual maintenance check to ensure that:

- the collector surface is clean,
- there is no corrosion;
- sensors and fixings are properly in place,
- controls settings are properly set;
- fluid quality is good.

The system should be drained every five years.



BIOMASS HEATING

A biomass boiler uses a natural fuel such as wood chips or wood pellets for combustion. Since it uses a natural resource that can be replanted it is considered as a renewable energy source.

The primary disadvantage is that it requires large amounts of fuel storage (which will need to be fed by deliveries of biomass fuel) and requires a suitable flue design.

Potential logistic issue: need to secure delivery contract for wood chips or wood pellets.



Biomass Boiler



Wood pellets:

Wood chip storage and wood pellet storage is shown below:



Note: Biomass CHP is considered not viable due to lack of suitably sized products on market and poor UK experience at this scale.



Preliminary cost estimate

Assumed installed cost £250/kW (Source: GLA Renewable Energy Toolkit) + £100k for fuel storage.

Technical life expectancy

20-25 years.

Typical maintenance requirements

Biomass boilers require more frequent cleaning than gas boilers.

Biomass boilers must be capable of being taken out of service for cooling and cleaning while maintaining the building heating supply.

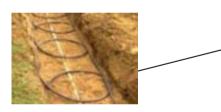


GROUND SOURCE HEAT PUMPS

Several options are possible depending on local geology and hydrology.

Various types of ground source heat pump arrangements are available including:

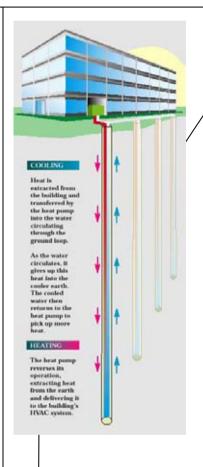
- Ι. Vertical boreholes
- II. Horizontal coils, typically less than few metres below ground, requires large area
- III. Slinky coils, e.g. around perimeter of building
- Aquifer or water coupled IV.



Horizontal coil heat pump system, tvpically 1m-3m deep

Water coupling options:

The use of two wells can allow inter-seasonal storage of heating and cooling (Also known as Aguifer Thermal Energy Storage):



Vertical borehole heat pump system, typically 75m-150m deep

Preliminary cost estimate

£1,800/kW. (From GLA Renewables Toolkit)

Assumed cost of heating/cooling plant for around source system is similar to displaced costs for conventional plant and therefore not included.

Technical life expectancy

Similar to the pumps, so can be extended each time the pumps are replaced.

Typical maintenance requirements

Low maintenance. No maintenance is required for the ground pipes, and the heat pump requires standard mechanical equipment maintenance.

Depth of boreholes: 75m to 150m.

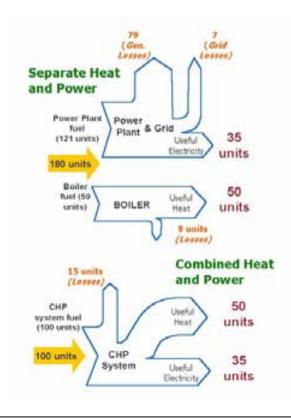
Separation between boreholes: 100m-300m



COMBINED HEAT AND POWER (CHP)

Combined heat and power (CHP) plant generates power for on-site consumption and recovers heat that can be used in the heating and hot water system.





Preliminary cost estimate

Cost for plant: £65k for 30 kWe packaged micro-gas turbine CHP unit (from manufacturers cost sheet) plus allow £10k for ancillary equipment.

Technical life expectancy

15-20 years.

<u>Typical maintenance</u> <u>requirements</u>

A CHP unit requires standard mechanical equipment maintenance.