

Energy from Waste Incinerator (EFW) including Infrastructure plus that for Combined Heat and Power (CHP), Incinerator Bottom Ash (IBA) Processing Plant with Outside Storage Area, and Air Pollution Control Residue (APCR) Treatment and Disposal Facility , Visitor & Office Accommodation and Landscaping within the Sutton Courtenay Resource Recovery Park

Predictive BREEAM Assessment

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Summary

Both predictive BREEAM Industrial and Offices assessments have been completed with reference to the proposed Energy from Waste Incinerator (EFW) including Infrastructure plus that for Combined Heat and Power (CHP), Incinerator Bottom Ash (IBA) Processing Plant with Outside Storage Area, and Air Pollution Control Residue (APCR) Treatment and Disposal Facility, Visitor & Office Accommodation and Landscaping within the Sutton Courtenay Resource Recovery Park.

Oxfordshire County Council have requested as part of their contract with the potential suppliers of the EfW that the development achieves a BREEAM rating.

'EfW' is the term used to refer to any waste treatment that creates energy in the form of electricity or heat from a waste source. Such technologies reduce or eliminate waste that otherwise would be transferred to landfill sites which are undesirable environmentally for a number of reasons including heightened emissions of methane, a powerful greenhouse gas. EfW is a form of energy recovery. Most EfW processes produce electricity directly through combustion, or produce a combustible fuel commodity, such as methane, methanol, ethanol or synthetic fuels. Process technologies for EfW facilities vary.

It should be noted that a complex facility such as an EfW would, in a formal assessment, fall under the Bespoke scheme, for which no pre-assessment estimator is available. As such, the Industrial scheme pre-assessment estimator is considered the nearest proxy to predict performance under the scheme. The ethos of BREEAM is to encourage improvement rather than simply to rate against a scoring system and as such the Bespoke assessment may concentrate on areas within the development which are focused away from its principle function as an energy provider. It must also be noted that for the Visitors Centre to be considered an Offices assessment, the scope should be confirmed with the BRE.

The predictive assessments have ascertained a scoring range relating to the category 'Very Good' for both the EfW building and the Visitors Centre. However, considering the stage of project development and the uncertainties surrounding the nature of the credits which would be required to be met in a formal assessment, a considerable element of uncertainty surrounds any predictive scores provided within this report. As such it is tentatively suggested that a minimum rating of 'Good' could be achieved by both the EfW and Visitors Centre buildings. This is dependant on the criteria determined for the Bespoke assessment and cannot therefore be guaranteed.

There are opportunities for increasing the score against credits assessed in the predictive assessment although this may carry with it further cost implications and it is recommended that further design decisions take the advice of a Bespoke assessor and consultation with the BRE.

Within the predictive assessment, specific items where more than one credit is available have been highlighted within the analysis as to where a higher score may be achievable. Notably, there may be up to seven more credits available for credit E1 (reduction of CO₂ emissions) as the development will take all its power from the EfW process and a conservative approach to scoring has awarded only half of these credits on a predictive basis.

1 Introduction

Proposed Development

- 1.1 This report presents the results of the BREEAM for Industrial/Offices Predictive Assessment, and a qualitative view of the areas where it is thought the EfW will score well under a Bespoke scheme assessment.
- 1.2 The proposed development is for an Energy from Waste Incinerator (EFW) including Infrastructure plus that for Combined Heat and Power (CHP), Incinerator Bottom Ash (IBA) Processing Plant with Outside Storage Area, and Air Pollution Control Residue (APCR) Disposal Facility , Visitor & Office Accommodation and Landscaping within the Sutton Courtenay Resource Recovery Park
- 1.3 The EFW is being proposed by WRG to address the need for a facility to deal with mixed residual municipal and other similar wastes (left over after recycling and composting) generated in Oxfordshire. The plant design is based upon a standardised design as far as possible, incorporating a single stream design and is capable of processing 300,000 tonnes of waste per annum (tpa).
- 1.4 The proposal is for the construction and operation of a new EFW plant on land forming part of the existing Sutton Courtenay Facility which is operated by WRG.
- 1.5 The main components of the proposed EfW are:
 - EfW incinerator with an operating capacity of 300,000 tonnes per annum and electrical output of 23 MW;
 - Infrastructure for Combined Heat and Power (CHP);
 - Weighbridges and associated offices;
 - Pre-treatment plant and hazardous waste landfill disposal capacity to accommodate Air Pollution Control Residues collected from the incinerator.
 - An Incinerator Bottom Ash (IBA) recycling plant with a capacity of 50,000 tonnes per annum
 - An education facility with office accommodation
 - Landscaping

- 1.6 Further details of the site and its surroundings, the process description and the plant and site layout are included in Chapters 1, 2 and 4 of the Environmental Statement and associated Figures.
- 1.7 Although there is no statutory requirement for applicants to undertake a BREEAM Assessment of a specific project, developers of major developments are frequently being asked by Local Planning Authorities (LPAs) to demonstrate that they have taken the environmental performance of buildings into account within their proposals. In some circumstances, the LPA can set a specific planning condition to undertake a BREEAM Assessment, depending on the size and nature of the development.
- 1.8 Whilst policies in the adopted development plan promote environmentally conscious buildings, there are no policies specifically requiring either a predictive or formal BREEAM Assessment to be undertaken to inform a planning application. In addition, the formal scoping opinion issued by Oxfordshire County Council with respect to the Environmental Impact Assessment for the project did not make any reference to the need for a BREEAM Assessment.
- 1.9 There is therefore no explicit legal or policy requirement to carry out either a predictive or formal BREEAM Assessment for the proposed development. However, WRG consider it important that not only the process which the building houses is efficient and environmentally responsible, but that the buildings perform on an environmental level too and as such have undertaken a predictive assessment on the development.

Regulation and New Demands on Developments

- 1.10 There is an increasing demand on development to address the environmental performance of the buildings which are being proposed. This is being achieved through a number of regulatory methods and policy movements, described as follows:

Building Regulations:

- 1.11 Part L of the Building Regulations addresses the conservation of fuel and power and there is a progressive tightening of this element in order to raise standards in the performance of buildings. There are currently significant discussions taking place investigating the costs and benefits of raising energy performance standards in new-non domestic buildings all the way to zero carbon (the definition of which is still the subject of debate).

The Energy Performance of Buildings Directive (EU EPD)

- 1.12 The EU EPD mandates that Energy Performance Certificates (EPCs) be issued for homes and commercial / public buildings over a certain floor area which grade buildings on a scale of A-G, similar to the system for grading domestic white goods. Two types of certificate 'Asset' (which measures the intrinsic performance of the building based on its design) and 'Operating' certificates (measuring how the building is managed and actually performs). In all public buildings operating certificates known as Display Energy Certificates (DECs) must be displayed.

The Merton Rule

- 1.13 In 2004, the issue of PPS22 (Renewable Energy) which allowed local authorities to mandate on-site renewable energy production (typically 10%) as a condition of development. The London Borough of Merton was the first to adopt this provision and approximately 150 local authorities have followed suit. Despite recent debate over the definition of renewable energy and whether on or off site generation is acceptable, the policy remains.

The Climate Change Bill

- 1.14 The details of the Draft Climate Change Bill were revealed by the Government in March 2007 and have been the subject of debate and scrutiny by special parliamentary committee. The Bill comprises the following elements intended to act as a catalyst to individuals to invest in low carbon technologies with time horizons extending beyond the current 2012 Kyoto Protocol limits:
- A legal commitment to reduce CO₂ by 60% by 2050, with a 26-32% reduction by 2020.
 - The setting of intermediate five year carbon emission budgets/allowances which are to be set at least fifteen years ahead.
 - The creation of a new expert led independent statutory body (Committee on Climate Change) to advise and guide the Government on target achievement and budget progress.
 - New powers enabling Government to streamline the implementation of emissions reductions policies.
 - Annual reports to Parliament through independent progress reports provided by the Committee on Climate Change with stipulations on response timescales from Government.

- Five yearly reports on current/predicted climate change impacts and policies for adaptation to such changes.

1.15 These are the key elements of the Draft Bill currently being debated but the overall intent of the policy and therefore future government direction is clear.

The Draft Strategy for Sustainable Construction

1.16 There is a movement stemming from a comment process between policy makers BERR, Defra and CLG which may have far reaching consequences for those involved in development. The draft 'Strategy for Sustainable construction' is intended to bring together the many different policy initiatives for sustainable construction under one banner, which provides specific targets for energy, water and waste. Although no new targets are to be set per se, the strength of the consolidation of targets within one plan will strengthen the onus on developers to follow such a strategy.

BREEAM for Industrial / Offices Predictive Assessment

1.17 The Building Research Establishment (BRE) has developed a suite of tools called BREEAM (Building Research Establishment Environmental Assessment Method) that assess the performance of buildings in such areas as health and well-being, energy consumption, transport, materials, land use and ecology. The suite of tools includes methodologies for assessing residential properties (the Code for Sustainable Homes) and a range of non-residential properties (including BREEAM for Offices, BREEAM for retail, BREEAM for Schools and BREEAM for Industrial). For these schemes the building's performance is assessed against a standard set of criteria and awarded an overall rating of either 'Pass', 'Good', 'Very Good' or 'Excellent'.

1.18 BREEAM's main strengths are that it has been recognised at the national level as a method to demonstrate sustainable design and the design of the credits and scoring system mean that the applicable schemes can be applied in a similar way, on any building design anywhere in the country. This assessment method can be used in its full capacity as an assessment of the building's performance once the full details of the design have been established (usually post-Building Regulations stage). In advance of this, a predictive assessment can be undertaken, which considers the principles of the design and provides an indication of the likely score that would be achieved by the proposed development. The suite of BREEAM schemes has an established credibility as a tool to demonstrate sustainable design and it provides the ability to compare a proposal with others of a similar nature.

- 1.19 BREEAM is often used at a predictive stage for proposed developments as a complementary assessment accompanying a Sustainability Appraisal (please see accompanying report for the Sustainability Appraisal).
- 1.20 A BREEAM for Industrial Predictive assessment has been undertaken for the EfW facility at Sutton Courtenay. Due to the complexity of the EfW, initial discussions with the BRE suggest that the assessment would be made under the BREEAM Bespoke scheme, for which there is no pre-assessment estimator. A Bespoke Assessment involves a minimum time period of 10-18 weeks from initial meeting with the Assessor to allow for the development of appropriate criteria. Following this, an Assessor would be able to assess the building. It has not been possible to assess more fully the types of issues which may be considered by a BREEAM Bespoke Assessment as this would require significant input and potential registration of the scheme by the BRE. It has been anticipated that the issues raised by the EFW would fall under the same categories as required by other BREEAM schemes and therefore, at this design stage a pre-assessment on an Industrial basis is considered a suitable proxy. An accompanying assessment has been undertaken under the Offices scheme for the Visitors Centre.
- 1.21 Predictive scores should be treated as such and it cannot be guaranteed that the scheme would achieve the indicative rating it has been awarded within this report within either the Offices Scheme or the Bespoke scheme. In either case the predictive assessment provides an opportunity to inform and enhance the design where potential improvements in sustainable design are identified

2 Building Research Establishment Environmental Assessment Method (BREEAM) Predictive Assessment

- 2.1 Oxfordshire County Council has requested as part of their contract with the potential suppliers of the EfW that the development achieves a BREEAM rating. The rating which the building must achieve has not been stipulated. In response to this a BREEAM for Industrial Predictive Assessment has been completed for the Sutton Courtenay EfW Plant, and an Offices assessment for the Visitors Centre and the results are presented within this section.
- 2.2 Information from around the Design Team has been gathered in order to complete this predictive assessment. However, as is often the case with predictive assessments and due to the stage of the current design it has been necessary to make some educated assumptions regarding a number of credits. Where assumptions have been made this is clearly stated.
- 2.3 Full copies of the Pre-Assessment Estimator for both Industrial and Office Schemes are provided in Appendices C and D which provide an overview of the credit requirements and the scoring regime. Please note that the scoring regime provided in the pre-assessment estimators is an approximation of the scoring regime in a formal assessment and is pre-weighted and as such contains credit scoring with decimal places. This assessment provided within the body of this report follows the formal scoring regime which contains credit scoring in whole numbers. The scores are collated within Appendices A and B which subsequently weights the scores and provides a graphical analysis of performance under each section of the assessment.
- 2.4 Please note that BREEAM assessors require specific documentary evidence to support the awarding of credits in a formal assessment. For this reason, non-assessors are likely to overestimate the building's performance due to a lack of knowledge about the measurement conventions and the simplification of the weighting system used and as such it is recommended that a pre-assessment is completed by a trained assessor.
- 2.5 It should be noted that the BREEAM Non-domestic scheme assessment process is being revised in the summer of 2008 and new versions will come into effect later this year. This may affect a future formal BREEAM assessment on this project. Changes are to include the following:
- Change to environmental weighting categories
 - Introduction of mandatory credits

- A two stage certification process: both design stage and post construction assessment as mandatory elements.
- Benchmarks set for CO₂ emissions to align with the new Environmental Performance Certificates
- Shell only assessments
- Changes to specific credits
- New award rating of BREEAM 'Outstanding'.

2.6 Please note that currently available pre-assessment estimators refer only to the existing 2006 BREEAM scheme. The implications to the assessment of the WRG scheme will be the need to review the minimum and statutory credits and the effect of their revised weightings to determine whether the scheme attains an acceptable rating under the new standards. The planning timetable is likely to dictate that assessments will have to be undertaken in relation to the new 2008 scheme versions.

2.7 As aforementioned. both the EfW and the Visitors Centre are subject to predictive BREEAM assessments. The IBA shed, which holds bottom ash from the EfW, is excluded from the assessment at present as its principal purpose is storage and it has no services and/or energy requirements. At a predictive stage the weighbridge office has also been excluded due to its small scale in relation to the other buildings and the assumption that its construction will be to a relatively similar standard as the visitors centre.

2.8 It should be noted that where relevant to the discussion, text on the requirements of the formal BREEAM credit has been supplied. Please note that this is not, however, a substitute for the technical manuals which provide the full credit evidence and attainment requirements to be met and that when determining formal BREEAM credit scoring, the technical manual should always be referred to.

2.9 It should also be noted that the credits which the design team have anticipated they will achieve within a formal assessment are not necessarily credits which will be pursued into a formal assessment and the anticipation of achievement does not bind WRG to achieving particular credits in order to gain a BREEAM rating.

Management

Management Overview

- 2.10 Sustainable construction concerns more than just the fabric of buildings; it also includes the management issues associated before, during and after the development's construction. The management of buildings during both the construction and operation phase provides an opportunity for making effective decisions and efficient use of resources in a planned and documented manner. Commissioning is especially important considering the potentially large efficiency savings through adjustments which can be made to building systems when in use.

Commissioning (M1)

- 2.11 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.12 Commissioning can have an important effect on monitoring that the building functions as anticipated and that building performance is optimised. Two credits are available within this section for a fitted out building.
- 2.13 The first credit is available for a project team member to monitor commissioning on behalf of the client to ensure commissioning will be carried out in line with current Building Regulations and (where applicable) best practice. It is confirmed by the design team that the requirement to fulfil this credit will be placed upon the M&E contractors when appointed and therefore this credit is awarded on a predictive basis. The following should be noted regarding the formal requirements of this credit:
- Pre-commissioning, commissioning and quality monitoring requirements set out under the credit are passed on to the appropriate contractors and all trades on site.
 - A specialist commissioning agent is appointed (by either client or contractor) for complex systems such as:
 - A. Air conditioning;
 - B. Mechanical ventilation (displacement ventilation, complex passive ventilation);
 - C. Building Management Systems (BMS)
 - D. Renewable Energy Sources

- 2.14 The second credit is available where evidence is provided which demonstrates that seasonal commissioning will be carried out during the first year of occupation, post construction (or post fit out). It is confirmed by the design team that the requirement to fulfil this credit will be placed upon the M&E contractors when appointed and therefore the second credit is awarded on a predictive basis.

Visitors Centre

- 2.15 The specification for this requirement for the Visitors Centre will be similar to that of the EfW building and as such the same credits are anticipated to be achieved.

Considerate Constructors (M4)

- 2.16 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.17 The Considerate Constructors scheme is increasing in popularity as a way of managing the effects a construction site can have on construction staff, neighbours, and the environment. Two credits are available under this category. The first is available where a score against the Considerate Constructors checklist is between 24 and 31.5 and the second where a score of between 32 and 40 is achieved.
- 2.18 It is confirmed at this stage by the design team that it is intended to include compliance with the Considerate Constructors scheme to a level which is compliant with the BREEAM credit within the contract of appointment. As a conservative estimate, a score is between 24 and 31.5 is considered attainable and therefore one credit is awarded.

Visitors Centre

- 2.19 The specification for this requirement for the Visitors Centre will be similar to that of the EfW building and as such the same credits are anticipated to be achieved.

Construction Site Impacts (M5)

- 2.20 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

- 2.21 Up to four credits are available where credit items from the list contained in Table 2-1 are met, and sustainable sources of timber are to be used.

Table 2-1: Creditable Activities: Construction Site Impacts

| Credit items | Anticipated achievement |
|---|-------------------------|
| Monitor and report CO ₂ or energy arising from site activities | TBC |
| Monitor and report on water consumption from site activities | Yes |
| Monitor and report transport to and from site to enable CO ₂ emissions arising from transport to be calculated | TBC |
| Monitor construction waste on site | TBC |
| Sort and recycle construction waste on site | Yes |
| Adopt best practice policies in respect to air (dust) pollution | TBC |
| Adopt best practice policies in respect to water (ground and surface) pollution | TBC |

EfW Building

- 2.22 It is confirmed by the architect that two items as identified in Table 2-1 are to be undertaken / written into contracts. Achievement of two items enables the award of one credit. If a total of four items were achieved, then a second credit could be awarded, and a third for the achievement of six items.
- 2.23 One credit is also available for all timber on site being responsibly sourced. It is confirmed by the design team that it is anticipated that meeting this requirement will be a contractual arrangement with the construction company. Therefore this credit is awarded on a predictive basis. It should be noted that evidence of timber certification documents indicating a chain of custody will be necessary to evidence this credit in a formal assessment.

Visitors Centre

- 2.24 The specification for this requirement for the Visitors Centre will be similar to that of the EfW building and as such the same credits are anticipated to be achieved.

Building User Guide (M12)

- 2.25 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.26 The provision of a simple guide which covers information relevant to tenant/occupants and a non-technical building manager on the operation environmental performance of the building is a relatively straightforward undertaking. It is anticipated that this could be fulfilled by the mechanical services engineers as a specified additional piece of work to the documentation already envisaged and that points could be gained in a formal assessment. As such one credit is awarded on a predictive basis.

Visitors Centre

- 2.27 The specification for this requirement for the Visitors Centre will be similar to that of the EfW building and as such the same credits are anticipated to be achieved.

Health & Wellbeing

Health & Wellbeing Overview

- 2.28 Occupants of a building can be affected in many ways by its internal environment through lighting, availability of fresh air, control of pathogens e.g. legionella and thermal and acoustic performance. There are health and safety considerations associated with these parameters and buildings which do not control these effects can end up being labelled as suffering from the term 'sick building syndrome', whilst still being legally safe. Steps taken to manage the internal environment in both the offices and production spaces in industrial schemes can hold a positive influence of the building users experience and performance within the building. This development has been designed to promote health and wellbeing in a number of areas.

Daylighting (HW1)

- 2.29 Please note the requirements of this credit differ between the Industrial and Offices Schemes.

EfW Building

- 2.30 It has been indicated by the project architect that it may be possible that at least 80% of the office floor areas are adequately day-lit in line with the requirements of the BREEAM credit, which requires specific calculation at a formal assessment stage. The formal requirements for this credit have differing calculations for office areas and all other occupied areas. However, considering the requirement for specific calculations to be met in order to achieve the formal credit and in the interests of being conservative the credit is held back on a predictive basis. However, it is agreed that further assessment of the potential for this credit to be met will take place at a more detailed design stage.

Visitors Centre

- 2.31 It has been indicated by the project architect that it will be possible that at least 80% of the office floor areas are adequately day-lit. Therefore, the credit is awarded on a predictive basis.

View Out (HW2)

- 2.32 Please note this credit is only applicable to the Offices scheme, however, the requirements of part of the Industrial scheme credit HW18 use the same parameters.
- 2.33 It is confirmed by the project architect that it will be possible for all desks within the office building to be within a 7m radius of an external window and therefore the credit is awarded on a predictive basis.
- 2.34 Please note that in a formal assessment, the following must also be met:
1. The view cannot be an internal view across office space, as this could be obstructed by partitions or filing cabinets during an office reorganisation.
 2. Roof lights or high level windows are also not acceptable for this credit.
 3. A view out can be a view into a courtyard, atrium, other office etc. and does not have to be an attractive or green field view. Provided the desk/workstation nearest the window is at least 10m from the back wall of the courtyard/atrium.
 4. The window (or opening) must provide a view of landscape or buildings (rather than sky) at seated eye level in office areas.

Glare Control (HW3)

- 2.35 Please note this credit is only applicable to the Offices scheme, however, the requirements of part of the Industrial scheme credit HW18 use the same parameters.
- 2.36 It is confirmed by the project architect that a suitable occupant controlled glare control system (e.g. internal or external blinds) is to be fitted within the Visitors Centre building and as such the credit is awarded on a predictive basis.

High Frequency Lighting (HW4)

- 2.37 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.38 It has been confirmed by the project architect that high frequency ballasts are to be installed on all fluorescent and compact fluorescent lamps. Therefore this credit is anticipated to be achieved.

Visitors Centre

- 2.39 The specification for the Visitors Centre is similar to that of the EfW building and as such this credit is anticipated to be achieved.

Internal and External Lighting (HW5)

- 2.40 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.41 Internal lighting has a distinct effect on occupant satisfaction and can affect staff productivity. One credit can be gained where both internal and external lighting meet the appropriate illuminance levels (in lux) as recommended by CIBSE. It is anticipated by the design team that this will be achieved through the current specification and as such the credit is awarded on a predictive basis.

Visitors Centre

Lighting Zones (HW6)

- 2.42 Please note this credit is only applicable to the Offices scheme; however, the requirements of part of the Industrial scheme credit HW18 use the same parameters. It is confirmed by the project architect that lighting, in all occupied areas will be zoned to allow for separate control and therefore the credit is awarded on a predictive basis.
- 2.43 Please note that in a formal assessment separate zones will need to be provided for (as a minimum)
- Office and circulation spaces
 - Office zones of no more than four workplaces in office areas
 - Workstations adjacent to windows / atria in other areas.

Potential for Natural Ventilation (HW8)

- 2.44 Please note this credit is only applicable to the Offices scheme, however, the requirements of part of the Industrial scheme credit HW18 use the same parameters.

- 2.45 Although it would be possible for the building to be naturally ventilated it is felt by the design team that the location of the building next to a landfill site may mean that mechanical ventilation is the preferred option.
- 2.46 However, in order to gain a credit under this section it is not necessary for the building to be naturally ventilated as its principle ventilation strategy and the credit can still be met where mechanical ventilation is installed but that the stated areas and distances are met and that there is the facility for openable windows.
- 2.47 The design team have been provided with the full formal guidance for this credit and may choose to pursue this in a formal Offices assessment. At the current time, in the interests of being conservative, the credit is withheld.

Internal Air Pollution (HW9)

- 2.48 Please note this credit is only applicable to the Offices scheme, however, the requirements of part of the Industrial scheme credit HW18 use the same parameters.
- 2.49 One credit is available where air intakes serving occupied areas avoid major sources of external pollution and recirculation of exhaust air. For mixed mode buildings the location of air intakes/outlets are over 10m apart to minimise recirculation and intakes are over 20m from sources of external pollution such as car parks. Please note a list of what the BRE considers to be sources of external pollution is not provided within technical manuals.
- 2.50 It is felt by the design team that this is an achievable credit, and as such it is awarded on a predictive basis.
- 2.51 For reference, in a formal assessment, there are specific evidence requirements for this credit involving the provision of marked up drawings showing locations of intakes, and outlets in relation to each other and any roads (including site roads), car parks, other extracts or pollution sources.

Ventilation Rates (HW11)

- 2.52 Please note the requirements of this credit are similar for both the offices and industrial schemes.

EfW Building

- 2.53 Fresh air rates affect occupant comfort and can also have an effect on staff productivity. It has been indicated by the project architect that the ventilation requirements can be met on a

mechanical basis to both the office and production areas and as such the credit is awarded on a predictive basis

Visitors Centre

2.54 As with the EfW building, the ventilation requirements are planned to be met on a mechanical basis to the Visitors Centre and therefore the credit is awarded on a predictive basis.

Thermal Comfort (HW14)

2.55 Please note this credit is only applicable to the Offices scheme, however, the requirements of part of the Industrial scheme credit HW18 use the same parameters. The credit requires that thermal comfort levels are assessed at the design stage and that this is used to evaluate appropriate servicing options, and that appropriate thermal comfort levels are achieved. To achieve the credit under a formal scheme a number of criteria must be fulfilled:

- Completion of feasibility studies aimed at optimising thermal comfort.
- The studies/modelling are used to guide the following design decisions which will influence comfort levels:
 - Basic building form and orientation.
 - Internal layout
 - Exploiting the effect of trees and building over shading on solar heat gain and shielding effects on transmission losses.
 - Balancing the maximisation of daylight for reduced lighting energy use against increased cooling loads and thermal comfort levels.
 - Checking for overheating risk.
- Thermal comfort levels meet the requirements set out in CIBSE Guide A.

2.56 The design team are at present considering whether they would wish to pursue this credit or a similar such credit under a Bespoke assessment and therefore in the interests of being conservative, the credit is withheld on a predictive basis.

Thermal Zoning (HW15)

2.57 Please note this credit is only applicable to the Offices scheme, however, the requirements of ~~part of the Industrial scheme credit HW18 use the same parameters. One credit is available~~

where evidence is provided that demonstrates local occupant control is available for temperature adjustment in each area to reflect differing load requirements. The design team have considered this credit and although it would be easier to meet the requirements of this credit with a traditional radiator based solution rather than the anticipated strategy which will use waste heat from the EfW plant distributed via a mechanical ventilation system. However, it is still felt that achievement of this credit is possible and as such the credit is awarded on a predictive basis.

Microbial Contamination (HW16)

- 2.58 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.59 The legionella pathogen can pose significant risk to health if adequate control measures are not put in place in any development. The requirements of this credit are often met as standard within developments and it has been confirmed by the design team that it will be possible to meet the requirements of this credit and as such the credit is awarded on a predictive basis.
- 2.60 For reference, in a formal assessment, all water and HVAC systems must be designed to meet the requirements of HSE Approved Code of Practice and Guidance, L8, 'Legionnaire disease; The control of legionella bacteria in water systems' (2000).

Visitors Centre

- 2.61 The specification for this requirement for the Visitors Centre will be similar to that of the EfW building and as such the same credits are anticipated to be achieved.

Acoustic Performance (HW17)

- 2.62 Please note this credit is only applicable to the Offices scheme, however, the requirements of part of the Industrial scheme credit HW18 use the same parameters. One credit is available where indoor ambient noise levels in unoccupied offices fall within the following ranges:
- a. 35-40dB $L_{Aeq,T}$ in small offices (single occupancy cellular offices)
 - b. 40-45dB $L_{Aeq,T}$ in medium offices (shared offices up to and including four workstations or up to and including 40 square metres)

c. 45-50dB $L_{Aeq,T}$ in large offices (multi-occupancy office space, typically open plan with more than four workstations, or larger than 40 square metres).

2.63 At present the design team are considering the requirements of the formal credit as to whether they feel it an achievable goal for the Visitors Centre and as such the credit is withheld at present pending the outcome of these discussions.

Office Space (HW18)

2.64 Please note this credit is only assessed under the Industrial scheme and involves an amalgamation of some other credits within other schemes. Up to two credits are available, the first being awarded if three of the listed measures are met, and the second if five of the listed measures are met. The potential items are discussed in Table 2-2.

2.65 At present, it is felt with a sufficient degree of confidence that four of these parameters can be met and as such one credit is awarded. A full two credits may be achievable but is dependent on further design decisions.

Table 2-2: Award Areas for Credit HW18.

| Item | Requirement | Anticipation of Achievement | Note for formal assessment |
|-----------------------------------|---|--|---|
| View Out | Although the requirements are the same as credit HW2 for the Office Building it is the case that some of the requirements may not be met by the control room in the EFW building as the view from the control room will be of the tipping hall. | In the interests of being conservative and dependent on whether the control room would be considered an office area this requirement is deemed unmet at present. | Evidence will be required of plans showing layout of workstations. These may be notional. |
| Daylight Glare Control | Where an occupant controlled system of glare control (e.g. internal or external blinds) is fitted on all windows. | Yes | Confirmation of scope and details of occupant control will be required. |
| Lighting Zones | Please see discussion in relation to Offices credit HW6 | Yes | Confirmation of control systems specified, including details of installation and its zoning. It is recognised that in most cases there will be no furniture layouts confirmed and it is fine to use notional layouts which use one workspace per 10m ² . |
| Potential for Natural Ventilation | Please see discussion in relation to Offices credit HW8 | Although this still may be achievable with mechanical ventilation, it is still under consideration by the design team and therefore this | Must be demonstrated through calculation. |

| | | | |
|------------------------|---|---|--|
| | | requirement is deemed unmet at present. | |
| Internal Air Pollution | Please see discussion in relation to Offices credit HW9 | Yes | Must be demonstrated through marked up drawings |
| Thermal Zoning | Please see discussion in relation to Offices credit HW15. | Yes | Details of thermal zoning and the method of control to be employed |
| Thermal Comfort | Please see discussion in relation to Offices credit HW14 | The design team are at present considering whether they would wish to pursue this credit and therefore in the interests of being conservative, the credit is withheld on a predictive basis. | Feasibility studies aimed at optimising thermal comfort must be supplied. Along with confirmation from the design team indicating that a thermal comfort assessment has been undertaken (signed minutes of a meeting confirming the above will provide sufficient documentary evidence). |
| Acoustic Performance | Please see discussion in relation to Offices credit HW17 | At present the design team are considering the requirements of the formal credit as to whether they feel it an Achievable goal for the EfW building and as such the credit is withheld at present pending the outcome of these discussions. | Must be demonstrated through calculation. |

Energy

Energy Overview

- 2.66 Energy efficiency in industrial developments has been traditionally poor. Industrial developments are often referred to as 'sheds' and traditionally little attention has been paid to increasing energy efficiency performance and considering sustainability in their construction. The Royal Commission on Environmental Pollution has recommended that the UK needs to cut carbon dioxide emissions by 60% by 2050 if the worst effects of climate change are to be avoided and this target has been adopted in the Government's Energy Saving White paper. This development has been designed to promote energy efficiency in a number of areas.

Reduction of CO₂ Emissions (E1)

- 2.67 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.68 Up to fifteen credits are available for the percentage improvement above the required building regulations to achieve CO₂ emissions reductions for the development. It is understood that the generated electrical energy from the plant is sufficient for the requirements of the EfW building, with the balance to be exported. It is anticipated that other than for periods of shut down, 100% of the electrical energy should be supplied by the plant itself. The improvement above building regulations in CO₂ emissions is yet to be assessed, and at present a conservative mid range credit figure has been provided which may increase, or decrease, upon specific energy calculations.
- 2.69 For reference, the formal requirements of this credit require that provided below:
1. The number of credits achieved is based on the percentage improvement in the assessed designs' predicted Building CO₂ Emission Rate (BER) over the Target CO₂ Emission Rate (TER), as defined in the Building Regulations. Until such point as the NCM is integrated into all UK regulations Approved Document Part L2A New Buildings other than dwellings 2006 must be used when assessing this credit.

2. The percentage improvement in the CO2 Emission rate is used to allocate the number of credits, as illustrated in the table below.

| Credits | Percentage improvement over the requirements of Approved Document Part L2A New Buildings other than dwellings 2006. |
|----------------|--|
| 1 | +1% |
| 2 | +2% |
| 3 | +4% |
| 4 | +6% |
| 5 | +8% |
| 6 | +10% |
| 7 | +12% |
| 8 | +14% |
| 9 | +18% |
| 10 | +22% |
| 11 | +30% |
| 12 | +40% |
| 13 | +50% |
| 14 | +60% |
| 15 | ≥70% |

Visitors Centre

2.70 Credits are awarded on a predictive basis using the same reasoning as for the EfW building.

Sub-metering of Substantial Energy Uses (E2)

2.71 Please note this credit is only applicable to the Offices scheme and therefore the Visitors Centre building only.

2.72 One credit is available where electricity sub-metering is provided for substantive energy uses within the building covering lighting and small power, and each of the following where present;

- Computer room

- Humidification plant
- Cooling plant
- Fans (major)
- If a building has other major energy consuming items, they should be covered as appropriate e.g. catering facilities.

2.73 It is anticipated by the design team that this could be achieved through specification and as such the credit is awarded on a predictive basis.

Sub-metering of areas/tenancy (E3)

2.74 Please note the requirements of this credit differ between the Industrial and Offices Schemes.

EfW Building

2.75 One credit is available where provision of sub-meters covering the main occupied areas within each unit is provided. This covers as a minimum, office areas, operational areas and ancillary areas. It is felt by the design team that this credit can be achieved through specification and therefore one credit is awarded on a predictive basis.

2.76 Please note that in order to award this credit in a formal assessment 90% of the energy use in each unit should be directly sub-metered.

Visitors Centre

2.77 One credit is available where provision of sub-meters covering all potential tenancy or function areas within the building. For a single occupancy building such as the Visitors centre a commitment to install sufficient sub-metering to allow for monitoring of different departments or areas of an organisation. Note the BRE comment that metering by floor plate is normally sufficient to achieve this.

2.78 It is felt by the design team that this credit can be achieved through specification and therefore one credit is awarded on a predictive basis.

External Lighting (E4)

- 2.79 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.80 It has been confirmed by the project architect that 80% of external luminaries will meet the standard of at least 100luminaire-lumens/circuit Watt and that all light fittings are controlled through a time switch or daylight sensor to allow for daylight control. Therefore this credit is awarded on a predictive basis. It should be noted that the high standards published for this credit in the Pre-Assessment Estimator have actually been reduced in the current formal 2006 BREEAM guidance.

Visitors Centre

- 2.81 It has been confirmed by the project architect that the same strategy is to be followed for the Visitors Centre as for the EfW building and as such the credit is awarded on a predictive basis.

Building Fabric Performance & Air Infiltration (E5)

- 2.82 Please note this credit is only applicable to the Industrial scheme and therefore the EfW building only.
- 2.83 This credit requires a number of elements to be met which include the following:
- A commitment to undertake a comprehensive thermographic survey once the building is completed.
 - Goods doors specified so as not to face prevailing winds
 - Installation of separate personnel doors between the operational areas and the outside and a draught lobby between the office area and the outside.
- 2.84 It has been indicated by the project architect that the development is not anticipated to score against this credit. It should be noted that if further credits are required to meet a certain rating for this development to undertake a thermographic survey can be an expensive option to pursue and that Met Office data must be taken into account when determining the position of Goods doors.

Transport

Transport Overview

- 2.85 Transportation to and from developments such as this are an important consideration on both personnel grounds and for the management of deliveries in an efficient and effective manner. The majority of personal travel (93%), and freight movement (65%) is now made up by road transportation (DTLR, 2000, cited in Environment Agency, 2008). Road traffic in the UK is 26% higher than the OECD European Average (OECD, cited in Environment Agency, 2008). Emissions from road transport are the main cause of chronic hot spots for particulates and nitrogen dioxide in major urban areas. In 2006, the latest year for which statistics are available, 22% of UK CO₂ emissions came from transport emissions. Government policies support the use of public transport and walking/cycling over private car.
- 2.86 It is understood that a Framework Travel Plan will be developed for this site to be submitted with the planning application, and a more comprehensive Travel Plan would be pursued at a post-planning stage.

Provision of Public Transport (T1)

- 2.87 Please note the requirements of this credit differ between the Industrial and Offices Schemes.

EfW Building

- 2.88 Up to four credits can be awarded based on the provision of public transport. It has been indicated by the project architect that, due to the position of the site, it will not be possible to meet any of the requirements for this credit i.e. all public transport nodes are in excess of 800m from the proposed development. Therefore this credit is withheld on a predictive basis.

Visitors Centre

- 2.89 Up to two credits can be awarded based on the provision of public transport. It has been indicated by the project architect that, due to the position of the site, it will not be possible to meet any of the requirements for this credit i.e. all public transport nodes are in excess of 500m from the proposed development. Therefore this credit is withheld on a predictive basis.

Transport CO₂ (T2)

- 2.90 Please note this credit is only applicable to the Offices scheme and therefore the Visitors Centre building only. Up to ten credits are available under this category where the BREEAM Assessor calculates the transportation emissions associated with the location of the building. It is predicted that the development is categorised on a predictive basis as a rural location with typical public transport connections, and as such, as a conservative estimate, two credits are awarded.

Cyclist Facilities (T5)

- 2.91 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.92 Two credits are available for cyclist facilities. The first credit is available where compliant cycle storage and facilities and showers are provided for a percentage of building occupants in accordance with the following figures:
- 10% of the building occupants up to 500 PLUS
 - 7% for building occupants in the range of 501-1000 PLUS
 - 5% for building occupants over 1000
- 2.93 It has been indicated by the design team when examining the formal requirements of this credit that 4 cycle racks and one shower will be required. Therefore the first credit is awarded on a predictive basis.
- 2.94 The second credit is achievable if (in addition to the first credit being met) that at least one of the following must be provided:
- Compliant changing facilities and lockers for clothes OR
 - Compliant drying space for wet clothes.
- 2.95 The design team have indicated that it will be possible to meet the requirements of the second credit within the EfW building and as such it is awarded on a predictive basis.

Visitors Centre

- 2.96 It is confirmed by the design team that the first credit is achievable on the same basis as the EfW and it is likely that the second credit can also be met. However, in a formal assessment it may be necessary to confirm with the BRE that some space may be jointly housed within the EfW building to serve the Visitors Centre.

Travel plan (T8)

- 2.97 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.98 It is understood from the Transport consultants working on behalf of the client that a Green Travel plan will be required by Oxfordshire County Council. A framework Travel Plan will be developed to be submitted in line with the planning application and a comprehensive one will be fully developed should planning permission be granted. As such, the credit is awarded on a predictive basis.
- 2.99 The formal requirements for the Travel Plan in relation to achievement of a formal BREEAM credit are provided below and there are specific evidence requirements. Please note the relationship with the design stage:
- The travel plan is structured to meet the needs of the particular site and takes into consideration the findings of a site specific transport assessment that covers the following (as a minimum):
 - a. Current local environment for walkers and cyclists
 - b. Public transport links serving the site
 - c. Current facilities for cyclists
 - The plan demonstrates how and what measures have been, or will be taken to minimise the impact of traffic, as a result of the new development.
 - The findings of the travel plan have been used to steer the design of the development in order to meet the travel plan objectives. This must be demonstrated by the project/design team using specific examples such as:

- a. Providing parking priority spaces for car sharers
- b. Providing dedicated cycle storage facilities and cycle lanes on site (adjoining lanes offsite where applicable)
- c. Negotiating improved bus services, i.e. altering bus routes or offering discounts
- d. Restricting and/or charging for car parking
- e. Making the site pedestrian friendly, i.e. safe crossing points, direct routes, well lit and sign posted to other amenities and public transport nodes.
- The travel plan addresses the following types of travel:
 - a. Commuter journeys;
 - b. Business travel;
 - c. Visitors/customers;
 - d. Deliveries;
- The travel plan includes a package of measures that address constraints and opportunities for the following:
 - a. Walking;
 - b. Cycling;
 - c. Public transport;
 - d. Use of the private car for travel to work;
 - e. Mopeds/motorcycles;
 - f. Reducing the need to travel;
 - g. Visitors/customers;
 - h. Deliveries.

Visitors Centre

- 2.100 It has been confirmed by the project architect that the same strategy is to be followed for the Visitors Centre as for the EfW building and as such the credit is awarded on a predictive basis.

Deliveries and Manoeuvring (T12)

- 2.101 Please note this credit is only applicable to the Industrial scheme and therefore the EfW building only.
- 2.102 It has been indicated by the project architect that adequate space for manoeuvring delivery vehicles and provision of space for the storage of refuse skips and pallets can be achieved within the design. Therefore this credit is awarded on a predictive basis.
- 2.103 For future reference, the formal requirements of this credit are as follows:
- Vehicle access areas have been designed to ensure adequate space for manoeuvring delivery vehicles, and provide space for storage of refuse skips and pallets.
 - Parking and turning areas are designed to require only simple manoeuvres, thus avoiding repeated shunting.
 - provision of a separate parking area for waiting goods vehicles, away from maneuvering area and staff / visitor car parking.
 - Provision of space for storage of refuse skips and pallets away from maneuvering area and staff / visitor parking.

Water

Water Overview

- 2.104 Demand for water in the UK has increased dramatically over the past thirty years in all sectors. Current Government projections show this trend is likely to continue over the next quarter of a century. In the South East, non household demand is expected to increase from just over 1000MI/d to 1200MI/d in 2030 (Environment Agency, 2006) Climate change also holds a number of challenges for water supply, with increased periods of drought and uncertainty in supply, plus an increase in extreme weather events. Reducing water wastage and promoting greater water efficiency will help safeguard supplies and has wider positive impacts; principally reducing the energy demand for water treatment and supply.

Water Consumption (W1)

- 2.105 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.106 Up to three credits are available for water consumption. The number of credits which can be awarded are determined by the BREEAM water consumption calculator which uses information gathered by the assessor from the design team. The following scale is used when awarding credits;

- 1 credit where consumption is 4.5-5.5 cubic metres per person per year
- 2 credits where consumption is 1.5-4.4 cubic metres per person per year
- 3 credits where consumption is less than 1.5 cubic metres per person per year.

The calculation tool includes entries for the following items;

- WCs
- Taps
- Showers
- Urinals

- 2.107 Both grey and rainwater can be discounted from the calculation of consumption.
- 2.108 It is anticipated that through the specification of low water use fittings such as low flush toilets that a sufficient reduction over standard water consumption can be achieved in order for some credits to be obtained.
- 2.109 Of the 20,000 litres of water which will be required annually for the operation of the EfW plant, a large proportion is to be collected from Rainwater Harvesting and it is possible some of this may be used to supply the sanitary fittings, or that greywater may be used in some cases.
- 2.110 As a conservative estimate, two credits are anticipated to be achievable on a predictive basis.

Visitors Centre

- 2.111 Credits are awarded on a predictive basis using the same reasoning as for the EfW building for sanitary fittings. However, please note that there is unlikely to be a rainwater harvesting system on the Visitors Centre as this is principally to supply process water to the EfW building, and the use of grey water is still being considered by the design team. Therefore, one credit is awarded on a predictive basis.

Wate Meter (W2)

- 2.112 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.113 The installation of a water meter with a pulsed output potentially allows for local or remote display of usage data and potential connection to a Building Management System. This is not an onerous credit to achieve and is normally a question of specification. It has been confirmed by the design team that all water consumption is to be metered and that such a meter can be specified. Therefore, on a predictive basis, this credit is awarded.

Visitors Centre

- 2.114 Credits are awarded on a predictive basis using the same reasoning as for the EfW building

Major Leak Detection (W3)

2.115 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

2.116 One credit is available where a leak detection system is specified or installed to each unit. There are specific requirements for this system which are as follows:

1. A leak detection system is specified/installed.
2. The system is capable of identifying major leaks both within each unit and between the building and the site boundary, and should cover all mains water supplies to the building.
3. The leak detection system is:
 - a. Audible when activated;
 - b. Activated when a continuous flow of water passes through the water meter at a flow rate above a pre-set minimum for a pre-set period of time;
 - c. Able to identify different leakage rates, e.g. continuous, high and/or low level leaks, over set time periods;
 - d. Programmable to suit the owner/occupiers' requirements; and
 - e. Where applicable, designed to avoid false alarms caused by normal operation of large water consuming plant such as chillers.
4. The system need not cut off the water supply when the alarm is triggered.

2.117 The possibility of achieving this credit has been discussed with the design team and it is felt that it is unlikely that this credit would be pursued and therefore on a predictive basis, this credit is withheld.

Visitors Centre

2.118 Credits are awarded on a predictive basis using the same reasoning as for the EfW building

Sanitary Supply Shut Off (W4)

- 2.119 Please note this credit is only applicable to the Offices scheme and therefore the Visitors Centre building only.
- 2.120 One credit is available where proximity detection shut off is provided on the water supply to all urinals and WCs. It is considered by the design team that this is a relatively simple element based on specification and that this is likely to be achievable for the Visitors centre and as such the credit is awarded on a predictive basis.

Materials & Waste

Materials & Waste Overview

- 2.121 19% of the UK's eco-footprint is taken up by the embodied environmental impact of built infrastructure (Bioregional, 2005). The embodied environmental impact of materials, such as raw material extraction, processing, manufacture, haulage and packaging, make up this collective eco-footprint.

Materials Specification – major building elements (MW1)

- 2.122 Please note the requirements of this credit differ between the Industrial and Offices Schemes.

EfW Building

- 2.123 Under the BREEAM Industrial scheme this credit considers the external walls and the roof and up to two credits can be awarded (one credit can be awarded where 50% of the relevant materials are rated as an 'A' in the Green Guide, and two where 80% of materials meet an 'A' rating). It has been confirmed by the design team that materials for both the roof and external walls should meet the 80% requirement and therefore both credits are awarded on a predictive basis.

Visitors Centre

- 2.124 Under the BREEAM Offices scheme, the same methodology is used as for the Industrial scheme. However, the number of building material elements is expanded to include floors and windows and that credits can only be gained if 80% of the materials within those categories achieve an overall 'A' rating:

- Upper Floor Slab
- External walls
- Roof
- Windows

- 2.125 Up to four credits are awarded for the major building elements. It has been indicated by the project architect that as with the EfW building, the external walls and roof are anticipated to meet an 'A' rating. Therefore, two points are awarded on a predictive basis. The exact specification of

the floors and windows are yet to be determined, so the remaining two predictive points for these elements are withheld at present.

- 2.126 Please note that in a formal assessment for both the offices and industrial schemes it is necessary for the assessor to use the BREEAM Materials calculator which performs the following calculation to determine credit awards against target ratios:

Total area x mid 'A' range factor = potential Eco-point value

Total 'A' rated area x mid 'A' range factor = Achieved Eco-point value.

- 2.127 The calculator then divides the total achieved Eco-point value by the total potential Eco-point value to give a target ratio which equates to the award of credits.

Hard Landscaping & boundary Protection (MW2)

- 2.128 Please note this credit is only applicable to the Industrial scheme and therefore the EfW building only.
- 2.129 To achieve this credit, 80% of the combined area of external hard landscaping and boundary protection is required to achieve an 'A' rating in the Green Guide to specification. It is anticipated by the design team that the information required to assess this credit is not yet available in enough certainty to establish with any confidence that a credit could be achieved and as such this credit is withheld on a predictive basis.
- 2.130 The formal requirements of this credit have been supplied to the design team for the purposes of further review where necessary.

Floor Finishes (MW3)

- 2.131 Please note this credit is only applicable to the Offices scheme and therefore the Visitors Centre building only. It has been confirmed by the project architect that carpets and other floor finishes are to be specified by the future occupant which limits the possibility of wastage if occupants refurbish a rented building. This credit is still utilised even where the scheme (as in this case) is not speculative and as such one credit is awarded on a predictive basis.
- 2.132 Please note that the Green Guide Rating of the floor finish does not form part of the assessment requirements for this credit, however, this is not to say that the specification of environmentally sound floor coverings is not an important design consideration.

Re-use of Building Façade (MW5)

- 2.133 Please note this credit is only applicable to the Offices scheme and therefore the Visitors Centre building only. There are no suitable buildings on site for the re-use of an existing building façade to be possible. Therefore, it is not possible to achieve this credit.

Re-use of Building Structure (MW6)

- 2.134 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.135 This credit requires that where a design is a new built that it reuses at least 80% of an existing primary structure. The new build element will not achieve this credit by default and therefore the credit is withheld.

Visitors Centre

- 2.136 The same is true for the Visitors Building as for the EfW building, and the credit is not achievable by default.

Recycled Aggregates (MW7)

- 2.137 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.138 One credit is available where significant use of crushed aggregate is achieved. For reference, in a formal assessment, recycled aggregate must equal 25% (by weight) of the total 'high grade' aggregate uses which include:

- Structural frame
- Floor slabs including ground floor slabs
- Asphalt based or similar road surfaces
- Gravel landscaping

- Site-derived masonry as hardcore under ground floor slabs, site roads and car parking areas.

2.139 It should also be noted that crushed aggregate does not have to be obtained on site, alternatively it can be obtained from sites within a 30km radius OR be obtained from a recycled, non construction post-consumer/post-industrial by-product source, such as crushed/blown glass pellets, Pulverised Fuel Ash (PFA), blast furnace slag etc.

2.140 It has been confirmed by the client that it is hoped to utilise PFA from the nearby Didcot Power Station. Although amounts are presently unknown, the credit is tentatively awarded on a predictive basis.

Visitors Centre

2.141 Credits are awarded on a predictive basis using the same justification as for the EfW building.

Responsible Sourcing of Materials (MW8)

2.142 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

2.143 Up to three credits are available for the responsible sourcing of structural and non-structural building elements. The evidence requirements for a formal assessment under the BREEAM Industrial scheme are high (including confirmation from suppliers of their environmental performance standards and chain of custody for timber products etc). The project architect has confirmed that responsible sourcing would be achievable for the wall / roof cladding and insulation at present. However, it is felt that this may not be achievable for all of the materials and elements required by the BREEAM credit, and it is unlikely that this credit will be pursued under a formal assessment.

2.144 For reference, if a formal BREEAM credit was pursued for MW8 it is necessary for the majority (80%) of materials (metals, concrete, brick, stone, glass, composites, timber and plastics) in the following elements within the building to be responsibly sourced:

- Roof
- Frame

- Walls (external)
- Floors (Ground, upper)
- Foundations / substructure
- Doors
- Windows

Visitors Centre

2.145 Credits are awarded on a predictive basis using the same justification as for the EfW building.

Designing for Robustness (MW10)

2.146 Please note this credit is only applicable to the Industrial scheme and therefore the EfW building only.

2.147 Under this credit it is ultimately to be determined by the assessor whether adequate measures have been taken to achieve building protection. Features which can be specified to prevent damage to vulnerable parts of the building are as follows:

- Bollards/barriers/raised kerbs to delivery and vehicle drop off areas
- Robust external wall construction, up to 2m high
- Corridor walls specified to Severe Duty (SD) as per BS 5234-2
- Protection rails to walls of corridors
- Kick plates / impact protection (from trolleys etc) on doors
- Hard wearing and easily washable floor finishes in heavily used circulation areas (i.e. main entrance, corridors etc)

2.148 Currently, the project architect has confirmed that robustness is to be maximised within the development and sufficient measures will be included in the scheme design in order for the requirements of the credit to be met. As a result, on a predictive basis, the credit is awarded. It is recommended that the aforementioned list should be included as a minimum within the development, with other measures included as and where appropriate.

Storage of Recyclable Waste (MW12)

2.149 Please note the requirements of this credit differ slightly between the Industrial and Offices Schemes.

EfW Building

2.150 One credit is available for the provision of a central dedicated storage space for materials which can be recycled which must fulfil a certain size depending on the size of the development. For this development, which counts as a fitted out unit under the BREEAM scheme the requirements will be as follows:

- A dedicated storage space, solely for the purpose of collecting recyclable waste which must be clearly labelled, placed within easy reach of operational and office areas (e.g. less than 20m away from main entrance) and in a location with good vehicular access to facilitate collections.
- The space provided should allow an external hardstanding area that is adequate to enable the occupier to recycle materials from the operational area(s) effectively PLUS
- At least 2m² per 1000m² of net office floor area (up to a maximum of 10m²)

2.151 It has been confirmed by the design team that achievement of this credit is possible, and therefore the credit is awarded on a predictive basis.

Visitors Centre

2.152 One credit is available for the provision of a central dedicated storage space for materials which can be recycled which must fulfil a certain size depending on the size of the development. For the Visitors Centre, the requirements are:

- A dedicated storage space, solely for the purpose of collecting recyclable waste which must be clearly labelled, placed within easy reach of operational and office areas (e.g. less than 20m from the base of a stairwell serving all floors) and in a location with good vehicular access to facilitate collections.
- At least 2m² per 1000m² of net office floor area (up to a maximum of 10m²).
- At least 10m² for buildings with a net floor area over 5,000m².

2.153 The project architect has confirmed that it is possible for this to be provided for the Visitors Centre and as such the credit is awarded on a predictive basis.

Compactor/Bailer (MW16)

- 2.154 Please note this credit is only applicable to the Industrial scheme and therefore the EfW building only.
- 2.155 If the above credit (MW12) is achieved, and a compactor/baler and water outlet is provided then one credit is available. It is not planned at present to include a compactor/baler on site and therefore this credit is withheld on a predictive basis.

Land Use & Ecology

Land Use & Ecology Overview

- 2.156 Land use choices and management have considerable impacts on biodiversity. To minimise the impact of the development, developers should integrate a consideration of biodiversity issues into the development and design buildings to enhance the ecological value of sites.

Re-use of Land (LE1)

- 2.157 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.158 One credit is available within this category and can be achieved if at least 75% of the proposed development's footprint is on an area of land which has previously been developed or used for industrial purposes in the last 50 years.
- 2.159 The wider site is made up of a number of previous uses, including landfill and old material extraction sites. The main application site is a PFA landfill which has undergone an engineered overtip of waste. It is considered on a predictive basis that there is a strong possibility of a credit being awarded in this area and as such one credit is awarded on a predictive basis. However, it should be noted that in a formal assessment it will be necessary to provide evidence to satisfy the 75% rule and as such should the area on which the footprint of the proposed EfW lies be previously unused land within the wider site, then the credit may not be achievable.

Visitors Centre

- 2.160 Credits are awarded on a predictive basis using the same justification as for the EfW building.

Contaminated Land (LE2)

- 2.161 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.162 In order for a credit to be gained it is necessary for the application site to have been previously defined as contaminated and to have been subject to adequate steps to remediate the site prior to construction.
- 2.163 At this stage it is not possible to ascertain the exact definition of the land with regards to contamination as intrusive ground contamination investigations have not been commissioned at this stage. As there is uncertainty surrounding whether the site has been subject to, or will require any de-contamination, it is prudent to withhold the credit on a predictive basis.

Visitors Centre

- 2.164 Credits are awarded on a predictive basis using the same justification as for the EfW building.

Ecological Value & Protection of Ecological Features (LE3)

- 2.165 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.166 One credit is available where the construction zone is defined as being 'land of low ecological value' as defined by BREEAM or as confirmed in a report, based on a site survey by a suitably qualified ecological consultant and that all features of ecological value on the surrounding site and boundary area are adequately protected from damage during clearance, site preparation and construction.
- 2.167 It has been confirmed by the Ecologists who are assessing the site for EIA purposes that the site is considered to be of low ecological value. It is also the case that all existing features of ecological value will be protected. The majority of trees will be retained on site. Therefore the credit is awarded on a predictive basis. For future reference, should a formal assessment take place, the features which will require prescribed forms of protection are:
- Trees over 100mm trunk diameter, and/or of significant ecological value
 - Hedges and natural areas
 - Watercourses and wetland areas.

Visitors Centre

- 2.168 Credits are awarded on a predictive basis using the same justification as for the EfW building.

Mitigating Ecological Impact (LE4)

- 2.169 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.170 Up to two credits can be awarded under this category dependent on the change in ecological value of the site as a result of development. A full two credits are only awarded if there is no negative change in species number.
- 2.171 The project ecologist has agreed that the majority of the site's existing habitat types and areas are not displaced as a result of the development; although it would not be true to say that there will be no impact. It is therefore concluded on a predictive basis that the change in ecological value of the site is only small negative change and therefore one credit is awarded.
- 2.172 It should be noted that in a formal assessment the assessor will require significant further information on vegetation-plot types for both current and post-development scenarios.

Visitors Centre

- 2.173 Credits are awarded on a predictive basis using the same justification as for the EfW building.

Enhancing Site Ecology (LE5)

- 2.174 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.175 Up to three credits are available within this category. The first relies on a professional ecologist being appointed to advise and report on enhancing and protecting the ecological value of the site and that the professional's recommendations are implemented. The subsequent two credits can be achieved if evidence can demonstrate that there are positive increases in the ecological value of the site through an increase in species numbers as a result of the development.

- 2.176 It is confirmed that an appropriate professional has been appointed through the EIA process to advise and report on ecological enhancement and protection for site ecology. Therefore, the first credit is awarded on a predictive basis.
- 2.177 BREEAM measures ecological value in terms of the number of plant species. There is a significant amount of landscaping and planting to be undertaken as part of the development and it is considered there is a possibility of a second credit being gained in this area.

Visitors Centre

- 2.178 Credits are awarded on a predictive basis using the same justification as for the EfW building.

Long Term Impact on Biodiversity (LE6)

- 2.179 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.180 Up to two credits are available in this category. The first is awarded where the client commits to achieving the mandatory requirements listed below and two of the additional requirements. And the second where the client commits to the mandatory requirements and at least four of the additional requirements. It is considered that there is the strong possibility of one credit being achieved through the fulfilment of the mandatory requirements therefore this has been awarded on a predictive basis. At the current stage of project development it is considered by the design team that items 'c', 'd', 'e', and 'f' from the additional requirements could be achieved and therefore the second credit is also awarded on a predictive basis. For reference, extra habitats are planned for water voles and sand-martins.

Mandatory Requirements

A suitably qualified ecologist must confirm in writing that:

- a) All relevant UK and EU legislation relating to protection and enhancement of ecology has been, or will be, complied with during the design and construction process.
- b) An appropriate management plan is produced covering at least the first 5 years after project completion. This should include details of the scope of the management plan.
- c) Key responsibilities, and with whom these responsibilities lie, e.g. owner, landlord, occupier, FM, other.

Additional Requirements

- a) A 'Biodiversity Champion' has been nominated
- b) The relevant site work-force has been trained on how to protect site ecology during the project.
- c) Record and monitor actions taken to protect biodiversity throughout key stages of construction
- d) The client requires that a new ecologically valuable habitat, appropriate to the local area, be created.
- e) The client requires the contractor to programme site works to minimise disturbance to wildlife.
- f) The client requires actions to be taken to protect/enhance biodiversity
- g) A Biodiversity Champion must have sufficient authority and time on site to influence activities and ensure that they have minimal detrimental impact on biodiversity
- h) Local biodiversity expertise should be sought at, or before, the design stage
- i) Where a site is deemed to have no ecological value

Visitors Centre

2.181 Credits are awarded on a predictive basis using the same justification as for the EfW building.

Pollution

Pollution Overview

- 2.182 Insulants and refrigerants, and space heating can all increase the polluting capacity of the development. Developments can also pollute through changes in the amount of impervious surfaces which affect local hydrology and by polluting groundwater. The impact of the development can be reduced by using insulating materials that avoid substances that have a high global warming potential (GWP). Emissions of nitrous oxide from space heating and hot water systems should also be minimised.

Refrigerant GWP – bulding services (P1)

- 2.183 Please note the requirements of this credit differ between the Industrial and Offices Schemes.

EfW Building

- 2.184 The use of no refrigerants, or refrigerants with a Global Warming Potential (GWP) of less than five within all areas of fitted out buildings would enable the award of one credit. Note if the building has integral cold storage areas, then the requirement must also be met for these areas.
- 2.185 It is confirmed by the design team that should refrigerants be used, the specification will state that they must have a GWP under five, and as such the credit is awarded on a predictive basis.

Visitors Centre

- 2.186 Credits are awarded on a predictive basis using the same justification as for the EfW building.

Preventing Refrigerant Leaks (P2)

- 2.187 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.188 The use of no refrigerants or the specification of a system which can detect refrigerant leaks and the provision of automatic refrigerant pump down to a heat exchanger (or dedicated storage

tanks) with isolation valves (in areas other than the operational area) of speculative buildings would enable the award of one credit.

- 2.189 It is confirmed by the design team that should refrigerants be used, the specification will state that a leak detection system compliant with BREEAM standards must be installed, and as such the credit is awarded on a predictive basis.

Visitors Centre

- 2.190 Credits are awarded on a predictive basis using the same justification as for the EfW building.

Insulant GWP (P4)

- 2.191 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.192 The specification of insulating materials with a GWP of less than five enables the award of one credit. It is confirmed by the project architect that the GWP of Rockwool (the intended insulation material) is less than 5, and therefore one credit is awarded on a predictive basis.

Visitors Centre

- 2.193 One credit is awarded on a predictive basis, on the same justification as for the EfW building.

NO_x Emissions of Heating Source (P6)

- 2.194 Please note the requirements of this credit differ between the Industrial and Offices Schemes.

EfW Building

- 2.195 For a fitted out buildings the maximum dry NO_x emissions from delivered space heating energy to offices and associated areas and operational areas must be less than or equal to 70mg/kWh. One credit is available.
- 2.196 Heating is to be provided via the EfW process to EfW building and it is to be backed up via a traditional heating mechanism for when heat may not be available during periods of maintenance. It is confirmed by the design team that the traditional heating mechanism can be specified to

meet this criteria. However, the NO_x emissions from the EfW as a heating source will require specialist calculation and it cannot be stated at this time whether this would meet with the requirements of this credit. Therefore, in the interests of being conservative, and as the traditional heating mechanism is not to be operational the majority of the time, the credit is withheld on a predictive basis.

Visitors Centre

- 2.197 For a fitted out buildings the maximum dry NO_x emissions from delivered space heating are assessed against a scale and up to three credits can be awarded. If the maximum dry NO_x emissions are less than or equal to 100mg/kWh (at 0% excess O₂) one credit can be awarded. If the figure drops to ≤70 then two credits can be awarded and a full three credits if the figure drops to 40 or below.
- 2.198 On the same basis as with the EfW building, all credits are withheld on a predictive basis.

Minimising Flood Risk (P7)

- 2.199 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.200 Up to three credits are available depending on the steps taken to minimise flood risk. A flood risk assessment is being progressed as part of the Environmental Statement. It is anticipated from preliminary information from the Environment Agency website which allows flood risk maps to be viewed by postcode that the site potentially lays in flood zone 1 (which has an annual probability of flooding of less than 1 in 1000. There is, however, a small area to the north of the site where the annual probability of flooding rises to between 1 in 100 and 1 in 1000, however it is advised by specialists undertaking the flood risk assessment that this is unlikely to be a significant issue. It is also the case that SUDS techniques will be used to deal with additional runoff arising from the development. Runoff will be diverted to soakaways / attenuation lagoons, from where it will infiltrate to groundwater. Runoff water from roofs is collected and ultimately will flow directly into these soakaways if it is not used to fulfil the requirements of the process / building services.
- 2.201 Therefore on a predictive basis, a full three credits are awarded.

Visitors Centre

- 2.202 A full three credits are awarded on a predictive basis as with the EfW building.

Minimising Watercourse Pollution (P8)

- 2.203 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.204 One credit is available for the specification of appropriate oil separators / interceptors / filtration for areas at risk from pollution i.e. vehicle manoeuvring areas, car parks, waste disposal facilities, delivery facilities or plant areas. It has been confirmed by those undertaking the flood risk assessment that appropriate measures will be included under this credit, and as such the credit is awarded on a predictive basis. Please note that if the assessment is to become formal, a part of the demonstration of compliance involves the local/authority / Environment Agency confirming they are content with the proposals.

Visitors Centre

- 2.205 Credits are awarded on a predictive basis using the same justification as for the EfW building.

Renewables & Low Emission Energy (P11)

- 2.206 Please note the requirements of this credit are similar for both the Offices and Industrial schemes.

EfW Building

- 2.207 Up to three credits are available under the BREEAM scheme under this category. One credit can be awarded where a feasibility study considering renewable energy has been carried out and the result implemented. A feasibility study has been undertaken by PB Energy for a potential district heating, cooling and private wire scheme as the technology which is appropriate for the site. It is considered that this, or a subsequent version of this study will be appropriate to fulfil the minimum requirements of the first credit

2.208 For reference, in a formal assessment, a feasibility study under the BREEAM requirements must cover the minimum requirements of:

- a) payback
- b) land use
- c) local planning requirements
- d) noise
- e) whole life costing / life cycle impact of the potential specification in terms of carbon emissions
- f) any available grants
- g) all technologies appropriate to the site and energy demand of the development.
- h) Reasons for excluding other technologies.

2.209 Second and third credits are available where the first credit is achieved and either 10% or 15% respectively of the total energy demand of the building / development is supplied from local renewable, or low emission energy sources. Considering that the EfW takes all its power from the thermal process for which it was designed, 100% of the energy needs should be met by a low emission energy source. However, the definition of a low emission source within the formal BREEAM credit is not straightforward and EfW power is not contained within the list of appropriate technologies. However, considering that this development would be considered on a Bespoke basis under a formal assessment it could be considered reasonable to assume that the technology may be considered a low emissions source in its context and as such two credits are tentatively awarded on a predictive basis. A proportion of the material passing through the EfW plant will be biogenic material and may be considered a biofuel. Please note the energy strategy of the building would likely come under specific scrutiny in a Bespoke assessment.

Visitors Centre

2.210 Based on the same justification as the EfW building, two credits are awarded on a predictive basis.

Reduction of Night-time Light Pollution (P12)

2.211 Please note this credit is only applicable to the Offices scheme and therefore the Visitors Centre building only. It is confirmed by the project architect that the external lighting design is in compliance with the guidance in the Institution of Lighting Engineers Guidance notes for the reduction of obtrusive light (2005) and as such one credit is awarded on a predictive basis.

Noise Attenuation (P13)

- 2.212 Please note this credit is only applicable to the Industrial scheme and therefore the EfW building only.
- 2.213 Within this category, one credit can be achieved where the project team have carried out a noise impact assessment in order to demonstrate sources of noise from the development do not give rise to the likelihood of complaints from existing noise sensitive premises and amenity or wildlife areas that are within the locality of the site.
- 2.214 A noise impact assessment has been carried out as part of the production of the Environmental Statement. It has been indicated by those undertaking the assessment that the noise and vibration from construction activities associated with the EfW, including traffic [TBC], will not result in significant effects at any noise sensitive receptor. Noise and vibration from operational activities, including traffic, will not result in significant effects at any noise sensitive receptor. Therefore, on a predictive basis, the credit is awarded.

Summary

- 2.215 The compiled scoring results for the Industrial and Offices predictive assessments are provided in Appendices A and B, which includes a graph of attainment within each category.

3 Conclusions and Recommendations

- 3.1 The results of the BREEAM predictive assessments demonstrate that the proposed development responds well to assessment under both the Industrial and Offices Schemes. However, there is a considerable element of uncertainty surrounding the nature of the credits which would be required to be met in a formal assessment due to the non-standard classification of the scheme.
- 3.2 The calculated total score indicates that a score rating in the 'Very Good' category could potentially be achieved by both the EfW and the Visitors Centre . As previously stated, a conservative approach has been taken to scoring and it is possible that the score could rise further should a formal assessments use the same scoring system as in this report. However, the uncertainty surrounding the credits which would be relevant in a formal Bespoke assessment and taking into account the current changes being rolled out to the BREEAM scheme (of which changes to weightings between categories could potentially change a score considerably) it is tentatively suggested that a minimum rating of 'Good' could be achieved by both the EfW and the Visitors Centre buildings. This is dependant on the criteria determined for the Bespoke assessment and cannot therefore be guaranteed.
- 3.3 As is the case with the current BREEAM scheme it is predicted that in a formal assessment some credits may simply not obtainable by a development because of its nature and/or situation e.g. transportation links and re-use of an existing structure.
- 3.4 It should also be noted that the ethos of BREEAM is to look for improvement rather than simply to rate against a prescribed scheme and this may have a bearing on a formal BREEAM bespoke assessment. This may mean that key items such as energy (around which the development is based) are considered in a different way than in a standard assessment and it is predicted that the energy strategy of the building would be a specific area of scrutiny. Notably, in this predictive assessment, only half the credits available for E1 (reduction of CO₂ emissions) have been awarded to reflect the potential difficulty with proving improvement over building regulations for a development of this nature.
- 3.5 The overall predicted ratings as described demonstrate that the proposed development has adopted positive design principles in terms of sustainability. This rating is predictive and that there is no guarantee this score would be achieved by the scheme during a full assessment and that there are detailed evidence requirements for achieving BREEAM credits. This is compounded by the need for a Bespoke assessment and the fundamental changes which are currently occurring to the BREEAM scheme at the current time.

- 3.6 The areas where the EFW is expected to perform well in a BREEAM Bespoke assessment can be predicted tentatively to be Management, Health and Well Being, Land Use and Ecology and Pollution. This is dependant on the criteria determined for the Bespoke assessment and cannot therefore be guaranteed.
- 3.7 It should be noted that there is no requirement under the current 2006 BREEAM scheme to monitor whether commitments identified during a predictive or formal design stage assessment will be taken forward into the completion of the scheme. As such, at this stage it is outside of the scope and remit of this report to make recommendations for the monitoring of the implementation of the recommendations of the predictive assessment.

Design Considerations

- 3.8 To improve the sustainability of the design, it is not felt that there are any significant areas which have been overlooked within the design process. However, there are some credits where higher ratings may be achieved should further actions be taken which have been highlighted within the assessment. Further design considerations should take the advice of the BRE and a Bespoke assessor at an appropriate further design stage.
- 3.9 Please note, making changes to the design to improve the sustainability may have cost implications for the project.

References

1. Bioregional, 2005, Potential for Reducing the Environmental Impact of Construction Materials [online, accessed 08-02-08]
2. BRE, BREEAM Industrial (2006) Pre-Assessment Estimator (Fitted Out Buildings): Design Stage.
3. BRE, BREEAM Offices (2006) Pre-Assessment Estimator: Design Stage.
4. BRE, BREEAM Process Notes regarding scheme changes (Jan-May 2008)
5. BRE, BREEAM Industrial 2006 Technical Manual
6. BRE, BREEAM Offices 2006, Technical Manual
7. Defra, 2008, Defra E-Digest Statistics Climate Change [online, accessed 08-02-08]
8. Environment Agency (2006) Do We Need Large Scale Water Transfers for South East England [online, accessed 12-08-08]
9. Environment Agency, 2008 Reducing the Environmental Impacts of Road and Air Transport: Position Statement [online, accessed 08-02-08]

Appendices

Appendix A

BREEAM Industrial Sutton Courtenay Output Spreadsheet & Performance Graph

BREEAM Industrial Predictive Assessment: Sutton Courtenay EfW

RPS

Note:

(a) The assessment scores are based on a number of assumptions agreed with the design team at the time of the assessment.

(b) A formal assessment will be required during both the design phase and post construction and the scheme should be registered with the BRE at the earliest opportunity.

| Section | Credit reference | Category | Credits Predicted | Credits Available | Weighted Section Score |
|----------------------|-----------------------------|--|-------------------|-------------------|------------------------|
| Management | M1 | Commissioning | 2 | 2 | 10.00 |
| | M4 | Considerate Constructors | 1 | 2 | |
| | M5 | Construction Site Impacts | 2 | 4 | |
| | M12 | Building User Guide | 1 | 1 | |
| | | <i>Section Credit Total</i> | 6 | 9 | |
| Health and Wellbeing | HW1 | Daylighting | 0 | 1 | 10.71 |
| | HW4 | High frequency lighting | 1 | 1 | |
| | HW5 | Internal and external lighting | 1 | 1 | |
| | HW11 | Ventilation rates | 1 | 1 | |
| | HW16 | Microbial contamination | 1 | 1 | |
| | HW18 | Office Space | 1 | 2 | |
| | <i>Section Credit Total</i> | 5 | 7 | | |
| Energy | E1 | Reduction of CO2 emissions | 8 | 15 | 14.00 |
| | E3 | Sub-metering of areas/tenancy | 1 | 1 | |
| | E4 | External lighting | 1 | 1 | |
| | E5 | Building fabric performance & air filtration | 0 | 1 | |
| | | <i>Section Credit Total</i> | 10 | 18 | |
| Transport | T1 | Provision of public transport | 0 | 4 | 14.00 |
| | T5 | Cyclist facilities | 2 | 2 | |
| | T8 | Travel plan (only assessed under fitted out) | 1 | 0 | |
| | T12 | Deliveries and Manoeuvring | 1 | 1 | |
| | <i>Section Credit Total</i> | 4 | 7 | | |
| Water | W1 | Water consumption | 2 | 3 | 3.00 |
| | W2 | Water meter | 1 | 1 | |
| | W3 | Major leak detection | 0 | 1 | |
| | <i>Section Credit Total</i> | 3 | 5 | | |
| Materials and Waste | MW1 | Materials specification - major building elements | 2 | 2 | 4.55 |
| | MW2 | Hard landscaping and boundary protection | 0 | 1 | |
| | MW6 | Re-use of building structure | 0 | 1 | |
| | MW7 | Recycled aggregates | 1 | 1 | |
| | MW8 | Responsible sourcing of materials | 0 | 3 | |
| | MW10 | Designing for robustness | 1 | 1 | |
| | MW12 | Storage of recyclable waste | 1 | 1 | |
| MW16 | Compactor/Bailer | 0 | 1 | | |
| | <i>Section Credit Total</i> | 5 | 11 | | |
| Land-use and ecology | LE1 | Re-use of land | 1 | 1 | 10.50 |
| | LE2 | Contaminated land | 0 | 1 | |
| | LE3 | Ecological value & protection of ecological features | 1 | 1 | |
| | LE4 | Mitigating ecological impact | 1 | 2 | |
| | LE5 | Enhancing site ecology | 2 | 3 | |
| | LE6 | Long term impact on biodiversity | 2 | 2 | |
| | <i>Section Credit Total</i> | 7 | 10 | | |
| Pollution | P1 | Refrigerant GWP - building services | 1 | 1 | 13.75 |
| | P2 | Preventing refrigerant leaks | 1 | 1 | |
| | P4 | Insulant GWP | 1 | 1 | |
| | P6 | NOx emissions of heating source | 0 | 1 | |
| | P7 | Minimising flood risk | 3 | 3 | |
| | P8 | Minimising watercourse pollution | 1 | 1 | |
| | P11 | Renewable & low emission energy | 3 | 3 | |
| P13 | Noise attenuation | 1 | 1 | | |
| | <i>Section Credit Total</i> | 11 | 12 | | |

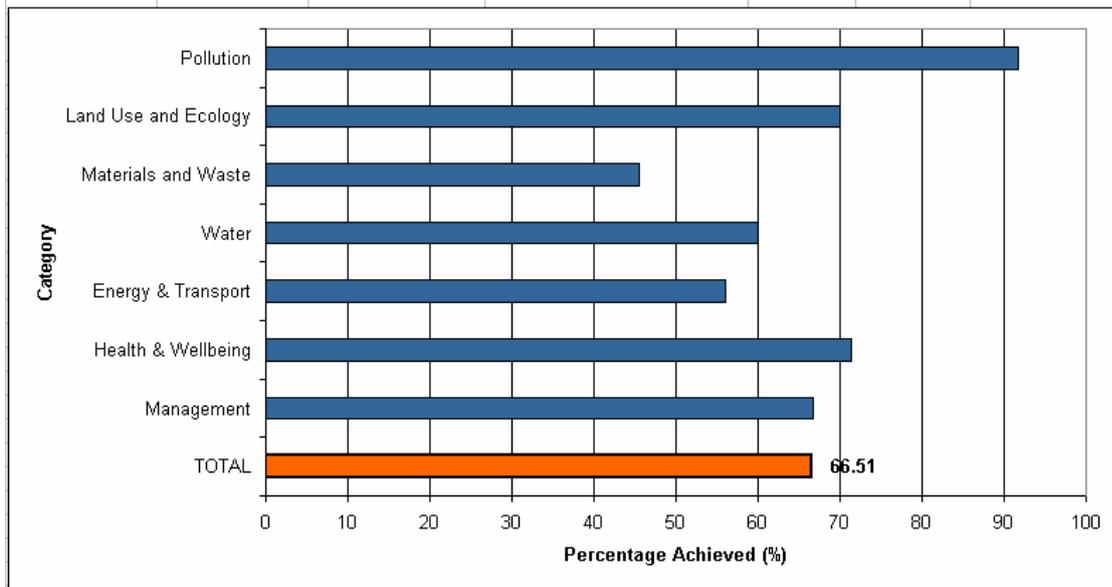
Final Score

| | | | | | |
|--|--|--|-----------------------|--------------------------|--------------------------|
| | | | | Predicted credits | Credits available |
| | | | Total Credits | 51 | 79 |
| | | | Weighted Score | 66.51 | |
| | | | Rating | Very Good | |

Scoring System

| | | | | | |
|--|--|--|---------------|------------------------------|--|
| | | | | | |
| | | | Rating | Points Score Required | |
| | | | Pass | 25 | |
| | | | Good | 40 | |
| | | | Very Good | 55 | |
| | | | Excellent | 70 | |

Development Scoring Summary Graph



Appendix B

BREEAM Offices Sutton Courtenay Output Spreadsheet & Performance Graph

| BREEAM Offices Predictive Assessment: EfW Visitors Centre | | | | | | RPS | |
|---|------------------|---|-----------------------------|-------------------|------------------------|-----|--|
| Note: | | | | | | | |
| (a) The assessment scores are based on a number of assumptions agreed with the design team at the time of the assessment. | | | | | | | |
| (b) A formal assessment will be required during both the design phase and post construction and the scheme should be registered with the BRE at the earliest opportunity. | | | | | | | |
| Section | Credit reference | Category | Credits Available | Credits Predicted | Weighted Section Score | | |
| Management | M1 | Commissioning | 2 | 2 | 10.00 | | |
| | M4 | Considerate Constructors | 2 | 1 | | | |
| | M5 | Construction Site Impacts | 4 | 2 | | | |
| | M12 | Building User Guide | 1 | 1 | | | |
| | | | <i>Section Credit Total</i> | 9 | | 6 | |
| Health and Wellbeing | HW1 | Daylighting | 1 | 1 | 12.69 | | |
| | HW2 | View out | 1 | 1 | | | |
| | HW3 | Glare control | 1 | 1 | | | |
| | HW4 | High frequency lighting | 1 | 1 | | | |
| | HW5 | Internal and external lighting | 1 | 1 | | | |
| | HW6 | Lighting zones | 1 | 1 | | | |
| | HW8 | Potential for natural ventilation | 1 | 0 | | | |
| | HW9 | Internal air pollution | 1 | 1 | | | |
| | HW11 | Ventilation rates | 1 | 1 | | | |
| | HW14 | Thermal comfort | 1 | 1 | | | |
| | HW15 | Thermal zoning | 1 | 1 | | | |
| | HW16 | Microbial contamination | 1 | 1 | | | |
| | HW17 | Acoustic performance | 1 | 0 | | | |
| | | | <i>Section Credit Total</i> | 13 | | 11 | |
| Energy | E1 | Reduction of CO2 emissions | 15 | 8 | 13.24 | | |
| | E2 | Sub-meting of substantial energy uses | 1 | 1 | | | |
| | E3 | Sub-meting of areas/tenancy | 1 | 1 | | | |
| | E4 | External lighting | 1 | 1 | | | |
| | | | <i>Section Credit Total</i> | 18 | | 11 | |
| Transport | T1 | Provision of public transport | 2 | 0 | 13.24 | | |
| | T2 | Transport CO2 | 10 | 2 | | | |
| | T5 | Cyclist facilities | 2 | 2 | | | |
| | T8 | Travel plan | 1 | 1 | | | |
| | | | <i>Section Credit Total</i> | 15 | | 5 | |
| Water | W1 | Water consumption | 3 | 1 | 2.50 | | |
| | W2 | Water meter | 1 | 1 | | | |
| | W3 | Major leak detection | 1 | 0 | | | |
| | W4 | Sanitary supply shut off | 1 | 1 | | | |
| | | | <i>Section Credit Total</i> | 6 | | 3 | |
| Materials and Waste | MW1 | Materials specification - major building elements | 4 | 2 | 4.17 | | |
| | MW3 | Floor finishes | 1 | 1 | | | |
| | MW5 | Re-use of building façade | 1 | 0 | | | |
| | MW6 | Re-use of building structure | 1 | 0 | | | |
| | MW7 | Recycled aggregates | 1 | 1 | | | |
| | MW8 | Responsible sourcing of materials | 3 | 0 | | | |
| | MW12 | Storage of recyclable waste | 1 | 1 | | | |
| | | <i>Section Credit Total</i> | 12 | 5 | | | |
| Land-use and ecology | LE1 | Re-use of land | 1 | 1 | 10.50 | | |
| | LE2 | Contaminated land | 1 | 0 | | | |
| | LE3 | Protection of ecological features | 1 | 1 | | | |
| | LE4 | Mitigating ecological impact | 2 | 1 | | | |
| | LE5 | Enhancing site ecology | 3 | 2 | | | |
| | LE6 | Long term impact on biodiversity | 2 | 2 | | | |
| | | | <i>Section Credit Total</i> | 10 | | 7 | |
| Pollution | P1 | Refrigerant GWP - building services | 1 | 1 | 11.00 | | |
| | P2 | Preventing refrigerant leaks | 2 | 1 | | | |
| | P4 | Insulant GWP | 1 | 1 | | | |
| | P6 | NOx emissions of heating source | 3 | 0 | | | |
| | P7 | Minimising flood risk | 3 | 3 | | | |
| | P8 | Minimising watercourse pollution | 1 | 1 | | | |
| | P11 | Renewable & low emission energy | 3 | 3 | | | |
| | P12 | Reduction of night-time light pollution | 1 | 1 | | | |
| | | | <i>Section Credit Total</i> | 15 | | 11 | |

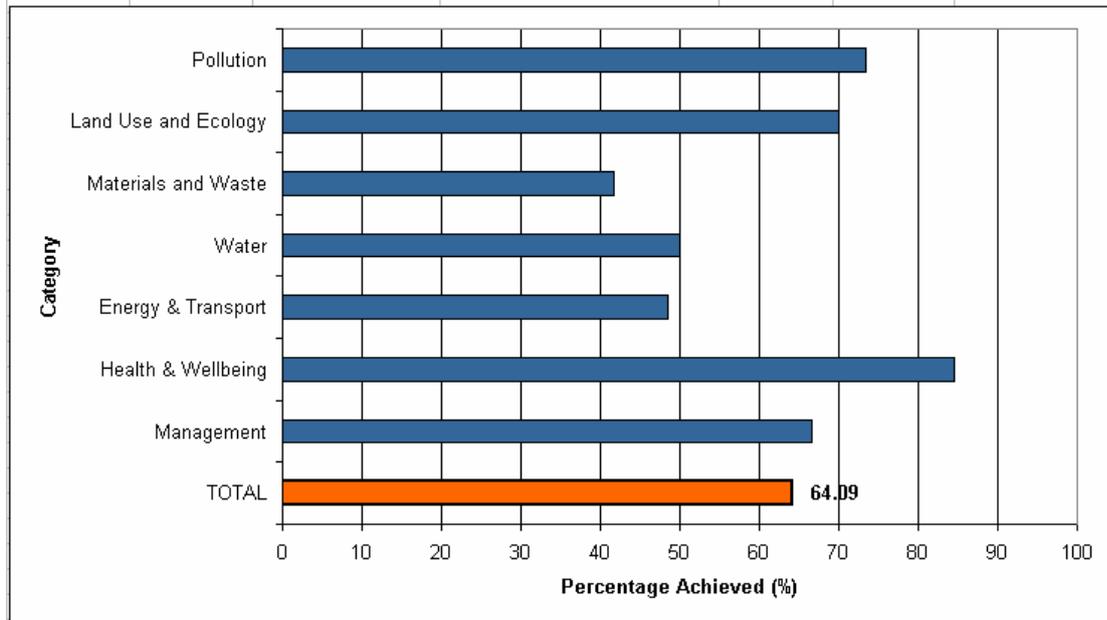
Final Score

| | | | | |
|--|--|-----------------------|--------------------------|--------------------------|
| | | | Credits Available | Predicted Credits |
| | | Total Credits | 98 | 59 |
| | | Weighted Score | 64.09 | |
| | | Rating | Very Good | |

Scoring System

| Rating | Points Score Required |
|-----------|-----------------------|
| Pass | 25 |
| Good | 40 |
| Very Good | 55 |
| Excellent | 70 |

Development Scoring Summary Graph



Appendix C

BREEAM for Industrial Predictive Assessment Pre-Assessment Estimator (2006)



Pre-Assessment Estimator
DESIGN & PROCUREMENT



2006

BREEAM Offices 2006 PRE-ASSESSMENT ESTIMATOR

IMPORTANT **(Please read this before using the checklist).**

This pre-assessment checklist allows a quick evaluation of the rating, that could be achieved, under a formal **BREEAM Offices** assessment.

The points system used in this checklist is an approximation of the scoring and weighting system in the formal BREEAM Offices method. In addition the checklist gives a brief summary of the compliance requirements for BREEAM Offices. The rating obtained by using this checklist is therefore for guidance only.

Estimated ratings may differ from those obtained through a formal assessment which must be carried out by a licensed BREEAM Offices assessor (a list of assessors is available from www.BREEAM.org). The assessor will require evidence to support each credit claimed.

USING THE DESIGN & PROCUREMENT ASSESSMENT ESTIMATOR

This checklist should be used when carrying out approximate assessments on

- New build or refurbishment schemes at the design stage.

The checklist calculates scores for both the 'Core' and the 'Design & Procurement' parts of BREEAM Offices. This enables both an approximate BREEAM rating and an Environmental Performance Index to be produced.

To generate an estimated rating for a Management & Operation assessment, please complete the separate checklist, 'MANAGEMENT & OPERATION Assessment Estimator'. Note: It is not possible to carry out a Management and Operation Assessment unless the building has been occupied and in operation for a minimum of a 12 months.

To generate an estimated Environmental Performance Index score for a Core assessment, please complete the separate checklist, 'CORE CREDITS ONLY Assessment Estimator'. CORE credits assess the building performance.

COMPLETION OF THE CHECKLIST

| | |
|---------------|---|
| Step 1 | Complete the checklist by entering the number of points (shown in the 'Points' column shaded light grey) into the unshaded 'Design & Procurement' column where the criteria is achieved. NOTE: Evidence of compliance will be required in the formal assessment. |
| Step 2 | At the end of each section, total the Design & Procurement column and enter in the box titled, 'Total points achieved to carry forward'. |
| Step 3 | Complete for all sections. |
| Step 4 | Sum the total points achieved to carry forward and enter in to the box titled 'Total of points achieved.' |
| Step 5 | The total should then be assessed against the table titled 'Probable BREEAM Rating' – the score achieved will generate a rating of Fail, Pass, Good, Very Good or Excellent. Make a note of this rating. |
| NOTE: | In some cases, there are multiple performance levels for the same criteria, simply award the appropriate points score corresponding to the predicted level of achievement. NOTE: These points scores are not cumulative. |
| | Seek guidance from a licensed assessor early in the design process to ensure that the predicted rating is achieved during the design stages. |

| Credit Reference | MANAGEMENT | Points | Design & Procurement |
|--|---|--------------|----------------------|
| M01 | Where evidence provided demonstrates that an appropriate project team member has been appointed to monitor commissioning on behalf of the client to ensure commissioning will be carried out in line with current Building Regulations, BSRIA/CIBSE guidelines and (where applicable), best practice and where there are complex systems then a specialist agent or manager is appointed. | 1.67 | |
| | Evidence should also be provided to show that seasonal commissioning will be carried out during the first year of occupation of the building. NOTE: These point scores ARE cumulative. | 1.67 | |
| M04 | Where the project complies with either the Considerate Constructors scheme or an alternative independently assessed scheme and where a firm commitment is made to achieve certification under that scheme to the following standards: | | |
| | <ul style="list-style-type: none"> • Better than industry standard OR <ul style="list-style-type: none"> • Best practice NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement. | 1.67 3.33 | |
| M05 | Where evidence provided demonstrates that | | |
| | <ul style="list-style-type: none"> • 2 or more of items a-g, listed below are achieved. OR | 1.67 | |
| | <ul style="list-style-type: none"> • 4 or more of items a-g, listed below are achieved. OR | 3.33 | |
| | <ul style="list-style-type: none"> • 6 or more of items a-g, listed below are achieved. <ul style="list-style-type: none"> a) Monitor and report CO₂ or energy arising from site activities. b) Monitor and report on water consumption from site activities. c) Monitor and report transport to and from site to enable CO₂ emissions arising from transport to be calculated. d) Monitor construction waste on site. e) Sort and recycle construction waste on site. f) Adopt best practice policies in respect to air (dust) pollution. g) Adopt best practice policies in respect to water (ground and surface) pollution. NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement. | 5 | |
| Where temporary timber is used on site during construction, this is from a sustainably responsible source OR is re-used or recycled. | 1.67 | | |
| M11 | Where evidence provided demonstrates the provision of a simple guide that covers information relevant to the tenant/occupants and non-technical building manager on the operation and environmental performance of the building. | 1.67 | |



| |
|---|
| BREEAM Offices 2006 |
| Design & Procurement Pre-Assessment Estimator |

| | |
|--|----------------------|
| Total points achieved to carry forward | <input type="text"/> |
|--|----------------------|

| Credit Reference | HEALTH & WELLBEING | Points | Design & Procurement |
|------------------|--|--------|----------------------|
| HW01 | Where at least 80% of net lettable office floor area is adequately daylit. | 1.154 | |
| HW02 | Where evidence provided demonstrates that all desks are within a 7m radius of a window. | 1.154 | |
| HW03 | Where evidence provided demonstrates that an occupant controlled glare control system (e.g. internal or external blinds) is fitted. | 1.154 | |
| HW04 | Where evidence provided demonstrates that high frequency ballasts are installed on all fluorescent and compact fluorescent lamps. | 1.154 | |
| HW05 | Where evidence provided demonstrates that all internal and external lighting, where relevant, is specified in accordance with the appropriate maintained illuminance levels (in lux) recommended by CIBSE. | 1.154 | |
| HW06 | Where evidence provided demonstrates that lighting, in all occupied areas, is zoned to allow separate control. | 1.154 | |
| HW08 | Where evidence provided demonstrates that external façade windows to all occupied areas are openable | 1.154 | |
| HW09 | Where air intakes serving occupied areas avoid major sources of external pollution and recirculation of exhaust air. | 1.154 | |
| HW11 | <p>Where either:</p> <ul style="list-style-type: none"> • In the case of <u>mechanically ventilated</u> and <u>air conditioned</u> buildings, fresh air is provided at 12l/s/person. <p>OR</p> <ul style="list-style-type: none"> • In the case of <u>naturally ventilated</u> buildings, trickle vents are provided on the majority of windows, where the windows openable area is the equivalent to 5% of the gross internal area of the building and the plan depth is no more than 15m otherwise extra ventilation is required. | 1.154 | |
| HW14 | Where thermal comfort levels are assessed at design stage, this is used to evaluate appropriate servicing options, and appropriate thermal comfort levels are achieved | 1.154 | |
| HW15 | Where evidence provided demonstrates that local control is available for temperature adjustment in each area to reflect differing load requirements. | 1.154 | |
| HW16 | Where evidence provided demonstrates that the risk of waterborne and airborne | 1.154 | |

| | | | |
|---|---|-------|--|
| | legionella contamination has been minimised. | | |
| HW17 | <p>Where the building design can be shown to achieve ambient internal noise levels as specified below:</p> <ul style="list-style-type: none"> • 35-40dB L_{AeqT} in single occupancy, cellular offices • 40-45 dB L_{AeqT} in medium sized, multi-occupancy open plan offices – ≤ 4 work stations $\leq 40m^2$ • 45-50 dB L_{AeqT} in large multi-occupancy, open plan offices > 4 work stations $> 40m^2$ | 1.154 | |
| Total points achieved to carry forward | | | |

| Credit Reference | ENERGY | Points | |
|---|---|----------------------|--|
| | | Design & Procurement | |
| E01 | <p>Where the building demonstrates a percentage improvement above the requirement for CO₂ emissions as set out in the 2006 Building Regulations.</p> <ul style="list-style-type: none"> • +1% • +2% • +4% • +6% • +8% • +10% • +12% • +14% • +18% • +22% • +30% • +40% • +50% • +60% • ≥70% | 0.76 | |
| | | 1.52 | |
| | | 2.27 | |
| | | 3.03 | |
| | | 3.79 | |
| | | 4.55 | |
| | | 5.30 | |
| | | 6.06 | |
| | | 6.89 | |
| | | 7.57 | |
| | | 8.33 | |
| | | 9.09 | |
| | | 9.85 | |
| | | 10.61 | |
| 11.35 | | | |
| <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> | | | |
| E02 | <p>Where electricity sub metering is provided for substantive energy uses within the building covering <u>lighting</u> and <u>small power</u>, and each of the following where present:</p> <ul style="list-style-type: none"> • Computer Room • Humidification Plant • Cooling Plant • Fans (major) • If a building has other major energy consuming items, they should be covered as appropriate e.g. catering facilities. | 0.76 | |
| E03 | Where evidence provided demonstrates sub-metering of energy use by tenancy/areas is installed within the building. | 0.76 | |
| E04 | Where energy efficient external luminaires are specified and all light fittings controlled for the presence of daylight. | 0.76 | |
| <p>Total points achieved to carry forward</p> | | | |

| Credit Reference | TRANSPORT | Points | Design & Procurement |
|------------------|--|--------|----------------------|
| T01 | Where good access is available to and from public transport networks for <ul style="list-style-type: none"> • Commuting AND/OR <ul style="list-style-type: none"> • Business travel. NOTE: These point scores <u>ARE</u> cumulative. | 0.76 | |
| | | 0.76 | |
| | | | |
| T02 | Total Net CO ₂ emissions arising from transport to and from the building will be predicted based on location. Credits given are based on the scale below: <ul style="list-style-type: none"> • RURAL location with TYPICAL public transport connections • EDGE OF TOWN location with TYPICAL public transport connections • SMALL TOWN location with TYPICAL public transport connections • CITY / TOWN CENTRE location with TYPICAL public transport connections • CENTRAL URBAN CONURBATION location with TYPICAL public transport connections • CLOSE TO MAJOR TRANSPORT NODE location with TYPICAL public transport connections NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement. | 0 | |
| | | 1.52 | |
| | | 3.03 | |
| | | 4.55 | |
| | | 6.06 | |
| | | 7.57 | |
| T05 | Where evidence is provided to demonstrate that there is adequate provision of covered, secure and well lit cycle racks and showers. Compliant cycle storage facilities must be provided for a percentage of building occupants in accordance with the following figures: <ul style="list-style-type: none"> • 10% of building occupants up to 500 PLUS • 7% for building occupants in the range of 501 – 1000 PLUS • 5% for building occupants over 1000 Where in addition to the above, information is provided to demonstrate that there is adequate provision of changing facilities and lockers for clothes or a dedicated drying space for wet clothes. NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement. | 0.76 | |
| | | 1.52 | |
| T08 | Where evidence is provided to demonstrate that a travel plan has been developed and tailored to the specific needs of the users of the assessed development. <ul style="list-style-type: none"> • walking; • cycling; • public transport; • use of the private car for travel to work; • mopeds/motorcycles; • reducing the need to travel; • visitors/customers; • deliveries. | 0.76 | |

| |
|--|
| Total points achieved to carry forward <input type="text"/> |
|--|

| Credit Reference | WATER | Points | Design & Procurement | | | | | | |
|---|--|---|----------------------|------|-----|--|--|--|--|
| W01 | <p>Credits are awarded based on the improvement over standard specification of water fittings. A standard specification would include 6 litre flush toilets, urinals with no controls, a shower that uses 12-15 litres per minute, standard taps with no flow restrictors. In a formal BREEAM assessment the predicted water consumption will be calculated using the BREEAM water calculator, as a guide the following can be used as a rough estimate of likely number of credits:</p> <ul style="list-style-type: none"> • where some of the fittings use less water than a standard fitting <p>OR</p> <ul style="list-style-type: none"> • where all of the fittings are low water or, where only some of the fittings are low water, rainwater or grey water systems are specified. <p>OR</p> <ul style="list-style-type: none"> • where the water fittings are all low water and rainwater or greywater fittings have been specified. <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> | <table border="1"> <tr><td>0.83</td></tr> <tr><td>1.67</td></tr> <tr><td>2.5</td></tr> </table> | 0.83 | 1.67 | 2.5 | <table border="1"> <tr><td></td></tr> <tr><td></td></tr> <tr><td></td></tr> </table> | | | |
| 0.83 | | | | | | | | | |
| 1.67 | | | | | | | | | |
| 2.5 | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| W02 | Where evidence is provided to demonstrate that a water meter with a pulsed output will be installed on the mains supply to each building. | 0.83 | | | | | | | |
| W03 | Where evidence is provided to demonstrate that a leak detection system is specified or installed. | 0.83 | | | | | | | |
| W04 | Where proximity detection shut off is provided to water supply for all urinals and WC's. | 0.83 | | | | | | | |
| Total points achieved to carry forward | | | | | | | | | |

| Credit Reference | MATERIALS | Points | Design & Procurement |
|---|--|------------------------------|----------------------|
| MW01 | <p>Where evidence provided demonstrates that the major building elements specified have an 'A rating', as defined in the <i>Green Guide to Specification</i>. In a formal BREEAM assessment the number of credits will be calculated using the BREEAM materials calculator, but as a guide the following can be used as a rough estimate of the likely number of credits achieved. The following elements are considered;</p> <ul style="list-style-type: none"> Where at least 80% of upper floor slab specifications achieve an 'A' overall rating. Where at least 80% of external wall specifications achieve an 'A' overall rating. Where at least 80% of roof specifications achieve an 'A' overall rating. Where at least 80% of windows specifications achieve an 'A' overall rating. <p>NOTE: These point scores <u>ARE</u> cumulative.</p> | 0.83 0.83 0.83 0.83 | |
| MW03 | Where carpets and other floor finishes are specified by the future occupant or, in tenant areas of speculative buildings, where carpets or floor finishes are installed in a limited show area only. | 0.83 | |
| MW05 | Where at least 50% of the new building's total façade comprises re-used façade and at least 80% by mass of the reused façade comprises in-situ re-used material | 0.83 | |
| MW06 | Where evidence provided demonstrates that a design reuses at least 80% of an existing primary structure and for part refurbishment and part new build, the volume of the reused structure comprises at least 50% of the final structure's volume. | 0.83 | |
| MW07 | Where significant use of crushed aggregate, crushed masonry or alternative aggregates (manufactured from recycled materials) are specified for 'high grade' aggregate uses (such as the building structure, ground slabs, roads, etc.). | 0.83 | |
| MW08 | Where materials used in structural and non-structural elements are responsibly sourced. For timber products this requires third party certification to show that the timber has come from a sustainably managed source and for non-timber products that the materials have EMS certification at either the process stage or the process and extraction phases. | 2.5 | |
| MW12 | Where the presence of a central dedicated storage space for recyclable materials either within the building or on site skips are provided with good access for collections (2m ² per 1000m ² of floor area, up to 10m ² max). | 0.83 | |
| Total points achieved to carry forward | | | |

| Credit Reference | LAND USE | Points | Design & Procurement |
|------------------|---|--------|----------------------|
| LE01 | Where the site has been previously built upon or used for industrial purposes within the last 50 years. | 1.5 | |
| LE02 | Where evidence is provided to demonstrate that the land used for the new development has, prior to development, been defined as contaminated and where adequate remedial steps have been taken to decontaminate the site prior to construction. | 1.5 | |
| LE03 | Where evidence is provided to demonstrate that the construction zone is defined as land of low ecological value and all existing features of ecological value will be fully protected from damage during site preparation and construction works. | 1.5 | |
| LE04 | <p>Credits are awarded based upon the degree of negative impact the new development has on the site's existing ecology. In a formal BREEAM assessment the ecological impact of the development is calculated based on the area of habitat and number of floral species displaced, using BREEAM's ecological value calculator. As a guide, the following can be used to estimate the likely number of credits:</p> <p>No credits can be awarded where the new development will displace a significant majority of the existing site's ecological habitat types and areas.</p> <p>Where a majority of the existing site's ecological habitat types and areas are not displaced as a result of the new development.</p> <p>Where either the development displaces none of the existing site's ecological habitat types and areas. Or, where there is no, or very limited existing site ecology; for example the new development is a refurbishment, or it is on contaminated land or Brownfield land that has been derelict/unoccupied for less than one year.</p> <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> | | |
| LE05 | <p>Where evidence is provided to demonstrate that the design team (or client) has</p> <p>i) appointed a professional to advise and report on enhancing and protecting the ecological value of the site; AND</p> <p>ii) implemented the professional's recommendations for general enhancement and protection for site ecology.</p> <p>OR</p> <p>Where, in addition to the above, evidence is provided to demonstrate a positive increase in the ecological value of the site of up to (but not including) 6 species.</p> <p>OR</p> <p>Where, in addition to the above, evidence is provided to demonstrate a positive increase in the ecological value of the site of 6 species or greater.</p> <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> | 1.5 | |
| | | 3 | |
| | | 4.5 | |

| | | |
|--|---|--|
| <p>LE06</p> <p>Where evidence is provided to demonstrate that the client has committed to achieving the mandatory requirements listed below and:</p> <ul style="list-style-type: none"> • At least two of the additional requirements. <p>OR</p> <ul style="list-style-type: none"> • At least four of the additional requirements. <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> <p>Mandatory Requirements A suitably qualified ecologist must confirm in writing that:</p> <ul style="list-style-type: none"> • All relevant UK and EU legislation relating to protection and enhancement of ecology has been, or will be, complied with during the design and construction process. • An appropriate management plan is produced covering at least the first 5 years after project completion. This should include details of the scope of the management plan. • Key responsibilities, and with whom these responsibilities lie, e.g. owner, landlord, occupier, FM, other. <p>Additional Requirements</p> <ul style="list-style-type: none"> • A 'Biodiversity Champion' has been nominated • The relevant site work-force has been trained on how to protect site ecology during the project. • Record and monitor actions taken to protect biodiversity throughout key stages of construction • The client requires that a new ecologically valuable habitat, appropriate to the local area, be created. • The client requires the contractor to programme site works to minimise disturbance to wildlife. • The client requires actions to be taken to protect/enhance biodiversity • A Biodiversity Champion must have sufficient authority and time on site to influence activities and ensure that they have minimal detrimental impact on biodiversity • Local biodiversity expertise should be sought at, or before, the design stage • Where a site is deemed to have no ecological value <p>The refurbishment of a listed building may be exempt from the credit requirements if they conflict with the need to maintain the building's listed features</p> | 1.5 | |
| | 3 | |
| | Total points achieved to carry forward | |

| Credit Reference | POLLUTION | Points | Design & Procurement |
|------------------|---|--------|----------------------|
| P01 | Where evidence provided demonstrates the use of refrigerants with a global warming potential (GWP) of less than 5 or where there are no refrigerants specified for use in building services. | 1 | |
| P02 | Where evidence provided demonstrates that refrigerant leaks can be detected or where there are no refrigerants specified for use in the building or development. | 1 | |
| | Where there are refrigerants, evidence should be provided to demonstrate that the provision of automatic refrigerant pump down is made to a heat exchanger (or dedicated storage tanks) with isolation valves. NOTE: These point scores ARE cumulative. | 1 | |
| P04 | Where evidence provided demonstrates that the specification of insulating materials avoids the use of substances with a global warming potential (GWP) of 5 or more in either manufacture or composition | 1 | |
| P06 | Where evidence provided demonstrates that the maximum dry NO _x emissions from delivered space heating energy are: <ul style="list-style-type: none"> • ≤100 mg/kWh (at 0% excess O₂). • ≤70 mg/kWh (at 0% excess O₂). • ≤40 mg/kWh (at 0% excess O₂). NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement. | | |
| | | 1 | |
| | | 2 | |
| P07 | Where evidence provided demonstrates that the assessed development is located in a zone defined as having a low annual probability of flooding. OR Where evidence provided demonstrates that the assessed development is located in a zone defined as having a medium annual probability of flooding and the ground level of the building, car parking and access is above the design flood level for the site's location. NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement. | 2 | |
| | | 1 | |
| | Where evidence provided demonstrates that Sustainable Urban Drainage techniques are specified to minimise the risk of localised flooding, resulting from a loss of flood storage on site through development. | 1 | |
| P08 | Where evidence provided demonstrates that on site treatment such as oil separators/interceptors or filtration have been specified for areas at risk from pollution, i.e. vehicle manoeuvring areas, car parks, waste disposal facilities, delivery facilities or plant areas. | 1 | |
| P11 | Where evidence provided demonstrates that : | | |

| | | | |
|---|---|---|--|
| | <p>A feasibility study considering renewable and low emission energy has been carried out and the results implemented.</p> <p>OR</p> <p>In addition to the above, 10% of total energy demand for the building/development is supplied from local renewable or low emission energy, sources.</p> <p>OR</p> <p>In addition to the above and 15% of total energy demand for the building/development is supplied from local renewable or low emission energy, sources.</p> <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> | 1 | |
| | | 2 | |
| | | 3 | |
| P12 | Where evidence provided demonstrates that the external lighting design is in compliance with the guidance in the Institution of Lighting Engineers (ILE) Guidance notes for the reduction of obtrusive light, 2005. | 1 | |
| Total points achieved to carry forward | | | |

SCORING

TOTAL OF POINTS ACHIEVED

| Rating | Minimum Score Required |
|------------------|---|
| | Design stage & Post Construction Review |
| PASS | 25 |
| GOOD | 40 |
| VERY GOOD | 55 |
| EXCELLENT | 70 |



IMPORTANT

(Please read this before using the checklist).

This pre-assessment checklist allows a quick evaluation of the likely rating to be achieved under a formal **BREEAM Industrial** assessment.

The points system used in this checklist is an approximation of the scoring and weighting system in the formal BREEAM Industrial method. In addition the checklist gives a brief summary of the compliance requirements for BREEAM Industrial. The rating obtained by using this checklist is therefore for guidance only.

Estimated ratings may differ from those obtained through a formal assessment which must be carried out by a licensed BREEAM Industrial assessor (a list of assessors is available from www.BREEAM.org). The assessor will require evidence to support each credit claimed.

This pre-assessment estimator is for use when considering **fitted out** buildings. This covers the assessment of buildings that are being designed and fitted out for a known end occupier or where the end occupier is unknown but the operational area is being fitted out. The assessment will allow buildings with unheated/untreated areas, cold storage etc within the Operational area to be assessed.

An alternative pre-assessment estimator is available for **speculative** buildings. This covers the assessment of speculatively developed buildings with an unknown end occupier. The assessment will be based on the proviso that the infrastructure for basic building services systems will be provided but that the operational area will not be fitted out with lighting or heating.

USING THE PRE-ASSESSMENT ESTIMATOR

This checklist should be used when carrying out approximate assessments on new build or refurbishment schemes at the design stage.

COMPLETION OF THE CHECKLIST

| | |
|---------------|--|
| Step 1 | Complete the checklist by entering the number of points (shown in the 'Points' column shaded light grey) into the unshaded 'Points Achieved' column where the criteria is achieved. NOTE: Evidence of compliance will be required in the formal assessment. |
| Step 2 | At the end of each section, total the 'Points Achieved' column and enter in the box titled, 'Total points achieved to carry forward'. |
| Step 3 | Complete for all sections. |
| Step 4 | Sum the total points achieved to carry forward and enter in to the box titled 'Total of points achieved.' |
| Step 5 | The total should then be assessed against the table titled 'Probable BREEAM Rating' – the score achieved will generate a rating of Fail, Pass, Good, Very Good or Excellent. Make a note of this rating. |
| NOTE: | In some cases, there are multiple performance levels for the same criteria, simply award the appropriate points score corresponding to the predicted level of achievement. NOTE: These point scores are not cumulative. |
| | Seek guidance from a licensed assessor early in the design process to ensure that the predicted rating is achieved during the design stages. |

Appendix D

BREEAM for Offices Pre-Assessment Estimator 2006

| MANAGEMENT | | With Offices | Without Offices | Points Achieved |
|--|---|--------------|-----------------|-----------------|
| M01 | Where evidence provided demonstrates that an appropriate project team member has been appointed to monitor commissioning on behalf of the client to ensure commissioning will be carried out in line with current Building Regulations and (where applicable), best practice and where there are complex systems then a specialist agent or manager is appointed. | 1.67 | 1.67 | |
| | Where in addition to the above evidence provided demonstrates that seasonal commissioning will be carried out during the first year of occupation, post construction (or post fit out). | 3.33 | 3.33 | |
| | NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement. | | | |
| M04 | Where evidence provided demonstrates that there is a commitment to comply with best practice site management principles. OR Where evidence provided demonstrates that there is a commitment to go significantly beyond best practice site management principles. | 1.67 | 1.67 | |
| | NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement. | 3.33 | 3.33 | |
| | | | | |
| M05 | Where evidence provided demonstrates that | 1.67 | 1.67 | |
| | <ul style="list-style-type: none"> • 2 or more of items a-g, listed below are achieved. OR | 3.33 | 3.33 | |
| | <ul style="list-style-type: none"> • 4 or more of items a-g, listed below are achieved. OR | 5 | 5 | |
| | <ul style="list-style-type: none"> • 6 or more of items a-g, listed below are achieved. | | | |
| | <ul style="list-style-type: none"> a) Monitor and report CO₂ or energy arising from site activities. b) Monitor and report on water consumption from site activities. c) Monitor and report transport to and from site to enable CO₂ emissions arising from transport to be calculated. d) Monitor construction waste on site. e) Sort and recycle construction waste on site. f) Adopt best practice policies in respect to air (dust) pollution. g) Adopt best practice policies in respect to water (ground and surface) pollution. | | | |
| NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement. | | | | |
| Where temporary timber is used on site during construction, this is from a sustainably responsible source OR is re-used or recycled. | 1.67 | 1.67 | | |
| M12 | Where evidence provided demonstrates the provision of a simple guide that covers information relevant to the tenant/occupants and non-technical building manager on the operation and environmental performance of the building. | 1.67 | 1.67 | |



| |
|---------------------------------|
| BREEAM Industrial 2006 |
| Pre-Assessment Estimator |
| Fitted Out Buildings |

| | | |
|---|--|----------------------|
| Total points achieved to carry forward | | <input type="text"/> |
|---|--|----------------------|

| Credit Reference | HEALTH & WELLBEING | | | |
|------------------|---|--------------|-----------------|-----------------|
| | | With Offices | Without Offices | Points Achieved |
| HW01 | Where at least 80% of floor area is adequately daylight. | 2.14 | 3 | |
| HW04 | Where evidence provided demonstrates that high frequency ballasts are installed on all fluorescent and compact fluorescent lamps. | 2.14 | 3 | |
| HW05 | <p>Where evidence provided demonstrates that all internal and external lighting, where relevant, is specified in accordance with the appropriate maintained illuminance levels (in lux) recommended by CIBSE.</p> <p>External Lighting - Lux levels must be specified in accordance with CIBSE Lighting Guide 6, 'The outdoor environment'. External areas that must comply include (where applicable):</p> <ul style="list-style-type: none"> covered and open pavement areas external circulation areas and entrances surface car parks (i.e. uncovered car parks) access roads (following the recommendations in BS5489 Part 1) [4] direction signs & notice boards outdoor work and storage areas bicycle racks delivery, refuse and rubbish areas garage forecourts subways, stairways and foot bridges cash machines Roadways, general movement (following the recommendations in BS5489 Part 1) Walkways, perimeter zones, security: Recreational and club sports: Sports facilities <p>Internal Lighting - Lux levels must be specified in accordance with part two of the 2002 Code for Lighting^[1] and its 2004 Addendum.</p> | 2.14 | 3 | |
| HW11 | <p>Where evidence provided demonstrates that each space within the development achieves recommended minimum fresh air rates.</p> <p>Mechanical Ventilation For office areas fresh air should be provided at a rate of 12 litres per second per person. For operational areas fresh air should be provided at a rate of at least 8 litres per second per person. In the case of fully fitted out schemes (where the number of occupants is known) this should be based on actual occupancy. In the case of speculative schemes occupancy of 1 person per 10m² should be assumed.</p> <p>OR</p> <p>Natural Ventilation Where office or operational areas have been designed to be naturally ventilated, all of the following criteria should be achieved: Background ventilation to be in accordance with the Building Regulations Part F. The plan depth of building is less than 15m.</p> | 2.14 | 3 | |
| HW16 | Where evidence provided demonstrates that the risk of waterborne and airborne legionella contamination has been minimised. | 2.14 | 3 | |

| | | | |
|---|---|------|--|
| HW18 | <p>Where information provided demonstrates that office space within the development achieves best practice in terms of occupant comfort and control.</p> <p>Three of the following measures must be achieved for at least 80% of the development's office space. OR Five of the following measures must be achieved for at least 80% of the development's office space.</p> <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> <ul style="list-style-type: none"> • View Out - All work stations are situated a maximum of 7m away from a window or permanent opening providing a view. • Daylight glare control - Where an occupant controlled system of glare control, (e.g. internal or external blinds) is fitted on all windows. • Lighting zones - Separate zoned lighting controls provided. • Potential for natural ventilation - The openable window area in each room/floor plate should be equivalent to 5% of the gross internal floor area of that room/floor plate, and for accommodation over 7m deep openable windows are on opposite sides. • Internal air pollution - Air-conditioned and mixed-mode buildings: - Where locations of air intakes/outlets are over 10m apart to minimise recirculation AND intakes are over 20m from sources of external pollution or for naturally-ventilated buildings: Where location of openable windows/ventilators are over 10m from sources of external pollution. • Thermal zoning - where the heating / cooling system is designed to allow separate occupant control to be made of each perimeter area (i.e. within 7m of each external wall) and the central zone (i.e. over 7m from the external walls). • Thermal comfort - Thermal comfort levels must meet the requirements set out in CIBSE Guide A and feasibility studies aimed at optimising thermal comfort completed. • Acoustic performance - Indoor ambient noise level in unoccupied offices must be achieved. | 2.14 | |
| | | 4.30 | |
| Total points achieved to carry forward | | | |

| Credit Reference | ENERGY | With Offices | | Points Achieved |
|---|--|--------------|-----------------|-----------------|
| | | With Offices | Without Offices | |
| E01 | <p>Where the building demonstrates a percentage improvement above the requirement for CO₂ emissions as set out in the 2006 Building Regulations.</p> <ul style="list-style-type: none"> • +1% • +2% • +4% • +6% • +8% • +10% • +12% • +14% • +18% • +22% • +30% • +40% • +50% • +60% • ≥70% <p>Where fitted out units with unheated operational space are being assessed then the notional model must assume that the operational space has no heating source.</p> <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> | 0.96 | 0.96 | |
| | | 1.92 | 1.92 | |
| | | 2.88 | 2.88 | |
| | | 3.85 | 3.85 | |
| | | 4.81 | 4.81 | |
| | | 5.77 | 5.77 | |
| | | 6.73 | 6.73 | |
| | | 7.69 | 7.69 | |
| | | 8.65 | 8.65 | |
| | | 9.62 | 9.62 | |
| | | 10.58 | 10.58 | |
| | | 11.54 | 11.54 | |
| | | 12.50 | 12.50 | |
| | | 13.46 | 13.46 | |
| 14.43 | 14.43 | | | |
| E03 | <p>Where evidence provided demonstrates sub-metering of energy use by areas is installed within each unit. This should cover the following areas as a minimum:</p> <ul style="list-style-type: none"> • Office areas • Operational area • Ancillary areas (such as canteen etc) | 0.96 | 0.96 | |
| E04 | <p>Where 80% of external luminaires have an efficacy of at least 100 luminaire-lumens/circuit-Watts and all external light fittings are controlled through a time switch or daylight sensor to allow for daylight control.</p> | 0.96 | 0.96 | |
| E05 | <p>Where evidence is provided to demonstrate that the building has been designed and detailed to ensure optimum building fabric performance and to minimise unnecessary air infiltration.</p> | 0.96 | 0.96 | |
| Total points achieved to carry forward | | | | |

| Credit Reference | TRANSPORT | With Offices | | Without Offices | Points Achieved |
|---|--|--------------|------|-----------------|-----------------|
| | | | | | |
| T01 | <p>The number of credits awarded is based on the proximity of the development to a public transport node with a good service frequency.</p> <ul style="list-style-type: none"> · Where the transport node is within 800m with a frequent service of 30min intervals <p>OR</p> <ul style="list-style-type: none"> · Where the transport node is within 500m with a frequent service of 30min intervals <p>OR</p> <ul style="list-style-type: none"> · Where the transport node is within 800m with a frequent service of 15min intervals <p>OR</p> <ul style="list-style-type: none"> · Where the transport node is within 500m with a frequent service of 15min intervals <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> | 0.96 | 0.96 | | |
| | | 1.92 | 1.92 | | |
| | | 2.88 | 2.88 | | |
| | | 3.85 | 3.85 | | |
| | | | | | |
| T05 | <p>Where evidence is provided to demonstrate that there is adequate provision of covered, secure and well lit cycle racks and showers. Compliant cycle storage facilities must be provided for a percentage of building occupants in accordance with the following figures:</p> <ul style="list-style-type: none"> • 10% of building occupants up to 500 PLUS • 7% for building occupants in the range of 501 – 1000 PLUS • 5% for building occupants over 1000 <p>Where in addition to the above, information is provided to demonstrate that there is adequate provision of changing facilities and lockers for clothes or a dedicated drying space for wet clothes.</p> <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> | 0.96 | 0.96 | | |
| | | 1.92 | 1.92 | | |
| T08 | <p>Where evidence is provided to demonstrate that a travel plan has been developed and tailored to the specific needs of the users of the assessed development. The plan must include policies that address constraints, opportunities, targets and actions for the following:</p> <ul style="list-style-type: none"> • walking; • cycling; • public transport; • use of the private car for travel to work; • mopeds/motorcycles; • reducing the need to travel; • visitors/customers; • deliveries. | 0.96 | 0.96 | | |
| T12 | <p>Where evidence is provided to demonstrate that vehicle access areas have been designed to ensure adequate space for manoeuvring delivery vehicles, and provide space for storage of refuse skips and pallets.</p> | 0.96 | 0.96 | | |
| Total points achieved to carry forward | | | | | |

| Credit Reference | WATER | With Offices | Without Offices | Points Achieved |
|---|---|--------------|-----------------|-----------------|
| | | | | |
| W01 | <p>Credits are awarded based on the improvement over standard specification of water fittings. A standard specification would include 6 litre flush toilets, urinals with no controls, a shower that uses 12-15 litres per minute, standard taps with no flow restrictors. In a formal BREEAM assessment the predicted water consumption will be calculated using the BREEAM water calculator, as a guide the following can be used as a rough estimate of likely number of credits achieved:</p> <ul style="list-style-type: none"> where some of the fittings use less water than a standard fitting <p>OR</p> <ul style="list-style-type: none"> where all of the fittings are low water OR, where only some of the fittings are low water, rainwater or grey water systems are specified. <p>OR</p> <ul style="list-style-type: none"> where the water fittings are all low water AND rainwater or greywater fittings have been specified. <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> | | | |
| | | 1 | 1 | |
| | | 2 | 2 | |
| | | 3 | 3 | |
| W02 | Where evidence is provided to demonstrate that a water meter with a pulsed output will be installed on the mains supply to each unit. | 1 | 1 | |
| W03 | Where evidence is provided to demonstrate that a leak detection system is specified or installed to each unit. | 1 | 1 | |
| Total points achieved to carry forward | | | | |

| MATERIALS | | | | |
|------------------|---|--------------|-----------------|-----------------|
| Credit Reference | | With Offices | Without Offices | Points Achieved |
| MW01 | <p>Where evidence provided demonstrates that the major building elements specified have an 'A rating', as defined in the <i>Green Guide to Specification</i>. In a formal BREEAM assessment the number of credits will be calculated using the BREEAM materials calculator, but as a guide the following can be used as a rough estimate of the likely number of credits achieved. The following elements are considered;</p> <ul style="list-style-type: none"> · External Walls · Roof <p>Credits are awarded for the external walls and roof building elements based on the percentages below</p> <ul style="list-style-type: none"> • Where at least 50% of the external walls and the roof achieve an A rating in the Green Guide to Specification. <p>OR</p> <ul style="list-style-type: none"> • Where at least 80% of the external walls and the roof achieve an A rating in the Green Guide to Specification. <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> | 1 | 1 | |
| | | 2 | 2 | |
| MW02 | Where at least 80% of the combined area of external hard landscaping and boundary protection specifications achieve an A rating, as defined by the Green Guide to Specification. | 1 | 1 | |
| MW06 | <p>For new build: Where evidence provided demonstrates that a design reuses at least 80% of an existing primary structure and</p> <p>OR</p> <p>For part refurbishment and part new build: Where evidence provided demonstrates that the volume of the reused structure comprises at least 50% of the final structure's volume.</p> | 1 | 1 | |
| MW07 | Where significant use of crushed aggregate, crushed masonry or alternative aggregates (manufactured from recycled materials) is specified for 'high grade' aggregate uses (such as the building structure, ground slabs, roads, etc.). | 1 | 1 | |
| MW08 | <p>Where materials used in structural and non-structural elements are responsibly sourced.</p> <p>For timber products this requires third party certification to show that the timber has come from a sustainably managed source and for non-timber products that the materials have EMS certification at either the process stage or the process and extraction phases.</p> | 2 | 2 | |

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|---|--|---|---|--|
| MW10 | <p>Where protection is given to vulnerable parts of the building such as areas exposed to high pedestrian traffic, vehicular and trolley movements.</p> <p>Suitable durability measures are listed below:</p> <ul style="list-style-type: none"> • Bollards/high kerbs to vehicle drop-off areas • Corridor walls specified to Severe duty (SD) as per BS 5234-2 • Rails to walls of corridors where trolleys will be used (i.e. Science accommodation) • Kick plates/impact protection on doors • Hard wearing and easily washable floor finishes in heavily used circulation areas (i.e. main entrance, corridors etc). | 1 | 1 | |
| MW12 | <p>Where a central, dedicated storage space is provided for materials that can be recycled. This can be either within the building itself, or on site using skips, (provided there is good access for collections and it is within easy reach of the building).</p> <p>For fully fitted out units: The space provided should allow an external hardstanding area that is adequate to enable the occupier to recycle materials from the operational area(s) effectively PLUS at least 2m² per 1000m² of net office floor area (up to a maximum of 10m²).</p> | 1 | 1 | |
| MW16 | <p>Where evidence provided demonstrates that either a compactor or baler is provided for compacting/baling waste generated on site and</p> <ul style="list-style-type: none"> · A water outlet is provided for cleaning · The development achieves the BREEAM credit for recycling storage facilities (MW12) | 1 | 1 | |
| Total points achieved to carry forward | | | | |

| LAND USE & ECOLOGY | | | | |
|-------------------------------|---|--------------|-----------------|-----------------|
| Credit Reference | | With Offices | Without Offices | Points Achieved |
| LE01 | Where the footprint of the proposed development largely falls within the boundary of land previously developed. | 1.5 | 1.5 | |
| LE02 | Where land used for the new development has, prior to development, been defined as contaminated, and where adequate remedial steps have been taken to decontaminate the site prior to construction. | 1.5 | 1.5 | |
| LE03 | Where evidence is provided to demonstrate that the construction zone is defined as land of low ecological value and all existing features of ecological value will be fully protected from damage during site preparation and construction works. | 1.5 | 1.5 | |
| LE04 | <p>Credits are awarded based upon the degree of negative impact the new development has on the site's existing ecology. In a formal BREEAM assessment the ecological impact of the development is calculated based on the area of habitat and number of floral species displaced, using BREEAM's ecological value calculator. As a guide, the following can be used to estimate the likely number of credits:</p> <p>No credits can be awarded where the new development will displace a significant majority of the existing site's ecological habitat types and areas.</p> <p>Where a majority of the existing site's ecological habitat types and areas are not displaced as a result of the new development.</p> <p>Where either the development displaces none of the existing site's ecological habitat types and areas. Or, where there is no, or very limited existing site ecology; for example the new development is a refurbishment, or it is on contaminated land or Brownfield land that has been derelict/unoccupied for less than one year.</p> <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> | | | |
| | | 1.5 | 1.5 | |
| | | 3 | 3 | |
| LE05 | <p>Where evidence is provided to demonstrate that the design team (or client) has</p> <p>i) appointed a professional to advise and report on enhancing and protecting the ecological value of the site; AND</p> <p>ii) Implemented the professional's recommendations for general enhancement and protection for site ecology.</p> <p>OR</p> <p>Where, in addition to the above, evidence is provided to demonstrate a positive increase in the ecological value of the site of up to (but not including) 6 species.</p> <p>OR</p> <p>Where, in addition to the above, evidence is provided to demonstrate a positive increase in the ecological value of the site of 6 species or greater.</p> <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> | 1.5 | 1.5 | |
| | | 3 | 3 | |
| | | 4.5 | 4.5 | |

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| BREEAM Industrial 2006 |
| Pre-Assessment Estimator |
| Fitted Out Buildings |

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|--|--|--|-----|--|
| LE06 | <p>Where evidence is provided to demonstrate that the client has committed to achieving the mandatory requirements listed below and:</p> <p>At least two of the additional requirements. OR At least four of the additional requirements.</p> <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> <p>Mandatory Requirements A suitably qualified ecologist must confirm in writing that:</p> <ul style="list-style-type: none"> • All relevant UK and EU legislation relating to protection and enhancement of ecology has been, or will be, complied with during the design and construction process. • An appropriate management plan is produced covering at least the first 5 years after project completion. This should include details of the scope of the management plan. • Key responsibilities, and with whom these responsibilities lie, e.g. owner, landlord, occupier, FM, other. <p>Additional Requirements</p> <ul style="list-style-type: none"> • A 'Biodiversity Champion' has been nominated • The relevant site work-force has been trained on how to protect site ecology during the project. • Record and monitor actions taken to protect biodiversity throughout key stages of construction • The client requires that a new ecologically valuable habitat, appropriate to the local area, be created. • The client requires the contractor to programme site works to minimise disturbance to wildlife. • The client requires actions to be taken to protect/enhance biodiversity • A Biodiversity Champion must have sufficient authority and time on site to influence activities and ensure that they have minimal detrimental impact on biodiversity • Local biodiversity expertise should be sought at, or before, the design stage • Where a site is deemed to have no ecological value <p>The refurbishment of a listed building may be exempt from the credit requirements if they conflict with the need to maintain the building's listed features</p> | LE06 - Biodiversity | | |
| | | 1.5 | 1.5 | |
| | | 3 | 3 | |
| Total points achieved to carry forward | | <input style="width: 100px; height: 20px;" type="text"/> | | |

| Credit Reference | POLLUTION | | | Points Achieved |
|------------------|---|--------------|-----------------|-----------------|
| | | With Offices | Without Offices | |
| P01 | <p>Where evidence provided demonstrates the use of refrigerants with a global warming potential (GWP) of less than 5 OR where there are no refrigerants specified for use in building services.</p> <p>For fitted out buildings with integral cold storage areas, the following must also be achieved: Where evidence provided demonstrates that all refrigerant types used in cold storage systems have a global warming potential (GWP) of below 5.</p> | 1.15 | 1.25 | |
| P02 | Where evidence provided demonstrates that refrigerant leaks can be detected AND that the provision of automatic refrigerant pump down is made to a heat exchanger (or dedicated storage tanks) with isolation valves OR where there are no refrigerants specified for the development. | 1.15 | 1.25 | |
| P04 | Where evidence provided demonstrates that the specification of insulating materials avoids the use of substances with a global warming potential (GWP) of 5 or more in either manufacture or composition | 1.15 | 1.25 | |
| P06 | <p>Office and associated areas: Where evidence provided demonstrates that the maximum dry NO_x emissions from delivered space heating energy are:</p> <ul style="list-style-type: none"> • ≤70 mg/kWh delivered heating energy or less (at 0% excess O₂). ≤70 mg/kWh delivered heating energy (at 0% excess O₂). <p>In addition for Fully Fitted Buildings - Operational areas: Where evidence provided demonstrates that the maximum dry NO_x emissions from delivered space heating energy are:</p> <ul style="list-style-type: none"> • ≤70 mg/kWh delivered heating energy or less (at 0% excess O₂). <p>NOTE: These point scores <u>ARE</u> cumulative.</p> | 1.15 | 1.25 | |
| | | 2.32 | | |
| P07 | <p>Where evidence provided demonstrates that the assessed development is located in a zone defined as having a low annual probability of flooding. OR Where evidence provided demonstrates that the assessed development is located in a zone defined as having a medium annual probability of flooding and the ground level of the building, car parking and access is above the design flood level for the site's location.</p> <p>NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement.</p> <p>Where evidence provided demonstrates that Sustainable Urban Drainage techniques are specified to minimise the risk of localised flooding, resulting from a loss of flood storage on site through development.</p> | 2.32 | 2.5 | |
| | | 1.15 | 1.25 | |
| | | 1.15 | 1.25 | |

| | | | | |
|---|---|------|------|--|
| P08 | Where evidence provided demonstrates that on site treatment such as oil separators/interceptors or filtration have been specified for areas at risk from pollution, i.e. vehicle manoeuvring areas, car parks, waste disposal facilities, delivery facilities or plant areas. | 1.15 | 1.25 | |
| P11 | Where evidence provided demonstrates that : | | | |
| | A feasibility study considering renewable and low emission energy has been carried out and the results implemented. OR | 1.15 | 1.25 | |
| | In addition to the above , 10% of total energy demand for the building/development is supplied from local renewable or low emission energy, sources. OR | 2.32 | 2.5 | |
| | In addition to the above and 15% of total energy demand for the building/development is supplied from local renewable or low emission energy, sources. NOTE: These point scores are not cumulative, simply award the appropriate points score corresponding to the predicted level of achievement. | 3.46 | 3.75 | |
| P13 | Where evidence provided demonstrates that sources of noise from the development do not give rise to the likelihood of complaints from existing noise sensitive premises and amenity or wildlife areas that are within the locality of the site. | 1.15 | 1.25 | |
| Total points achieved to carry forward | | | | |

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| BREEAM Industrial 2006 |
| Pre-Assessment Estimator |
| Fitted Out Buildings |

SCORING

TOTAL OF POINTS ACHIEVED

| Rating | Minimum Score Required |
|------------------|---|
| | Design stage & Post Construction Review |
| PASS | 25 |
| GOOD | 40 |
| VERY GOOD | 55 |
| EXCELLENT | 70 |