



**SEVERN ROAD RESOURCE RECOVERY CENTRE**

**BREEAM INDUSTRIAL PRE ASSESSMENT**

**Viridor**

**SLR REF 402.0036.00374**

**October 2009**



solutions for today's environment

# BREEAM INDUSTRIAL PRE ASSESSMENT

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## CONTENTS

Introduction .....	1
Pre-assessment Estimate Results .....	1
Management .....	1
Health and Wellbeing .....	5
Energy .....	11
Transport .....	16
Water .....	19
Materials .....	22
Waste .....	27
Land-use and Ecology .....	31
Pollution .....	35
Scoring and Summary .....	41

breeam:industrial



# BREEAM INDUSTRIAL PRE ASSESSMENT

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## INTRODUCTION

- 1.1 Viridor Waste Management Ltd is proposing to construct a resource recovery centre (RRC) facility at Severn Road, Avonmouth. To ensure compliance with best practice, Viridor's own corporate responsibility procedures, and planning regulations, Viridor intends that the design, construction and commissioning of the RRC facility be as environmentally sustainable as is practically possible. Viridor has elected to implement the Buildings Research Establishment's assessment method for industrial buildings (BREEAM: Industrial) to guide the design and to provide a quantitative assessment of the finished building's environmental sustainability.
- 1.2 BREEAM: Industrial assesses the whole-life environmental sustainability of a development in nine key technical areas:
- management of the development;
  - health and well-being of the occupants;
  - energy efficiency;
  - transport considerations;
  - efficiency of water consumption;
  - selection of appropriate construction materials and their responsible sourcing;
  - waste management;
  - efficiency of land use and ecological concerns; and
  - the minimisation of pollution.
- 1.3 Viridor has retained SLR Consulting Limited (SLR) to conduct a BREEAM: Industrial pre-assessment estimate and provide advice on achieving the desired rating of Very Good. This report is based upon the Building Research Establishment's (BRE) non-domestic pre-assessment estimate template<sup>1</sup> and is designed to give an indication of a development's potential BREEAM: Industrial rating. It has been conducted during the preliminary stages of the design process and will demonstrate areas in which the current design scores highly and highlight those where it may be possible to make further improvements. This will allow elements of the design to be guided or modified in order to improve environmental sustainability and thereby maximise the rating achieved by the development.
- 1.4 It should be noted that at this early stage in the design process much of the information required for precise assessment is not yet available, and to this end certain assumptions and estimates have been made. The pre-assessment process is, however, iterative, and will be modified and updated as the design process progresses, producing a more accurate result as time passes. Opportunities for further improvements that can reasonably be

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## BREEAM INDUSTRIAL PRE ASSESSMENT

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attained without incurring unreasonable costs or impractical restrictions will be assessed and implemented where appropriate. Where further achievement is considered potentially possible, this is noted within the text.

- 1.5 In addition to providing an assessment of the development design's predicted environmental sustainability, the report also indicates the evidence that will be required in order to prove compliance with the BREEAM: Industrial credit criteria. Unless specifically stated it should be assumed that all articles of evidence described in the tables below will be required.
- 1.6 This report constitutes an assessment of the probable outcome of the BREEAM: Industrial assessment and is based upon such knowledge of the current design proposals as is available. The report does not constitute a formal assessment and, whilst likely to be an accurate estimate, the final score is liable to change.

# PRE-ASSESSMENT ESTIMATE RESULTS

## PRE-ASSESSMENT ESTIMATE RESULTS

### Management

Table 1: Pre-assessment Estimate of Management Credits

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>MANAGEMENT</b>										
Man 1	Commissioning	<p>One credit where evidence provided demonstrates that an appropriate project team member has been appointed to monitor commissioning on behalf of the client to ensure commissioning will be carried out in line with current best practice.</p> <p>Two credits 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).</p>	2	2	1	1	1	1	2	<p><b>OBLIGATORY CREDIT: In order to achieve a Very Good rating, at least one credit must be achieved.</b> In order to achieve the desired 2 credits, at the design stage, the following evidence should be supplied: <b>First credit</b> - 1) a copy of a letter or commissioning schedule confirming the appointment of (or commitment to appoint) a design team member as a commissioning monitor and a specialist commissioning manager, and the scope of their respective roles; 2) Commissioning is to be carried out in line with current Building Regulations and BSRIA/ CIBSE guidelines, 3) The main contractor accounts for the commissioning programme, responsibilities and requirements within the main programme of works. 4) A specialist commissioning manager is appointed for complex systems and a copy of the specification clause/commissioning schedule confirming the stages of the Building Management System/controls commissioning procedures; and 5) a copy of the specification clause stating the standards and codes of practice to which commissioning procedures are to comply. <b>Second credit</b> - Evidence as above confirming compliance with the first credit; and evidence confirming that evidence requirements 1 and 3, above, also confirm the scope of seasonal commissioning tasks as required and confirm this will be carried out for at least 12 month period one the building becomes occupied.</p>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>MANAGEMENT</b>										
Man 2	Considerate Constructors	<p>One credit where evidence provided demonstrates that there is a commitment to comply with best practice site management principles.</p> <p>Two credits where evidence provided demonstrates that there is a commitment to go beyond best practice site management principles.</p>	<b>2</b>	<b>1</b>	-	-	-	1	2	<p>(OBLIGATORY CREDIT: In order to achieve an excellent rating, at least one credit must be achieved). In order to achieve the 1 credit sought, the development must achieve a score of between 24 and 31.5 points under the Considerate Constructors Scheme, with at least 3 points in each section. A copy of the main contract specification confirming the requirement to comply with the CCS and the minimum score required in each section <b>or</b> a formal letter from the developer confirming that the main contract will include a clause specifying that the above will be incorporated and a completed copy of checklist A1.</p> <p><b>To achieve 2 credits the contractor must achieve a CCS Code of Considerate Practice score of between 32 and 35.5</b></p>

# PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V	E	O	
<b>MANAGEMENT</b>										
Man 3	Construction Site Impacts	<p>One credit where evidence provided demonstrates that 2 or more of items a-g (listed below) are achieved.</p> <p>Two credits where evidence provided demonstrates that 4 or more of items a-g (listed below) are achieved.</p> <p>Three credits where evidence provided demonstrates that 6 or more of items a-g are achieved:</p> <p>a. Monitor, report and set targets for CO2 or energy arising from site activities</p> <p>b. Monitor, report and set targets for CO2 or energy arising from transport to and from site</p> <p>c. Monitor, report and set targets for water consumption arising from site activities</p> <p>d. Implement best practice policies in respect of air (dust) pollution arising from the site</p> <p>e. Implement best practice policies in respect of water (ground and surface) pollution occurring on the site</p> <p>f. Main contractor has an environmental materials policy, used for sourcing of construction materials to be utilised on site</p> <p>g. Main contractor operates an Environmental Management System.</p> <p>One additional credit where evidence provided demonstrates that at least 80% of site timber is responsibly sourced and 100% is legally sourced.</p>	<b>4</b>	<b>3</b>	-	-	-	-	-	<p>Evidence required at the design stage includes: 1) a copy of the main contract specification confirming contractor's obligations in respect to each item on the checklist; 2) Specific wording in the development brief documentation should be included to specify that site timber will be sourced from suppliers capable of providing appropriate certification; and 3) all timber will come from a legal source and is not on the CITES list.</p>
	Severn Road resource Recovery Centre			3						SLR Consulting Limited

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V	E	O	
<b>MANAGEMENT</b>										
Man 4	Building user guide	One credit 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	1	-	-	-	1	1	(OBLIGATORY CREDIT: In order to achieve an excellent rating, one credit must be achieved.) In order to achieve the credit, the following evidence must be provided: 1) a copy of the specification clause confirming the requirement to develop a building user guide; and 2) the scope of the guide's contents. <b>Alternatively</b> a formal letter from the developer confirming that the design team will be required to develop a building user guide and that the contents of the guide will be developed in accordance with the BREEAM requirements.
Man 8	Security	One credit where evidence provided demonstrates that an Architectural Liaison Officer (ALO) or Crime Prevention Design Advisor (CPDA) from the local police force has been consulted at the design stage and their recommendations incorporated into the design of the building and its parking facilities (if relevant).	1	1	-	-	-	-	-	The evidence required to demonstrate compliance is as follows: 1) correspondence or report from ALO/CPDA confirming the scope of their advice and involvement, the stage of the design in which their advice was sought and a summary of their recommendations; <b>and</b> 2) a marked-up copy of the site/design plan highlighting examples of the development confirming to ALO/CPDA recommendations or, if the timing of the assessment does not permit the above, a copy of the specification clause confirming that the development will conform to ALO/CPDA recommendations and built toe the principles and guidance of Secured by Design. (SBD)
<b>Indicative (weighted) Section Score</b>			<b>9.60</b>							

## PRE-ASSESSMENT ESTIMATE RESULTS

### Health and Wellbeing

Table.2: Pre-assessment Estimate of Health and Wellbeing Credits

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>HEALTH &amp; WELLBEING</b>										
Hea 1	Daylighting	One credit where evidence provided demonstrates that at least 80% of floor area in each occupied space is adequately daylight.	1	0	-	-	-	-	-	<b>Credit not being sought at this stage.</b> Evidence required in support of this credit, if sought, is as follows: 1) design plans for each floor in the building with each room/area appropriately labelled for use; and 2) daylight calculations confirming the building areas assessed, the daylighting variables measured, the average daylighting factor for each area, compliance with room depth, uniformity ratio and view of sky criteria, and that the daylighting provision is in compliance with relevant standards.
Hea 2	View Out	One credit where evidence provided demonstrates that all relevant building areas have an adequate view out.	1	0	-	-	-	-	-	<b>Credit not being sought at this stage.</b> The required evidence to support the award of this credit is as follows: 1) a design plan and elevation showing all relevant building areas and room depths, the actual or notional workstation layout, and window and open areas; and 2) a plan showing the building location and proximity to external obstructions.

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>HEALTH &amp; WELLBEING</b>										
Hea 3	Glare Control	One credit where evidence provided demonstrates that an occupant-controlled shading system (e.g. internal or external blinds) is fitted in relevant building areas.	1	1	-	-	-	-	-	In order to award this credit, the following evidence is required: 1) a marked-up copy of the design plan showing a description of each building space's function; and 2) a copy of the relevant specification clause, window schedule or design plan confirming the type of shading system and control to be installed.
Hea 4	High frequency lighting	One credit where evidence provided demonstrates that high frequency ballasts are installed on all fluorescent and compact fluorescent lamps.	1	1	1	1	1	1	1	<b>OBLIGATORY CREDIT: in order to achieve a Pass rating, this credit must be achieved.</b> At the design stage, a copy of the specification clause demonstrating that a compliant lighting strategy will be installed must be included in order for this credit to be awarded.
Hea 5	Internal and external lighting levels	One credit 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	1	-	-	-	-	-	For this credit to be awarded at the design stage, the following must be provided: <b>either</b> a copy of the specification confirming the internal luminance levels comply with Part two of CIBSE Code for lighting 2002 and it's 2004 addendum plus lighting design complies with CIBSE Lighting Guide 7 where computer screens are in regular use. External maintained illuminance levels within the construction zone are to be specified in accordance with CIBSE Lighting Guide 6 ; <b>or</b> a formal written declaration of conformity from the relevant member of the design team confirming that the maintained internal/external illuminance levels are in compliance with the relevant standard.

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V	E	O	
<b>HEALTH &amp; WELLBEING</b>										
Hea 6	Lighting zones & controls	One credit where evidence provided demonstrates that, in all relevant building areas, lighting is appropriately zoned and occupant controllable.	1	1	-	-	-	-	-	At the design stage the following must be provided: design plans for each floor of the building highlighting the space arrangement and room type, and specification or design plans confirming the lighting zones and scope of user controls. Lighting is to be zoned to allow separate control of office and circulation areas, and within the office areas zones are to cover no more than 4 workspaces. Workstations next to windows/ atria and other building areas are to be separately zoned and controlled.
Hea 7	Potential for natural ventilation	One credit where evidence provided demonstrates that fresh air is capable of being delivered to the occupied spaces of the building via a natural ventilation strategy, and there is sufficient user-control of the supply of fresh air.	1	0	-	-	-	-	-	<b>Credit not being sought at this stage</b> as the full constraints imposed by the physical characteristics and layout of the site are not yet known. This credit will be sought if feasible. It should be noted that for industrial buildings the requirements apply only to the staff areas and not the operational area. The following evidence is required to demonstrate compliance at the design stage: 1) design plans and elevations specification or calculations (using ventilation design tools types recommended by CIBSE AM 10) confirming the ventilation strategy in each occupied space, the depth of the room, the gross internal floor area of each occupied space, the type of window or ventilator and its openable area, the location of openings and the type and degree of user control; and 2) a copy of the results from the appropriate software modelling tool demonstrating compliance.

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>HEALTH &amp; WELLBEING</b>										
Hea 8	Indoor air quality	One credit where air intakes serving occupied areas avoid major sources of external pollution and recirculation of exhaust air.	1	0	-	-	-	-	-	<p><b>Credit not being sought at this stage</b> as the full constraints imposed by the physical characteristics and layout of the site are not yet known. This credit will be sought if feasible. It should be noted that for industrial buildings the requirements apply only to the staff areas and not the operational area. Evidence required in support of this credit, if sought, is as follows: 1) a marked-up proposed site plan highlighting the location of intakes, extracts, openable windows and ventilators, plus any existing or proposed sources of pollution; and 2) design team calculations or performance specification requirements confirming the fresh air rate set for each space, that the rate can be met using the chosen strategy, and the relevant standards with which the design is in accordance.</p>
Hea 9	Volatile Organic Compounds	One credit where evidence provided demonstrates that the emissions of VOCs and other substances from key internal finishes and fittings comply with best practice levels.	1	1	-	-	-	-	-	<p>At the design stage a copy of the relevant specification clause confirming the VOC content of the relevant specified product types will comply with the specified standards. The products covered are wood panels, timber structures (e.g. glue laminated timber), wood flooring, Resilient textile, and laminated floor coverings, suspended ceiling tiles, flooring adhesives, wall coverings and adhesives for hanging flexible wall coverings and decorative paints and varnishes.</p>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>HEALTH &amp; WELLBEING</b>										
Hea 10	Thermal comfort	One credit where evidence provided demonstrates that thermal comfort levels in <i>occupied</i> spaces of the building are assessed at the design stage to evaluate appropriate servicing options; ensuring appropriate thermal comfort levels are achieved.	1	0	-	-	-	-	-	Credit not being sought at this stage. It should be noted that <i>occupied</i> spaces refers only to room or spaces within the assessed building likely to be occupied for 30 minutes or more by a building user, and excludes the following – atria/concourses, entrance halls and reception areas and ancillary space eg circulation areas, storerooms and plantrooms. If this credit is sought at a later date, at the design stage the following evidence must be provided: 1) a copy of the relevant specification clause confirming the requirement for a thermal comfort analysis or correspondence from the design team confirming the name of the thermal comfort modelling software used and that it has been selected and applied in accordance with CIBSE AM11; and 2) a copy of the results from the modelling, demonstrating the internal temperatures in compliance with the relevant standards.
Hea 11	Thermal zoning	One credit where evidence provided demonstrates that local occupant control is available for temperature adjustment in each <i>occupied</i> space to reflect differing user demands.	1	1	-	-	-	-	-	A copy of the relevant clauses of the specification and/or marked-up M&E drawings confirming the scope of the heating/cooling system, the type of user controls and the scope of the controls must be included as evidence in support of this credit. As with Hea 10 the definition of <i>occupied</i> space should be noted, and within this credit storerooms are also excluded.

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V	E	O	
<b>HEALTH &amp; WELLBEING</b>										
Hea 12	Microbial contamination	One credit where evidence provided demonstrates that the risk of waterborne and airborne legionella contamination has been minimised.	1	1	1	1	1	1	1	<b>OBLIGATORY CREDIT: in order to achieve a Pass rating, this credit must be achieved.</b> At the design stage, a copy of the specification clause confirming all types of water system in the building and on the assessed site and the standards to which all water systems in the building will be designed. The credit requires design of water systems to be compliant with the measures in the Health and Safety Executives “ <i>Legionnaires’ disease – the control of legionella bacteria in water systems</i> ” ACoP and guidance 2000
Hea 13	Acoustic Performance	One credit where evidence provided demonstrates that the building achieves appropriate indoor ambient noise levels in offices areas.  In addition, for fully fitted buildings only: Appropriate airborne sound insulation levels are achieved between acoustically sensitive spaces and occupied spaces, sufficient to ensure adequate privacy.	1	0	-	-	-	-	-	<b>Credit not being sought at this stage.</b> Due to the nature and function of the building, it is considered unlikely that this credit will be attainable. However, the building will still be designed to provide an appropriate and comfortable environment. If this credit is to be sought at a later date, the following evidence will be required: 1) a copy of the specification or acousticians calculations confirming the indoor ambient noise levels in each relevant area, the sound insulation levels between acoustically sensitive areas and adjacent occupied areas, and the standards to which calculations/measurements are to comply; and 2) a copy of the specification clause or formal letter confirming a programme of pre-completion testing will be commissioned and where rooms/areas do not comply, that appropriate remedial action will be taken.
<b>Indicative (weighted) Section Score</b>			<b>8.08</b>							

## PRE-ASSESSMENT ESTIMATE RESULTS

### Energy

Table 3: Pre-assessment Estimate of Energy Credits

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>ENERGY</b>										
Ene 1	Reduction of CO <sub>2</sub> Emissions	Up to fifteen credits where evidence provided demonstrates an improvement in the energy efficiency of the building's fabric and services and therefore achieves lower building operational related CO <sub>2</sub> emissions (refer to the BREEAM manual for benchmarks)	<b>15</b>	<b>6</b>	-	-	-	6	10	<p><b>OBLIGATORY CREDIT: in order to achieve an Excellent rating, at least 6 credits must be achieved.</b> This requires that the building's CO<sub>2</sub> index (EPC rating) is no greater than 40. The building must be modelled using a method compliant with the National Calculation Method (NCM) and an Energy Rating and certificate produced using Approved software by an Accredited Energy Assessor.</p> <p>Dependent upon the Local Authority meeting its waste recycling targets, electricity from EfW plants can be counted as low carbon and this may help to increase the score achieved. Waste heat from the process can be counted as low carbon energy. The following evidence must be provided: 1) a copy of the EPC output from the approved software for the assessed building at the design stage; and 2) the accredited energy assessor's name and accreditation number.</p>
Ene 2	Sub-metering of Substantial Energy Uses	One credit where evidence provided demonstrates the provision of direct sub-metering of energy uses within the building.	<b>1</b>	<b>1</b>	-	-	1	1	1	<p><b>OBLIGATORY CREDIT: this credit must be achieved in order to achieve a Very Good rating.</b> To support the application for this credit, specifications or technical drawings must be supplied that confirm 1) energy consuming systems and their outputs, 2) metering arrangements for each system, and the type and location of the meter specified and 3) the scope of the BMS and its energy monitoring capability, if applicable.</p>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>ENERGY</b>										
Ene 3	Sub-metering of high energy load Areas and Tenancy	One credit where evidence provided demonstrates sub-metering of energy consumption by tenancy/building function area is installed within the building.	1	1	-	-	-	-	-	The following evidence must be provided: 1) marked-up drawings and site plan detailing building areas by department/function and the location of meters; and 2) specification document or technical drawings confirming the metering arrangements for each department/function and the type of meter specified.
Ene 4	External Lighting	One credit where energy-efficient external lighting is specified and all light fittings are controlled for the presence of daylight.	1	1	-	-	-	-	-	The following evidence must be supplied for the design stage assessment: 1) a marked-up site plan and building elevations showing the location and purpose of all external light fittings; 2) a lighting specification or calculations confirming the lamp lumens/circuit watt for each type of fitting and the colour rendering index Ra (where appropriate); and 3) the external lighting control strategy.
Ene 5	Low zero carbon technologies	<p>One credit where evidence provided demonstrates that a feasibility study considering local (on-site and/or near site) low or zero carbon (LZC) technologies has been carried out and the results implemented.</p> <p>Two credits where evidence provided demonstrates that the first credit has been achieved and there is a 10% reduction in the building's CO2 emissions as a result of the installation of a feasible local LZC technology.</p> <p>Three credits where evidence</p>	3	1	-	-	-	1	1	<p><b>(OBLIGATORY CREDIT: at least one credit must be achieved in order to obtain an Excellent rating).</b> The following evidence is required at the design stage: 1) a copy of the energy feasibility study report with a letter from the energy specialist confirming their compliance with the definition of an energy specialist and the timing of the feasibility report within the plan of works; and 2) a marked-up design plan or specification confirming the proposed installation of low/zero carbon technology and the manufacturer's technical data stating the carbon savings that will be made.</p> <p>Waste heat from an incineration plant can only be considered as a low carbon for the purpose of this BREEAM credit under the following circumstances</p> <p>1/ all other LZC technologies have been considered and discounted in the feasibility study. AND EITHER</p>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>ENERGY</b>										
		provided demonstrates that the first credit has been achieved and there is a 15% reduction in the building's CO2 emissions as a result of the installation of a feasible local LZC technology.								<p>2/ The Local Authority or region in which the incineration plant is located is demonstrably meeting its annual waste reuse/recycling targets and waste management policies. OR</p> <p>3/ A near – on site facility connected to the building, via a <i>private wire arrangement</i> ,which demonstrably removes re – usable and recyclable waste material prior to incineration.</p> <p>Any electricity from an onsite LZC energy source that is exported to the grid may be included in the calculations as if it were used within the building. It is intended to achieve the second and third credits for this section, but as this will rely on the local authority achieving its recycling targets, this has not been incorporated into the pre-assessment estimate calculation.</p> <p>To achieve the second and third credits the following additional evidence must be supplied: 1) a copy of the report produced by the approved energy modelling software, indicating the name of the approved software, confirmation of the expertise and experience of the individual carrying out the modelling and the total CO2 emissions for the assessed building without LZC technology; and 2) calculations confirming the total carbon savings as a result of the installed technology.</p>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>ENERGY</b>										
Ene 6	Building fabric performance & avoidance of air infiltration	One credit where evidence provided demonstrates that appropriate design and as built performance measures (as identified in the compliance requirements) are taken to minimise heat loss and air infiltration through the building fabric.	1	0	-	-	-	-	-	<p><b>Credit not sought at the current time</b> due to the nature of the building design. If the credit is to be sought in the future, the following evidence will need to be provided at the design stage: A copy of the design specification confirming each of the relevant measures incorporated into the design, a requirement to commission a thermographic study, the standards to which the study will be carried out, and a requirement to rectify any defects and re-inspect to confirm compliance.</p>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>ENERGY</b>										
Ene 8	Lifts	Up to two credits are available where evidence provided demonstrates the installation of energy-efficient lift(s).	2	1	-	-	-	-	-	<p>To obtain the first credit and analysis of transport demand and patterns for the building has been carried out by the design team to determine optimum number and size of lifts and <i>counterbalancing ratio</i> on the basis of anticipated passenger demand. AND the energy consumption for at least two types of lift or lift strategy “fit for purpose” has been estimated and the system with the lowest energy consumption specified.</p> <p>To support the award of this credit the following evidence will be required at the design stage. ie. 1) a copy of the relevant report or documentation detailing the analysis undertaken and the finding and recommendations; and 2) a copy of the lift specification.</p> <p>To support the award of the second credit the lift specification (or letter from the lift supplier) must confirm that the lift to be installed meets the relevant requirements for the number of credits sought, <i>i.e.</i> it meets the most appropriate 3 of the 4 specified potential energy saving criteria.</p>
<b>Indicative (weighted) Section Score</b>			<b>8.71</b>							

## PRE-ASSESSMENT ESTIMATE RESULTS

### Transport

Table 4: Pre-assessment Estimate of Transport Credits

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>TRANSPORT</b>										
Tra 1	Provision of public transport	Up to three credits are awarded on a sliding scale based on the assessed buildings' accessibility to the public transport network.	<b>3</b>	<b>1</b>	-	-	-	-	-	This is an estimate based on current knowledge of local amenities and transport services. and has significant potential to change. The supporting evidence required at the design stage is as follows: 1) a copy of the output from the Provision of Public Transport Calculator, 2) a scale map highlighting the location of the building and all public transport nodes in proximity; and 3) timetables for each service at each node considered.
Tra 2	Proximity to amenities	One credit where evidence provided demonstrates that the building is located within 500m of accessible local amenities appropriate to the building type and its users.	<b>1</b>	<b>0</b>	-	-	-	-	-	<b>Credit not sought.</b> There are no appropriate amenities within the required distance.

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>TRANSPORT</b>										
Tra 3	Cyclist Facilities	<p>One credit where evidence provided demonstrates that covered, secure and well-lit cycle storage facilities are provided for all building users.</p> <p>Two credits where, in addition to the above, adequate changing facilities are provided for staff use.</p>	<b>2</b>	<b>2</b>	-	-	-	-	-	<p>The following evidence is required for the first credit at the design stage: 1) a site plan or specification showing the location of the cycle storage facilities(within 100m of a building entrance in a prominent position viewable from the building); the number of spaces provided (10% for upto 500 employees). There are specific requirements for the type, dimensions and layout of the cycle racks; the materials and construction specified; and the lighting is in accordance with BS5489 part 1; and the building occupancy. For the second credit the following evidence is required: 1) evidence confirming compliance with the first credit; and 2) design drawings or specification confirming: the number of showers; changing room; secure locker locations, numbers and dimensions; and drying space. The BREEAM criteria are detailed and require at least 1m<sup>2</sup> of changing space adjacent to the shower with hooks for hanging clothes. Lockers to equal the number of cycle spaces. The lockers are not to be within the changing cubicle and each one is to be at least 900mm x 300mm x 450mm. The facilities can be shared and toilets and shower cubicles do not count as changing facilities. The drying space must be designed and designated with heating and ventilation and not merely a plant room.</p>
Tra 4	Pedestrian and cycle safety	<p>One credit where evidence provided demonstrates that the site layout has been designed in accordance with best practice to ensure safe and adequate pedestrian and cycle access.</p>	<b>1</b>	<b>1</b>	-	-	-	-	-	<p>The following evidence is required at the design stage: 1) a scaled site plan or specification showing the location of all necessary features and dimensions; 2) a copy of the specification or site plan confirming that cycle routes have been designed in accordance with best practice guidance and a signed and dated copy of the NCN Design and Construction checklist from the design team; and 3) a copy of the specification or site plan confirming the external lighting</p>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>TRANSPORT</b>										
										strategy. The cycle lanes should be designed and constructed in accordance with the guidance in the National Cycle Network "Guidelines and Practical Details – Issue 2" Sustrans(1) and the relevant parts of Appendix VI <i>NCN Design and Construction checklist</i> . Cycle lanes and footpaths have to meet minimum width dimensions and other criteria relating to safety and convenience on site.
Tra 5	Travel plan	One credit where evidence is provided to demonstrate that a travel plan has been developed and tailored to the specific needs of the building users.	<b>1</b>	<b>1</b>	-	-	-	-	-	To support the award of this credit at the design stage, the following evidence is required: 1) a copy of the travel plan and a copy of the site specific transport survey/assessment; 2) a marked-up copy of the site plan demonstrating examples of design features implemented in support of the travel plan's findings, or a formal letter from the client confirming that the findings will be implemented; and 3) a section within the travel plan or written confirmation that the plan will address operational related transport impacts.
Tra 6	Maximum car parking capacity	One credit where evidence provided demonstrates no more than one parking space is provided for every three building users.  Two credits where evidence provided demonstrates no more than one parking space is provided for every four building users.	<b>2</b>	<b>0</b>	-	-	-	-	-	<b>Credit not sought.</b> Due to the location of the site it is not considered feasible to constrain parking in this manner.

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>TRANSPORT</b>										
Tra 8	Deliveries & manoeuvring	One credit where evidence provided demonstrates that vehicle access areas have been designed to ensure adequate space for manoeuvring delivery vehicles and provide space away from manoeuvring area for storage of refuse skips and pallets.	1	1	-	-	-	-	-	The following evidence is required at the design stage: 1) a proposed site plan showing manoeuvring areas, delivery vehicle waiting areas, and designated areas for skips/pallets; and 2) appropriate documentation from the design team confirming the likely vehicle type that will access the development and the predicted frequency of deliveries.
<b>Indicative (weighted) Section Score</b>			<b>4.36</b>							

### Water

*Table 5: Pre-assessment Estimate of Water Credits*

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>WATER</b>										

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>WATER</b>										
Wat 1	Water Consumption	Up to three credits where evidence provided demonstrates that the specification includes taps, urinals, WCs and showers that consume less potable water in use than standard specifications for the same type of fittings.	<b>3</b>	<b>2</b>	-	1	1	1	2	<p><b>OBLIGATORY CREDIT:</b> in order to achieve a rating of <b>Good</b>, water consumption must be 4.5 to 5.5 m<sup>3</sup> per person per year. In order to achieve the 2 credits desired, the water consumption must be between 1.5 and 4.4 m<sup>3</sup> per year based on the specification and use of taps, urinals, wc's and showers that consume less potable water in use than standard specifications for the same type of fittings. The following evidence is required: 1) a copy of the design specification or manufacturer's details confirming the technical specification of the sanitary fittings and controls to be installed, and the location, size and details of any rainwater or grey water collection system; 2) a design plan showing the location within the building of the sanitary and grey/rainwater collection facilities; and 3) a copy of the output from the BREEAM water Calculator Tool. To obtain the third credit, water consumption per person, per year, must be less than 1.5 m<sup>3</sup>.</p>
Wat 2	Water meter	One credit where evidence provided demonstrates that a water meter with a pulsed output will be installed on the mains supply to each building/unit.	<b>1</b>	<b>1</b>	-	1	1	1	1	<p><b>OBLIGATORY CREDIT:</b> in order to achieve a rating of <b>Good</b>, this credit must be obtained. In order for this credit to be awarded at the design stage, the specification must confirm the specification and type of water meter(s) to be used.</p>
Wat 3	Major leak detection	One credit where evidence provided demonstrates that a leak detection system is specified or installed on the building's water supply.	<b>1</b>	<b>1</b>	-	-	-	-	-	<p>The following evidence must be supplied at the design stage: a copy of the design specification confirming the scope and performance requirements of the leak detection system and/or manufacturer's details confirming the technical specification of the specified systems. The leak detection system must be capable of detecting major leaks on the water supply and must cover all mains water supply between and within the site boundary. The system should be audible when activated and</p>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>WATER</b>										
										activated when the flow of water exceeds a pre set minimum flow over a period of time but capable of programming to avoid false alarms.
Wat 4	Sanitary supply shut off	One credit where evidence provided demonstrates that proximity detection shut-off is provided to the water supply to all toilet areas.	<b>1</b>	<b>1</b>	-	-	-	-	-	At the design stage the following evidence is required: 1) a copy of the design specification confirming the specification of the shut-off valves and their controls; and 2) a design plan showing the location of the toilet facilities. Compliance requires solenoid valves are installed on the water supply to each toilet area in the building and the flow of water through that supply is controlled by a link to EITHER infra red movement detectors within each toilet facility OR sensors or switches placed at or on entry doors to each facility.
<b>Indicative (weighted) Section Score</b>			<b>5.00</b>							

## PRE-ASSESSMENT ESTIMATE RESULTS

### Materials

Table.6: Pre-assessment Estimate of Materials Credits

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>MATERIALS</b>										
Mat 1	Materials Specification (major building elements)	<p>Up to two credits are available, determined by the <i>Green Guide to Specification</i> ratings for the following major building/finishing elements:</p> <ol style="list-style-type: none"> <li>1. External Walls</li> <li>2. Windows</li> <li>3. Roof</li> <li>4. Upper Floor Slabs</li> <li>5. Internal Walls</li> <li>6. Floor finishes/ coverings</li> </ol>	<b>2</b>	<b>1</b>	-	-	-	-	-	<p>This is an estimated rating. At this early stage the materials specification has not been confirmed and, although it is intended to achieve 2 credits, a precautionary approach has been adopted. The following evidence will be required: 1) a detailed description of each applicable building element and its constituent materials; 2) design drawings or specification detailing the location and area (m<sup>2</sup>) of each applicable element; and 3) a copy of the output from the Mat1 calculator, including Green Guide Rating and element number for each specification assessed.</p>
Mat 2	Hard landscaping and boundary protection	<p>One credit where evidence provided demonstrates that at least 80% of the combined area of external hard landscaping and boundary protection specifications achieve an A or A+ rating, as defined by the <i>Green Guide to Specification</i>.</p>	<b>1</b>	<b>1</b>	-	-	-	-	-	<p>The following evidence will be required: 1) a detailed description of each applicable element and its constituent materials; 2) design drawings or specification detailing the location and area (m<sup>2</sup>) of each applicable element; and 3) the Green Guide Rating and element number for each specification assessed.</p>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>MATERIALS</b>										
Mat 3	Re-use of building façade	<p>One credit is awarded where evidence provided demonstrates that at least 50% of the total façade (by area) is reused and at least 80% of the reused façade (by mass) comprises in-situ reused material.</p>	<b>1</b>	<b>0</b>	-	-	-	-	-	<b>This credit cannot be sought as the development is a new build with no façade available for potential re-use.</b>
Mat 4	Re-use of building structure	<p>One credit is awarded 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.</p>	<b>1</b>	<b>0</b>	-	-	-	-	-	<b>This credit cannot be sought as the development is a new build.</b>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>MATERIALS</b>										
Mat 5	Responsible sourcing of materials	<p>Up to 3 credits are available where evidence provided demonstrates that 80% of the assessed materials in the following building elements are responsibly sourced:</p> <p>a. Structural Frame                      b. Ground floor                      c. Upper floors (including separating floors)                      d. Roof                      e. External walls                      f. Internal walls                      g. Foundation/substructure                      h. Staircase</p> <p>Additionally 100% of any timber must be legally sourced.</p>	<b>3</b>	<b>0</b>	-	-	-	-	-	<p>At this early stage in the development process it is not possible to accurately estimate a score for this credit, and a precautionary approach has been adopted. When the materials required are known, preferential consideration will be given to suppliers who can provide appropriate certification, and the credit will be assessed. The following supporting evidence will be required at the design stage:</p> <p>1) design plan or specification confirming the location of the elements and materials specified;                      2) details of the materials specified;                      3) a copy of the output from the Responsible Sourcing of Materials Calculator tool;                      4) copies of appropriate certification, or confirmation that such certification is available, for the relevant materials; and                      5) written confirmation from the developer that all timber will come from a 'legal source' and one not on the CITES list.</p>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>MATERIALS</b>										
Mat 6	Insulation	<p>One credit where evidence provided demonstrates that thermal insulation products used in the building have a low embodied impact relative to their thermal properties, determined by the <i>Green Guide to Specification</i> ratings.</p> <p>One credit where evidence provided demonstrates that thermal insulation products used in the building have been responsibly sourced based on the Insulation Index obtained from the Green Guide rating and the use of the BREEAM assessors tool</p> <p>To obtain the second credit at least 80% of the thermal insulation in the building elements must be responsibly sourced at appropriate Tier Levels specified in the Assessors manual.</p>	<b>2</b>	<b>1</b>	-	-	-	-	-	<p>Compliance requires any new insulation specified for use within the following building elements to be assessed.</p> <ol style="list-style-type: none"> <li>1/ External walls</li> <li>2/ Ground floor</li> <li>3/ Roof</li> <li>4/ Building services.</li> </ol> <p>A precautionary approach has been adopted to this credit. The specification will state that thermal insulation products with a low embodied impact will be specified. However, at this stage it is not possible to guarantee that type of product selected as being necessary can be sourced from a supplier on a certification scheme. However, preferential consideration will be given to suppliers who can provide such certification.</p> <p>To obtain the credit the following supporting evidence will be required:</p> <ol style="list-style-type: none"> <li>1) marked-up plans or a specification detailing the location of insulating materials, their area and thickness, or their volume;</li> <li>2) Manufacturer's details confirming the thickness and thermal conductivity of the materials specified;</li> <li>3) a copy of the output from the Insulation Index Calculator Tool;</li> <li>4) the Green Guide Rating and element number for the assessed insulation specification; and</li> <li>5) evidence confirming appropriate certification of the insulation materials.</li> </ol>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V	E	O	
<b>MATERIALS</b>										
Mat 7	Designing For Robustness	One credit where protection is given to vulnerable parts of the building such as areas exposed to high pedestrian traffic, vehicular and trolley movements.	<b>1</b>	<b>1</b>	-	-	-	-	-	At the design stage, the following evidence is required: 1) drawings marked up to illustrate vulnerable areas and parts of the building; and 2) drawings or specifications for the durability measures specified.
<b>Indicative (weighted) Section Score</b>				<b>4.55</b>						

## PRE-ASSESSMENT ESTIMATE RESULTS

### Waste

Table.7: Pre-assessment Estimate of Waste Credits

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V	E	O	
<b>WASTE</b>										
Wst 1	Construction Site Waste Management	<p>Up to three credits are available where evidence provided demonstrates that the amount of non-hazardous construction waste (m<sup>3</sup>/100m<sup>2</sup> or tonnes/100m<sup>2</sup>) generated on site by the development is the same as or better than good or best practice levels.</p> <p>One credit where evidence provided demonstrates that a significant majority of non-hazardous construction waste generated by the development will be diverted from landfill and reused or recycled.</p>	<b>4</b>	<b>2</b>	-	-	-	-	-	<p>A precautionary approach has been adopted, and it is intended to score more highly than stated to the left. In order to achieve one credit, construction waste must be no greater than 6.6 to 8.5 tonnes or 13.0 to 16.6 m<sup>3</sup> per 100m<sup>2</sup> of gross internal floor area; for 2 credits, 4.7 to 6.5 tonnes or 9.2 to 12.9 m<sup>3</sup> or ; and for 3 credits less than 4.7 tonnes or 9.2 m<sup>3</sup>.</p> <p>A fourth credit can be achieved if 75% by weight or 65% by volume of non-hazardous construction waste is diverted from landfill and recycled in a number of ways. The following supporting evidence will be required at the design stage: 1) a copy of the compliant Site Waste Management Plan containing the appropriate benchmarks and, where relevant, a copy of the pre-demolition audit. Alternatively, where contractors will be used, but have not yet been appointed, a copy of the specification confirming the details with which the contractor will be required to comply is acceptable.</p>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>WASTE</b>										
Wst 2	Recycled aggregates	One credit where evidence provided demonstrates the significant use of recycled or secondary aggregates in 'high-grade' building aggregate uses.	<b>1</b>	<b>1</b>	-	-	-	-	-	<p>Compliance requires at least 25% (by volume or weight) of the aggregate is recycled or secondary. The aggregates can be obtained on site or from waste processing sites within 30Km (to include construction, demolition and excavation waste including road planings). OR secondary aggregates obtained from a non construction, post consumer, or post industrial by product source.</p> <p>The following evidence is required at the design stage: 1) a copy of the relevant specification or contract clause confirming the recycled and secondary aggregate use requirements for the project; and 2) a letter confirming the source of the recycled/secondary aggregate and that the amount and quality can be obtained from this source.</p>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>WASTE</b>										
Wst 3	Recyclable waste storage	One credit where a central, dedicated space is provided for the storage of the building's recyclable waste streams.	<b>1</b>	<b>1</b>	-	-	-	1	1	<p><b>OBLIGATORY CREDIT: in order to achieve a rating of Excellent, this credit must be complied with.</b></p> <p>There must be a dedicated space for recycled materials to be clearly labelled, with accessible reach of the building and in a location with good vehicular access. The size must be adequate for the number of building occupants plus at least 2m<sup>2</sup> per 1000m<sup>2</sup> of net office floor area for buildings less than 5000m<sup>2</sup> and a minimum of 10m<sup>2</sup> for buildings over 500m<sup>2</sup></p> <p>The space must cater for the separation and storage of the following:</p> <ul style="list-style-type: none"> <li>1 Paper</li> <li>2 Cardboard</li> <li>3 Glass</li> <li>4 Plastics</li> </ul> <p>Packaging</p> <p>The following evidence is required at the design stage: 1) a marked-up plan or specification showing the location of the dedicated recyclable storage area, the storage area for general waste, the area of the storage spaces, and a description of the labelling of the waste storage area.</p>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>WASTE</b>										
Wst 4	Compactor / Baler	<p>One credit where evidence provided demonstrates that either an industrial waste compactor or baler is installed for compacting/baling waste materials generated on site and</p> <p>a. A water outlet is provided for cleaning</p> <p>b. The development achieves the BREEAM credit for storage of recyclable waste.</p>	<b>1</b>	<b>1</b>	-	-	-	-	-	<p>In order to obtain this credit the waste storage provisions of WST 3 (above) must have been met. In addition a Static waste compactor or baler is to be installed in a service area or dedicated waste management space. At least one water outlet is to be provided for each waste sorting facility. At the design stage, the following evidence must be supplied: 1) a marked-up plan or specification must be supplied, confirming the provision of a waste compactor/baler, the location and size of space for the baler, and the position of the water outlet; and 2) manufacturer's literature confirming the type of compactor/baler to be supplied.</p>
<b>Indicative (weighted) Section Score</b>			<b>5.36</b>							

## PRE-ASSESSMENT ESTIMATE RESULTS

### Land-use and Ecology

Table 8: Pre-assessment Estimate of Land-use and Ecology Credits

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>LAND-USE &amp; ECOLOGY</b>										
LE1	Re-use of land	One credit where evidence provided demonstrates that the majority of the footprint of the proposed development falls within the boundary of previously developed land.	<b>1</b>	<b>1</b>	-	-	-	-	-	The definition of previously developed land embraces land used for mineral extraction or waste disposal. The following evidence must be supplied at the design stage: 1) Existing site plan, report or site photographs confirming previous land use and the area of previous land use; and 2) proposed site plan showing the location and area of the proposed development and temporary works.
LE2	Contaminated land	One credit is awarded where evidence provided demonstrates 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.	<b>1</b>	<b>1</b>	-	-	-	-	-	The following evidence is required: a copy of the specialist's land contamination report confirming the degree, type and sources of site contamination and the options for remediating the site; an existing site plan showing the location of areas contaminated and to be remediated in relation to any proposed development; and a letter from the main contractor or remediation contractor confirming the remediation strategy for the site and summary details of the implementation plan. If a contractor has not yet been appointed, a letter from the client, or their representative, must be supplied confirming that the appointed contractor will undertake necessary remediation works to mitigate the risks identified in the specialist report.

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>LAND-USE &amp; ECOLOGY</b>										
LE3	Ecological value of site AND Protection of ecological features	One credit is awarded where evidence provided demonstrates 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.	<b>1</b>	<b>1</b>	-	-	-	-	-	Estimated credit: no ecological survey has been undertaken at this time. However, the proposed development's location on a previously used site suggests that this credit is likely to be awarded. Evidence required to support the award of this credit at the design stage includes: 1) a copy of an ecologist's report confirming that the construction zone is of low ecological value, a description of any ecological features within or adjacent to the site boundary, and the date of the site survey. 2) confirmation that the ecologist has a suitable professional status.
LE4	Mitigating Ecological impact	One credit where evidence provided demonstrates that the change in the site's existing ecological value, as a result of development, is minimal.  Two credits where evidence provided demonstrates that there is no negative change in the site's existing ecological value as a result of development.	<b>2</b>	<b>2</b>	-	-	1	1	1	<b>OBLIGATORY CREDIT: in order for the proposed development to achieve a rating of Very Good, at least one credit must be achieved.</b> This is an estimated credit score based on proposed landscaping, and may be subject to change. The following evidence will be required in support of this credit at the design stage: 1) a site plan or ecologist's report confirming the landscape and vegetation plot types and their respective areas; 2) a copy of the completed Ecology Calculator.

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>LAND-USE &amp; ECOLOGY</b>										
LE5	Enhancing Site Ecology	<p>One credit where the design team (or client) has appointed a suitably qualified ecologist to advise and report on enhancing and protecting the ecological value of the site; and implemented the professional's recommendations for general enhancement and protection of site ecology.</p> <p>Two credits where, in addition to the above, there is a positive increase in the ecological value of the site of up to (but not including) 6 species.</p> <p>Three credits 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>	<b>3</b>	<b>1</b>	-	-	-	-	-	<p>Estimated credit: whilst some ecological survey has been undertaken at the current time, additional work will be required in order to provide sufficient detail for this credit. However, the proposed development's location on previously developed land suggests that this credit is likely to be awarded. Evidence required to support the award of this credit at the design stage is as follows: 1) a copy of the ecologist's report containing details and the scope of the site survey; 2) a proposed site plan highlighting implementation of the ecologist's recommendations for enhancement <b>and</b> a copy of the relevant section of the specification requiring the contractor to implement these enhancements or a letter from the design team confirming that this requirement will be incorporated into the specification; and 3) a completed copy of the Ecology Calculator 2.</p>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>LAND-USE &amp; ECOLOGY</b>										
LE6	Long term impact on biodiversity	<p>One credit where the client has committed to achieving the mandatory requirements listed below and at least two of the additional requirements.</p> <p>Two credits where the client has committed to achieving the mandatory requirements listed below and at least four of the additional requirements.</p>	<b>2</b>	<b>2</b>	-	-	-	-	-	<p>The evidence required to support the award of the credits for the mandatory section of this criterion are as follows: 1) a copy of the ecologist's report confirming that the survey was conducted prior to the start of site preparation works and that all relevant EU and UK legislation has been complied with; and 2) a copy of the site management plan or a copy of the specification or formal commitment requiring the production of a management plan, and its scope. The evidence required to support the allocation of the credits for the additional requirements varies significantly, and will be provided when the selection has been made of which ones will be achieved.</p>
<b>Indicative (weighted) Section Score</b>			<b>8.00</b>							

## PRE-ASSESSMENT ESTIMATE RESULTS

### Pollution

Table 9: Pre-assessment Estimate of Pollution Credits

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>POLLUTION</b>										
Pol 1	Refrigerant GWP - Building services	One credit 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	1	-	-	-	-	-	As the building will not be mechanically cooled, this credit should be awarded by default. The evidence required to support this at the design stage is as follows: 1) a copy of the specification confirming the absence of refrigerant in the development, or the types of refrigerant to be used; and 2) manufacturer's information confirming the GWP of each refrigerant.

# PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>POLLUTION</b>										
Pol 2	Preventing refrigerant leaks	One credit 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	1	-	-	-	-	-	As the building will not be mechanically cooled, and there will be no refrigerants, this credit should be awarded by default. The evidence required to support this at the design stage is as follows: 1) A copy of the specification confirming the lack of refrigerants in the development.

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>POLLUTION</b>										
Pol 4	NOx emissions from heating source	<p><b>Office &amp; associated areas (N/A if no office areas):</b> One credit where evidence provided demonstrates that the maximum dry NOx emissions from delivered space heating energy are <math>\leq 70</math> mg/kWh delivered heating energy or less (at 0% excess O<sub>2</sub>).</p> <p><b>Operational areas (N/A if unheated operational area):</b> One credit where evidence provided demonstrates that the maximum dry NOx emissions from delivered space heating energy are <math>\leq 70</math> mg/kWh delivered heating energy or less (at 0% excess O<sub>2</sub>).</p>	1	1	-	-	-	-	-	For the first credit compliance requires that the manufacturers details demonstrate that the dry NOx emissions from delivered space heating are less than or equal to 70mg/kWh delivered heating energy or less (at 0% excess O <sub>2</sub> ) within the office areas. For the second credit the same target has to be achieved for the operational areas. The following evidence is required at the design stage: 1) a copy of the specification confirming the type of heating system(s) specified and confirmation of the dry NOx emissions in mg/kWh; 2) if more than one system is providing heat, design team calculations should be provided confirming the average NOx emission rate.

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>POLLUTION</b>										
Pol 5	Flood risk	<p>Two credits where evidence provided demonstrates that the assessed development is located in a zone defined as having a low annual probability of flooding.</p> <p>One credit where evidence provided demonstrates that the assessed development is located in a zone defined as having a medium or high 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>One further credit where evidence provided demonstrates that surface water run-off attenuation measures are specified to minimise the risk of localised flooding, resulting from a loss of flood storage on site due to development.</p>	<b>3</b>	<b>2</b>	-	-	-	-	-	<p>Estimated credit: the site is believed to be in a medium flood risk zone, and SuDs features will be created. The following evidence is required at the design stage: 1) a copy of a flood map or a flood risk assessment confirming the flood zone or annual flooding probability; 2) a copy of the flood risk assessment; 3) site plans/sections confirming the design flood level for the site, the design ground level for all developed areas of the site, and safe access and escape routes; and 3) site plans or a copy of the specification/consultant's report confirming the type and storage volume of the water run-off attenuation measures, the total area of hard-surface, the peak flow rate for the design storm event, and additional allowance for climate change designed into the system.</p>

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>POLLUTION</b>										
Pol 6	Minimising watercourse pollution	One credit here evidence provided demonstrates that effective on site treatment such as Sustainable Drainage Systems (SuDs) or oil separators have been specified in areas that are or could be a source of watercourse pollution.	1	1	-	-	-	-	-	The following evidence is required at the design stage: 1) a marked-up plan highlighting high and low risk areas of the site; 2) a copy of the specification detailing the type of pollution control systems specified; 3) a letter from the design team confirming that all pollution control measures are in accordance with PPG3 and the SuDs manual, outlining indicative examples of compliance, and that a copy of the drainage plan will be produced and handed over to the building occupier; 4) a copy of the site plan or specification confirming the installation of shut-off valves and the system type; and 5) a letter from the design team confirming that the design of all external storage and delivery areas is in compliance with relevant Pollution Prevention Guidance, and outlining indicative examples of compliance.
Pol 7	Reduction of Night Time Light Pollution	One credit 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	1	-	-	-	-	-	At the design stage, the following evidence is required: 1) a copy of the site plan showing areas of the building and site that will be externally lit and any nearby properties; 2) a copy of the specification requiring that the external lighting is designed in compliance with Table 1 of the ILE Guidance notes; 3) specification of external lighting controls and, if relevant, illuminated advertisements are designed in compliance with ILE Technical Report 5; and 4) indicative examples of how the design complies.

## PRE-ASSESSMENT ESTIMATE RESULTS

Ref	BREEAM Issue Title	Issue Criteria	Credits Available	Credits Achieved	Minimum required credits					Notes
					P	G	V G	E	O	
<b>POLLUTION</b>										
Pol 8	Noise Attenuation	One credit where evidence provided demonstrates that new 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	0	-	-	-	-	-	<p><b>Credit not sought at this stage.</b> The following evidence is required at the design stage: 1) an acoustician's report with recommendations for noise attenuation measures; 2) either a marked-up plan highlighting the specification and location of these measures or a formal letter confirming that, if relevant, any recommended attenuation measures will be incorporated.</p>
<b>Indicative (weighted) Section Score</b>			<b>7.78%</b>							

## SCORING AND SUMMARY

- 1.7 The BREEAM: Industrial assessment awards ratings to developments in five bands, Pass, Good, Very Good, Excellent or Outstanding, according to their points score, as follows:

RATING	SCORE
OUTSTANDING	>85
EXCELLENT	70
VERY GOOD	55
GOOD	40
PASS	25

- 1.8 The table below shows the results of the current appraisal of the proposed Severn Road Resource Recovery plant:

Technical area	Points achieved
Management	9.6
Health and Wellbeing	8.08
Energy	8.71
Transport	4.36
Water	5
Materials	4.55
Waste	5.36
Land Use and Ecology	8
Pollution	7.78
<b>Total:</b>	<b>61.43</b>

The score of 61.43 translates into a BREEAM: Industrial rating of **Very Good**, lying above the threshold of 55 points. Should the finalised development design brief be an accurate representation of the current design proposals, the estimate should represent the final rating. However, there were some credits, particularly in the Energy, Materials and Land-use and ecology sections, where assumptions and conservative estimates had to be made as insufficient information is available at this early stage in the project design. This particularly applies to the Energy section as the electricity produced by the EfW plant may constitute Low Carbon Energy, if the Local Authority is meeting waste recycling targets. If this is the case, then it may be possible to award an additional nine credits, and the development may potentially attain a rating of Excellent. However, it should be noted that it is the nature of development projects that the score usually decreases slightly upon formal assessment, due to unavoidable changes to the development brief and stochastic events. However, a significant buffer has been built into the design programme and it is considered unlikely that the development's score will fall below a rating of Very Good, unless major changes are made to the design proposed at this stage.