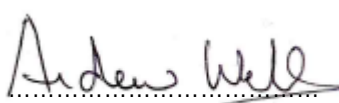


Morrisons Wrexham

BREEAM Retail 2008 Initial Assessment Report

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Morrisons Wrexham–BREEAM Initial Assessment Report

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Table of Contents

1 Introduction 1

1.1 Introduction 1

1.2 BREEAM Retail 2008 1

1.3 Approaching a BREEAM Assessment 3

2 BREEAM Initial Assessment Summary for Morrisons Wrexham 4

2.1 Introduction 4

2.2 Summary of Morrisons Wrexham Anticipated BREEAM Performance 4

2.3 Innovation Credits 4

2.4 Moving Forward 5

3 Credit Guidance, Status and Actions 6

1 Introduction

1.1 Introduction

AECOM have been commissioned by Wm Morrison Supermarkets Plc. undertake a BREEAM Retail 2008 Initial Assessment for the proposed development of a Morrisons food store in Wrexham. It is a planning requirement for the development to achieve a BREEAM 'Very Good' rating and achieve an EPC rating of ≤ 40 .

The following report demonstrates how the required 'Very Good' rating will be achieved for the development, and aims to provide the design team with information on the credit requirements and their responsibilities for the BREEAM assessment.

1.2 History

An Initial BREEAM Assessment report was issued with the planning application (June 2010) submitted by Archial Architects. Race Cottam Associates have since taken over the architectural design of the store from Archial. AECOM were appointed to undertake a review of the Initial BREEAM assessment and produce a revised report accounting for any changes to the design which impacts on the BREEAM score. The results of the revised Initial BREEAM Assessment are provided within this report.

1.3 BREEAM Retail 2008

BREEAM Retail 2008 seeks to minimise the adverse effects of new buildings on the environment at global and local scales, whilst promoting healthy indoor conditions for the occupants.

1.3.1 BREEAM Ratings

Under the BREEAM Retail 2008 scheme, the environmental implications of a new building are assessed at the design and post construction stages, and compared with good practice by independent assessors. An overall rating of the building's performance is given using the terms Pass, Good, Very Good, Excellent or Outstanding. This is determined from the total number of BREEAM criteria met and their respective environmental weighting (Table 1 below). There are also a number of mandatory credits applicable to each rating band. These are outlined in Section 1.3 below.

Table 1: BREEAM 2008 Rating Benchmarks

Rating	Score
UNCLASSIFIED	<30
PASS	≥ 30
GOOD	≥ 45
VERY GOOD	≥ 55
EXCELLENT	≥ 70
OUTSTANDING	≥ 85

BREEAM is a voluntary scheme and projects are assessed using a system of credits. The credits are grouped within the following categories:

- Management;
- Health and Well Being;
- Energy;
- Transport;
- Water;
- Materials;
- Waste;
- Land Use and Ecology;
- Pollution.

1.3.2 BREEAM Scoring

Within each of the BREEAM categories outlined above, there are a number of credit requirements that reflect the options available to designers and managers of buildings. An environmental weighting is applied to the scores achieved under each category enabling the calculation of a final BREEAM score. The weighting factors have been derived from consensus based research with various groups such as government, material suppliers and lobbyists. This research was carried out by BRE to establish the relative importance of each environmental issue. The total score for each category is derived from the sum of the number of credits achieved and the category weighting factor. The environmental weightings are as follows:

Table 2: BREEAM 2008 Environmental Weightings

BREEAM Category	Environmental Weighting
Management	12%
Health & Wellbeing	15%
Energy	19%
Transport	8%
Water	6%
Materials	12.5%
Waste	7.5%
Land Use and Ecology	10%
Pollution	10%

1.3.3 BREEAM Retail 2008 Mandatory Credits

To achieve a BREEAM rating, the minimum percentage score (Table 1) must be achieved. In addition, the mandatory standards applicable to the rating level must also be achieved (Table 3).

Table 3: Minimum BREEAM standards

BREEAM Issue	BREEAM Rating / Minimum number of credits				
	Pass	Good	Very Good	Excellent	Outstanding
Man 1 – Commissioning	1	1	1	1	2
Man 2 – Considerate Constructors				1	2
Man 4 – Building user guide				1	1
Hea 4 – High frequency lighting	1	1	1	1	1
Hea 12 – Microbial contamination	1	1	1	1	1
Ene 1 – Reduction of CO ₂ emissions				6	10
Ene 2 – Sub-metering of substantial energy uses			1	1	1
Ene 5 – Low or zero carbon technologies				1	1
Wat 1 – Water consumption		1	1	1	2
Wat 2 – Water meter		1	1	1	1
Wst 3 – Storage of recyclable waste				1	1
LE 4 – Mitigating ecological impact			1	1	1

1.3.4 BREEAM 2008 Innovation Credits

Innovation credits provide additional recognition for a building that innovates in the field of sustainable performance, above and beyond the level that is currently recognised and rewarded within standard BREEAM issues.

An additional 1% score can be added to a building's final BREEAM score for each innovation credit achieved (to a maximum of 10%).

There are two different ways in which a building can achieve an innovation credit:

Exemplary Performance – Innovation credits are awarded where a development achieves the exemplary performance requirements outlined for a number of the BREEAM credits (Table 4 below):

Table 4: BREEAM issues with exemplary level requirements

Man 2 – Considerate Constructors
Hea 1 – Daylighting
Hea 14 – Office Space
Ene 1 – Reduction of CO2 emissions
Ene 5 – Low and Zero Carbon Technologies
Wat 2 – Water Meter
Mat 1 – Materials Specification
Mat 5 – Responsible Sourcing of Materials
Wst 1 – Construction Site Waste Management

Innovative Performance – An application is made to the BRE by the BREEAM assessor to have a particular building feature, system or process recognised as 'innovative'. If the BRE consider the feature/system/process to be 'innovative', an innovation credit can be awarded.

1.4 Approaching a BREEAM Assessment

The key milestones of a BREEAM Retail 2008 assessment are detailed below:

1.4.1 Initial Assessment (optional)

An Initial Assessment exercise can be undertaken at the planning / early design stages, prior to the design stage assessment. The Initial Assessment exercise is a useful tool for the design team in establishing the likely credits which can be achieved based on current design, and determine changes which can be made to the final design to improve the BREEAM rating. The output from this stage of work is covered in this report, following the meeting held on 10th August 2010 with Race Cottam Associates at their offices in Sheffield.

1.4.2 Design Stage

The design stage assessment and subsequent interim BREEAM Certification represents the performance of the building at the design stage of the assessment, typically prior to the beginning of operations on site. Certification at this stage does not, therefore, represent the building's final 'as built' BREEAM performance.

To complete a formal design stage assessment, the design must be advanced to the point where the relevant information is available to enable the BREEAM Assessor to demonstrate the building's performance against the reporting and evidential requirements of the technical guidance. The formal design stage assessment should therefore be carried out at the scheme design or detailed design stages.

1.4.3 Post Construction Stage

The post construction assessment and subsequent final BREEAM Certification represents the final 'as built' performance and BREEAM rating. A post construction assessment is carried out after practical completion of the building works, before handover and occupation of the building. A post construction assessment serves to confirm the interim BREEAM rating achieved at the design stage, in accordance with the reporting and evidential requirements of the technical guidance.

2 BREEAM Initial Assessment Summary for Morrisons Wrexham

2.1 Introduction

This Initial Assessment Report provides a credit status summary based on discussions with Race Cottam Associates at the BREEAM Initial Assessment meeting on 10th August at their offices in Sheffield. Where development-specific information was not available (due to the early stage in design at which the Initial Assessment was undertaken), assumptions were made on likely design based on the extensive experience of both the architect and BREEAM assessor in undertaking BREEAM assessments for Morrisons food stores.

2.2 Summary of Morrisons Wrexham Anticipated BREEAM Performance

Based on information provided by the architect at the Initial Assessment meeting, the following Target Rating Score were agreed:

0%	30%	45%	55%	70%	85%	100%
Unrated	Pass	Good	Very Good	Excellent	Outstanding	
			Target Rating	59.53%	Very Good	

Target Credits: Credits likely to be achieved based on current design, without significant design modifications or additional expenditure.

Please note: The final rating achieved in a certified BREEAM assessment will be dependent on the provision of satisfactory evidence for each credit.

A summary of the BREEAM Retail 2008 credits to be targeted for Morrisons Wrexham is provided in Section 3 of this report. Further details of the compliance requirements for each of the credits is available in the BREEAM Retail 2008 manual which is publicly available for download at www.breeam.org.

2.3 Innovation Credits

At this stage, no innovation credits have been highlighted for possible pursuance. Due to the early stage in design at which BREEAM is being considered, it is possible that exemplary level credit requirements/innovative features could be implemented without entailing excessive additional cost if considered before the design is further progressed (at which stage design modifications may be costly).

The client and project team are encouraged to explore potentially 'innovative' design features, and familiarise themselves with the exemplary performance requirements to determine whether it is feasible to target any innovation credits for Morrisons Wrexham. Further details of available innovation credits can be found in Section 3 (below) and in the BREEAM Retail 2008 manual (available at www.breeam.org).

Opportunities for innovation credits will be further discussed further with the design team at the onset of the formal BREEAM assessment process.

2.4 Moving Forward

The issue of this Initial Assessment report concludes the revised BREEAM Initial Assessment. The Initial Assessment report provides the client and project team with an indication of the credits which are likely to be achieved based on current building design, and highlight areas where design modifications could be implemented to further improve the BREEAM score.

The next stage in the BREEAM assessment process will be to formally register the development with the BRE under BREEAM Retail 2008, and then commence the formal design stage assessment of the development. This should be undertaken throughout the scheme / detailed design stages (RIBA Stages D-E) when the relevant evidential information will become available in order to achieve the targeted BREEAM credits. In order to progress the BREEAM assessment in line with the project programme, a BREEAM Credit Guidance Document has been issued to the design team along with this Initial BREEAM Assessment report. The BREEAM Credit Guidance Document provides specific details of the credit requirements and submittals for each of the credits targeted for Morrisons Wrexham. This document should be used throughout the BREEAM assessment to ensure that they comply with, and correctly document, the requirements for each of the targeted credits.

Once the construction is complete, a post construction assessment will be required in order to obtain the final BREEAM Certification of the development. To maximise the score achieved at post construction, it is advisable that the BREEAM Assessor has continued involvement throughout the construction stage to ensure the Contractor is fully aware of the requirements every step of the way.

3 Credit Guidance, Status and Actions

The following section provides a summary of the credit status along with assessor's notes for each credit based on discussions with the architect and previous experience of undertaking BREEAM Assessment for Morrison's food stores.

Credit Reference	Credit Name	Available Credits	Target Credits	Race Cottam Associates (Architect)	Morrisons (Client)	Mitton (Mechanical Engineer)	Pitts Wilson (Electrical Engineer)	Honeywell (Refrigeration Engineer)	Bowmer & Kirkland (Contractor)	Ecologist / Landscape Architect	Drainage Consultant	Acoustic Consultant	Transport Consultant	BSCP (Structural Engineer)	Credit Requirements and Status
Health & Wellbeing Each Credit is worth 1.67%															
Hea 1	Daylighting - see innovation	1	0												Credit Status: This credit is not targeted. The required daylighting criteria is unlikely to be met in the sales/common floor area. The store will be standard Morrisons design with a ceiling (i.e. no scope for rooflights). Credit Requirements: At least 35% by floor area of the sales and common spaces have point daylight factors of at least 2%.
Hea 4	High Frequency Lighting	1	1				●								It is a mandatory requirement for all BREEAM ratings ('Pass' to 'Outstanding') to achieve this credit. Credit Status: This credit is targeted. High frequency ballasts will be specified for all florescent and compact florescent lamps. Credit Requirements: All florescent and compact florescent lamps to be fitted with high frequency ballasts.
Hea 5	Internal & External Lighting Levels	1	1				●								Credit Status: This credit is targeted. Illuminance levels (internal and external) will be designed in compliance with the relevant CIBSE guidance. Credit Requirements: - Illuminance (lux) levels in all internal areas to be specified in accordance with Part Two of the CIBSE Code for Lighting 2002 and its 2004 addendum. - For areas where computer screens are regularly used, the lighting design must comply with CIBSE Lighting Guide 7. - Illuminance levels for lighting in all external areas within the construction zone to be specified in accordance with CIBSE Lighting Guide 6, "The outdoor environment".
Hea 8	Indoor Air Quality	1	0												Credit Status: This credit cannot be achieved. Openable windows in office areas are within 20m of store carparking areas and site roads (source of external pollution). Credit Requirements: Air intakes and exhausts to be positioned over 10m apart to minimise recirculation, AND intakes over 20m from sources of external pollution (e.g. main access roads, car parks, delivery areas).
Hea 9	Volatile Organic Compounds	1	0												Credit Status: This credit is not targeted. It was agreed that it would be an arduous process to obtain confirmation of VOC levels in compliance with the relevant standards for all finishes and fittings. Previous experience of targeting this credit on other BREEAM assessments has found that manufacturers' commonly don't test their products against the specific British Standards referenced in the BREEAM credit requirements. However, this credit could however be considered at a later date if required to improve the BREEAM score. Credit Requirements: The following products (where specified) to be tested against and meet the relevant standards outlined in the BREEAM Retail 2008 manual for VOC emissions: - Wood panels - Timber structures - Wood flooring - Resilient, textile and laminated floor coverings - Suspended ceiling tiles - Flooring adhesives - Wall-coverings - Adhesive for hanging flexible wall-coverings - Decorative paints and varnishes.
Hea 10	Thermal Comfort	1	1			●									Credit Status: This credit is targeted. Thermal modelling will be undertaken by Mitton, using approved software and in line with the credit requirements. Credit Requirements: - Thermal modelling to be carried out using software selected and applied in accordance with CIBSE AM11 "Building Energy and Environmental Modelling". - The modelling must demonstrate that the building design and services strategy can deliver thermal comfort levels in occupied spaces in accordance with the requirements set out in CIBSE Guide A "Environmental Design".
Hea 12	Microbial Contamination	1	1			●									It is a mandatory requirement for all BREEAM ratings ('Pass' to 'Outstanding') to achieve this credit. Credit Status: This credit is targeted. All water systems to be designed to reduce the risk of legionellosis in operation. No humidification plant present. Credit Requirements: - All water systems in the building to be designed in compliance with the measures outlined in the Health and Safety Executive's "Legionnaires' disease - The control of legionella bacteria in water systems". Approved Code of Practice and guidance, 2000. - No humidification must be present, with the exception of steam humidification.
Hea 14	Office Space - see innovation	2	1	●		●	●						●		Credit Status: One credit is targeted. It was agreed that four out of the seven measures listed could be achieved. The following measures are targeted: - Hea 3 Glare control. All office areas with external windows will have occupant controllable blinds specified. - Hea 6 Lighting controls and zones. Lighting in office areas zoned for no more than 4 workstations. Separate occupant control for lighting in areas adjacent to windows. - Hea 11 Thermal zoning. Radiator would have TRVs allow separate occupant control of thermal conditions in office areas. - Hea 13 Acoustic Performance. An Acoustic Consultant will be appointed to assess the acoustic performance of the office areas and undertake a programme of pre-completion acoustic testing. Compliance Requirements: <i>This credit is applicable to Retail development with office spaces <500m2. The requirements of a number of Health and Wellbeing credits are combined under one credit for small office space.</i> One credit is achieved for compliance with three measures, two credits are achieved for compliance with five or more measures. Please refer to the BREEAM Credit Guidance Document for the specific requirements for the following relevant Health and Wellbeing credits addressed within this credit: - Hea 1 Daylighting - Hea 2 View Out - Hea 3 Glare Control - Hea 6 Lighting controls and zones - Hea 7 Potential for natural ventilation - Hea 11 Thermal zoning - Hea 13 Acoustic performance
Total Health & Wellbeing Credits		9	5												
Total Addition to Overall Score (%)		15	8.3												

Credit Reference	Credit Name	Available Credits	Target Credits	Race Cottam Associates (Architect)	Morrisons (Client)	Milton (Mechanical Engineer)	Pitts Wilson (Electrical Engineer)	Honeywell (Refrigeration Engineer)	Bowmer & Kirkland (Contractor)	Ecologist / Landscape Architect	Drainage Consultant	Acoustic Consultant	Transport Consultant	BSCP (Structural Engineer)	Credit Requirements and Status																																																								
Energy Each Credit is worth 0.7%																																																																							
Ene 1	Reduction of CO ₂ Emissions - see innovation	15	6	●		●									It is mandatory to achieve at least six credits to achieve BREEAM 'Excellent' and at least ten credits for BREEAM 'Outstanding'. Credit Status: 6 credits are targeted. Planning requirements dictate that the mandatory credits for 'Excellent' under Ene 1 must be achieved (i.e. EPC score of 40). This is consistent with 6 BREEAM credits. EPC calculations to be undertaken by Mitton. Credit Requirements: The number of credits achieved is determined from the building's CO2 index (EPC rating), taken from the Energy Performance Certificate (EPC). Credits are awarded based on the following EPC scores: <table><thead><tr><th rowspan="2">BREEAM Credits</th><th colspan="2">CO₂ Index (EPC Rating)</th></tr><tr><th>New Build</th><th>Refurbishment</th></tr></thead><tbody><tr><td>1</td><td>63</td><td>100</td></tr><tr><td>2</td><td>53</td><td>87</td></tr><tr><td>3</td><td>47</td><td>74</td></tr><tr><td>4</td><td>45</td><td>61</td></tr><tr><td>5</td><td>43</td><td>50</td></tr><tr><td>6</td><td>40</td><td>47</td></tr><tr><td>7</td><td>37</td><td>44</td></tr><tr><td>8</td><td>31</td><td>41</td></tr><tr><td>9</td><td>28</td><td>36</td></tr><tr><td>10</td><td>26</td><td>31</td></tr><tr><td>11</td><td>23</td><td>28</td></tr><tr><td>12</td><td>20</td><td>25</td></tr><tr><td>13</td><td>18</td><td>22</td></tr><tr><td>14</td><td>10</td><td>18</td></tr><tr><td>15</td><td>0</td><td>15</td></tr><tr><td>Exemplar credit 1</td><td><0</td><td>≤0</td></tr><tr><td>Exemplar credit 2</td><td colspan="2">True zero carbon building</td></tr></tbody></table>	BREEAM Credits	CO ₂ Index (EPC Rating)		New Build	Refurbishment	1	63	100	2	53	87	3	47	74	4	45	61	5	43	50	6	40	47	7	37	44	8	31	41	9	28	36	10	26	31	11	23	28	12	20	25	13	18	22	14	10	18	15	0	15	Exemplar credit 1	<0	≤0	Exemplar credit 2	True zero carbon building	
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Exemplar credit 2	True zero carbon building																																																																						
Ene 2	Sub-Metering of Substantial Energy Uses	1	1			●	●								It is a mandatory requirement for BREEAM 'Very Good', 'Excellent' and 'Outstanding' to achieve this credit. Credit Status: This credit is targeted. Sub-meters will be installed for all relevant systems. Credit Requirements: Separate accessible sub-meters to be provided for the following systems (where present): - Space Heating - Domestic Hot Water - Humidification Plant - Cooling Plant - Fans (major) - Lighting - Small power - Other major energy consuming items where appropriate																																																								
Ene 3	Sub Metering of High Energy Load and Tenancy Areas	1	0												Credit Status: This credit is not targeted. Separate energy sub-meters are not installed as standard on Morrisons stores. Credit Requirements: Provision of accessible sub-meters covering the energy supply to all relevant function areas/departments within the development (e.g. sales area, storage and warehouse, cold storage, offices, catering, tenant areas).																																																								
Ene 4	External Lighting	1	1				●								Credit Status: This credit is targeted. The standard lighting specified for Morrisons stores typically meets the credit requirements in terms of efficacy and colour rendering index. Credit Requirements: - All external light fittings for the building, access ways and pathways have a luminous efficacy of at least 50 lamp lumens/circuit Watt when the lamp has a colour rendering index (Ra) greater than or equal to 60. OR 60 lamp lumens/circuit Watt when the lamp has a colour rendering index (Ra) less than 60. - All external light fittings to car parking areas, associated roads and floodlighting has a luminous efficacy of at least 70 lamp lumens/circuit Watt (when Ra ≥60). OR 80 lamp lumens/circuit Watt (when Ra <60). - All external light fittings for signs and uplighting have a luminous efficacy of at least 60 lamp lumens/circuit Watt (when lamp wattage ≥25W). OR 50 lamp lumens/circuit Watt (when lamp wattage <25W).																																																								
Ene 5	Low or Zero Carbon Technologies - see innovation	3	0												It is a mandatory requirement for BREEAM 'Excellent' and 'Outstanding' to achieve at least one credit. Credit Status: These credits are not targeted. LZC technologies are not proposed for the Morrisons Wrexham development. Credit Requirements: <i>First Credit</i> Undertake a feasibility study considering local (on site or near site) low or zero carbon (LZC) technologies. Study should establish the most appropriate LZC option based on consideration of the following: - Energy generated from the LZC energy source per year - Payback - Land use - Local planning requirements - Noise - Feasibility of exporting heat/electricity from the system - Life cycle cost/lifecycle impact of the potential specification in terms of carbon emissions - Any available grants - All technologies appropriate to the site and energy demand of the development - Reasons for excluding other technologies. <i>Second and Third Credits</i> Demonstrate a 10% (2nd credit) / 15% (2nd and 3rd credits) reduction in the building's CO2 emissions has been achieved as a result of the installation of a feasible local low or zero carbon technology.																																																								
Ene 6	Building Fabric Performance & Avoidance of Air Infiltration	1	0												Credit Status: This credit is not targeted. It is unlikely that all of the items listed can be achieved as some (e.g. rapid rise loading bay doors) contravene Morrisons health and safety requirements). Credit Requirements: The following measures are to be implemented (please refer to the BREEAM Credit Guidance Document for the full requirements for this credit): - Personnel doors between internal & external areas near delivery areas, AND draught lobby between office areas & external building access. - Delivery areas and operational / storage areas are partitioned - Draught sealing on access, vents and backdraught dampers on extract fans. - Insulated loading bay doors - Plastic strip curtains between internal delivery areas & storage / operational areas. - External delivery areas have plastic strip curtains, OR air curtains, OR pneumatic dock seals - Rapid rise loading bay doors (at least 1.0m/sec closing speed or less than 5 secs closing time between fully open and fully closed) - A comprehensive thermographic inspection of the building fabric to be undertaken once the construction is complete.																																																								

Credit Reference	Credit Name	Available Credits	Target Credits	Race Cottam Associates (Architect)	Morrisons (Client)	Mitton (Mechanical Engineer)	Pitts Wilson (Electrical Engineer)	Honeywell (Refrigeration Engineer)	Bowmer & Kirkland (Contractor)	Ecologist / Landscape Architect	Drainage Consultant	Acoustic Consultant	Transport Consultant	BSCP (Structural Engineer)	Credit Requirements and Status
Ene 7	Cold Storage	3	2					•							Credit Status: Two credits are targeted. Refrigeration equipment listed on the ECA Energy Technology Product List will be specified for Morrisons Goole (1st credit). The development is likely to utilise heat recovery from refrigeration equipment for hot water heating (3rd credit). Credit Requirements: <i>First Credit</i> Elements required to be listed on ECA Energy Technology Product List or equivalent (air cooled condensing units, automatic air purgers, cellar cooling equipment, cold food storage cabinets, covers for refrigerated display cabinets, evaporative condensers, forced air pre-coolers, liquid pressure amplification, refrigerated display cabinets, refrigerated compressors & refrigerated system controls). <i>Second Credit</i> - Variable speed drives to be fitted to the compressors, pumps and fans. - Strip curtains to be installed on the cold storage openings. - Low powered/heat lighting to be fitted e.g. fibre optics, LEDs. - Installed refrigeration plant, controls and monitoring system to be specified in accordance with the guidance outlined in the Food and Drink Industry Refrigeration Efficiency Initiative Guide 2 Purchase of Efficient Refrigeration Plant. - Plant to be commissioned in compliance with the requirements for cold food storage commissioning outlined in BREEAM Credit Man 1. <i>Third Credit</i> Plant to be capable of either of the following free cooling/heating strategies: - Thermal storage during periods of low load to provide additional cooling during periods of peak cooling load, OR - Heat recovery of the waste heat to meet in part or full space heating and/or hot water requirements for the assessed building or other local demand e.g. air curtain above the cold storage enclosure entrance.
Ene 8	Lifts	2	1	•											Credit Status: One credit is targeted. An analysis of transport demand and patterns for the building will be undertaken to determine the most appropriate number/size of lifts for the development. A comparative study of potential lift models will be undertaken and the lift with the lowest energy consumption specified. One lift is specified for the store, for access to the mezzanine staff area. Lift usage is expected to be infrequent. Credit Requirements: First Credit - Undertake an analysis of transport demand and patterns for the building to determine the optimum number and size of lifts and counterbalancing ratio on the basis of anticipated passenger demand. - 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. Second Credit - The first credit is achieved. - Of the following energy-efficient features, the three that offer the greatest potential energy saving are specified: a) The lifts operate in a stand-by mode during off-peak and idle periods. b) Where lift motors use a drive controller capable of variable-speed, variable-voltage, variable-frequency control of the drive motor. c) The lift has a regenerative unit so that energy generated by the lift is returned back to the grid or used elsewhere on site. d) The lift car uses energy-efficient lighting and display lighting.
Total Energy Credits		27	11												
Total Addition to Overall Score (%)		19	7.7												

Transport Each Credit is worth 0.62%															
Tra 1	Provision of Public Transport	5	1											•	Credit Status: One credit is targeted. The development is located on Ruthin Road, a main road to Wrexham town centre. There is a bus stop located within 50m of the store main entrance with a service frequency of 1 service per hour. In addition the TTHC Transport Assessment has identified several other bus stops on Bradley Road, Watery Road/Croesnewydd Road within 800m of the store main entrance, with bus services operating to Wrexham town centre and other destinations. One credit is anticipated for the purpose of this Pre-assessment but there may be potential to achieve more with the provision of further details of all bus stops/services in the vicinity of the store for input into the Tra 1 calculator. Credit Requirements: The public transport Accessibility Index for the building is calculated using the BREEAM Tra 1 calculator tool, based on the frequency of service and the transport node location.
Tra 2	Proximity to Amenities	1	1	•											Credit Status: This credit is targeted. There will be a cash machine and post box within the store. Credit Requirements: The development must be within 500m of the following amenities: - Grocery shop and/or food outlet - Post box - Cash machine
Tra 3	Cyclist Facilities	2	2	•	•										Credit Status: Both credits are targeted. Cycle storage racks and facilities for staff cyclists will be provided at the store in sufficient quantities/size/specification to meet the BREEAM requirements. <i>First Credit</i> Based on provisional figures of 467 customer car parking spaces and 80 staff per shift, a total of 32 compliant (covered, secure, well lit) cycle spaces are required (i.e. 24 for customers and 8 for staff). Race Cottam have specified bike lockers for the development and will consider options for providing further lockers/covered cycle racks to comply with the BREEAM requirements. <i>Second Credit</i> The development will have one shower, changing and locker facilities (1 for each member of staff) in the mezzanine staff area for use by staff cyclists. Compliance Requirements: <i>First Credit</i> - Provide cycle spaces for customers equivalent to 5% of customer car parking spaces (excluding parent + child and disables spaces). - Provide cycle spaces for staff equivalent to 10% of the number of FTEs. - Cycle racks must be secure, covered, well lit and in a prominent location. <i>Second Credit</i> At least two of the following compliant facilities must be provided for staff: - Showers (1 shower per 10 cycle spaces). - Changing facilities and lockers (1m2 changing area per shower (minimum 4m2). Number of lockers equivalent to the number of staff cycle spaces, sized at least 900mm x 300mm x 450mm). - Designated heated/ventilated drying space.
Tra 4	Pedestrian and Cyclist Safety	2	2	•											Credit Status: Both credits are targeted. The site will be designed to maximise pedestrian and cyclist safety. Onsite footpaths will connect to offsite footpaths, linking the store to local amenities and transport nodes via a safe pedestrian route. The site will not have cycle paths as cyclists are required to dismount at the site entrance (signage will guide them to the nearby cycle racks via the footpaths). Delivery access avoids car parking areas and other external areas used by building occupants. Credit Requirements: Measures implemented on site to provide safe and secure pedestrian and cyclist safety. Full compliance requirements available in the BREEAM Retail 2008 manual, these include: - Cycle paths and footpaths connect to offsite cycle and foot paths. - Drop-off areas are provided off-road. - Delivery areas are not accessed through the parking areas and do not cross or share pedestrian/cyclist routes and other outside amenity areas accessible to building users.

Credit Reference	Credit Name	Available Credits	Target Credits	Race Cottam Associates (Architect)	Morrisons (Client)	Mitton (Mechanical Engineer)	Pitts Wilson (Electrical Engineer)	Honeywell (Refrigeration Engineer)	Bowmer & Kirkland (Contractor)	Ecologist / Landscape Architect	Drainage Consultant	Acoustic Consultant	Transport Consultant	BSCP (Structural Engineer)	Credit Requirements and Status
Tra 5	Travel Plan	1	1	●									●		Credit Status: This credit is targeted. A travel plan is being developed for the site. The travel plan recommendations will steer the design of the development. Credit Requirements: Develop a travel plan tailored to the specific needs of the building users. The travel plan should cover the following: - Where relevant, existing travel patterns and opinions of existing building or site users towards cycling and walking so that constraints and opportunities can be identified. - Travel patterns and transport impact of future building users. - Current local environment for walkers and cyclists. - Disabled access. - Public transport links serving the site. - Current facilities for cyclists. The travel plan should include a package of measures that have been used to steer the design of the development in order to meet the travel plan objectives and minimise car-based travel patterns.
Tra 7	Travel Information Point	1	0												Credit Status: This credit is not targeted at present. Wrexham operated a real-time travel information system to which Morrisons could connect in order to provide real-time travel information (e.g. time of next bus due) to customers/staff. There will be an additional cost associated with provision of a real-time display in the store. Consequently this credit is not targeted at present, but could be considered if required at a later date to improve the BREEAM rating. Credit Requirements: - A real-time public transport information system is provided where building users can access up-to-date public transport information and plan their journey. - The system must be in a publicly accessible area with adequate signage at its point of use and throughout appropriate areas of the development indicating its purpose and location/existence.
Tra 8	Deliveries and Manoeuvring	1	1	●											Credit Status: This credit is targeted. Deliveries and manoeuvring areas are designed to facilitate ease of use, minimising congestion and the need for repeated shunting on the site. Delivery areas are not accessed through areas used by building occupants but via a dedicated separate entrance to the site. Credit Requirements: -Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting. - There is a separate parking area for waiting goods vehicles, away from the manoeuvring area and staff/visitor car parking. - Delivery areas are not accessed through parking areas and do not cross or share pedestrian and cyclist routes and other outside amenity areas accessible to building users and general public. - There is a dedicated space for the storage of refuse skips and pallets away from the delivery vehicle manoeuvring area and staff/visitor car parking.
Total Transport Credits		13	8												
Total Addition to Overall Score (%)		8	4.9												

Water Each Credit is worth 0.55%															
Wat 1	Water Consumption	3	3			●									It is a mandatory requirement for BREEAM 'Good', 'Very Good' and 'Excellent' to achieve at least one credit, and at least two credits for a BREEAM 'Outstanding' rating. Credit Status: Three credits are targeted. WCs with a 3l flush volume or delayed action inlet valve will be specified (1st and 2nd credit). Compliant timed auto shut-off taps and a low flow shower will be specified (3rd credit). Similar water-efficient sanitaryware is in use at other, recently developed Morrisons stores (e.g. Kidderminster and Illingworth). Credit Requirements: <i>First Credit</i> All WCs to have an effective flush volume of 4.5l of less. <i>Second Credit</i> - All WCs to have an effective flush volume of 3l or less, OR - All WCs compliant with the requirements for the first credit and fitted with a delayed action inlet valve. <i>Third Credit</i> Of the following, the two which offer the greatest possible reduction in annual water consumption are specified: - Taps have a max flow rate of less than 6l/min (for water pressure 0/3 MPa) OR are timed automatic shut-off / electronic sensor taps / low flow screw-down/lever taps / spray taps. - All showers have a flow rate not exceeding 9l/min (for water pressure 0.3MPa). - All urinals are fitted with individual presence detectors that operate the flushing control after each use, are ultra low flush, or waterless.
Wat 2	Water Meter - see innovation	1	1			●									It is a mandatory requirement for BREEAM 'Good', 'Very Good', 'Excellent' and 'Outstanding' to achieve this credit. Credit Status: This credit is targeted. A water meter will be installed on the mains water supply and monitored via the BMS. Credit Requirements: - Specify a water meter on the mains supply to the building. - The water meter must have a pulsed output to enable connection to a Building Management System (BMS).
Wat 3	Major Leak Detection	1	0												Credit Status: This credit is not targeted. A leak detection system does not form part of Morrisons standard store specification and will not be considered for the Wrexham development unless additional credits are required to achieved the required BREEAM 'Very Good' rating. Compliance Requirements: -Install a leak detection system capable of detecting major leaks on the water supply. The system must cover all mains water supply between and within the building and the site boundary. -The leak detection system must be: - Audible when activated. - Activated when the flow of water passes through the water meter/data logger at a flow rate above a pre-set minimum for a pre-set period of time. - Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods. - Programmable to suit the owner/occupiers' water consumption requirements. - Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers.
Wat 4	Sanitary Supply Shut Off	1	0												Credit Status: This credit is not targeted. A sanitary supply shut off system does not form part of Morrisons standard store specification and will not be considered for the Wrexham development unless additional credits are required to achieved the required BREEAM 'Very Good' rating. Compliance Requirements: - Install solenoid valves 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.

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Wat 5	Water Recycling	2	2		●	●									Credit Status: These credits are targeted. A rainwater harvesting system will be specified for the store. Credit Requirements: This credit can be achieved via the specification of either a rainwater or greywater collection system (or a combined rainwater and greywater collection system). <i>Rainwater</i> Rainwater collection tank to be sized to collect at least 50% of the total predicted rainwater run-off from the roof, OR 50% of the rainwater run-off required to meet the total predicted flushing demand (for the defined period of collection). <i>Greywater</i> Waste water from wash hand basins and showers is collected from ≥80% of fittings and recycled to meet park (min 10%) or the total of WC/urinal flushing demand within the building. <i>Combined</i> A combination of waste water and rainwater collection that meets at least 50% of the total predicted rainwater run-off from the roof, OR 50% of the rainwater run-off required to meet the total predicted flushing demand (for the defined period of collection).
Wat 6	Irrigation Systems	1	1	●											Credit Status: This credit is targeted as no dedicated mains irrigation is proposed for the development. Credit Requirements: Irrigation method specified for internal or external planting and/or landscaping complies with any one of the following: - Drip feed subsurface irrigation with soil moisture sensors. - Reclaimed water from rainwater or greywater system. - Precipitation irrigation only. - Only planting specified is species that thrive in hot and dry conditions. - No dedicated mains-supplied irrigation system.
Wat 7	Vehicle Wash	2	2	●		●									Credit Status: These credits are targeted. The vehicle wash specified will automatically reclaim and recycle water. Credit Requirements: The vehicle washing system reclaims and recycles water that falls on, and drains off from, the vehicle pad. The reclaim system must be fully automatic.
Total Water Credits		11	9												
Total Addition to Overall Score (%)		6	4.9												

Materials Each Credit is worth 0.96%															
Mat 1	Materials Specification (Major Building Elements) - see innovation	4	1	●											Credit Status: One credit is targeted at present. Race Cottam will specify materials which are highly rated in the Green Guide to Specification wherever possible. There may be potential to achieve further credits, to be confirmed once the material specifications for the store have been finalised. Credit Requirements: Ratings allocated for the following building elements according to the Green Guide to Specification 2008 (available at www.thegreenguide.org.uk): - External walls - Windows - Roof - Upper floor slab - Internal walls - Floor finishes / covering. The number of credits awarded depends on the combined rating of each of the building elements and is calculated using the BREEAM Mat 1 calculator tool.
Mat 2	Hard Landscaping and Boundary Protection	1	1	●					●						Credit Status: This credit is targeted. A majority of the hard landscaping would consist of tarmac. Tarmac achieves a Green Guide A+ rating if it has a recycled sub-base (otherwise it is B rated). Demolition material from the existing buildings occupying the site could be used as a recycled sub-base for the tarmac. Race Cottam commented that there will not be large amounts of demolition material on the site and therefore recycled aggregate for the sub-base may also be required to be sourced from elsewhere to provide the required volume. Credit Requirements: At least 80% of all external hard landscaping and boundary protection (by area) must achieve an A or A+ rating, as defined in the Green Guide to Specification 2008.
Mat 3	Reuse of Building Façade	1	0												Credit Status: This credit cannot be achieved as the building is a new build with no reuse of façade. Credit Requirements: - At least 50% of the total final building façade (by area) is reused. - At least 80% of the reused façade (by mass) comprises in-situ reused material.
Mat 4	Reuse of Building Structure	1	0												Credit Status: This credit cannot be achieved as the building is a new build with no reuse of structure. Credit Requirements: - Where at least 80% by volume of an existing primary structure is reused without significant strengthening or alteration works. - Where a project is part refurbishment and part new build, the reused structure comprises at least 50% by volume of the final building, i.e. any new-build extension to a building being refurbished should not be larger than the original building to qualify for this credit.
Mat 5	Responsible Sourcing of Materials - see innovation	3	0												Credit Status: This credit is not targeted. The credit requirements have previously proved arduous to achieve as they require the contractor to obtain confirmation of responsible sourcing (EMS certificates, FSC, CoC etc.) for the materials used in the major building elements. The relevant evidence is not always easily obtainable from manufacturers. However, these credits could potentially be sought if required to improve the BREEAM score and achieve the target 'Very Good' rating. Credit Requirements: Demonstrate that 80% of the assessed materials in the following building elements are responsibly sourced (e.g. EMS certified, FSC timber etc.): - Structural frame - Ground floor - Upper floors (including separating floors) - Roof - External walls - Internal walls - Foundation/substructure - Staircase

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Mat 6	Insulation	2	2	●		●		●							Credit Status: Two credits are targeted. Insulants for both the building fabric and building services will be specified with consideration for their thermal properties and Green Guide rating (1st credit). Confirmation that the insulants are responsibly sourced will be obtained from the suppliers of each insulant specified (2nd credit). Credit Requirements: <i>First Credit:</i> Insulation with a low embodied impact relative to their thermal properties will be specified (the Green Guide to Specification 2008 should be used to specify insulants with a low embodied impact). <i>Second Credit:</i> Insulation products will be obtained from environmentally sustainable sources (e.g. manufacturer's processes EMS certified). Credits are awarded based on the thermal properties of the insulation (insulation index) relevant to the embodied impact (Green Guide rating). Insulants specified in the following building elements must be assessed: - External walls - Ground floor - Roof - Building services The number of credits achieved is calculated using the BREEAM Mat 5 calculator tool. Parameters required are as follows: - Green Guide rating of the insulant (www.thegreenguide.org.uk) - Total area (m2) of insulant - Thermal insulation thickness (mm) - Thermal conductivity (W/mK).
Mat 7	Designing for Robustness	1	1	●											Credit Status: This credit is targeted. Vulnerable parts of the building (internal and external) will be identified and adequately protected. Credit Requirements: - Identify internal and external areas of the building where vehicular, trolley and pedestrian movement occurs. - Specify suitable durability and protection measures or design features to prevent damage to the vulnerable parts of the building. e.g. bollards to protect from vehicles, kick plates on doors, hard wearing and washable floors.

Total Materials Credits	13	5
Total Addition to Overall Score (%)	12.5	4.8

Waste Each Credit is worth 0.94%																														
Wst 1	Construction Site Waste Management - see innovation	4	2												Credit Status: Two credits are targeted. It is likely that non-hazardous site waste can be limited to ≤16.6m3/8.5 tonnes per 100m² gross internal floor area. Bowmer & Kirkland will be required to implement reuse/recycling measures which result in at least 75% of non-hazardous construction waste diverted from landfill. Credit Requirements: <i>Up to three credits</i> available where evidence demonstrates that the amount of non-hazardous construction waste (m3/100m2 floor area) generated on site by the development is the same as or better than good/best practice levels (see table below). Requires production of a Site Waste Management Plan (SWMP). <table><tr><th colspan="3">Amount of waste generated per 100m² (gross internal floor area)</th></tr><tr><th>BREEAM credits</th><th>m³</th><th>tonnes</th></tr><tr><td>One credit</td><td>13.0 - 16.6</td><td>6.6 - 8.5</td></tr><tr><td>Two credits</td><td>9.2 – 12.9</td><td>4.7 - 6.5</td></tr><tr><td>Three credits</td><td><9.2</td><td><4.7</td></tr></table> * Volume (m³) is actual volume of waste (not bulk volume) <i>One additional credit</i> available where at least 75% by weight, or 65% by volume, of non-hazardous construction waste (excluding excavation/demolition waste) generated by the project has been diverted from landfill and either: - Reused on site (in-situ for new applications) - Reused for other sites - Salvaged/reclaimed for reuse - Returned to the supplier via a 'take-back' scheme - Recovered from site by an approved waste management contractor and recycled.	Amount of waste generated per 100m² (gross internal floor area)			BREEAM credits	m³	tonnes	One credit	13.0 - 16.6	6.6 - 8.5	Two credits	9.2 – 12.9	4.7 - 6.5	Three credits	<9.2	<4.7
Amount of waste generated per 100m² (gross internal floor area)																														
BREEAM credits	m³	tonnes																												
One credit	13.0 - 16.6	6.6 - 8.5																												
Two credits	9.2 – 12.9	4.7 - 6.5																												
Three credits	<9.2	<4.7																												
Wst 2	Recycled Aggregates	1	0												Credit Status: This credit is not targeted. Demolition material from the existing buildings on site can be reused on site for high-grade aggregate uses. However it is unlikely that site demolition aggregate will be available in sufficient quantities to constitute 25% of high-grade aggregate use on site. Bowmer & Kirkland to advise on the potential for sourcing recycled aggregate within a 30km radius of the site in order to meet the credit requirements. Compliance Requirements: The amount of recycled and secondary aggregate specified is over 25% (by weight or volume) of the total high-grade aggregate uses for the building. Such aggregates can be either: - Obtained on site - Obtained from waste processing site(s) within a 30km radius of the site; the source will be principally from construction, demolition and excavation waste - Secondary aggregates obtained from a non-construction post-consumer or post-industrial by-product source (e.g. tyres, recycled plastics, colliery spoil).															
Wst 3	Recyclable Waste Storage	1	1												It is a mandatory requirement for BREEAM 'Excellent' and 'Outstanding' to achieve this credit. Credit Requirements: This credit is targeted. Morrisons have achieved this credit on previous BREEAM assessments through provision of a dedicated storage space for recyclables and sufficient space will also be provided at Morrisons Wrexham Compliance Requirements: - Provide a dedicated storage space to cater for the volume of recyclable materials generated by the retailer(s) during operation. - The dedicated space must cater for the separation and storage of a minimum of 6 different types of recyclable materials, these may include paper, cardboard, plastics, packaging, glass, metals, batteries, timber, florescent lamps, vegetable oils, mineral oils, food waste. - The dedicated space should be clearly labelled for recycling and sized according to predicted volumes of waste it will cater for.															
Wst 4	Compactor / Baler	1	1												Credit Status: This credit is targeted. Morrisons have achieved this credit on previous BREEAM assessments through the specification of a compactor/baler in the store and a compactor/bailer (+ water supply) will also be provided at Morrisons Wrexham. Compliance Requirements: - Install a static waste compactor or baler in a service area or dedicated waste management space. - Provide at least one water outlet for each waste sorting and/or storage facility. Note: Credit Wst 3 must be achieved as a pre-requisite to achieving this credit.															
Wst 5	Composting	1	0												Credit Status: This credit is not targeted. There is no intention to separate and store organic waste for composting on the site at Morrisons Wrexham. Compliance Requirements: - Provide a vessel on site composting suitable food waste and composted organic materials. - Ensure there is adequate space for storing segregated food waste and composted organic materials. - Provide at least one water outlet for cleaning in and around the facility.															
Total Waste Credits		8	4																											
Total Addition to Overall Score (%)		7.5	3.8																											

Total Waste Credits	8	4
Total Addition to Overall Score (%)	7.5	3.8

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Land Use & Ecology Each Credit is worth 1%															
LE1	Reuse of Land	1	1												Credit Status: This credit is targeted. The development is located on land previously developed as industrial and office buildings (south-western section) and a dismantled railway line and junction (northern and eastern sections). Credit Requirements: At least 75% of the proposed development's footprint is on an area of land which has previously been developed for use by industrial, commercial or domestic purposes in the last 50 years.
LE2	Contaminated Land	1	1	●											Credit Status: This credit is targeted. Initial site investigation reports suggest that the site is significantly contaminated due to its previous use as a railway siding. Credit Requirements: - The site has been confirmed by a contaminated land specialist as significantly contaminate. - The client or contractor confirms that the remediation of the site will be carried out in accordance with the remediation strategy and its implementation plan.
LE3	Ecological Value of Site & Protection of Ecological Features	1	0												Credit Status: This credit is unlikely to be achieved. Smeeden Foreman report "Habitat Survey & Protected Species Assessment" confirm that the grassland habitat established in the north and east of the site are considered to be of ecological value. Compliance Requirements: - The site is defined as 'low ecological value' based either on completion of the BREEAM Eco 4 checklist, or on the recommendation of an ecologist. - All existing features of ecological value surrounding the construction zone and site boundary area are adequately protected from damage during clearance, site preparation and construction activities.
LE4	Mitigating Ecological Impact	2	2							●					It is a mandatory requirement for BREEAM 'Very Good', 'Excellent' and 'Outstanding' to achieve at least one credit. Credit Status: Two credits are targeted. Smeeden Foreman's report "Habitat Survey & Protected Species Assessment" includes an assessment of the existing site species and recommendations for protection and enhancement of ecological value as part of the Morrisons Wrexham development works. Morrisons will appoint a landscape architect to develop a landscaping strategy for the site which ensures that the post construction ecological value is no less than the ecological value pre construction. Credit Requirements: <i>One Credit</i> - The change in ecological value of the site is less than zero and equal to or greater than minus nine plant species i.e. a minimal change. <i>Two Credits</i> - The change in ecological value of the site is equal to or greater than zero plant species i.e. no negative change. Details regarding the vegetation present on site prior to development and proposed vegetation post-development (and associated areas, m2) is required to be provided. The pre and post construction ecological value is expressed as an area weighted average, calculated using the BREEAM LE4 Calculator tool.
LE5	Enhancing Site Ecology	3	2							●					Credit Status: Two credits are targeted. Smeeden Foreman's report "Habitat Survey & Protected Species Assessment" includes an assessment of the existing site species and recommendations for protection and enhancement of ecological value as part of the Morrisons Wrexham development works. Morrisons will appoint a landscape architect to develop a landscaping strategy for the site which ensures that there is an enhancement in h ecological value of the site of up to 6 species. Credit Requirements: <i>First Credit:</i> - A suitably qualified ecologist has been appointed to report on enhancing and protecting the ecology of the site. - The general recommendations of the ecology report for enhancement and protection of site ecology have been/will be implemented. <i>Second Credit:</i> - The first credit must have been achieved. - The recommendations of the ecology report have been implemented to achieve an increase in ecological value of the site of up to (but not including) 6 species. <i>Third Credit:</i> - The first credit must have been achieved. - The recommendations of the ecology report have been implemented to achieve an increase in ecological value of the site of 6 species or greater. Please note: In order to achieve this credit, a suitably qualified ecologist (as defined by BREEAM) must be appointed, and have undertaken a site survey, prior to any works on site in order to establish the baseline ecological conditions. Increase in ecological value is based on pre and post construction actual species numbers provided by the ecologist and calculated as an area weighted average using the BREEAM LE5 Calculator tool.
LE6	Long Term Impact on Biodiversity	2	1							●	●				Credit Status: One credit is targeted for compliance with all mandatory requirements and at least two additional requirements. A suitably qualified ecologist will be appointed by Morrisons to produce a five year management plan for the site landscaping. It is likely that Bowmer & Kirkland can implement at least two of the additional requirements (vegetation protection forms part of the planning conditions). Mandatory Requirements: Morrisons will appoint an ecologist to produce a five year management plan for the site. The ecologist will advise on relevant EU/UK legislation relating to ecology which must be complied with during site works. Additional credits: The contractor will be required to comply with at least two of the additional requirements. Requirement to be included in the contractor prelims. Compliance Requirements: <u>First Credit</u> Achieve the mandatory requirements plus at least 2 of the additional requirements. <u>Second Credit</u> Achieve the mandatory requirements plus at least four of the additional requirements. Mandatory Requirements: - Landscape and habitat management plan (covering the first five years post construction) is produced by the suitably qualified ecologist. - Suitably qualified ecologist confirms that all relevant UK and EU legislation relating to the protection and enhancement of ecology will be complied with. Additional Requirements: - Contractor nominates a 'Biodiversity Champion' responsible for ensuring the protection of site ecology during construction in line with the ecologist's recommendations. - Contractor trains site workforce in the protection of site ecology during construction. - Contractor records actions taken to protect biodiversity and monitor their effectiveness through construction. - A new ecologically valuable habitat, appropriate to the local area, is created. - Contractor programmes site works to minimise disturbance to wildlife.
Total Land Use & Ecology Credits				10	7										
Total Addition to Overall Score (%)				10	7.0										

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Pollution															
Each Credit is worth 0.77%															
Pol 1	Refrigerant GWP - Building Services	1	1												Credit Status: This credit is targeted. It is proposed that CO2 refrigeration (GWP: 0) will be used for Morrisons Wrexham building services. Credit Requirements: The refrigerant used within the building services has a GWP of less than 5.
Pol 2	Preventing Refrigerant Leaks	2	1					●							Credit Status: One credit is targeted for the specification of a refrigerant leak detection system. The second credit is not targeted as there is no automatic shutdown/pump down system specified. Credit Requirements: <i>First Credit</i> - Systems using refrigerants are contained in a moderately air tight enclosure (or a mechanically ventilated plant room), and a refrigerant leak detection system is installed covering high-risk parts of the plant. OR - An automatic permanent refrigerant leak detection system is specified which is NOT based on the principle of detecting or measuring the concentration of refrigerant in air. <i>Second Credit</i> - Automatic shutdown and pump down of refrigerant occurs on the detection of high concentrations of refrigerants in the plant room/enclosure.
Pol 3	Refrigerant GWP - Cold Storage	1	1					●							Credit Status: This credit is targeted. It is proposed that CO2 refrigeration (GWP: 0) will be used for Morrisons Wrexham cold storage. Credit Requirements: The refrigerant used within the cold storage systems have a GWP of less than 5.
Pol 4	NOx Emissions from Heating Source	3	3			●									Credit Status: Three credits are targeted. Gas boilers with NOx emissions ≤40 mg/kWh will be specified for the development. Credit Requirements: <i>First Credit</i> Dry NOx emissions from delivered space heating energy are ≤100 mg/kWh (at 0% excess O2). <i>Second Credit</i> Dry NOx emissions from delivered space heating energy are ≤70 mg/kWh (at 0% excess O2). <i>Third Credit</i> Dry NOx emissions from delivered space heating energy are ≤40 mg/kWh (at 0% excess O2).
Pol 5	Flood Risk	3	2								●			●	Credit Status: Two credits are targeted. The BSCP report "Flood Risk Assessment and Drainage Strategy Statement" confirms that some areas of the site fall within an area defined as having a high probability of flooding. Some areas of the site are located in an area defined as having a medium probability of flooding. Correspondence with the Environment Agency (included in the BSCP report) confirms that the site should be defined as having a medium probability of flooding. The report confirms that access to the development will be sufficiently elevated above the design flood level. The BSCP report confirms that SUDs will be specified for the site to ensure that the peak run-off rate from the site to the watercourses is no greater from the developed site than it was for the pre-developed site. Credit Requirements: ● 2 credits - Where the assessed development is situated in a flood zone that is defined as having a low annual probability of flooding. 1 credit - Where the assessed development is situated in a flood zone that is defined as having a medium or high probability of flooding, AND A site specific Flood Risk Assessment confirms to the satisfaction of the local authority and statutory body that the development is appropriately floor resilient from all sources of flooding, AND The ground level of the building, and access to it and the site, are designed (or zoned) so they are at least 600mm above the design flood level of the flood zone in which the assessed development is located. One additional credit- Where attenuation measures are specified to ensure that the peak run-off rate from the site to the watercourses (natural or municipal) is no greater from the developed site than it was for the pre-developed site.
Pol 6	Minimising Watercourse Pollution	1	1	●							●				Credit Status: This credit is targeted. Treatment measures (e.g. Petrol interceptors for car parking areas) will be specified on the site in order to reduce the potential for pollution of natural watercourses from buildings/hard surfaces. Credit Requirements: Specification of appropriate on site treatment in areas that could be potential sources of watercourse pollution (e.g. car parks, roads, areas where goods vehicles are parked or manoeuvred). Measures could include permeable surfaces, infiltration trenches, oil/petrol separators.
Pol 7	Reduction of Night Time Light Pollution	1	1				●								Credit Status: This credit is targeted. External lighting systems will be designed to minimise night time light pollution in line with the ILE Guidance notes. Lighting will be capable of being automatically switched off during 2300-0700 (controlled via the Trend system). Security lighting to be used between 2300-0700 will comply with the lower levels of lighting recommended in Table 1 of the ILE Guidance's notes. Credit Requirements: - External lighting strategy designed to comply with Table 1 (and accompanying notes) of the ILE Guidance notes for the reduction of obtrusive light, 2005. - All external lighting (except safety and security lighting) can be automatically switched off between 2300hrs and 0700hrs. - If safety and security lighting is provided and will be used between 2300hrs and 0700hrs, it complies with the lower levels of lighting recommended during these hours in Table 1 of the ILE's Guidance notes. - Illuminated advertisements, where specified, must be designed in compliance with ILE Technical Report 5 - The Brightness of Illuminated Advertisements.
Pol 8	Noise Attenuation	1	1									●			Credit Status: This credit is targeted. A noise impact assessment will be undertaken for the development (as required for planning). Any necessary remediation measures will be implemented to ensure that the new development does not give rise to additional excess noise. This is also a planning condition for the development. Credit Requirements: - Suitably qualified acoustic consultant to undertake a noise impact assessment in accordance with BS 4142:1997. Assessment to consider the existing background noise levels and the noise levels resulting from the new development. - Where the rating level of the noise sources from the building is greater than the background noise level, measures have been installed to attenuate the noise at its sources to levels less than the background noise level.
Total Pollution Credits		13	11												
Total Addition to Overall Score (%)		10	8.5												

Credit Reference	Credit Name	Available Credits	Target Credits	Race Cottam Associates (Architect)	Morrisons (Client)	Mitton (Mechanical Engineer)	Pitts Wilson (Electrical Engineer)	Honeywell (Refrigeration Engineer)	Bowmer & Kirkland (Contractor)	Ecologist / Landscape Architect	Drainage Consultant	Acoustic Consultant	Transport Consultant	BSCP (Structural Engineer)	Credit Requirements and Status
Innovation															
Innovation	Exemplary Performance / BRE-approved Innovation features	10	0												Credit Status: Currently no innovation credits are proposed for innovative sustainable features of the building or exemplary performance (above BREEAM credit requirements). The project team are encouraged to consider options for exemplary performance and innovative features which could be proposed to the BRE to achieve an innovation credit. The BREEAM assessor will further discuss potential options for achieving innovation credits with the design team at the onset of the BREEAM Design & Procurement assessment. Credit Requirements: Application is made to the BRE to have a particular building feature, system or process recognised as 'innovative'. If the application is successful an Innovation Credit can be awarded. One Innovation Credit is awarded per innovative feature. The maximum number of Innovation Credits achievable per BREEAM assessment (for both exemplary level performance and innovative design) is 10.

Total Innovation Credits

10

0

Total Target Score	59.53	Very Good
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Pass	30%
Good	45%
Very Good	55%
Excellent	70%
Outstanding	85%