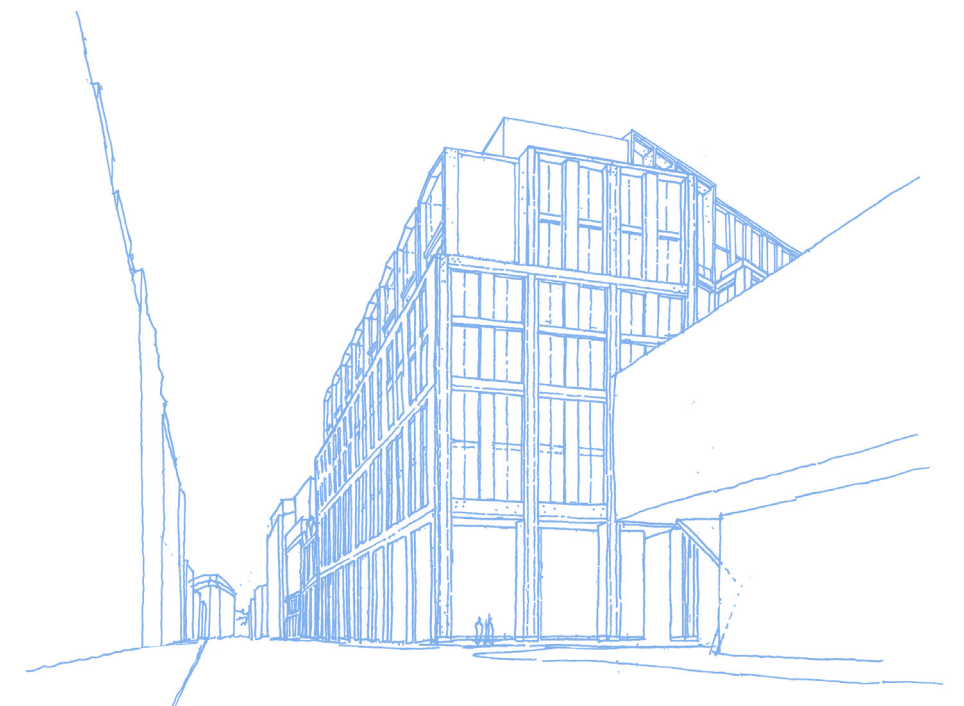


Prepared by GDM Partnership  
On behalf of Royal London Mutual Insurance Society

# Sustainability Statement

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Castlewood House & Medius House, WC1A



January 2017

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## 1 EXECUTIVE SUMMARY

This report is the Sustainability Statement prepared on behalf of Royal London Mutual Insurance Society and submitted in support of the planning application for the development.

This Sustainability Statement provides details of the sustainable design and construction measures which have been adopted in the proposed design of the scheme.

The design of the building has followed the energy hierarchy in order to reduce overall carbon dioxide emissions. A combination of passive design and energy efficiency measures, and inclusion of suitable renewable solutions are proposed which result in a 23.7% reduction in emissions beyond Part L 2013 from the new construction of Castlewood House, and considerable emission reductions as a result of the change of use of Medius House from the inefficient existing commercial state to a refurbished (and extended) residential scheme.

The use of potable water will be reduced through the use of low flow fixtures and fittings.

Due to the anticipated ground conditions and presence of underlying clay beds below the site, the opportunity for implementing on-site SuDS infiltration systems to dispose of surface water are extremely unlikely, therefore surface water attenuation will be at roof level and will comprise a blue roofing solution, these arrangements being located at the terrace levels of the building and on the upper roof levels(s) to manage storm water flows at source.

From the outset, the design team has sought to retain as much of the existing buildings on site as possible. Early studies looked at the retention and extension of the Castlewood House building, but inherent limitations in the structural grid, floor to floor heights and core arrangement of the existing building proved to significantly compromise the scheme.

However, effort has been made to retain and extend as much of the existing Medius House building fabric as feasible.

## 2 DESCRIPTION OF DEVELOPMENT

Demolition of the existing building, at Castlewood House, and construction of a replacement ten storey mixed use building, plus ground and two basement levels, including the provision of retail (Class A1 and/or A3) and office (Class B1) floor space. External alterations to Medius House including partial demolition, retention of the existing façade and two floor extension to provide 20 residential units (Class C3), together with associated highway improvements, public realm, landscaping, vehicular and cycle parking, bin storage and other associated works.

## 3 APPROACH TO SUSTAINABILITY

This document sets out the design teams approach towards making the scheme a sustainable development, and consists of assessments in the following areas:-

- Energy
- Water
- Materials and Waste
- Managing Existing Resources
- Green Guide to Specification
- Sustainability Tools
- Biodiversity
- Flooding and Drainage
- Pollution and Construction Impacts

## 4 ENERGY

### 4.1.1 Background

London Borough of Camden (LBC) Carbon Management Plan requirements are aligned with those set out in the London Plan.

The energy strategy will be developed in accordance with requirements of the London Plan and specifically the GLA Energy Team's Guidance Note 'Guidance on Preparing Energy Statements', March 2016.

Policies within Chapter 5 of the London Plan (March 2016) set out relevant design and climate change adaptation policies relating to developments, and establish expectations for applicant's commitments in terms of CO2 savings and measures proposed.

As required by the GLA's Guidance, after establishing the baseline energy demand and profile for the site, the strategy for the project will follow the Mayor's Energy Hierarchy in appraising appropriate measures to reduce carbon emissions and other climate impacts from the development:

- Use Less Energy - 'Be Lean'
- Supply Energy Efficiently - 'Be Clean'
- Use Renewable Energy - 'Be Green'

The planning application is 'full' and, accordingly, the energy assessment is based on dynamic simulation modelling using software approved for the use in Building Regulations Energy Performance Calculations.

The London Plan policy 5.2 requires targeting a saving of 35% regulated carbon savings against a 2013 compliant building, this report therefore demonstrates how the development performs in that regard.

4.1.2 The Energy Hierarchy

The Mayor's Energy Hierarchy is central to the climate change policies. The stages of the hierarchy are:

- Use Less Energy/Reduce Demand- 'Be Lean'
- Reduce use through behaviour change
- Improve insulation
- Incorporate passive heating and cooling
- Install energy efficient lighting and appliances
- Supply Energy Efficiently - 'Be Clean'
- Use CHP and community heating and/or cooling
- Cut transmission losses through local generation
- Use Renewable Energy - 'Be Green'
- Install renewables on site
- Import renewable energy

4.1.3 Energy Statement

GDM have provided a separate Energy Statement which demonstrates that the above processes have been applied to the energy assessment for the development.

Reference should be made to the Energy Statement, however, in summary the Energy Statement concludes that the energy efficiency measures contained within the Castlewood House proposal include: improved fabric insulation; improved air tightness; high efficiency fans; high efficiency heating and cooling plant, heat recovery on ventilation systems and high efficiency lighting with daylight control. This will ensure the development achieves Part L 2013 compliance through energy efficiency measures alone.

The London Heat Map has been utilised to check if the development can connect into an existing distribution network. However currently there are no existing or proposed heat distribution networks in the vicinity and as such this option has been disregarded.

CHP engines are not viable for developments of this nature due to the low annual heating demand and there being no significant background heat demand during the summer. The viability of CHP would be marginally increased were it to serve both Castlewood and Medius House, this is as a result of mixing two different heat load profiles. However, as discussed at the pre-app meeting with the GLA, the fact that the Castlewood and Medius buildings are separated by another building under

separate ownership, it would not be practicable to install the necessary linking pipework, in view of the marginal benefit gained were they to be linked. As such we do not propose to utilise CHP. This combined with the lack of a district heating scheme means that clean measures for this development are not viable. It should therefore be noted that the carbon emissions at the end of the 'Be Clean' stage are identical to those being at the end of the 'Be Lean' with no further improvements achieved.

Photovoltaic collectors are compatible with the proposed building services solution albeit there is limited space available on the roof of Castlewood House only. With this in mind the extent of the PV array has been restricted to an area of 79m<sup>2</sup>, with these being mounted directly above the mechanical plant room at Level 10.

The Medius House proposal includes energy efficiency measures to the refurbished parts, consisting of improvements to the thermal elements through the installation of new windows, and additional thermal insulation to external walls and roofs. A new central gas fired boiler plant will introduce greater efficiency than the current installation. These energy efficiency measures will achieve carbon savings beyond compliance with Building Regulations Part L1A.

The GLA have requested that the energy statement assesses the development on a site wide basis, i.e. including Castlewood House, and Medius House (both new and refurbished parts) with a view to achieving the target carbon emission savings of 35% beyond Part L 2013 compliance.

The energy statement illustrates a number of scenarios; Castlewood House in isolation, Castlewood House and Medius House (new and refurbished parts), and Castlewood House and Medius House new build elements only, descriptions for which would be

- Castlewood House in isolation – An assessment of carbon emission reductions based on the construction of Castlewood House only.
- Castlewood House and Medius House (new and refurbished parts) – An assessment of carbon emission reductions for the whole development, including improvements to the existing Medius House fabric, and change of use from commercial office to residential.
- Castlewood House and Medius House (new build elements only) – An assessment of carbon emission reductions for the new elements of the development.

The purpose of providing the above illustrations is to be transparent, offering the performance of parts of the development in differing scenarios.

Reference should be made to GDM's separate Energy Statement.

The following tables illustrate the results for each of those scenarios:-

**CASTLEWOOD HOUSE IN ISOLATION**

GLA Table 4: Carbon Dioxide Emissions from each stage of the Energy Hierarchy		
Castlewood House	Carbon dioxide savings (Tonnes CO <sub>2</sub> per annum)	Carbon dioxide savings (%)
Be Lean	111.8	22.9
Be Clean	-	0.0
Be Green	3.7	0.8
Total cumulative savings	115.5	23.7

The above table indicates a 23.7% carbon dioxide reduction, as a result of the proposed Lean, Clean, and Green measures applied to Castlewood House only.

**CASTLEWOOD HOUSE AND MEDIUS HOUSE (NEW AND REFURBISHED PARTS)**

	Total Regulated Emissions (Tonnes Co2/year)	Co2 Savings (Tonnes Co2/year)	Percentage Saving (%)
Baseline	1495.33		
Be Lean	702.31	793.02	53.03
Be Clean	702.31	0.00	0.00
Be Green	698.65	3.67	0.25
Total cumulative savings		796.69	53.28

The above table indicates a 53.28% carbon dioxide reduction as a result of the proposed Lean, Clean, and Green measures applied to the whole development, including improvements made to the performance of the existing parts of Medius House, and as a result of the change of use from commercial to residential. It is apparent that the relative poor performance of Medius House in its existing form, which is not compliant with any current Part L regulations (noting that there is a

requirement to demonstrate a baseline Part L compliance prior to applying and Lean, Clean, or Green Measures), it could be considered that there is some distortion to the development wide results.

**CASTLEWOOD HOUSE AND MEDIUS HOUSE (NEW BUILD ELEMENTS ONLY)**

	Total Regulated Emissions (Tonnes Co2/year)	Co2 Savings (Tonnes Co2/year)	Percentage Saving (%)
Baseline	496.69		
Be Lean	384.48	112.21	22.59
Be Clean	384.48	0.00	0.00
Be Green	380.81	3.67	0.74
Total cumulative savings		115.88	23.33
		<b>Co2 Savings Off-Set (Tonnes CO2)</b>	
Off-Set		1916.53	

The above table indicates a 23.3% carbon dioxide reduction for the parts of the development that have a “baseline” that is compliant with current Part L regulations, i.e. the new build elements only.

**5 WATER**

London Plan policy 5.15, Camden's Core Strategy policy CS13 and Development policy DP23 require developments to be designed to be water efficient and to minimise the need for further water infrastructure.

Any water fittings within the development will be specified to be as water efficient as possible in order to reduce the consumption of potable water.

The incoming water supplies to both Castlewood House and Medius House will have water metering which will incorporate a means for detecting any major leaks on the incoming mains supplies.

The design for the commercial parts of the building will allow for the potential for multiple tenancy on each floor, and will provide a dedicated water meter on supplies for any future tenant's tea points. These water meters will be linked to the buildings BMS system.

Toilet and shower facilities within the commercial offices, and the basement areas will be fitted with automatic shut-off valves linked to presence detectors to shut off the water supply when areas are unoccupied in order to prevent minor leaks.



## 6 MATERIALS AND WASTE

London Plan policy 5.16 aims to minimise waste generation and encourage the reuse, recycling/composting and reduction in the use of materials. In addition, policy 5.17 states that developments should include suitable waste and recycling storage facilities. Furthermore, policy 5.20 sets targets for, and encourages the recycling or reuse of construction, demolition and excavation waste.

Camden's sustainability policies include Core Strategy policies CS13 and CS18 which seek to reduce waste and encourage recycling.

CPG3 further sets out key measures for sustainable material use in developments:

- Managing existing resources
- Specifying materials using the BRE's Green Guide to Specification
- Ensuring that materials are responsibly sourced
- Minimising the harmful effects of some materials on human health
- Ensuring that specified materials are robust and sensitive to the building type and age

The below paragraphs set out the design team's approach to meeting the aspirations of the above policies.

### 6.1 Managing existing resources

From the outset, the design team has sought to retain as much of the existing buildings on site as possible. Early studies looked at the retention and extension of the Castlewood House building, but inherent limitations in the structural grid, floor to floor heights and core arrangement of the existing building proved to significantly compromise the scheme.

However, effort has been made to retain and extend as much of the existing Medius House building fabric as feasible.

#### Structure

Structural design good practice is focused towards minimising the quantity of construction materials used while providing safe and economic building. Areas considered in this stage of design targeting environmental and economic benefits include:

##### Reuse of Structure

Although the majority of the existing structures are to be demolished, it is proposed to retain the existing Medius House façade and reuse the existing basement walls of both Medius and Castlewood House buildings to provide earth retention in the temporary case during construction, minimising the requirement for new materials to form temporary retention systems.

##### Reuse of Demolition Materials

With the demolition of a concrete frame on site, there is the potential to reuse some of the materials in non-critical areas. The material with the greatest potential for reuse on this site is the aggregate

within the concrete, potentially to high percentages in piling mats, trench fill or low-grade structural applications. Guidance for assessment of the issues surrounding re-use includes:

- Verifying the characteristics of the existing materials.
- Processing the materials.
- Suitable applications on site.
- Cost.
- Accommodating storage of materials on site.

##### Secondary Aggregates and Cement Replacement

Generally speaking high quantities of recycled aggregates are only used in structurally non-critical areas such as mass concrete, but there is some potential for use of up to 25% recycled aggregates in structural concrete, provided the necessary precautions are taken. When using recycled aggregates, care must be taken to ensure that they are of suitable quality, and are not contaminated in a way that could threaten the new concrete. Testing of the reused aggregates would be needed throughout the project to ensure that the aggregates were being correctly prepared. Some sources also suggest that concrete containing recycled aggregates is less stiff than that without, so care would have to be taken to ensure that the structural performance of the building was not being impaired.

On this project, we suggest the investigation of the potential use of up to 25% recycled aggregates, in normal weight concrete only, provided that the quality of the recycled aggregates can be guaranteed. To ensure that the concrete strength was not being impaired by the use of recycled aggregates, increased material testing regimes would be required, both prior to, and during construction.

The potential use of lightweight aggregates will also be explored for the Castlewood House superstructure concrete slabs. These can be used to reduce column and foundation loads, and can also be considered secondary aggregates, contributing towards replacement of virgin aggregate in the concrete.

The reduction of cement content in the concrete is commonplace, and the quantity can be reduced by as much as 50%, through the substitution of Granulated Ground Blast-furnace Slag (GGBS) or Pulverised Fuel Ash (PFA) in the place of cement. We recommend the consideration of 50% GGBS cement replacement in the superstructure. It should be noted that cement replacement can have some effects on the concrete, such as increased curing time and altered appearance and so early liaison with a contractor is essential to ensure the viability.

##### Future Reuse and Recycling

The new build Castlewood House is a concrete and steel building with good credentials for reuse of superstructure. Generally, steel is accepted as very good for recycling. Potential for future recycling could be improved by incorporating material records into the as built drawings, and by CE ("Conformité Européenne") of all steelwork, which is now a legal requirement. Minimising encasement of steel structures and using bolted rather than site welded connections would ease dismantling.

### 6.2 Green Guide to Specification

The proposed buildings are a complex combination of retained and new construction within a richly varied part of London. Such diverse context has required a number of materials to be proposed for

the envelope of the building. However, the design team has ensured that those specified consider the Green Guide to Specification.

The façade can be separated into 3 distinct elements; Precast Concrete panels, Brickwork and Aluminium framed double glazed unit. Whilst final details will be developed in later design stages, at this point we have identified some potential build ups and their associated Green Guide Rating.

Similarly, internal walls are subject to further design but are predominantly expected to be plasterboard on metal studwork. The external landscaping is proposed to be concrete pavers to match surrounding context.

6.5 EXTERNAL WALLS169															
Rainscreen cladding on concrete frame with metal stud infill All building types	Element number	Summary Rating	Climate change	Water extraction	Mineral resource extraction	Stratospheric ozone depletion	Human toxicity	Ecotoxicity to freshwater	Nuclear waste (higher level)	Ecotoxicity to land	Waste disposal	Fossil fuel depletion	Eutrophication	Photochemical ozone creation	Acidification
Precast concrete panel (non-loadbearing) with 'reconstructed stone' and support system, structural concrete frame, breather membrane, insulation, light steel frame with plasterboard on battens, paint	806260464	B	C	A	A	B	A	A+	A+	C	C	C	C	A	B
Precast concrete panel (non-loadbearing) with 50 mm limestone facing panels, support system, structural concrete frame, breather membrane, insulation, light steel frame with plasterboard on battens, paint	806260462	D	D	B	C	D	A	A+	A	D	C	D	D	B	D

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Rainscreen cladding on steel frame with metal stud infill All building types	Element number	Summary Rating	Climate change	Water extraction	Mineral resource extraction	Stratospheric ozone depletion	Human toxicity	Ecotoxicity to freshwater	Nuclear waste (higher level)	Ecotoxicity to land	Waste disposal	Fossil fuel depletion	Eutrophication	Photochemical ozone creation	Acidification
Precast concrete panel (non-loadbearing) with imported Chinese granite facing panels and support system, breather membrane, insulation, structural steel frame, light steel frame with plasterboard on battens, paint	806230426	D	D	B	C	D	A	A+	A	D	D	D	D	B	D
Precast concrete panel with brick finish and support system, breather membrane, insulation, structural steel frame, light steel frame with plasterboard, paint	806230681	C	D	A	A	C	A	A+	A	D	D	C	C	A	C
Precast concrete panel with exposed aggregate finish and support system, breather membrane, insulation, structural steel frame, light steel frame with plasterboard, paint	806230430	C	D	A	A	B	A	A+	A	D	C	C	C	A	B
Precast concrete panel with sandstone finish and support system, breather membrane, insulation, structural steel frame, steel stud infill with plasterboard on battens, paint	806230684	D	D	B	C	D	A	A+	A	D	D	D	C	B	B

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Brick or stone and blockwork cavity walls All building types	Element number	Summary Rating	Climate change	Water extraction	Mineral resource extraction	Stratospheric ozone depletion	Human toxicity	Ecotoxicity to freshwater	Nuclear waste (higher level)	Ecotoxicity to land	Waste disposal	Fossil fuel depletion	Eutrophication	Photochemical ozone creation	Acidification	Typical replacement interval	Embodied CO <sub>2</sub> (kg CO <sub>2</sub> eq.)	Recycled content (kg)	Recycled content (%)	Recycled currently at EOL (%)
Brickwork outer leaf, insulation, medium density solid blockwork inner leaf:																				
cement mortar, plaster, paint	806170046	A+	A	A+	A+	A	A+	A+	A+	A+	A+	A+	A+	A+	A+	60+	78	0.6	0	85
cement mortar, plasterboard on battens, paint	806170047	A+	A	A+	A+	A	A+	A+	A+	A+	A+	A+	A+	A+	A	60+	79	3.5	1	87
cement:lime mortar, plaster, paint	806170084	A+	A	A+	A+	A	A+	A+	A+	A+	A+	A+	A+	A+	A+	60+	77	0.6	0	85
cement:lime mortar, plasterboard on battens, paint	806170087	A+	A	A+	A+	A	A+	A+	A+	A+	A+	A+	A+	A	A	60+	79	3.5	1	87
Brickwork outer leaf, insulation, superlightweight solid blockwork inner leaf:																				
cement mortar, plaster, paint	806170030	A+	A	A+	A+	A	A+	A+	A+	A+	A+	A+	A+	A+	A+	60+	79	0.6	0	84
cement mortar, plasterboard on battens, paint	806170063	A+	A	A+	A+	A	A+	A+	A+	A+	A+	A+	A+	A	A	60+	81	3.5	1	87
cement:lime mortar, plaster, paint	806170020	A+	A	A+	A+	A	A+	A+	A+	A+	A+	A+	A+	A+	A+	60+	79	0.6	0	84
cement:lime mortar, plasterboard on battens, paint	806170023	A+	A	A+	A+	A	A+	A+	A+	A+	A+	A+	A+	A	A	60+	80	3.5	1	87

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Brick and light steel-framed construction All building types	Element number	Summary Rating	Climate change	Water extraction	Mineral resource extraction	Stratospheric ozone depletion	Human toxicity	Ecotoxicity to freshwater	Nuclear waste (higher level)	Ecotoxicity to land	Waste disposal	Fossil fuel depletion	Eutrophication	Photochemical ozone creation	Acidification	Typical replacement interval	Embodied CO <sub>2</sub> (kg CO <sub>2</sub> eq.)	Recycled content (kg)	Recycled content (%)	Recycled currently at EOL (%)
Brickwork, cement mortar:																				
cement-bonded particle board sheathing, insulation, light steel frame, vapour control layer, plasterboard on battens, paint	806470537	A+	A	A+	A+	A	A+	A+	A+	A+	A+	A+	A+	A+	A	60+	94	5	3	77
no sheathing, insulation, light steel frame, vapour control layer, plasterboard on battens, paint	806470091	A+	A	A+	A+	A	A+	A+	A+	A+	A+	A+	A+	A	A	60+	69	3.8	2	83
OSB/3 sheathing, insulation, light steel frame, vapour control layer, plasterboard on battens, paint	806470543	A+	A	A+	A+	A	A+	A+	A+	A+	A+	A+	A+	A	A	60+	64	8.1	5	81
plywood (temperate EN 636-2) sheathing, insulation, light steel frame, vapour control layer, plasterboard on battens, paint	806470540	A+	A	A+	A+	A	A+	A+	A	A	A	A	A+	A	A	60+	67	3.8	2	78

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Windows and curtain walling Commercial, Education, Health, Industrial & Retail	Element number	Summary Rating	Climate change	Water extraction	Mineral resource extraction	Stratospheric ozone depletion	Human toxicity	Ecotoxicity to freshwater	Nuclear waste (higher level)	Ecotoxicity to land	Waste disposal	Fossil fuel depletion	Eutrophication	Photochemical ozone creation	Acidification	Typical replacement interval	Embodied CO <sub>2</sub> (kg CO <sub>2</sub> eq.)	Recycled content (kg)	Recycled content (%)	Recycled currently at EOL (%)
Powder coated aluminium curtain walling system	831500016	D	E	B	E	A	B	C	C	A+	C	D	E	A+	E	40	170	5.3	15	76
Powder coated aluminium window:																				
profile <1.2 kg/m, redwood timber internal frame, water based stain to timber, double glazed	831500021	C	C	A	B	C	C	C	E	A	A	D	C	A+	C	40	140	3.7	14	66
profile >1.2 kg/m, redwood timber internal frame, water based stain to timber, double glazed	831500003	D	C	A	B	C	C	D	E	A	A	D	D	A+	C	40	140	3.9	14	66
profile <0.9 kg/m, double glazed	831500023	A	B	A+	A+	A+	B	B	A	A+	A+	A+	A+	A	A	40	120	3.2	15	72
profile <1.25 kg/m, double glazed	831500018	B	C	A+	A	A+	C	C	B	A+	A+	A	A+	A	B	40	140	3.6	16	73
profile <1.5 kg/m, double glazed	831500017	C	D	A+	B	A+	D	D	C	A+	A+	C	A	A+	C	40	150	4.1	17	74
profile <1.75 kg/m, double glazed	831500020	D	E	A+	B	A+	E	E	D	A+	A+	D	B	A+	D	40	170	4.6	19	75
profile >1.75 kg/m, double glazed	831500006	E	E	A+	C	A	E	E	E	A+	A+	E	D	A+	E	40	180	5.1	20	75
redwood timber internal frame, solvent borne gloss paint to timber, double glazed	831500004	D	C	A	B	C	C	D	E	A	A	D	D	B	C	40	140	3.9	14	66

6.7 INTERNAL WALLS 191

Framed partitions All building types	Element number	Summary Rating	Climate change	Water extraction	Mineral resource extraction	Stratospheric ozone depletion	Human toxicity	Ecotoxicity to freshwater	Nuclear waste (higher level)	Ecotoxicity to land	Waste disposal	Fossil fuel depletion	Eutrophication	Photochemical ozone creation	Acidification	Typical replacement interval	Embodied CO <sub>2</sub> (kg CO <sub>2</sub> eq.)	Recycled content (kg)	Recycled content (%)	Recycled currently at EOL (%)
Galvanised steel jumbo studwork, plasterboard, paint	809760012	A	B	B	A+	A+	A	C	A	A+	A	A+	A+	C	60+	35	6.5	25	28	
Galvanised steel studwork, plasterboard, paint	809760002	A	A	A	A+	A+	A	C	A+	A+	A	A+	A+	C	60+	28	6.5	28	19	
Hardwood veneered MDE framed glazed partitioning, double glazed	809760009	A	B	C	A+	A	A+	A+	A	A	A+	B	A+	A+	A	30	45	5.6	16	57
Softwood framed:																				
single glazed partition, safety glass	809760001	A+	B	B	A+	A	A+	A+	B	A+	A+	A	A+	A	A	30	34	1.3	6	53
double glazed partition, safety glass	809760010	A	B	C	A+	A	A+	A+	B	A+	A+	B	A+	A	A	30	51	2.6	8	62



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Surfacing for lightly trafficked areas	Element number	Summary Rating	Climate change	Water extraction	Mineral resource extraction	Stratospheric ozone depletion	Human toxicity	Ecotoxicity to freshwater	Nuclear waste (higher level)	Ecotoxicity to land	Waste disposal	Fossil fuel depletion	Eutrophication	Photochemical ozone creation	Acidification	Typical replacement interval	Embodied CO <sub>2</sub> (kg CO <sub>2</sub> eq.)	Recycled content (kg)	Recycled content (%)	Recycled currently at EOL (%)
<b>Asphalt (85 mm):</b>																				
over prepared recycled sub-base	830120020	A+	A	A+	A+	B	A+	A	A	A+	A	D	A+	A	A+	35	46	228	56	51
over prepared sub-base	830120001	A	A	A+	B	B	A+	A	A	A+	A	D	A+	A	A+	35	45	7.5	2	51
<b>Cement mortar wet laid clay setts (50 mm):</b>																				
over prepared recycled sub-base	830120030	B	D	A+	A	B	D	D	D	C	D	C	A	B	A	50	120	221	45	90
over prepared sub-base	830120014	C	D	A+	B	B	D	D	D	C	D	C	A	B	A	50	120	1	0	90
<b>Cement mortar wet laid imported Chinese granite setts (100 mm):</b>																				
over prepared recycled sub-base	830120027	E	E	A+	D	E	D	E	D	E	E	E	E	E	E	50	160	221	34	90
over prepared sub-base	830120008	E	E	A+	E	E	D	E	E	E	E	E	E	E	E	50	160	1.1	0	90
<b>Cement mortar wet laid imported Indian sandstone riven setts (50 mm):</b>																				
over prepared recycled sub-base	830120052	B	C	A+	B	E	B	C	C	B	B	C	B	D	B	50	94	220	72	90
over prepared sub-base	830120051	B	C	A+	C	E	B	C	C	B	B	C	B	C	B	50	93	0.4	0	90
<b>Cement mortar wet laid reclaimed stone setts (100 mm):</b>																				
over prepared recycled sub-base	830120029	B	C	A+	A+	C	A	D	B	C	E	C	B	B	A	40	99	436	67	90
over prepared sub-base	830120013	C	C	A+	A	C	A	D	B	C	E	C	B	B	A	40	99	216	33	90
<b>Cement mortar wet laid UK sandstone setts (50 mm):</b>																				
over prepared recycled sub-base	830120032	A	A	A+	A	A	A+	A	A	A	A	A+	A+	A+	A+	50	42	220	51	90
over prepared sub-base	830120019	B	A	A+	C	A+	A+	A	A	A	A	A+	A+	A+	A+	50	42	0.3	0	90
<b>Clay pavers (50 mm):</b>																				
over prepared recycled sub-base	830120021	A	B	A+	A+	A	E	A	C	A	A	B	A+	A	A+	60	70	220	50	90
over prepared sub-base	830120002	A	B	A+	B	A	E	A	C	A	A	B	A+	A	A+	60	70	0	0	90
<b>Concrete block pavers (CBP) (60 mm):</b>																				
over prepared recycled sub-base	830120025	A+	A	A+	A+	A	A+	B	B	A	A	A	A+	A	A+	60	57	227	49	90
over prepared sub-base	830120005	A	A	A+	B	A+	A+	B	B	A	A	A	A+	A+	A+	60	57	6.6	1	90

6.3 Ensuring that materials are responsibly sourced

The project material specifications will include both high-level and specific clauses requiring the contractor to ensure materials are responsibly sourced and procured, in accordance with industry best practice. Potential examples would include FSC certified timber, high recycled material percentage reinforcing steel, and consideration of aggregate source distance for concrete.

6.4 Minimising the harmful effects of some materials on human health

The project material specifications will include both high-level and specific clauses requiring the contractor to ensure materials specified avoid materials which are detrimental to human health, in accordance with industry best practice. Potential examples would include excluding materials which include Volatile Organic Compounds (VOCs).

6.5 Ensuring that specified materials are robust and sensitive to the building type and age

The materials proposed are not only selected to respond to the building's immediate context, but also to high level of expected pedestrian traffic around the base of the building. Precast concrete and brick are both extremely robust materials

6.6 Operational waste

LBC indicates that it is essential that waste produced by premises containing both commercial and residential units is stored separately. However, efforts should be made to minimise the number of container types within a development to make collection easier and more cost effective. Suitable waste management facilities must be provided. The facilities should provide sufficient space to allow for segregation of recyclable and bulk waste. Containers should be provided to enable efficient management of waste.

Castlewood House

The two day waste storage requirements for the office and retail land uses in Castlewood House are presented in the following table.

Table 1: Castlewood House two day commercial waste generation

Waste stream	A1 retail (m3)	A3 retail (m3)	Office (m3)	Total (m3)
Residual	0.37	4.10	6.43	10.91
Paper	0.83	0.00	20.91	21.74
Cardboard	1.23	0.72	2.25	4.20
Plastic	0.40	0.51	1.93	2.84
Aluminium	0.00	0.41	0.64	1.05
Glass	0.09	0.82	0.00	0.91
Food waste	0.15	3.69	0.00	3.85
Total	3.08	10.26	32.17	45.51

The resultant waste storage requirements are outlined in Table 2. Residual (non-recoverable) waste will be stored in a 10m3 waste compactor located within the loading area. A dedicated waste room would accommodate a baler, which would be used to compact paper, cardboard and plastic waste. Glass and aluminium generated by all land uses would be stores in 360 litre bins. Food waste generated within the A1 and A3 retail uses would be stored in a separate waste room in 240 litre bins. A total of 75m2 would be provided at ground floor level for waste storage. All commercial waste would be collected from within the loading area.

Table 2: Castlewood House commercial waste storage (two days)

Waste type	Two day volume (m3)	10m3 compactor	100kg bales	660 litre bins	360litre bins	240 litre bins
Residual	10.91	1	-	-	-	-
Paper	21.74	-	11	-	-	-
Cardboard	4.20	-	5	-	-	-
Plastic	2.84	-	2	-	-	-
Aluminium	1.05	-	-	-	3	-
Glass	0.91	-	-	-	3	-
Food waste	3.85	-	-	-	-	14
Pre-bailing material	-	-	-	3	-	-
Total	45.51	1	18	3	6	14

### Medius House

It is expected that, as per the current situation, waste generated within the A1 retail unit will be stored within the demise of this unit awaiting collection.

For residential land uses, LBC requires that residential developments with more than seven dwellings provide a dedicated waste store sized to hold eight days waste generation. This is to ensure sufficient storage for a weekly collection of refuse and recyclable waste. In multi-storey residential buildings, provision should be made for storing bulky household items such as furniture and white goods, prior to collection. These should be provided at ground level at accessible locations.

The waste generation for eight days storage is shown in Table 3.

Table 3: Medius House residential waste generation

Habitable rooms	Weekly waste (m³)	Units	Weekly waste (m³)
2	0.20	9	1.8
3	0.25	7	1.75
4	0.30	4	1.2
Total	-	20	4.75

Based on LBC waste guidelines, 20 residential units would generate 4.75m³ of waste per week. A waste store to hold two 1,100 litre refuse bins, two 1,100 litre recycling bins and one 240 litre food bin is

required. A waste room of 16m2 is proposed at ground floor level to accommodate these bins. Waste will be collected directly from this store on New Oxford Street with refuse collection vehicles having access within 10m of the store.

## 7 SUSTAINABILITY ASSESSMENT TOOLS

Both Castlewood House, and Medius House have undergone BREEAM Pre-Assessments, with Castlewood as a new build (with separate commercial and retail assessments), and Medius as a major refurbishment.

As such both buildings have been assessed to measure their performance in relation to:

- Energy
- Water
- Materials
- Pollution
- Ecology
- Management
- Transport
- Health and Wellbeing
- Innovation

Camden's policy DP22 requires major developments to achieve an "Excellent" ratings as well as achieving the following percentages:

- Energy Section – 60%
- Water Section – 60%
- Materials Section – 40%

It is expected that Castlewood House will meet the above specific targets which relate to the BREEAM assessment. Further liaison with the design team will be required to ensure these are fully incorporated in the design.

In terms of the retail units and with regards to meeting the 60% for the energy section, as the spaces are currently not defined in detail on A1/A3 uses, an assumption has been made on overall share of kitchen areas within the energy modelling outputs. These will be tested as the design develops to ensure that the 60% threshold is maintained throughout.

As the retail elements of the scheme are to be Shell and Core, certain assumptions have been made in the retail BREEAM Pre-Assessment, and where necessary will be stipulated within the retail Lease Agreements to set out the criteria for the future tenants retail fit-out, to ensure that the BREEAM targets are achieved. This will be relevant to Ene01 Energy Efficiency and Wat01 Water Consumption.

The following table sets out the results of each of the assessments:

Assessment Scheme	Target Rating	Target Scoring
BREEAM New Construction (Office)	Excellent	71.50%
BREEAM New Construction (Retail)	Excellent	70.20%
BREEAM Refurbishment (Residential)	Very Good	58.43%

8 BIODIVERSITY

London Plan policies 2.18 and 5.10 seek to increase the provision of green space in the region. Policy 5.11 specifically encourages developers to include planting and green roofs on their developments. In addition, London Plan policy 7.19 directs that development should avoid areas of ecological value and should seek to promote and enhance the ecological value of existing sites.

Camden's DP22 policy states that schemes must incorporate green or brown roofs and green walls wherever suitable. This is supported by section 10 of CPG 3. Core Strategy Policy CS15 also aims to protect and enhance open spaces and promote biodiversity.

An Ecology Consultant, Basecology, was commissioned to undertake a Phase 1 Habitat Survey, and their report has been provided as part of the Planning Application under separate cover.

The results of Basecology's assessment is summarised as follows:-

Desk study: Six non-statutory sites and one Habitat of Principal Importance (also listed as UKBAP and London BAP priority habitat) were identified were noted within the search area (no statutory designated sites were present).

Greenspace Information for Greater London (GiGL) holds records of plants, invertebrates, birds, and bats within the search radius. None of the records are located within the developmental zone of influence or potentially connected to the site via green infrastructure.

Phase 1: Four habitats were identified during the Phase 1 Habitat Survey including scattered broadleaved trees (A.3.1), ornamental scrub (J.1.3), species-poor hedge (J.2.1.2), and buildings and hardstanding (J.3.6).

9 FLOODING AND DRAINAGE

London Plan policy 5.12 Flood Risk Management requires developments to comply with Planning Policy Statement 25: Development and Flood Risk over the lifetime of the development and to have regard to measures proposed in Thames Estuary 2100 and Catchment Flood Management Plans.

London Plan Policy 5.13 Sustainable Drainage requires developments to utilise sustainable urban drainage systems (SUDS) unless there are practical reasons for not doing so, to aim to achieve

greenfield run-off rates, and to ensure that surface water run-off is managed as close to its source as possible in line with the following drainage hierarchy:

1. Store rainwater for later use
2. Use infiltration techniques, such as porous surfaces in non-clay areas
3. Attenuate rainwater in ponds or open water features for gradual release
4. Attenuate rainwater by storing in tanks or sealed water features for gradual release
5. Discharge rainwater direct to a watercourse
6. Discharge rainwater to a surface water sewer/drain
7. Discharge rainwater to the combined sewer.

London Plan policy 5.14 Water Quality and Waste Water Infrastructure, requires adequate provision to be made for waste water infrastructure, and that water quality is protected and improved.

Camden's DP22 Promoting Sustainable Design and Construction requires developments to be resilient to climate change by including appropriate climate change adaption measures including reducing water consumption and limiting run-off.

Camden's DP23 Water, encourages developments to reduce their water consumption, the pressure on the combined sewer network, and the risk of flooding.

The project Structural Engineers, DMAGW, have provided a separate SUDS report, which concludes with the following executive summary:-

The existing site comprising the Castlewood House development is located at National Grid reference 181400N-529950E and occupies an overall area of 0.304ha comprising 0.26ha for Castlewood House and 0.044ha for the Medius House developments.

The existing sites drainage outfall systems and sewerage connections into the Public utility Sewers will be retained and utilised, where possible, to avoid the need for any excavation within the busy highway (New Oxford Street) and in close proximity to existing live utility services and in public footway and highway.

Due to the anticipated ground conditions and presence of underlying clay beds below the site, the opportunity for implementing on-site SuDS infiltration systems to dispose of surface water are extremely unlikely. The existing clay soil substrate will not allow such systems to effectively operate. Thus the primary disposal arrangements for off-site discharge of surface water will be via discharge to utility sewerage systems.

The proposed surface water drainage strategy is based on targeted minimum 50% net reduction in the peak discharge rate to the existing adopted utility sewerage network. Considering the proposed site layout and type of development, it is proposed to attenuate the surface water at roof level(s).

Surface water attenuation at roof level will comprise a blue roofing solution, these arrangements being located the main terrace level of the building and on the upper roof level, along with the roof level of Medius House, to manage storm water flows at source. The green/blue roof will provide a maximum 100mm of water attenuation over each of the noted areas facilitated by pre-formed



polycarbonate cellular units positioned below paved roof surfacing. Flows will be managed by proprietary flow control devices and rainwater collection outlets positioned to effectively collect rainfall on to the various roof surfaces.

Hydraulic calculations and analysis using the industry standard 'Windes' software advises that an attenuation volume of 76M<sup>3</sup> is required for Castlewood House and 15M<sup>3</sup> for Medius House to ensure that the maximum targeted of-site discharge of 50% existing flows of 64 l/s and 5.7 l/s respectively are achieved when receiving a 100 year rainfall event, inclusive of 40% for climate change as advised by current National Planning Policy Framework details, NPPF 2012.

Blue roofs offer additional advantages as have no moving nor mechanical elements and requires no electrical power or controls to operate thus only annual general maintenance is necessary as would be required for all roof rainwater collection outlets, seasonal leave guard inspection and cleaning etc. is all that is required.

## 10 POLLUTION AND CONSTRUCTION IMPACTS

This section relates to the impact of the development on the local environment.

### 10.1 Air Quality Assessment

The site is located within an area identified by LBC as experiencing elevated pollutant concentrations. Subsequently there are concerns that the proposals have the potential to introduce future site users into an area of poor air quality. Additionally, the development has the potential to cause air quality impacts at sensitive locations. These may include fugitive dust emissions from construction works. As such, an Air Quality Assessment was required to quantify pollutant levels across the site, consider its suitability for the proposed end-use and assess potential impacts as a result of the development.

Potential construction phase air quality impacts from fugitive dust emissions were assessed as a result of demolition, earthworks, and construction and trackout activities. It is considered that the use of good practice control measures would provide suitable mitigation for a development of this size and nature and reduce potential impacts to an acceptable level.

Dispersion modelling was undertaken in order to quantify pollutant concentrations at the site and assess potential exposure of future users as a result of road vehicle exhaust emissions. Pollutant concentrations were predicted across both Castlewood House and Medius House at ground to seventh floor. The dispersion modelling indicated high pollutant levels at locations where residential units are proposed within Medius House. As such, appropriate mitigation has been recommended for the affected units, including filtered mechanical ventilation and a high specification of window tightness. This type of mitigation is considered suitable for a development of this size and nature. Pollutant concentrations at Castlewood House were also predicted to exceed the air quality standards however as office space is proposed across all levels of this part of the development, future exposure is not considered to be relevant to the air quality standard and as such, mitigation measures are not proposed at Castlewood House.

Based on the assessment results, the site is considered suitable for the proposed end use subject to appropriate mitigation measures and complies with the London Plan and relevant legislation.

### 10.2 Environmental Impact Assessment

A request for a screening opinion was submitted to LBC on 14th June 2016 to ascertain whether, in the opinion of the local planning authority, an Environmental Impact Assessment (EIA) was required for the redevelopment of the site.

On 25th July 2016, the LBC issued their screening opinion. In their response, LBC confirmed that, in their view, the development is not considered to be likely to have significant effects on the environment by virtue of factors such as its nature, size or location. As such, the Council considers that the proposed development is not 'EIA development' within the meaning of the EIA Regulation and submission of an Environmental Statement alongside the planning application will not be required.

### 10.3 Noise Impact and Sound Insulation Assessment

The project Acoustic Consultants, REC, have provided a separate Noise Impact and Sound Insulation Assessment report, which concludes with the following executive summary:-

A Noise Survey has been completed in order to measure the impact of existing road traffic noise upon the proposed mixed-use development as a result of New Oxford Street and Earnshaw Street as well as defining proposed plant noise limit criteria.

The Noise Constraints Assessment has identified that the key noise source impacting upon the development is from road traffic using New Oxford Street to the north of the site and Earnshaw Street to the west. Accordingly appropriate recommendations regarding site layout and mitigation measures have been specified in order to reduce these impacts for any proposed internal habitable areas.

#### Recommendations for Mitigation

##### Castlewood House

Appropriate mitigation measures have been recommended in order to reduce the impacts of noise from road traffic on internal office areas including the use of higher specification glazing and alternative ventilation.

##### Medius House

Appropriate mitigation measures have been recommended in order to reduce the impacts of noise from road traffic on internal habitable areas including higher specification glazing and alternative ventilation. As a general recommendation habitable rooms should be placed away from the facades in particular on the lower floor levels in order to reduce the glazing specifications.

Subject to the incorporation of the identified recommendations and mitigation measures, it is considered that in principle, internal noise levels can be suitably controlled across the Site.



**11 RELEVANT CONSULTANTS REPORTS**

Below is a schedule of reports relevant to the aforementioned sections of this Sustainability Statement, issued under separate cover as part of the Planning Submission for the development:

- Design and Access Statement – RPP
- Air Quality Assessment – REC
- Biodiversity Report – Basecology
- Noise Impact and Sound Insulation Assessment – REC
- Sustainable Urban Drainage Systems – Davies Maguire Whitby
- Energy Statement – GDM

**12 BREEAM PRE-ASSESSMENT APPENDICES**

**APPENDIX A – BREEAM OFFICES PRE-ASSESSMENT**

**APPENDIX B – BREEAM RETAIL PRE-ASSESSMENT**

**APPENDIX C – BREEAM RESIDENTIAL PRE-ASSESSMENT**

# Sustainability Statement

## APPENDIX A – BREEAM OFFICES PRE-ASSESSMENT

Client: Royal London Mutual Insurance Society  
Project: Castlewood House & Medius House

**Castlewood House - Offices**  
**BREEAM Report**  
**Planning**

**Royal London Mutual Insurance Society**  
**RevD, January 2017**



NOTICE

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Client Sign-off

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# 1. Executive Summary

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This report illustrates the sustainability performance of Castlewood House in relation to the objectives set out within Camden's DP22 Promoting Sustainable Design and Construction Policy, in relation to BREEAM 2014 New Construction (Sustainable Design).

**Planning Sustainability Objectives:**

Camden’s policy DP22 requires major developments to achieve an “Excellent” ratings as well as achieving the following percentages:

- Energy Section – 60%
- Water Section – 60%
- Materials Section – 40%

It is expected that Castlewood House will meet the above specific targets which relate to the BREEAM assessment. Further liaison with the design team will be required to ensure these are fully incorporated in the design.

**BREEAM:**

It has been established that the office currently has the potential to achieve a rating of Excellent with a range of options illustrated to enhance this further if required. The offices have been assessed against the Shell and Core BREEAM NC 2014 criteria, as suitable to a CatA level development.

The score currently achievable is **71.5%**, a rating of **EXCELLENT**.

**EPC:**

An Excellent rating requires 5 credits to be achieved (equivalent to an EPR of at least 0.375).

8 credits have been targeted at this stage based on preliminary energy modelling exercise.

**Further investigation required:**

Further credits may be achievable for energy efficiency (Ene04) as well as SUDS design (Pol03). These will be further discussed with the team as the design progresses.

# 2. Introduction

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Verte have been requested by Royal London Mutual Insurance Society to carry out a sustainability assessment of the redevelopment of Castlewood House, Holborn.

The report provides a status of the development’s performance with regards to London Borough of Camden Policy DP22 (and CPG3), and provides recommendations with regards to improving performance and meeting the necessary objectives. The content focuses on:

1. BREEAM Performance

Based on current design proposals, the development is expected result in the complete replacement structure, core and local services, to provide approximately 12,868m<sup>2</sup> NIA of high quality core and CatA space over 11 floors (including ground) and approximately 1,847m<sup>2</sup> NIA of Retail space at Castlewood House. The following scope is currently assumed:

Demolition of the existing building, at Castlewood House, and construction of a replacement ten storey mixed use building, plus ground and two basement levels, including the provision of retail (Class A1 and/or A3) and office (Class B1) floor space.

The following sections, detail the proposed development’s performance against the BREEAM Criteria.

### 3. BREEAM Pre-Assessment Summary

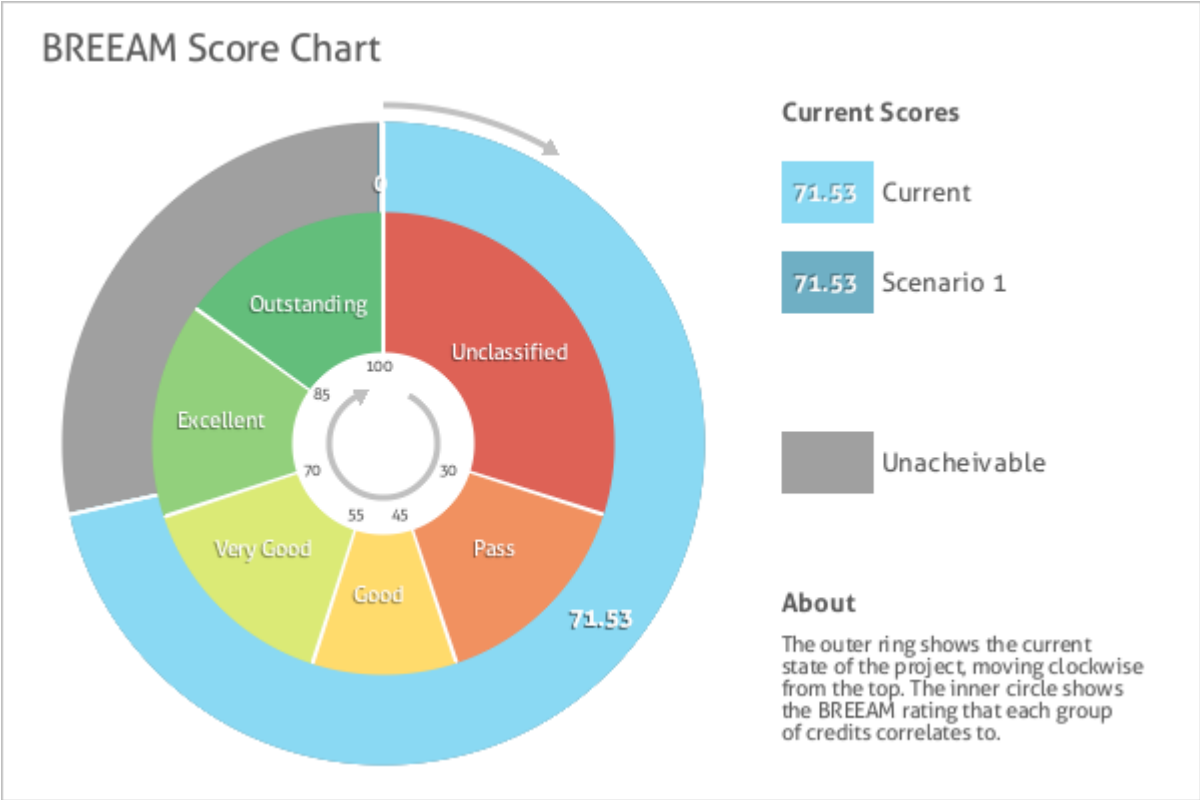
This section is intended as a summary of the BREEAM pre-assessment review for Castlewood House. The development proposals have been assessed, particularly the comments during the pre-assessment meeting. The current achievable rating has been established as well a set of measures which can be targeted to enhance this rating further. A summary of the pre-assessment can be reviewed in the next section and a detailed BREEAM register within the Appendices.

#### a. Scoring scenarios – Commercial

It has been established that the development currently has the potential to achieve a rating of Excellent with a range of options illustrated to enhance this further if required.

Offices:

Current - The score currently predicted is **71.5%**, a rating of **EXCELLENT**.



### 4. Immediate Actions

BREEAM Criteria include time critical elements which cannot be awarded if they are not dealt with in the prescribed time-frame as well as consultant appointments as detailed below.

Time critical issues:

- Man01 Stakeholder & 3<sup>rd</sup> Party consultations required to be undertaken at Stage 2.
- Man01 Appoint BREEAM AP at Stage 1.
- Man02 Lifecycle Costing to be undertaken at Stage 2.
- Hea06 Security needs assessment by Stage 2.
- Ene04 Low carbon design analysis.
- Mat06 Material Efficiency at all stages (1-4)
- Wst05 Functional Adaptability Strategy by Stage 2.
- Wst06 Climate Change Adaptation Strategy by Stage 2.

Consultant appointments to consider:

- Life Cycle Costing specialist
- Security Consultant (Architectural Liaison Officer)
- Indoor air quality
- Acoustician
- Energy specialist
- Transport Consultant
- Ecologist
- Flood risk and SUDS

5. Appendices

Pre-assessment Scoring / Offices

		Available	Predicted	Enhanced	Responsibility	Comments
Management						
Man 01	Project brief and design	4	3	3	CBRE	Information which will be required from Project Manager: 1st Credit Stakeholder Consultation: -Project Program -Project Brief Outlining Sustainability Target -Project Execution Plan -Responsibility Matrix (refer to items Cr3, a-k) -Meeting minutes as necessary  <b>ENHANCED SCORE</b> Evidence required from the Project Manager: 2nd Credit 3rd Party Consultation: -Meeting minutes -Evidence of communications with planners, community groups -Consultation plan -Evidence of consultation feedback -Evidence of changes to design due to consultation  3rd and 4th credits: -BREEAM AP Appointment letter
Man 02	Life cycle cost and service life planning	4	1	1	Sweett Prelims	4th Credit: Capital cost (£k/m2 ), to be reported by QS.  Credits 1-3 not considered achievable as WLC is not in the project scope.
Man 03	Responsible construction practices	6	6	6	Sweett Prelims	All credits targeted.  To be included in contract prelims.
Man 04	Commissioning and handover	4	3	3	Sweett (Prelims) & GDMP	To be included in contract prelims and M&E Specification documentation.  1st Credit: CIBSE Compliant Commissioning and Commissioning Monitor, which can be a team member,  2nd Credit: Specialist Commissioning Manager to be appointed at design stage.  <b>TBC</b> 3rd Credit: Thermographic Survey (Prelims)  4rth Credit: Building User Guide and Training Schedule (Prelims)
Management Totals:		18	13	13		
Management score totals:		11	7.94	7.94		
Health & Wellbeing						
Hea 01	Visual Comfort	3	1	1	GDMP	1st Credit Daylighting Levels: Expected 0 out of 1 credits.  2nd Credit View Out: Layouts indicate most areas will be outwith 7m of window, no credits achievable.  3rd Credit Internal lighting levels will meet Code for lighting and fully DALI controlled.

Hea 02	Indoor Air Quality	2	0	0	GDMP	1st Credit Ventilation assumed 0 of 1 credits: Ventilation should be designed to -Distance of intakes/extracts over 10m apart (or in line with 13779:2007) -Distance of intakes over 20m from roads - <u>UNACHIEVABLE</u> -Air provision of 12l/p/s -HVAC to include appropriate filtration (13779:2007 Annex3)  2nd Credit Potential for Natural Ventilation: Not achievable.
Hea 04	Thermal comfort	2	2	2	GDMP	1st Credit Thermal Modelling: Thermal modelling will be carried out using software in accordance with CIBSE AM111 Building Energy and Environmental Modelling, by Energy Modeling Engineer.  2nd Credit Adaptability: The thermal modelling will demonstrate that the relevant requirements are achieved for a projected climate change environment.
Hea 05	Acoustic Performance	1	1	1	REC	1st Credit Indoor Ambient Noise: Appoint acoustician will provide design review and provide recommendations to achieve indoor ambient noise levels that comply with the design ranges given in Section 7 of BS 8233:2014.
Hea 06	Safety and Security	2	2	2	CBRE	1st & 2nd Credits Security: A Suitably Qualified Security Specialist (SQSS) to conduct an evidence based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent). The local ALO has provided recommendations for SbD.
Health & Wellbeing Totals:		10	6	6		
Health & Wellbeing score totals:		10.5	6.3	6.3		
Energy						
Ene 01	Reduction of energy use and carbon emissions	12	8	8	GDMP	An Excellent rating requires 5 credits to be achieved (equivalent to an EPR of at least 0.375).  Energy Modelling preliminary results indicate 8 credits should be achievable.  8 credits assumed at present.
Ene 02	Energy Monitoring	2	2	2	GDMP	1st Credit Sub-metering of major energy consuming systems: Services engineer to ensure all major energy uses are monitored in line with TM54.  2nd Credit Sub-metering of high energy load and tenancy areas: Services Engineer to ensure all energy uses are monitored for each floor.
Ene 03	External Lighting	1	1	1	GDMP	1st Credit External Lighting: Services engineer to ensure all external lighting to meet efficacy and control requirements.
Ene 04	Low carbon design	3	0	0	GDMP	<b>TBC – Further investigation required</b>  1st & 2nd Credit Passive Design & Free Cooling: Energy Modelling Engineer to provide GLA report to assess reduction from passive measures. Credit available if reduction equal or more than 5%.  Passive analysis to include free cooling investigation (night purge).  3rd Credit Low or zero carbon technologies: Energy Modelling

						Engineer to provide GLA report to assess reduction from LZC measures. Credit available if reduction equal or more than 5%.
<b>Ene 06</b>	Energy Efficient Transportation Systems	3	3	3	GDMP	1st Credit Energy Consumption: Services engineer to provide transport demand and energy analysis report.  2nd and 3rd Credits Energy efficient features: Services engineer to specify energy efficient measures as per criteria: -Variable speed/voltage/frequency controls -LED car lighting (or efficacy of >55llcw) -Stand-by mode
<b>Energy Totals:</b>		<b>21</b>	<b>14</b>	<b>14</b>		
<b>Energy score totals:</b>		<b>15</b>	<b>10</b>	<b>10</b>		
<b>Transport</b>						
<b>Tra 01</b>	Public Transport Accessibility	3	3	3	RPP	Central location enables the development to achieve maximum points under this issue.
<b>Tra 02</b>	Proximity to amenities	1	1	1	RPP	Central location enables the development to achieve maximum points under this issue.
<b>Tra 03</b>	Cyclist facilities	2	2	2	RPP	1st & 2nd Credit Cyclist Facilities: Architect has highlighted locations for cyclist facilities to be installed. Requirements for this metropolitan location with circa 11,500sqm NIA is approximately 62 cycle spaces and equal lockers and 6 showers. This can be further reduced by 50% due to the central location of the development.
<b>Tra 04</b>	Maximum Car Parking Capacity	2	2	2	RPP	No car parking is being provided and maximum credits can be awarded by default.
<b>Tra 05</b>	Travel Plan	1	1	1	CBRE	1st Credit Travel Plan: A travel plan should be developed as part of the feasibility and design stages. Project Manager to coordinate appointment of consultant.
<b>Transport Totals:</b>		<b>9</b>	<b>9</b>	<b>9</b>		
<b>Transport score totals:</b>		<b>10</b>	<b>10</b>	<b>10</b>		
<b>Water</b>						
<b>Wat 01</b>	Water Consumption	5	4	4	RPP	All credits Water Consumption: The architect is to ensure that the water appliances meet the following water efficiency criteria: -WCs: 4.5/3lt flush -WHB: 3lt @ 3bar -Showers: 7l/min @ 3bar  This will secure a 51% improvement in the water consumption benchmark and 4 out of 5 credits.
<b>Wat 02</b>	Water Monitoring	1	1	1	GDMP	Services Engineer to ensure BMS connected water meter specified.
<b>Wat 03</b>	Leak Detection	2	2	2	GDMP	1st Credit Major Water Leak Detection: Services Engineer to ensure leak detection facility to be specified for the main incoming to the building.  2nd Credit Flow Control Devices: Services Engineer to ensure PIR linked solenoid valves are specified for each WC cluster in the core areas.
<b>Wat 04</b>	Water Efficient Equipment	1	1	1	RPP	As there is no other major consuming plant, this credit can be awarded by default.
<b>Water Totals:</b>		<b>9</b>	<b>8</b>	<b>8</b>		
<b>Water score totals:</b>		<b>7.5</b>	<b>6.67</b>	<b>6.667</b>		
<b>Materials</b>						

<b>Mat 01</b>	Life Cycle Impacts	5	3	3		The current suggested specification, generally meets high Green Guide Rating standards, particularly around the structure and upper floors and roof.  Following our initial calculation, 3 credits could be achievable.  To be confirmed as the design develops.
<b>Mat 02</b>	Hard Landscaping and Boundary Protection	1	1	1	RPP	The Architect has confirmed that A/A+ rated materials can be specified for any external landscaped areas.
<b>Mat 03</b>	Responsible Sourcing of Materials	4	2	2	DMW RPP	1st Credit Sustainable Procurement Plan: Requirement to be included in Prelims.  2-4th Credits Responsible Sourcing of Materials: One credit assumed for sourcing of concrete and steel to BES6001. Structural Engineer to provide certification requirement in specification and volume of relevant material. All timber to be FSC.
<b>Mat 04</b>	Insulation	1	1	1	GDMP	Credit requirements for sourcing of green guide rated (GGR) products will be included within the M&E and NBS specification. In addition, majority of insulation products should have a GGR of A/A+.  Services: mineral wool (duct), phenolic foam and Armaflex Building Fabric: Expected PIR, and Kingspan products for foundations and roof
<b>Mat 05</b>	Designing for durability and resilience	1	1	1	RPP	The project Architect is to ensure that the building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the internal and external building and landscaping elements.  In addition, the relevant building elements incorporate appropriate design and specification measures to limit material degradation due to environmental factors.  A statement and supporting evidence (drawings and specification) will be required as the design develops.
<b>Mat 06</b>	Material efficiency	1	0	0	<b>TBC</b>	<b>ENHANCED SCORE</b> The credit focuses on a waste (material) optimisation review to be undertaken at each RIBS Stage.  The assessor will review with the architect the options analysed at Stage 1 with regards to the facade retention.  Once the feasibility of the credit is established the credit will be re-assessed.
<b>Materials Totals:</b>		<b>13</b>	<b>8</b>	<b>8</b>		
<b>Materials score totals:</b>		<b>14.5</b>	<b>8.92</b>	<b>8.92</b>		
<b>Waste</b>						
<b>Wst 01</b>	Construction Waste Management	4	2	2	Sweett Prelims	1-3rd Resource efficiency (1 credit): A requirement for a resource management plan will be included within the demolition Prelims documentation. It is assumed at this stage that construction waste shall be ≤11.1 tonnes per 100sqm.  4th Credit Diversion of Waste from Landfill: A requirement for 90% diversion rate will be included within the demolition Prelims documentation.



<b>Wst 02</b>	Recycled Aggregates	1	0	0	DMW	<b>TBC</b> The Structural Engineer will assess the potential of the development to meet the credit criteria for specifying recycled aggregate: Bound Structural frame - 15% Bitumen or hydraulically bound base, binder, and surface courses for paved areas and roads - 30% Building foundations - 20%  Concrete road surfaces - 15%  Unbound Pipe bedding- 100% Granular fill and capping (see Relevant definitions section) - 100%
<b>Wst 03</b>	Operational Waste	1	1	1	RPP	The project Architect is to ensure adequate space is provided for collection of recyclable waste material: At least 2sqm per 1000sqm of net floor area for buildings < 5000sqm
<b>Wst 04</b>	Speculative Floor and Ceiling Finishes	1	0	0	RPP	The Architect has confirmed that no floor finishes will be specified. Ceiling finishes are being considered but a decision has not been made at this stage.  <b>TBC</b> As such an opportunity to achieve the credit by not installing any suspended ceilings exists.
<b>Wst 05</b>	Adaptation to climate change	1	1	1	DMW RPP	Architect and Structural Engineer to conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of Concept Design (RIBA Stage 2 or equivalent), in accordance with the following approach:  This should essentially be a design risk register to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change and, where feasible, mitigate against these impacts. Issues should include: -Flooding (FRA & ground levels) -Stress on structure from temp fluctuations, winds etc. -Thermal comfort considerations -Resilience of materials to increased solar radiation and increased moisture etc.
<b>Wst 06</b>	Functional adaptability	1	1	1	GDMP RPP	A building-specific functional adaptation strategy study has been undertaken by the client and design team by Concept Design (RIBA Stage 2 or equivalent), which includes recommendations for measures to be incorporated to facilitate future adaptation.  A credit Guidance Note will be issued by the assessor.
<b>Waste Totals:</b>		<b>9</b>	<b>5</b>	<b>5</b>		
<b>Waste score totals:</b>		<b>9.5</b>	<b>5.28</b>	<b>5.28</b>		
<b>Land Use &amp; Ecology</b>						
<b>LE 01</b>	Site Selection	2	1	1	RPP	Re-use of site ensures one credit is awarded.  No contaminated land investigation.
<b>LE 02</b>	Ecological Value of Site and Protection of Ecological Features	2	2	2	BASE	It has been agreed that an Ecologist will be appointed to develop a site survey in support of BREEAM issues and advise on biodiversity.

						Both credits are considered achievable.
<b>LE 03</b>	Minimising impact on existing site ecology	2	2	2	BASE	It has been agreed that an Ecologist will be appointed to develop a site survey in support of BREEAM issues and advise on biodiversity.  Both credits are considered achievable.
<b>LE 04</b>	Enhancing site ecology	2	1	2	BASE RPP	It has been agreed that an Ecologist will be appointed to develop a site survey in support of BREEAM issues and advise on biodiversity.  One credit are considered achievable.  <b>ENHANCED SCORE</b> Following the ecologist recommendations to improve biodiversity can ensure a second credit can be achieved. TBC once ecologist survey is carried out.
<b>LE 05</b>	Long Term Impact on Biodiversity	2	2	2	BASE	It has been agreed that an Ecologist will be appointed to develop a site survey in support of BREEAM issues and advise on biodiversity.  Both credits are considered achievable.
<b>Land Use &amp; Ecology Totals:</b>		<b>10</b>	<b>8</b>	<b>8</b>		
<b>Land Use &amp; Ecology score totals:</b>		<b>11</b>	<b>8.8</b>	<b>8.8</b>		
<b>Pollution</b>						
<b>Pol 01</b>	Impact of Refrigerants	3	0	0	GDMP	It is proposed that a full VRF system is installed.  <b>TBC</b> 2nd Credit Leak Detection: Can be very expensive for standard VRF system but achievable as the chiller is in an enclosed space.
<b>Pol 02</b>	NOx emissions	3	3	3	GDMP	Space heating will be delivered by a gas boiler.  NOx emissions from the boiler will meet 40mg/kWh the Services engineer has confirmed.
<b>Pol 03</b>	Surface Water Run Off	5	4	4	DMW	1-2nd Credit Flood Risk: Location in low risk zone. An FRA statement is required by the Structural Engineer.  3-4th Credit Surface water run-off: As the hard standing area for the development will not be changing both these credits are achievable by default, due to no increase in run-off post development.  5th Credit Minimising watercourse pollution: This credit requires SUDS treatment to discharge from the site which exceeds 5mm rainfall. This issue is being considered by the Structural Engineer and an attenuation tank may be proposed. TBC
<b>Pol 04</b>	Reduction of Night Time Light Pollution	1	1	1	GDMP	1st Credit Reduction of Night-time Light Pollution: Services engineer to ensure all external lighting to meet ILE guidance and control requirements.  Awarded by default if no external lighting being installed.
<b>Pol 05</b>	Noise Attenuation	1	1	1	REC	Reduction of noise pollution: Acoustician appointed to provide background noise assessment and recommendations to attenuate accordingly.
<b>Pollution Totals:</b>		<b>13</b>	<b>9</b>	<b>9</b>		
<b>Pollution score totals:</b>		<b>11</b>	<b>7.62</b>	<b>7.62</b>		

OVERALL SCORE TOTALS:	116	71.53	71.53		
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# Sustainability Statement

## APPENDIX B – BREEAM RETAIL PRE-ASSESSMENT

Client: Royal London Mutual Insurance Society  
Project: Castlewood House & Medius House

**Castlewood House & Medius House - Retail  
BREEAM Report  
Planning**

**Royal London Mutual Insurance Society  
RevE, January 2017**





NOTICE

This document and its contents have been prepared and are intended solely Royal London Mutual Insurance Society information and use in relation to Castlewood House, Holborn.

Verte Ltd assume no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

Document History

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Revision	Purpose description	Originated	Authorised	Date
A	Draft	RM	AC	28/06/2016
B	Planning	RM	AC	16/09/2016
C	Planning - Freeze	RM	AC	09/01/2017
D	Update to Shell & Core	RM	AC	11/01/2017
E	Planning - Update	RM	AC	17/01/2017

Client Sign-off

Client	Royal London Mutual Insurance Society
Project	Castlewood House
Document Title	v088 Castlewood House BREEAM Stage 1 Report Retail
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4.	Immediate Actions.....	2
	Retail Units.....	2
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# 1. Executive Summary

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This report illustrates the sustainability performance of Castlewood House in relation to the objectives set out within Camden's DP22 Promoting Sustainable Design and Construction Policy, in relation to BREEAM 2014 New Construction (Sustainable Design).

**Planning Sustainability Objectives:**

Camden’s policy DP22 requires major developments to achieve an “Excellent” ratings as well as achieving the following percentages:

- Energy Section – 60%
- Water Section – 60%
- Materials Section – 40%

It is expected that Castlewood House will meet the above specific targets which relate to the BREEAM assessment. Further liaison with the design team will be required to ensure these are fully incorporated in the design.

With regards to meeting the 60% for the energy section, as the spaces are currently not defined in detail on A1/A3 uses, an assumption has been made on overall share of kitchen areas within the energy modelling outputs. These will be tested as the design develops to ensure that the 60% threshold is maintained throughout.

**BREEAM:**

It has been established that the retail units currently have the potential to achieve a rating of Excellent with a range of options illustrated to enhance this further if required. The retail units have been assessed against the Shell & Core BREEAM NC 2014 criteria, as suitable to this type of development.

The score currently achievable is **70.20%**, a rating of **EXCELLENT**.

**EPC:**

An Excellent rating requires 5 credits to be achieved (equivalent to an EPR of at least 0.375). For Shell & Core only spaces, a Lease Agreement can be applied for Ene01 where the full fit-out parameters are not known.

7 credits have been assumed at this stage based on preliminary energy modelling by the engineer.

**Further investigation required:**

Further credits may be achievable for energy efficiency (Ene04), increase of ecological value (Le04) as well as SUDS design (Pol03). These will be further discussed with the team as the design progresses.

# 2. Introduction

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Verte have been requested by Royal London Mutual Insurance Society to carry out a sustainability assessment of the redevelopment of Castlewood House.

The report provides a status of the development’s performance with regards to London Borough of Camden Policy DP22 (and CPG3), and provides recommendations with regards to improving performance and meeting the necessary objectives. The content focuses on:

1. BREEAM Performance

Based on current design proposals, the development is expected to result in the complete replacement of the structure, core and local services, to provide approximately 2,306m<sup>2</sup> NIA of Shell retail space, comprising of six retail units under Castlewood House at 1,847m<sup>2</sup> and one under Medius House at 459m<sup>2</sup> NIA. The following scope is currently assumed:

Demolition of the existing building, at **Castlewood House**, and construction of a replacement ten storey mixed use building, plus ground and two basement levels, including the provision of retail (Class A1 and/or A3) and office (Class B1) floor space.

External alterations to **Medius House** including partial demolition, retention of the existing façade and two floor extension to provide 20 affordable housing units (Class C3), together with associated highway improvements, public realm, landscaping, vehicular and cycle parking, bin storage and other associated works.

The following sections, detail the proposed development’s performance against the BREEAM Criteria.

### 3. BREEAM Pre-Assessment Summary

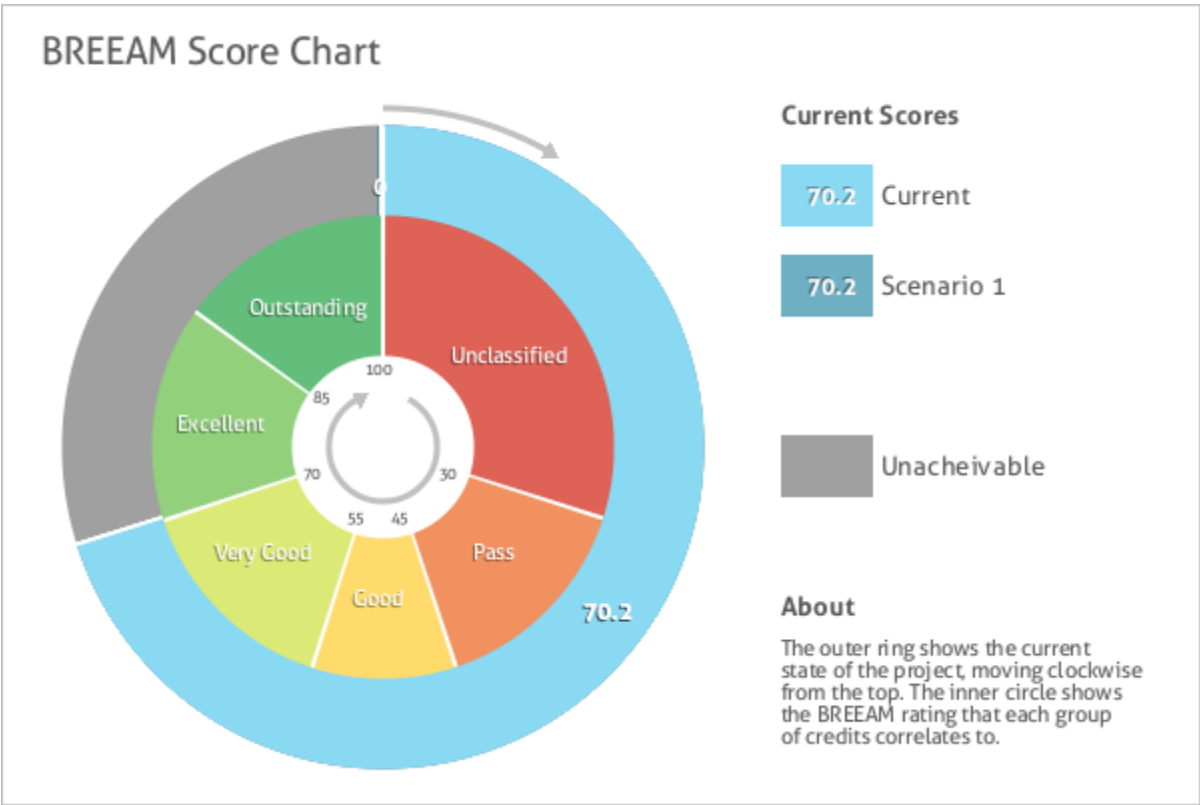
This section is intended as a summary of the BREEAM pre-assessment review for Castlewood House. The development proposals have been assessed, particularly the comments during the pre-assessment meeting. The current achievable rating has been established as well a set of measures which can be targeted to enhance this rating further. A summary of the pre-assessment can be reviewed in the next section and a detailed BREEAM register within the Appendices.

#### a. Scoring scenarios – Commercial

It has been established that the development currently has the potential to achieve a rating of Excellent with a range of options illustrated to enhance this further if required.

Offices:

Current - The score currently predicted is **70.20%**, a rating of **EXCELLENT**.



### 4. Immediate Actions

BREEAM Criteria include time critical elements which cannot be awarded if they are not dealt with in the prescribed time-frame as well as consultant appointments as detailed below.

Time critical issues:

- Man01 Stakeholder & 3<sup>rd</sup> Party consultations required to be undertaken at Stage 2.
- Man01 Appoint BREEAM AP at Stage 1.
- Man02 Lifecycle Costing to be undertaken at Stage 2.
- Hea06 Security needs assessment by Stage 2.
- Ene04 Low carbon design analysis.
- Mat06 Material Efficiency at all stages (1-4)
- Wst05 Functional Adaptability Strategy by Stage 2.
- Wst06 Climate Change Adaptation Strategy by Stage 2.

Consultant appointments to consider:

- Life Cycle Costing specialist
- Security Consultant (Architectural Liaison Officer)
- Indoor air quality
- Acoustician
- Energy specialist
- Transport Consultant
- Ecologist
- Flood risk and SUDS

#### Retail Units

One of the key aspects which will impact on the scoring is the energy performance of the development.

For Shell & Core only spaces, a Lease Agreement can be applied for Ene01. For the purposes of this BREEAM assessment, it is permissible, when conducting the energy modelling, for the design team to substitute the minimum energy efficiency standards or backstop levels required by the relevant national building regulations for the performance specifications confirmed within a green fit-out agreement. This is permissible provided that the performance specification forms part of, or is referenced within, a fit-out agreement which is, or will be, contractually required of the tenant(s) in their fit-out works.

Consideration will also have to be given to the selection of glazed facades for the retail aspects to ensure the same level of credits are achievable under the materials section as assumed for the majority of the development.

5. Appendices

Pre-assessment Scoring / Retail

		Available	Predicted	Enhanced	Responsibility	Comments
Management						
Man 01	Project brief and design	4	4	4	CBRE	Information which will be required from Project Manager: 1st Credit Stakeholder Consultation: -Project Program -Project Brief Outlining Sustainability Target -Project Execution Plan -Responsibility Matrix (refer to items Cr3, a-k) -Meeting minutes as necessary  Evidence required from the Project Manager: 2nd Credit 3rd Party Consultation: -Meeting minutes -Evidence of communications with planners, community groups -Consultation plan -Evidence of consultation feedback -Evidence of changes to design due to consultation  3rd and 4th credits: -BREEAM AP Appointment letter
Man 02	Life cycle cost and service life planning	4	1	1	Sweett Prelims	4th Credit: Capital cost (£k/m2 ), to be reported by QS.  Credits 1-3 not considered achievable as WLC is not in the project scope.
Man 03	Responsible construction practices	6	6	6	Sweett Prelims	All credits targeted.  To be included in contract prelims.
Man 04	Commissioning and handover	4	4	4	Sweett (Prelims) & GDMP	To be included in contract prelims and M&E Specification documentation.  1st Credit: CIBSE Compliant Commissioning and Commissioning Monitor, which can be a team member,  2nd Credit: Specialist Commissioning Manager to be appointed at design stage.  3rd Credit: Thermographic Survey (Prelims)  4th Credit: Building User Guide and Training Schedule (Prelims)
Management Totals:		18	15	15		
Management score totals:		12.5	10.42	10.417		
Health & Wellbeing						
Hea 01	Visual Comfort	4	1	1	GDMP	1st Credit Daylighting Levels: Expected 0 out of 2 credits.  2nd Credit View Out: Layouts indicate most areas will be outwith 7m of window, no credits achievable.  3rd Credit External lighting levels will meet Code for lighting
Hea 02	Indoor Air Quality	2	0	0	GDMP	1st Credit Ventilation assumed 0 of 1 credits: Ventilation should be designed to -Distance of intakes/extracts over 10m apart (or in line with 13779:2007) -Distance of intakes over 20m from roads - <u>UNACHIEVABLE</u> -Air provision of 12l/p/s

						-HVAC to include appropriate filtration (13779:2007 Annex3)  2nd Credit Potential for Natural Ventilation: Not achievable.
Hea 04	Thermal comfort	2	2	2	GDMP	1st Credit Thermal Modelling: Thermal modelling will be carried out using software in accordance with CIBSE AM111 Building Energy and Environmental Modelling, by Energy Modeling Engineer.  2nd Credit Adaptability: The thermal modelling will demonstrate that the relevant requirements are achieved for a projected climate change environment.
Hea 05	Acoustic Performance	1	1	1	REC	1st Credit Indoor Ambient Noise: Appoint acoustician will provide design review and provide recommendations to achieve indoor ambient noise levels that comply with the design ranges given in Section 7 of BS 8233:2014.
Hea 06	Safety and Security	2	2	2	CBRE	1st & 2nd Credits Security: A Suitably Qualified Security Specialist (SQSS) to conduct an evidence based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent). The local ALO has provided recommendations for SbD.
Health & Wellbeing Totals:		10	6	6		
Health & Wellbeing score totals:		10	5.45	5.455		
Energy						
Ene 01	Reduction of energy use and carbon emissions	12	7	7	GDMP	An Excellent rating requires 5 credits to be achieved (equivalent to an EPR of at least 0.375).  Energy Modelling preliminary results indicate 8 credits should be achievable.  8 credits assumed at present.
Ene 02	Energy Monitoring	2	2	2	GDMP	1st Credit Sub-metering of major energy consuming systems: Services engineer to ensure all major energy uses are monitored in line with TM54.  2nd Credit Sub-metering of high energy load and tenancy areas: Services Engineer to ensure all energy uses are monitored for each floor.
Ene 03	External Lighting	1	1	1	GDMP	1st Credit External Lighting: Services engineer to ensure all external lighting to meet efficacy and control requirements.
Ene 04	Low carbon design	3	0	0	GDMP	<b>TBC – Further investigation required</b>  1st & 2nd Credit Passive Design & Free Cooling: Energy Modelling Engineer to provide GLA report to assess reduction from passive measures. Credit available if reduction equal or more than 5%.  Passive analysis to include free cooling investigation (night purge).  3rd Credit Low or zero carbon technologies: Energy Modelling Engineer to provide GLA report to assess reduction from LZC measures. Credit available if reduction equal or more than 5%.
Ene 06	Energy Efficient Transportation Systems	3	3	3	GDMP	1st Credit Energy Consumption: Services engineer to provide transport demand and energy analysis report.  2nd and 3rd Credits Energy efficient features: Services engineer to specify energy efficient measures as per criteria: -Variable speed/voltage/frequency controls

						-LED car lighting (or efficacy of >55lmw) -Stand-by mode
<b>Energy Totals:</b>		<b>21</b>	<b>13</b>	<b>13</b>		
<b>Energy score totals:</b>		<b>14.5</b>	<b>7.6</b>	<b>7.595</b>		
<b>Transport</b>						
<b>Tra 01</b>	Public Transport Accessibility	5	5	5	RPP	Central location enables the development to achieve maximum points under this issue.
<b>Tra 02</b>	Proximity to amenities	1	1	1	RPP	Central location enables the development to achieve maximum points under this issue.
<b>Tra 03</b>	Cyclist facilities	2	2	2	RPP	1st & 2nd Credit Cyclist Facilities: Architect has highlighted locations for cyclist facilities to be installed. Requirements for these small retail units are 10 cycle spaces. RPP confirm 14 spaces provided.
<b>Tra 05</b>	Travel Plan	1	1	1	CBRE	1st Credit Travel Plan: A travel plan should be developed as part of the feasibility and design stages. Project Manager to coordinate appointment of consultant.
<b>Transport Totals:</b>		<b>9</b>	<b>9</b>	<b>9</b>		
<b>Transport score totals:</b>		<b>11.5</b>	<b>11.5</b>	<b>11.5</b>		
<b>Water</b>						
<b>Wat 01</b>	Water Consumption	5	4	4	RPP	All credits Water Consumption: The architect is to ensure that the water appliances meet the following water efficiency criteria: -WCs: 4.5/3lt flush -WHB: 3lt @ 3bar -Showers: 7l/min @ 3bar  This will secure a 51% improvement in the water consumption benchmark and 4 out of 5 credits.
<b>Wat 02</b>	Water Monitoring	1	1	1	GDMP	Services Engineer to ensure BMS connected water meter specified.
<b>Wat 03</b>	Leak Detection	2	2	2	GDMP	1st Credit Major Water Leak Detection: Services Engineer to ensure leak detection facility to be specified for the main incoming to the building.  2nd Credit Flow Control Devices: Services Engineer to ensure PIR linked solenoid valves are specified for each WC cluster in the core areas.
<b>Wat 04</b>	Water Efficient Equipment	1	1	1	RPP	As there is no other major consuming plant, this credit can be awarded by default.
<b>Water Totals:</b>		<b>9</b>	<b>8</b>	<b>8</b>		
<b>Water score totals:</b>		<b>4</b>	<b>3.56</b>	<b>3.556</b>		
<b>Materials</b>						
<b>Mat 01</b>	Life Cycle Impacts	5	3	3		The current suggested specification, generally meets high Green Guide Rating standards, particularly around the structure and upper floors and roof.  Following our initial calculation, 3 credits could be achievable.  To be confirmed as the design develops.
<b>Mat 02</b>	Hard Landscaping and Boundary Protection	1	1	1	RPP	The Architect has confirmed that A/A+ rated materials can be specified for any external landscaped areas.
<b>Mat 03</b>	Responsible Sourcing of Materials	4	2	2	DMW RPP	1st Credit Sustainable Procurement Plan: Requirement to be included in Prelims.

						2-4th Credits Responsible Sourcing of Materials: One credit assumed for sourcing of concrete and steel to BES6001. Structural Engineer to provide certification requirement in specification and volume of relevant material. All timber to be FSC.
<b>Mat 04</b>	Insulation	1	1	1	GDMP	Credit requirements for sourcing of green guide rated (GGR) products will be included within the M&E and NBS specification. In addition, majority of insulation products should have a GGR of A/A+.  Services: mineral wool (duct), phenolic foam and Armaflex Building Fabric: Expected PIR, and Kingspan products for foundations and roof
<b>Mat 05</b>	Designing for durability and resilience	1	1	1	RPP	The project Architect is to ensure that the building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the internal and external building and landscaping elements.  In addition, the relevant building elements incorporate appropriate design and specification measures to limit material degradation due to environmental factors.  A statement and supporting evidence (drawings and specification) will be required as the design develops.
<b>Mat 06</b>	Material efficiency	1	0	0	<b>TBC</b>	<b>ENHANCED SCORE</b> The credit focuses on a waste (material) optimisation review to be undertaken at each RIBS Stage.  The assessor will review with the architect the options analysed at Stage 1 with regards to the facade retention.  Once the feasibility of the credit is established the credit will be re-assessed.
<b>Materials Totals:</b>		<b>13</b>	<b>8</b>	<b>8</b>		
<b>Materials score totals:</b>		<b>17.5</b>	<b>10.77</b>	<b>10.769</b>		
<b>Waste</b>						
<b>Wst 01</b>	Construction Waste Management	4	2	2	Sweett Prelims	1-3rd Resource efficiency (1 credit): A requirement for a resource management plan will be included within the demolition Prelims documentation. It is assumed at this stage that construction waste shall be ≤11.1 tonnes per 100sqm.  4th Credit Diversion of Waste from Landfill: A requirement for 90% diversion rate will be included within the demolition Prelims documentation.
<b>Wst 02</b>	Recycled Aggregates	1	0	0	DMW	<b>TBC</b> The Structural Engineer will assess the potential of the development to meet the credit criteria for specifying recycled aggregate: Bound Structural frame - 15% Bitumen or hydraulically bound base, binder, and surface courses for paved areas and roads - 30% Building foundations - 20%  Concrete road surfaces - 15%  Unbound Pipe bedding- 100% Granular fill and capping (see Relevant definitions section) - 100%



<b>Wst 03</b>	Operational Waste	1	1	1	RPP	The project Architect is to ensure adequate space is provided for collection of recyclable waste material: At least 2sqm per 1000sqm of net floor area for buildings < 5000sqm
<b>Wst 04</b>	Speculative Floor and Ceiling Finishes	1	0	0	RPP	The Architect has confirmed that no floor finishes will be specified. Ceiling finishes are being considered but a decision has not been made at this stage.  <b>TBC</b> As such an opportunity to achieve the credit by not installing any suspended ceilings exists.
<b>Wst 05</b>	Adaptation to climate change	1	1	1	DMW RPP	Architect and Structural Engineer to conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of Concept Design (RIBA Stage 2 or equivalent), in accordance with the following approach:  This should essentially be a design risk register to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change and, where feasible, mitigate against these impacts. Issues should include: -Flooding (FRA & ground levels) -Stress on structure from temp fluctuations, winds etc. -Thermal comfort considerations -Resilience of materials to increased solar radiation and increased moisture etc.
<b>Wst 06</b>	Functional adaptability	1	1	1	GDMP RPP	A building-specific functional adaptation strategy study has been undertaken by the client and design team by Concept Design (RIBA Stage 2 or equivalent), which includes recommendations for measures to be incorporated to facilitate future adaptation.  A credit Guidance Note will be issued by the assessor.
<b>Waste Totals:</b>		<b>9</b>	<b>5</b>	<b>5</b>		
<b>Waste score totals:</b>		<b>11</b>	<b>6.88</b>	<b>6.875</b>		
<b>Land Use &amp; Ecology</b>						
<b>LE 01</b>	Site Selection	2	1	1	RPP	Re-use of site ensures one credit is awarded.  No contaminated land investigation.
<b>LE 02</b>	Ecological Value of Site and Protection of Ecological Features	2	2	2	BASE	It has been agreed that an Ecologist will be appointed to develop a site survey in support of BREEAM issues and advise on biodiversity.  Both credits are considered achievable.
<b>LE 03</b>	Minimising impact on existing site ecology	2	2	2	BASE	It has been agreed that an Ecologist will be appointed to develop a site survey in support of BREEAM issues and advise on biodiversity.  Both credits are considered achievable.
<b>LE 04</b>	Enhancing site ecology	2	1	1	BASE RPP	It has been agreed that an Ecologist will be appointed to develop a site survey in support of BREEAM issues and advise on biodiversity.  One credit are considered achievable.  <b>ENHANCED SCORE</b> Following the ecologist recommendations to improve biodiversity can ensure a second credit can be achieved. TBC once ecologist survey is carried out.

<b>LE 05</b>	Long Term Impact on Biodiversity	2	2	2	BASE	It has been agreed that an Ecologist will be appointed to develop a site survey in support of BREEAM issues and advise on biodiversity.  Both credits are considered achievable.
<b>Land Use &amp; Ecology Totals:</b>		<b>10</b>	<b>8</b>	<b>8</b>		
<b>Land Use &amp; Ecology score totals:</b>		<b>13</b>	<b>10.4</b>	<b>10.4</b>		
<b>Pollution</b>						
<b>Pol 01</b>	Impact of Refrigerants	3	0	0	GDMP	It is proposed that a full VRF system is installed.  <b>TBC</b> 2nd Credit Leak Detection: Can be very expensive for standard VRF system but achievable as the chiller is in an enclosed space.
<b>Pol 02</b>	NOx emissions	3	3	3	GDMP	Space heating will be delivered by a gas boiler.  NOx emissions from the boiler will meet 40mg/kWh the Services engineer has confirmed.
<b>Pol 03</b>	Surface Water Run Off	5	4	4	DMW	1-2nd Credit Flood Risk: Location in low risk zone. An FRA statement is required by the Structural Engineer.  3-4th Credit Surface water run-off: As the hard standing area for the development will not be changing both these credits are achievable by default, due to no increase in run-off post development.  5th Credit Minimising watercourse pollution: This credit requires SUDS treatment to discharge from the site which exceeds 5mm rainfall. This issue is being considered by the Structural Engineer and an attenuation tank may be proposed. TBC
<b>Pol 04</b>	Reduction of Night Time Light Pollution	1	1	1	GDMP	1st Credit Reduction of Night-time Light Pollution: Services engineer to ensure all external lighting to meet ILE guidance and control requirements.  Awarded by default if no external lighting being installed.
<b>Pol 05</b>	Noise Attenuation	1	1	1	REC	Reduction of noise pollution: Acoustician appointed to provide background noise assessment and recommendations to attenuate accordingly.
<b>Pollution Totals:</b>		<b>13</b>	<b>9</b>	<b>9</b>		
<b>Pollution score totals:</b>		<b>6</b>	<b>3.69</b>	<b>3.692</b>		
<b>OVERALL SCORE TOTALS:</b>		<b>116</b>	<b>70.26</b>	<b>70.26</b>		



# Sustainability Statement

## APPENDIX C – BREEAM RESIDENTIAL PRE-ASSESSMENT

Client: Royal London Mutual Insurance Society  
Project: Castlewood House & Medius House

**Medius House**  
**BREEAM Domestic Refurbishment Report**  
**Planning**

**Royal London Mutual Insurance Society**  
**RevD, January 2017**



NOTICE

This document and its contents have been prepared and are intended solely Royal London Mutual Insurance Society’s information and use in relation to Medius House, 63-69 New Oxford Street, London WC1A 1DG. Verte Ltd assume no responsibility to any other party in respect of or arising out of or about this document and/or its contents.

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Client Sign-off

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# 1. Executive Summary

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This report illustrates the sustainability performance of Medius House in relation to the objectives set out within Camden's DP22 Promoting Sustainable Design and Construction Policy, in relation to BREEAM 2014 BREEAM Domestic Refurbishment (Sustainable Design).

**BREEAM DR:**

It has been established that the residential units currently have the potential to achieve a rating of Very Good.

The score currently achievable is **58.43%**, a rating of **VERY GOOD**.

# 2. Introduction

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Verte have been requested by Royal London Mutual Insurance Society to carry out a sustainability assessment of the redevelopment of Medius House, Holborn.

The report provides a status of the development’s performance with regards to London Borough of Camden Policy DP22 (and CPG3), and provides recommendations with regards to improving performance and meeting the necessary objectives. The content focuses on:

1. BREEAM Domestic Refurbishment Performance

The development proposals for Medius House are for a full conversion of the existing block in to residential dwellings and a vertical extension for the creation of additional dwellings bringing the total up to 20 flats, with a mix of 1, 2 and 3 bedroom units.

The re-use of the existing building is a more sustainable approach to creating much needed housing in the borough and will extend the building’s life considerably, removing the need for wholesale demolition.

Also, the ground floor common areas will provide 32 new secure cycle parking for the units.

All water fittings for both converted and new flats will meet 105 lt/person/year

Through the careful selection of materials and servicing strategies, the design team will lay a strategy to complete a sustainable domestic development in Camden, which will achieve a rating of Very Good under the BREEAM Domestic Refurbishment assessment methodology.

The following sections, detail the proposed development’s performance against the BREEAM Criteria.

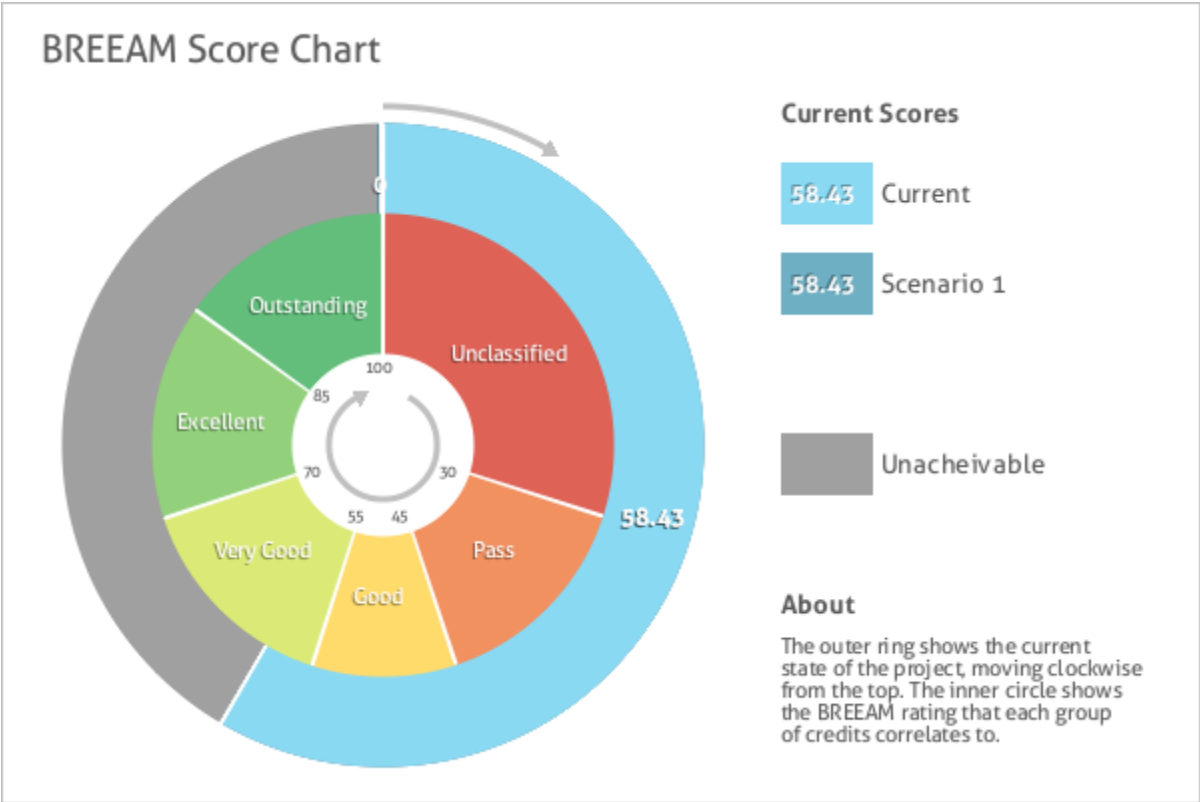
### 3. BREEAM Pre-Assessment Summary

This section is intended as a summary of the BREEAM pre-assessment review for Medius House. The development proposals have been assessed, particularly the comments during the pre-assessment meeting. The current achievable rating has been established as well a set of measures which can be targeted to enhance this rating further. A summary of the pre-assessment can be reviewed in the next section and a detailed BREEAM register within the Appendices.

#### a. Scoring scenarios – Commercial

It has been established that the development currently has the potential to achieve a rating of Very Good.

Current - The score currently predicted is **58.43%**, a rating of **VERY GOOD**.



### 4. Appendices

#### Pre-assessment Scoring / Residential

		Available	Predicted	Enhanced	Responsibility	Comments
Management						
Man 01	Home Users Guide	3	3	3	0	The design team has confirmed that a Home Users Guide will be provided and disseminated to future tenants. The guide will contain all information listed in the 'Home Users Guide Contents List', as detailed in the BREEAM Domestic Refurbishment manual Man 01 section. The requirements will be included in the contract Prelims.
Man 02	Responsible Construction Practices	2	2	2	0	The design team has confirmed that the construction management and implementation will be in line with the criteria set out under issue Man 02 in the BREEAM Domestic Refurbishment Manual. Two credits will be included as a requirement in the contract Prelims with 35-39 points in CCS to be achieved.
Man 03	Construction Site Impacts	1	1	1	0	The design team has confirmed that two or more of the sections a-d in the BREEAM Domestic Refurbishment Manual Checklist A-6 will be completed. Three credits will be included as a requirement in the contract Prelims.
Man 04	Security	2	1	1	0	The design team has confirmed that all new and retained External Doors and Accessible Windows will comply with the requirements set out under Compliance Note 6 in the BREEAM Domestic Refurbishment Manual under issue Man 04. New External Doors and Windows will be certified under the following: <ul style="list-style-type: none"><li>• External Door Sets: PAS 24:2007 or LPS1175 Issue 7 Security Rating 1</li><li>• Windows: BS 7950:1997 (36) or LPS1175 Issue 7 Security Rating 1</li></ul> Second credit: RPP advise that the scheme will comply with SbD and have already consulted with an ALO.
Man 05	Protection and Enhancement of Ecological Features	1	1	1	0	The design team has confirmed that, as the site is of low ecological value, a site survey to establish the presence of ecological features will be carried out by a member of the project team. The

						appropriate Checklist Man_05 will be completed by a project team member.
<b>Man 06</b>	Project Management	2	0	0	0	Not targeted.
<b>Management Totals:</b>		<b>11</b>	<b>8</b>	<b>8</b>	<b>0</b>	
<b>Management score totals:</b>		<b>12</b>	<b>8.73</b>	<b>8.727</b>	<b>0</b>	
<b>Health &amp; Wellbeing</b>						
<b>Hea 01</b>	Daylighting	2	0	0	0	Not targeted.
<b>Hea 02</b>	Sound Insulation	4	2	2	0	The design team has confirmed that sound testing will be carried out to ensure a neutral impact on the building's existing sound insulation properties. Two credits are anticipated to be achieved, for meeting Part E.
<b>Hea 03</b>	Volatile Organic Compounds	1	0	0	0	The design team has confirmed that internal finishes and fittings that emit high levels of volatile organic compounds will be avoided in the specification, in line with the criteria set out in the BREEAM Domestic Refurbishment Manual, issue Hea 03, although it cannot be established at this stage if compliance will be possible.
<b>Hea 04</b>	Inclusive Design	2	0	0	0	Not targeted.
<b>Hea 05</b>	Ventilation	2	1	1	0	GDM engineers advise that mechanical ventilation is being considered and that the minimum requirements will be met for 1 credit.
<b>Hea 06</b>	Safety	1	1	1	0	The requirements under this credit are mandatory for any BREEAM rating. The design team has confirmed that compliant fire and carbon monoxide detection systems will be installed, and will meet the following requirements: • Fire detection should be a Grade A, Category A, LD2 system, positioned in accordance with Approved Document B. • Carbon Monoxide detection systems should meet BS EN 50291- 1:2001 (40), positioned in accordance with BS EN 50292:2002.
<b>Health &amp; Wellbeing Totals:</b>		<b>12</b>	<b>4</b>	<b>4</b>	<b>0</b>	
<b>Health &amp; Wellbeing score totals:</b>		<b>17</b>	<b>5.67</b>	<b>5.667</b>	<b>0</b>	

<b>Energy</b>						
<b>Ene 01</b>	Improvement in Energy Efficiency Rating	6	2.5	2.5	0	Energy analysis carried out by GDM, indicates that the area averaged EER improvement will exceed 30. As such, at this stage 2.5 credits can be awarded.
<b>Ene 02</b>	Energy Efficiency Rating Post Refurbishment	4	3.5	3.5	0	Energy analysis carried out by GDM, indicates an area averaged EER of over 80. As such, at this stage 3.5 credits can be awarded, with the possibility of increasing this once the services strategy is finalised.
<b>Ene 03</b>	Primary Energy Demand	7	7	7	0	Energy analysis carried out by GDM, indicates an area averaged primary energy demand of under 120 (Avg 110.17). As such, at this stage 7 credits can be awarded, with the possibility of increasing this once the services strategy is finalised.
<b>Ene 04</b>	Renewable Technologies	2	0	0	0	The design team confirmed that no LZC technologies are being considered for this project.
<b>Ene 05</b>	Energy Labelled White Goods	2	1	1	0	RPP Architects have confirmed that, where supplied, appliances will be appropriately labelled OR where not supplied compliant information will be provided on the EU Energy Labelling Scheme.
<b>Ene 06</b>	Drying Space	1	0	0	0	RPP Architects advised that at this stage drying lines are not planned but could be considered as the design develops.
<b>Ene 07</b>	Lighting	2	2	2	0	GDM Engineers have confirmed that energy efficient lighting will be specified throughout the apartments. The internal lighting system will have an energy demand of no more than 9 watts/m2 of the total floor area, and external lighting will meet the requirements of Energy Efficient Space Lighting, as defined in the BREEAM Domestic Refurbishment Manual, Issue Ene 07.
<b>Ene 08</b>	Energy Display Devices	2	0	0	0	GDM Engineers advised that at this stage meters are not planned but could be considered as the design develops.
<b>Ene 09</b>	Cycle Storage	2	1	1	0	The design team has confirmed that communal compliant storage will be provided for a total of 32 cycles, to be located to the ground floor of the development's common space. The cycle storage will meet the requirements

						set out in the BREEAM Domestic Refurbishment Manual, issue Ene 09.
<b>Ene 10</b>	Home Office	1	1	1	0	RPP Architects have confirmed that the space and services necessary for tenants to be able to work from home will be provided within each apartment, with sufficient space and adequate ventilation, as specified in the BREEAM Domestic Refurbishment Manual, issue Ene 10. The room will incorporate the following services: • Two double power sockets • One telephone point • A window with an openable casement of no less than 0.5m2, and whose width or height is no less than 450mm.
<b>Energy Totals:</b>		<b>29</b>	<b>18</b>	<b>18</b>	<b>0</b>	
<b>Energy score totals:</b>		<b>43</b>	<b>26.69</b>	<b>26.69</b>	<b>0</b>	
<b>Water</b>						
<b>Wat 01</b>	Internal Water Use	3	2.5	2.5	0	RPP Architects have confirmed that internal water use attenuation measures will be implemented. Although a number of options are available to achieve two credits for this issue, Verte recommend the following specification for bathrooms only: • Kitchen taps with a flow rate of 5 litres per minute or less • Bathroom taps with a flow rate of 3 litres per minute or less • Showers with a flow rate of 8 litres per minute or less • Baths with a capacity of no more than 140 litres to overflow • WCs with an effective flushing volume of 3 litres • Dishwashers with a consumption of no more than 12 litre per cycle. • Washing machines with a consumption of no more than 40 litres per use. In addition, the calculated water consumption should meet the target of <105 litres per person resident in the dwelling, per day.
<b>Wat 02</b>	External Water Use	1	1	1	0	No external spaces, awarded by default.
<b>Wat 03</b>	Water Meter	1	0	0	0	Not targeted.
<b>Water Totals:</b>		<b>5</b>	<b>3.5</b>	<b>3.5</b>	<b>0</b>	
<b>Water score totals:</b>		<b>11</b>	<b>7.7</b>	<b>7.7</b>	<b>0</b>	

<b>Materials</b>						
<b>Mat 01</b>	Environmental Impact of Materials	25	10	10	0	At this stage of the project, for a conversion development, it is assumed that a minimum of 10 out of 25 credits will be achievable.
<b>Mat 02</b>	Responsible Sourcing of Materials	15	7	7	0	RPP Architects confirm that the contractor will be required to complete Checklist A9 - 3 credits. In addition, all timber will be sourced in accordance with UK Gov Timber policy.  At this stage of the project, for a conversion development, it is assumed that a minimum of 5 out of 15 credits will be achievable.
<b>Mat 03</b>	Insulation	8	4	4	0	RPP Architects confirm that where thermal insulation is required, responsibly sourced materials with a low embodied environmental impact relative to its thermal properties will be specified in line with the requirements laid out in the BREEAM Domestic Refurbishment Manual, issue Mat 03. Most Kingspan/Isover products will be compliant for both sets of criteria, with exception of Styrozone (Kingspan).
<b>Materials Totals:</b>		<b>48</b>	<b>21</b>	<b>21</b>	<b>0</b>	
<b>Materials score totals:</b>		<b>8</b>	<b>3.5</b>	<b>3.5</b>	<b>0</b>	
<b>Waste</b>						
<b>Wst 01</b>	Household Waste	2	1	1	0	The design team has confirmed that household recycling facilities will be provided, thus diverting household waste from landfill or incineration. Camden Council operate a recycling service where waste is collected and sorted post-collection, thus a single recycling container with a capacity of no less than 30 litres, installed in a fixed location in each dwelling will be sufficient to gain one credit for this issue.
<b>Wst 02</b>	Refurbishment Site Waste Management	3	3	3	0	The design team has confirmed that a Site Waste Management Plan will be implemented by the contractor, and that the best practice waste benchmarks detailed in the BREEAM Domestic Refurbishment Manual under issue Was 02 for projects over £300k in value will be met for three credits to be achieved. The requirements will be included in the Prelims documentation.

<b>Waste Totals:</b>		<b>5</b>	<b>4</b>	<b>4</b>	<b>0</b>	
<b>Waste score totals:</b>		<b>3</b>	<b>2.4</b>	<b>2.4</b>	<b>0</b>	
<b>Pollution</b>						
<b>Pol 01</b>	Nitrogen Oxide Emissions	3	2	2	0	The design team has confirmed that efforts will be made to reduce the emission of nitrogen oxides into the atmosphere, arising from the operation of space heating and hot water systems. Where these emissions are equal to or lower than 70mg/kWh, two credits are achievable.
<b>Pol 02</b>	Surface Water Runoff	3	1	1	0	The design team has confirmed that credits for this issue will be targeted for a neutral impact on surface water run-off. As the development does not involve any extension work, one credit is achievable where any new hard standing areas are constructed from permeable materials.
<b>Pol 03</b>	Flooding	2	2	2	0	The location post code is in a low flood risk zone according to the EA Flood Risk Maps. The design team have confirmed that an FRA will be commissioned at a later date.
<b>Pollution Totals:</b>		<b>8</b>	<b>5</b>	<b>5</b>	<b>0</b>	
<b>Pollution score totals:</b>		<b>6</b>	<b>3.75</b>	<b>3.75</b>	<b>0</b>	
<b>OVERALL SCORE TOTALS:</b>		<b>112</b>	<b>58.43</b>	<b>58.43</b>	<b>0</b>	